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**THE EFFECT OF THE WORLD WAR
UPON THE COMMERCE AND
INDUSTRY OF JAPAN**

**ECONOMIC AND SOCIAL HISTORY
OF THE WORLD WAR**

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JAPANESE SERIES

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THE EFFECT OF THE WORLD
WAR UPON THE COMMERCE
AND INDUSTRY OF JAPAN

COMMERCE

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EDITOR'S PREFACE

IN the autumn of 1914, when the scientific study of the effects of war upon modern life passed suddenly from theory to history, the Division of Economics and History of the Carnegie Endowment for International Peace proposed to adjust the program of its researches to the new and altered problems which the War presented. The existing program, which had been prepared as the result of a conference of economists held at Berne in 1911, and which dealt with the facts then at hand, had just begun to show the quality of its contributions; but for many reasons it could no longer be followed out. A plan was therefore drawn up at the request of the Director of the Division, in which it was proposed, by means of an historical survey, to attempt to measure the economic cost of the War and the displacement which it was causing in the processes of civilization. Such an "Economic and Social History of the World War," it was felt, if undertaken by men of judicial temper and adequate training, might ultimately, by reason of its scientific obligations to truth, furnish data for the forming of sound public opinion, and thus contribute fundamentally toward the aims of an institution dedicated to the cause of international peace.

The need for such an analysis, conceived and executed in the spirit of historical research, was increasingly obvious as the War developed, releasing complex forces of national life not only for the vast process of destruction, but also for the stimulation of new capacities for production. This new economic activity, which under normal conditions of peace might have been a gain to society, and the surprising capacity exhibited by the belligerent nations for enduring long and increasing loss—often while presenting the outward semblance of new prosperity—made necessary a reconsideration of the whole field of war economics. A double obligation was therefore placed upon the Division of Economics and History. It was obliged to concentrate its work upon the problem thus presented, and to study it as a whole; in other words, to apply to it the tests and disciplines of history. Just as the War itself was a single event, though penetrating by seemingly unconnected ways to the remotest parts of the world, so the analysis of it must be developed

according to a plan at once all embracing and yet adjustable to the practical limits of the available data.

During the actual progress of the War, however, the execution of this plan for a scientific and objective study of war economics proved impossible in any large and authoritative way. Incidental studies and surveys of portions of the field could be made and were made under the direction of the Division, but it was impossible to undertake a general history for obvious reasons. In the first place, an authoritative statement of the resources of belligerents bore directly on the conduct of armies in the field. The result was to remove as far as possible from scrutiny those data of the economic life of the countries at war which would ordinarily, in time of peace, be readily available for investigation. In addition to this difficulty of consulting documents, collaborators competent to deal with them were for the most part called into national service in the belligerent countries and so were unavailable for research. The plan for a war history was therefore postponed until conditions should arise which would make possible not only access to essential documents, but also the coöperation of economists, historians, and men of affairs in the nations chiefly concerned, whose joint work would not be misunderstood either in purpose or in content.

Upon the termination of the War, the Endowment once more took up the original plan, and it was found with but slight modification to be applicable to the situation. Work was begun in the summer and autumn of 1918. In the first place a final conference of the Advisory Board of Economists of the Division of Economics and History was held in Paris, which limited itself to planning a series of short preliminary surveys of special fields. Since, however, the purely preliminary character of such studies was further emphasized by the fact that they were directed more especially toward those problems which were then fronting Europe as questions of urgency, it was considered best not to treat them as part of the general survey, but rather as of contemporary value in the period of war settlement. It was clear that not only could no general program be laid down *a priori* by this conference as a whole, but that a new and more highly specialized research organization than that already existing would be needed to undertake the Economic and Social History of the World War, one based more upon national grounds in the first instance, and less upon purely international coöperation. Until the facts of

national history could be ascertained, it would be impossible to proceed with comparative analysis; and the different national histories were themselves of almost baffling intricacy and variety. Consequently the former European Committee of Research was dissolved, and in its place it was decided to erect an Editorial Board in each of the larger countries and to nominate special editors in the smaller ones, who should concentrate, for the present at least, upon their own economic and social war history.

The nomination of these boards by the General Editor was the first step taken in every country where the work has begun. And if any justification were needed for the plan of the Endowment, it at once may be found in the lists of those, distinguished in scholarship or in public affairs, who have accepted the responsibility of editorship. This responsibility is by no means light, involving as it does the adaptation of the general editorial plan to the varying demands of national circumstances or methods of work; and the measure of success attained is due to the generous and earnest coöperation of those in charge in each country.

Once the editorial organization was established, there could be little doubt as to the first step which should be taken in each instance toward the actual preparation of the history. Without documents there can be no history. The essential records of the War, local as well as central, have therefore to be preserved and to be made available for research in so far as is compatible with public interest. But this archival task is a very great one, belonging of right to the Governments and other owners of historical sources and not to the historian or economist who proposes to use them. It is an obligation of ownership; for all such documents are public trust. The collaborators on this section of the War History, therefore, working within their own field as researchers, could only survey the situation as they found it and report their findings in the forms of guides or manuals; and perhaps, by stimulating a comparison of methods, help to further the adoption of those found to be most practical. In every country, therefore, this was the point of departure for actual work; although special monographs have not been written in every instance.

The first stage of the work upon the War History, dealing with little more than the externals of archives, seemed for a while to exhaust the possibilities of research, and had the plan of the history been limited to research based upon official documents, little more

could have been done, for once documents have been labeled "secret" few government officials can be found with sufficient courage or initiative to break open the seal. Thus vast masses of source material essential for the historian were effectively placed beyond his reach, although much of it was quite harmless from any point of view. While war conditions thus continued to hamper research, and were likely to do so for many years to come, some alternative had to be found.

Fortunately such an alternative was at hand in the narrative, amply supported by documentary evidence, of those who had played some part in the conduct of affairs during the War, or who, as close observers in privileged positions, were able to record from first or at least second-hand knowledge the economic history of different phases of the Great War, and of its effect upon society. Thus a series of monographs was planned consisting for the most part of unofficial yet authoritative statements, descriptive or historical, which may best be described as about halfway between memoirs and blue-books. These monographs make up the main body of the work assigned so far. They are not limited to contemporary war-time studies; for the economic history of the War must deal with a longer period than that of the actual fighting. It must cover the years of "deflation" as well, at least sufficiently to secure some fairer measure of the economic displacement than is possible in purely contemporary judgments.

With this phase of the work, the editorial problems assumed a new aspect. The series of monographs had to be planned primarily with regard to the availability of contributors, rather than of source material as in the case of most histories; for the contributors themselves controlled the sources. This in turn involved a new attitude toward those two ideals which historians have sought to emphasize, consistency and objectivity. In order to bring out the chief contribution of each writer it was impossible to keep within narrowly logical outlines; facts would have to be repeated in different settings and seen from different angles, and sections included which do not lie within the strict limits of history; and absolute objectivity could not be obtained in every part. Under the stress of controversy or apology, partial views would here and there find their expression. But these views are in some instances an intrinsic part of the history itself, contemporary measurements of facts as significant as the

facts with which they deal. Moreover, the work as a whole is planned to furnish its own corrective; and where it does not, others will.

In addition to the monographic treatment of source material, a number of studies by specialists are already in preparation, dealing with technical or limited subjects, historical or statistical. These monographs also partake to some extent of the nature of first-hand material, registering as they do the data of history close enough to the source to permit verification in ways impossible later. But they also belong to that constructive process by which history passes from analysis to synthesis. The process is a long and difficult one, however, and work upon it has only just begun. To quote an apt characterization, in the first stages of a history like this, one is only "picking cotton." The tangled threads of events have still to be woven into the pattern of history; and for this creative and constructive work different plans and organizations may be needed.

In a work which is the product of so complex and varied coöperation as this, it is impossible to indicate in any but a most general way the apportionment of responsibility of editors and authors for the contents of the different monographs. For the plan of the History as a whole and its effective execution the General Editor is responsible; but the arrangement of the detailed programs of study has been largely the work of the different Editorial Boards and divisional Editors, who have also read the manuscripts prepared under their direction. The acceptance of a monograph in this series, however, does not commit the editors to the opinions or conclusions of the authors. Like other editors, they are asked to vouch for the scientific merit, the appropriateness and usefulness of the volumes admitted to the series; but the authors are naturally free to make their individual contributions in their own way. In like manner the publication of the monographs does not commit the Endowment to agreement with any specific conclusions which may be expressed therein. The responsibility of the Endowment is to History itself—an obligation not to avoid but to secure and preserve variant narratives and points of view, in so far as they are essential for the understanding of the War as a whole.

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The Japanese Series in this War History constitutes one of the most important sections of the entire survey, for it contains the only

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record that has been attempted of the entire effect of the War upon the social and economic life of Japan. Years of careful study and of research have gone into the making of these volumes to which scholars of Japan of the highest competence have devoted their best energies.

From its inception the Division of Economics and History of the Carnegie Endowment has had as the head of its Japanese Research Committee, His Excellency, Baron Sakatani, who has gathered around him a group of experts for the study of the causes and effects of war in modern society. When the Economic and Social History of the World War was planned, this Research Committee became a part of the directing organization of the History and had already its material for the Japanese volumes well in hand when the Japanese earthquake occurred in 1923 and not only destroyed much of the documentation but so dislocated the economic life of Japan as to make more difficult than ever the measurement of economic forces concerning the World War. The material had largely to be written anew or rewritten, and then the difficulties of translation and adaptation to the Western reader added new delays, so that the Japanese Series, although begun early in the post-war years, appears only after the passage of a decade.

For the student of world economy there is a wealth of suggestion in the data of these volumes showing how far-reaching is the disturbance of modern war in industrialized countries with their interdependent interests and how temporary are the advantages of the speculative industries dependent upon the forced markets of war. But while the effects of the War upon Japan furnish another chapter to the universal argument for peace which lies in this whole history, the Japanese authors have enriched the survey by including much more than the direct effects of war itself. It is an era in the general economic history of Japan which is here depicted, and so the material should prove a mine of reference data to American or British readers not only for the problem of war history but for its setting in history as a whole. Thus in conception these volumes are part of a lasting national record, as they are in execution a notable scientific achievement.

J. T. S.

AUTHOR'S PREFACE

WHEN the Japanese Committee of the Carnegie Endowment for International Peace decided to study the effects of the World War upon economic conditions in Japan, I took charge of the section relating to commerce. I limited the sphere of action to five fields, foreign trade, foreign exchange, home trade, the stock market, and prices. The survey was made in two separate groups of studies, those dealing with the period down to and including 1918, and those dealing with the first post-war years. In both the collecting of material and its preliminary handling I was able to secure the collaboration of experts. In the case of the first series of studies I assigned home and foreign trade to Mr. T. Yagi of the Department of Agriculture and Commerce; foreign exchange to Mr. J. Nakanishi of the Bank of Japan; the stock market to Mr. Y. Kawai, Managing Director of the Tokyo Stock Exchange; and prices to Mr. T. Yumoto, of the Department of Finance. From their reports I selected those parts which seemed most pertinent. And, by arranging and unifying them, I produced those sections of this volume which carry the study down to the end of the War. Upon the period that followed I had the help of Mr. Seiji Tokunaga, Hokakushi, of the Department of Finance, who is also highly qualified for the discharge of the duties involved.

K. Y.

NOTE ON
JAPANESE WEIGHTS AND MEASURES
USED IN THIS VOLUME

1 <i>cho</i>	= 2.45 acres
1 <i>kwan</i>	= 8.27 pounds
1 <i>momme</i>	= 1/1000 of a <i>kwan</i>
1 <i>kin</i>	= 1.32 pounds
1 <i>koku</i>	= 4.96 bushels
1 <i>yen</i>	= 49.8 cents
1 <i>sen</i>	= 1/100 of a <i>yen</i>
1 <i>rin</i>	= 1/1000 of a <i>yen</i>

I
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COMMERCE OF JAPAN

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I
THE EFFECT OF THE WORLD WAR UPON
THE COMMERCE OF JAPAN

BY KAKUJIRO YAMASAKI, D.C.L.

PART I. DURING THE WAR

CHAPTER I.

FOREIGN TRADE

1. General Remarks.

i. The Historical Development of the Foreign Trade of Japan.

WHEN Japan first entered the field of foreign trade she was economically almost self-sufficient. Her people had little taste for foreign products. Imports were of comparatively small account and volume, and Japanese products which could be exported consisted of only a few kinds of raw materials. And, roughly, it may be said that this continued to be true until the war with China.

After the Sino-Japanese War, the Japanese began to believe in the possibilities of overseas expansion. Moreover, their contact with Occidental civilization for the past 30 years had stimulated their demand for foreign goods. In this period the manufacturing industry of Japan also began to develop, and it became necessary to secure raw materials, machinery, and the materials for the construction of means of communication. Consequently, import trade underwent a rapid development; and export trade thrived with it. The combined total grew from approximately ¥230,000,000 in 1895 to ¥600,000,000 in 1903. But, great as was the ratio of increase, this was hardly true of the absolute volume of trade.

When Japan went to war with Russia in 1904 and gained a succession of victories, the Japanese were naturally elated, and they plunged into economic enterprises and foreign trade. It was then that there were laid the foundations of Japan as a commercial and industrial state. While her total foreign trade had amounted to some ¥600,000,000 the year before the Russo-Japanese War, it increased about 15 per cent in the following year; and in 1905 it amounted to ¥810,000,000. It was a growth that went unchecked even after war had ended; the value of both imports and exports increased steadily. In the development of Japanese commerce and industry, the war with Russia had been epoch-marking. There was a break in 1908 and 1909 in consequence of the economic crisis in the United States and for other reasons. But the value of the foreign trade of Japan had increased to ¥1,360,000,000 by 1913.

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During the World War it experienced an unprecedented development. This was due to the War. But at the same time it may be said that it was also the ripened fruit of Japanese efforts for the past 40 years. In any case, a foreign trade of ¥1,180,000,000 in 1914, had become more than three times as great in 1918, that is, ¥3,630,000,000. And it may be pointed out that in this period the development of exports was far greater than that of imports. From the first year of Meiji (1868), the foreign trade of Japan had generally resulted in an unfavorable balance; and the total excess of imports for the 47 years from the first year of Meiji to 1914 amounted roughly to ¥1,070,000,000. By the increase in exports in the war period, this great sum was offset, leaving an export balance of several hundred million yen. This may be seen in the following table:

Total Value of Exports and Imports, 1903-1918.¹

<i>Year</i>	<i>Exports</i>	<i>Imports</i>	<i>Total of Exports and Imports</i>	<i>Excess of Exports over Imports</i>	<i>Excess of Imports over Exports</i>
1903	¥ 289,502,442	¥ 317,185,518	¥ 606,687,960	¥	¥ 27,683,076
1904	819,260,896	371,360,788	690,621,584	. . . . .	52,099,842
1905	321,533,610	488,588,017	810,071,627	. . . . .	167,004,407
1906	423,754,892	418,784,108	842,539,000	4,970,784	. . . . .
1907	432,412,873	494,467,846	926,880,219	. . . . .	62,054,473
1908	378,245,678	436,257,462	814,503,135	. . . . .	58,011,789
1909	418,112,511	394,198,843	807,311,354	18,913,668	. . . . .
1910	458,428,996	464,233,808	922,662,804	. . . . .	5,804,812
1911	447,433,888	513,305,705	961,239,593	. . . . .	66,371,817
1912	526,981,842	618,992,277	1,145,974,119	. . . . .	92,010,435
1913	632,460,213	729,431,644	1,361,891,857	. . . . .	96,971,431
1914	591,101,461	595,735,725	1,186,837,186	. . . . .	4,634,264
1915	708,306,997	532,449,933	1,240,756,930	175,857,059	. . . . .
1916	1,127,468,113	756,427,910	1,883,896,023	371,040,208	. . . . .
1917	1,603,005,043	1,035,811,107	2,638,816,150	567,193,941	. . . . .
1918	1,962,100,668	1,668,143,833	3,630,244,501	293,956,668	. . . . .

In addition to the remarkable increase in the volume of trade in this period, and the excess of exports over imports, reversing the former unfavorable balance of trade, we may likewise indicate these two points:

(1) In exports, the percentage of raw materials and foodstuffs decreased and that of articles wholly manufactured increased. In im-

¹ This table and tables to follow do not include trade with Japan's colonies.

ports, the percentage of articles wholly manufactured decreased while that of raw materials and foodstuffs increased. And from these facts we can conclude that the export trade of Japan did not merely increase in volume. It also improved in content and in quality.

(2) In pre-war years, most of Japan's exports went to the United States, China, Great Britain, and the South Seas; and the bulk of her imports came from Great Britain, British India, the United States, Germany, Australia, etc. During the war period, Japan both exported to, and imported from, almost all parts of the world.

Value of Exports, 1903-1918, in Classes of Commodities.

(in ¥1,000)

	<i>Foodstuffs</i>	<i>Raw materials</i>	<i>Goods partly manu- factured</i>	<i>Goods wholly manu- factured</i>	<i>Miscel- laneous</i>	<i>Total</i>
1903	24,561	20,484	126,774	80,832	6,850	289,502
1904	27,252	25,638	149,409	99,416	7,446	319,261
1905	43,198	27,484	125,846	103,011	11,995	321,534
1906	50,899	24,126	127,529	124,615	16,586	423,755
1907	44,695	43,690	198,929	142,254	2,345	482,413
1908	40,979	41,300	170,284	121,228	4,255	378,246
1909	48,520	26,902	200,915	122,571	4,195	412,113
1910	51,487	40,184	225,024	127,220	4,294	458,429
1911	52,088	40,054	212,988	127,290	5,014	447,434
1912	55,012	44,461	265,042	155,721	6,725	526,983
1913	62,142	51,240	228,084	124,914	5,980	632,460
1914	63,525	45,492	206,260	167,890	7,227	591,104
1915	80,117	45,422	222,401	242,867	16,499	708,307
1916	104,556	59,014	540,986	280,722	42,251	1,127,480
1917	172,127	81,484	725,577	588,155	25,602	1,603,005
1918	210,762	101,822	757,262	852,822	29,020	1,962,700

Turning to imports, foodstuffs decreased gradually in volume and in percentage until 1917. But from then on there was a change, owing to the sudden rise in the home demand for rice. In 1918, imports of food amounted to ¥170,000,000, breaking the record.

In the case of imports of raw materials, the story was very different. Generally speaking, Japan is deficient in raw materials, except for coal and copper. As a matter of course, therefore, the progress of her manufacturing industries meant an increased import of raw materials. As this increase continued, such imports came to occupy first place among the imports of Japan. Partly finished manufac-

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Value of Imports, 1903-1918, by Classes of Commodities.

(in ₹1,000)

	<i>Foodstuffs</i>	<i>Raw materials</i>	<i>Goods partly manufactured</i>	<i>Goods wholly manufactured</i>	<i>Miscellaneous</i>	<i>Total</i>
1908	108,540	97,914	48,069	68,129	4,484	817,186
1904	112,220	115,871	50,611	87,978	5,181	871,861
1905	97,059	159,922	92,584	181,008	8,020	488,588
1906	79,806	185,876	77,090	119,150	7,862	418,784
1907	78,658	187,682	98,007	182,985	2,185	494,467
1908	68,281	158,428	84,009	127,128	8,411	486,257
1909	51,408	169,205	71,752	99,458	2,881	894,199
1910	44,989	281,849	82,852	102,514	2,580	464,284
1911	51,625	281,714	100,407	126,859	8,701	518,806
1912	72,054	299,854	122,805	121,170	8,608	618,991
1918	120,582	858,542	126,927	124,029	4,852	729,482
1914	78,740	828,741	96,258	87,248	4,758	595,785
1915	88,141	289,886	98,877	51,478	4,628	582,450
1916	81,447	481,904	201,561	85,001	6,514	756,427
1917	86,845	564,610	322,507	108,686	8,144	1,085,792
1918	175,507	855,147	457,648	169,859	10,482	1,668,188

tures show the same tendencies. But the import of articles wholly manufactured followed a different trend. The latter increased somewhat in volume, but year by year the percentage decreased.

To repeat, the fact that raw materials increased in import and decreased in export, while articles wholly manufactured decreased in import and increased in export is indicative of the development of manufacturing industry in Japan. As for the fact that foodstuffs have shown this recent and remarkable increase, both in exports and imports, this raises an interesting question, not only from the standpoint of foreign trade, but also from that of Japan's food problems. But we shall not now attempt to decide the question whether the Japanese will eventually be obliged to modify their national diet. We shall merely say that Japan's foreign trade has gradually improved in quality, and that she has similarly developed as an industrial state.

ii. Growth of Japan's Foreign Market.

In the following table, the values of exports and imports of merchandise are classified according to countries:

FOREIGN TRADE

7

Merchandise Exported from and Imported into Japan by Foreign Countries.

(in yen)

	<i>Average annual total of Exports and Imports, 1915-1918, inclusive</i>	<i>Total value of Exports and Imports, 1918</i>	<i>Increase</i>	<i>Decrease</i>
<i>Asia</i>				
China	405,207,824	215,888,466	189,824,858	.....
Kwantung Province	114,284,742	60,714,289	58,520,508	.....
Hongkong	47,124,884	84,916,727	12,207,657	.....
British India	809,220,685	208,047,275	106,178,410	.....
Straits Settlements	40,449,409	15,846,572	25,102,887	.....
Dutch Indies	57,622,495	42,527,948	15,084,552	.....
French Indo-China	21,182,950	25,755,088	.....	3,572,188
Asiatic Russia	80,986,089	5,021,899	75,914,140	.....
Philippine Islands	27,294,880	18,981,889	18,868,441	.....
Siam	6,758,492	6,828,417	.....	74,925
Other Countries	288,286	.....	288,286	.....
Total	1,111,810,186	628,988,015	487,827,121	.....
<i>Europe</i>				
Great Britain	196,468,045	155,606,627	40,856,418	.....
France	90,698,258	66,058,611	24,684,642	.....
Germany	4,002,887	81,526,507	.....	77,524,120
Belgium	182,808	18,158,615	.....	12,970,812
Italy	9,616,176	80,494,584	.....	20,878,408
Switzerland	2,872,680	2,117,182	255,498	.....
Austria-Hungary	82,848	4,827,554	.....	4,794,706
Holland	991,712	1,479,446	.....	487,734
Sweden	6,766,844	5,168,484	1,602,920	.....
Norway	8,972,875	4,988,868	8,841,277	.....
Russia	15,510,981	4,988,868	10,572,568	.....
Spain	888,185	787,868	100,267	.....
Denmark	406,181	589,857	.....	188,226
Turkey	82,228	209,548	.....	177,825
Portugal	24,414	81,811	198,966	6,897
Other Countries	198,966
Total	882,099,988	867,515,605	85,415,672

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	<i>Average annual total of Exports and Imports, 1915-1918, inclusive</i>	<i>Total value of Exports and Imports, 1913</i>	<i>Increase</i>	<i>Decrease</i>
<i>North America</i>				
United States	711,849,878	806,881,748	404,468,185	.....
Canada	18,720,148	6,929,444	11,790,704	.....
Mexico	298,808	581,258	.....	237,945
Other Countries	1,298,660	.....	1,298,660	.....
Total	781,656,994	814,842,440	417,814,554	.....
<i>South America</i>				
Peru	1,201,667	117,777	1,088,890	.....
Chile	9,561,248	2,904,880	6,656,868	.....
Argentina	10,818,985	1,480,089	9,888,896	.....
Brazil	1,085,562	.....	1,085,562	.....
Other Countries	872,878	.....	872,878	.....
Total	28,489,880	4,452,746	19,087,084	.....
<i>Africa</i>				
Egypt	20,725,286	8,514,807	12,210,979	.....
Cape Colony and Natal	19,678,625	520,220	19,158,405	.....
Other Countries	8,887,274	.....	8,887,274	.....
Total	48,791,185	9,084,527	84,756,658	.....
Australia	72,995,585	28,581,119	49,414,466	.....
New Zealand	4,022,444	.....	4,022,444	.....
Hawaii	6,968,969	5,082,649	1,881,820	.....
Other Countries	6,779,510	9,045,081	.....	2,765,571
Total	90,761,508	87,708,849	58,052,659	.....
Temporarily in Warehouse	12,129,887	8,941,888	8,187,954	.....
Unknown	8,189,481	918,292	2,276,189	.....
Grand Total	2,848,428,404	1,861,891,857	986,586,547	.....

Comparing the war period—1915 to 1918—with that of 1913, we find that Japan's trade with Europe decreased, roughly, by 10 per cent, but with Asia it increased by 78 per cent. Trade with North America increased by 133 per cent, that with South America by 427 per cent, and that with Africa by 385 per cent.

The falling off of European trade was due to the War, while the increase elsewhere was caused by the stoppage of importation of European goods, and to the sudden increase of demand for raw materials to be used for Japanese manufactures. Above all, the expansion of the Japanese foreign market is indicated by the rapid growth of trade with South America, Africa, and North America. It will also be seen that trade with China, British India, and Great Britain, which, in the case of Japan, stands first, increased during the War.

2. Export Trade.

The following tables show the principal Japanese exports which increased or decreased during the War. According to these tables, only five articles of export declined in importance; all others increased.

Principal Japanese Exports which Increased during the War.

(in ¥1,000)

	1915	1916	1917	1918	1915	Average annual Increase Export 1915-1918	over 1915
Rice	9,877	11,198	14,668	8,322	6,592	10,965	4,378
Beans and peas	9,048	16,140	33,681	55,861	26,384	28,674	2,290
Sea foods	10,228	12,487	14,190	17,099	1,565	18,501	11,985
Tea	15,402	16,082	21,756	23,056	8,999	19,074	10,076
Sugar, refined	11,808	16,422	26,151	28,252	8,576	19,408	15,881
Beer	1,481	2,748	4,869	7,878	8,402	4,180	778
Isinglass	1,706	2,447	1,955	2,969	496	2,269	1,774
Bottled or canned food	8,644	5,247	7,880	9,668	8,167	6,468	8,321
Waste silk	5,952	10,480	16,549	27,012	4,527	14,999	10,471
Coal	19,287	20,406	26,454	82,009	896	24,527	28,629
Wood	8,090	12,318	14,785	17,905	6,699	18,249	9,550
Colza oil	2,897	3,765	8,992	7,162	8,111	4,454	1,943
Fish oil and whale oil	2,286	3,885	8,625	4,996	51	8,586	8,484
Sulphur	2,488	6,216	6,147	8,569	2,623	4,604	1,951
Camphor	8,475	6,288	5,801	8,686	2,458	4,688	2,286
Raw silk	152,081	267,087	355,150	870,387	97,228	286,140	168,917
Cotton yarns	66,211	77,592	108,182	158,800	81,568	102,561	70,997
Copper (ingot and sheet)	44,264	66,119	87,491	37,749	80,728	58,907	28,184
Zinc (ingot and sheet)	.....	19,251	20,946	9,067	16,422	16,422	.....
Matches	14,717	21,108	24,586	27,748	10,178	22,087	11,865
Habutae (silk piece goods)	88,557	41,276	47,482	70,178	14,491	49,878	84,882
Cotton fabrics	88,511	60,051	127,458	287,918	62,378	115,958	83,606
Woolen fabrics	18,596	9,409	7,886	11,658	11,076	11,761	686
Handkerchiefs of silk	2,788	4,325	4,662	8,980	174	5,175	5,001
Cotton towels	2,045	8,266	8,010	8,859	279	2,920	2,646
Tablecloths	1,928	2,898	2,680	1,684	1,266	2,898	1,182

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	1915	1916	1917	1918	1913	<i>Average</i> <i>annual increase</i> <i>Export over</i>	
						1915-1918	1913
Cotton undershirts and drawers, knitted	10,718	28,884	16,719	18,671	9,888	18,736	8,847
Other cotton knitted goods	1,646	5,194	9,546	13,627	5,489	7,508	2,014
Hats, caps, and bonnets	8,809	6,664	5,982	6,716	48	5,667	5,619
Buttons	4,008	7,517	10,288	11,918	5,114	8,426	8,312
Paper	4,346	9,784	16,095	28,469	11,577	14,678	8,096
China and earthenware	6,958	12,104	14,474	19,968	6,785	13,372	6,588
Glass and glass manufactures	5,878	10,897	14,460	16,080	8,384	11,708	8,319
Umbrellas and parasols, European	1,526	2,186	2,305	3,779	618	2,449	1,880
Toys	4,538	7,640	8,410	10,180	5,208	7,898	2,490
Leather manufactures	12,957	6,336	6,746	6,195	7,329	8,055	726

Principal Japanese Exports which Decreased during the War.

(in ¥1,000)

	<i>Sake</i>	<i>Menthol crystal</i>	<i>Braids for hat-making</i>	<i>Hanagoza</i>	<i>Lacquered wares</i>
1915	1,776	1,805	14,131	2,281	566
1916	2,080	2,411	16,818	2,863	1,102
1917	2,164	1,594	18,171	2,180	1,049
1918	2,676	1,544	11,996	2,906	951
Average Annual Export, 1915-1918	2,162	1,887	15,154	2,557	917
1913	2,198	2,878	15,691	4,054	1,184
Decrease below 1913	87	1,084	587	1,497	217

Comparing the average values of exports during the war period (from 1915 to 1918), as classified by continents, with those in the pre-war year 1913, exports to Asia increased by 125 per cent, those to Europe by 66 per cent, those to North America 113 per cent, those to South America by 629 per cent, and those to Africa by 1,002 per cent.

The increase of exports to Europe was due to a series of Allied orders for war materials and other goods; and the increase of those to Asia, to North and South America, and to Africa were caused by a demand for Japanese goods to take the place of imports that had formerly come from Europe.

(in yen)

					Average annual		Comparison		
	1915	1916	1917	1918	Export, 1915-1918	1915	Increase	Decrease	
<i>Asia</i>									
China	141,122,586	192,712,626	818,880,580	859,150,814	252,841,689	154,660,428	98,181,211	.....
Kwantung Province	22,200,802	87,059,910	65,724,888	116,881,174	60,841,681	29,886,845	80,505,886	.....
Hongkong	27,401,846	84,980,507	57,176,210	68,692,497	45,812,640	88,627,978	12,190,662	.....
British India	42,202,460	71,617,554	101,864,154	202,522,279	104,426,587	29,878,414	74,558,178	.....
Straits Settlements	12,689,628	18,458,874	28,028,558	42,208,858	25,882,728	10,141,558	15,191,170	.....
Dutch Indies	8,487,986	17,418,587	86,245,840	71,677,581	88,444,849	5,148,686	28,296,168	.....
French Indo-China	687,846	1,869,828	8,766,169	10,080,960	4,076,075	1,055,194	8,020,881	.....
Asiatic Russia	78,299,178	117,698,478	74,284,145	40,056,744	77,570,886	4,271,418	78,299,478	.....
Philippine Islands	7,771,471	11,490,578	16,868,278	28,500,684	14,904,751	6,288,556	8,624,195	.....
Siam	772,789	2,111,067	2,207,628	6,076,969	2,798,850	1,085,298	1,758,057	.....
Other countries	48,855	78,820	120,801	275,141	128,254	.....	128,254	.....
Total	341,534,892	505,486,669	704,111,051	985,578,651	621,676,440	275,927,865	845,748,575	.....
<i>Europe</i>									
Great Britain	68,494,011	102,657,565	202,646,125	142,866,869	129,166,018	82,869,657	96,296,861	.....
France	42,298,282	64,006,608	97,820,708	142,199,068	86,579,902	60,229,619	26,850,288	.....
Germany	5	.....	.....	.....	1	18,181,709	.....	18,181,708
Belgium	.....	.....	.....	.....	.....	8,705,592	.....	8,705,592
Italy	8,011,668	8,872,898	17,958,094	11,577,197	9,108,589	29,416,729	.....	20,818,140
Switzerland	44,867	89,825	144,615	555,545	195,968	822,187	.....	126,224
Austria-Hungary	.....	.....	.....	.....	.....	987,587	.....	987,587
Holland	42,081	112,528	104,986	1	64,878	669,848	.....	604,470
Sweden	185,947	268,278	17,058	48,187	118,105	78,920	44,185	.....
Norway	1,171	10,072,167	2,015,755	1,625	8,022,679	4,814	8,018,865	.....
Russia	11,289,224	88,421,097	18,514,547	162,268	14,584,284	4,897,420	9,686,864	.....
Spain	849,529	1,498,675	524,225	187,012	689,860	488,048	206,812	.....
Denmark	452,864	409,081	891,944	50	818,485	885,564	.....	22,079
Turkey	2,198	19,650	.....	.....	5,461	188,801	.....	178,840
Portugal	18,260	17,851	88,147	10,470	18,557	15,041	8,516	.....
Other countries	8,894	54,016	16,866	648,781	180,764	.....	180,764	.....
Total	126,086,896	216,448,729	885,182,520	298,256,518	248,998,541	147,225,461	96,768,060	.....

Exports for 1910-1918, by Countries, Compared with Exports for 1913 (continued).

(in yen)

					Average annual		Comparison	
	1910	1916	1917	1918	Export, 1915-1918	1913	Increase	Decrease
<i>North America</i>								
United States	204,141,844	840,244,817	478,586,845	580,129,898	888,268,225	184,478,882	208,789,848	.....
Canada	7,024,068	11,801,990	16,158,202	27,884,805	15,454,766	5,090,018	10,864,748	.....
Mexico	18,458	579,883	160,242	858,950	276,888	525,296	.....	248,418
Other countries	466,188	824,880	1,117,886	2,468,902	1,218,088	.....	1,218,088	.....
Total	211,645,558	852,951,070	495,978,175	560,282,050	405,212,962	190,088,696	215,124,266	.....
<i>South America</i>								
Peru	184,799	508,020	771,816	2,062,758	867,972	117,759	750,218	.....
Chile	170,862	927,409	2,878,498	4,705,866	2,044,159	181,492	1,912,667	.....
Argentina	1,128,680	1,801,686	3,491,917	25,875,570	7,824,451	1,422,567	6,401,884	.....
Brazil	.....	100,714	464,528	8,868,688	988,481	.....	988,481	.....
Other countries	111,188	161,889	486,270	1,088,205	460,612	.....	460,612	.....
Total	1,544,974	2,994,618	7,587,529	36,595,577	12,180,675	1,671,818	10,508,857	.....
<i>Africa</i>								
Egypt	984,858	5,887,647	18,506,779	28,467,940	12,086,806	1,871,112	10,715,694	.....
Cape Colony and Natal	1,000,086	4,276,110	6,787,817	18,342,599	7,601,640	474,625	7,127,015	.....
Other countries	214,084	488,472	514,067	1,891,276	650,725	.....	650,725	.....
Total	2,198,978	10,147,229	20,808,668	48,201,815	20,889,171	1,845,787	18,498,484	.....
<i>Australia</i>								
Australia	18,098,801	27,776,068	27,289,144	65,105,848	84,567,839	8,687,974	25,929,865	.....
New Zealand	.....	8,186,854	4,177,881	8,747,109	4,015,828	.....	4,015,828	.....
Hawaii	6,095,116	7,141,881	6,442,790	7,780,054	6,852,328	4,992,111	1,860,212	.....
Other countries	722,448	758,872	1,028,496	1,607,889	1,028,175	1,655,891	.....	627,716
Total	24,915,860	38,818,125	38,983,261	88,190,895	46,468,160	15,285,976	81,177,184	.....
Unknown	880,844	626,678	408,849	662	854,258	414,640	.....	60,882
Total Exports	708,806,997	1,127,468,118	1,608,005,048	1,962,100,668	1,850,220,207	632,460,218	717,759,994	.....

Among the great increases in Japanese exports to individual countries, some of the less conspicuous should be noted, for example the increases in the case of Argentina, Chile, and Brazil, of Cape Colony, Natal, and New Zealand. In these cases until the War exports from Japan had been almost insignificant.

3. Import Trade.

The following tables show the principal Japanese imports which increased or decreased during the War:

Principal Increases in Imports, 1915-1918, Classified by Commodities.

(in ¥1,000)

	1915	1916	1917	1918	Average annual Import, 1915-1918	Import for 1918	In- crease over 1918
Beans and peas	9,290	7,109	9,507	20,396	11,576	10,898	1,188
Rape seed	4,789	8,418	4,282	9,147	5,408	1,418	8,995
Hides and skins	6,898	8,980	5,841	11,890	8,265	2,542	5,728
Crude gums	8,432	7,246	9,180	12,948	8,189	8,452	4,737
Nitrate	8,289	6,185	9,725	11,295	7,611	2,911	4,700
Oil cake	86,127	87,547	55,968	92,255	55,474	89,499	15,975
Raw cotton	217,816	276,089	880,976	515,559	884,985	238,599	101,886
Flax, hemp, China grass, or ramie, etc.	8,428	9,124	18,488	22,780	14,677	7,856	7,821
Wool	80,584	88,507	52,112	60,146	44,087	15,998	28,090
Coal	4,458	4,236	9,088	15,764	8,874	4,084	4,840
Ores	8,877	16,162	17,655	20,866	14,515	1,855	12,660
Leather	1,908	2,789	2,162	8,527	2,596	2,444	152
Tanning extracts	706	8,201	1,155	1,670	1,681	517	1,168
Caustic soda and soda ash	2,720	6,688	18,378	14,662	9,848	2,765	6,588
Coal-tar dyes	2,842	8,488	4,586	11,238	5,518	4,481	1,082
Pulp for paper making	5,975	9,018	2,801	6,886	6,187	4,620	1,587
Iron (lump, ingot, bloom, billet, and sheet)	7,950	16,721	25,288	64,109	28,504	12,886	16,119
Steel (bar, rod, plate, sheet, wire, etc.)	23,812	66,572	166,678	204,789	115,887	85,948	79,889
Lead (ingot and sheet)	2,910	7,468	5,871	14,747	7,748	2,616	5,182
Tin (ingot and sheet)	1,829	1,797	8,781	8,271	8,919	2,820	1,699
Nickel (ingot and sheet)	1,601	2,009	1,082	1,218	1,464	1,421	42
Brass and bronze (ingot and sheet)	1,070	14,854	10,145	891	6,615	228	6,887
Iron nails	588	4,208	2,580	5,810	8,270	1,870	1,900
Steamships	2,685	10,815	7,104	8,468	6,002	4,001	2,001

Principal Decreases in Imports, 1915-1918, Classified by Commodities.

(in ¥1,000)

	1915	1916	1917	1918	Average annual Import, 1915-1918	1913	De- crease below 1913
Rice	4,886	3,087	6,518	89,756	26,061	48,472	22,412
Wheat	1,639	1,356	666	9,941	3,401	12,352	8,950
Wheat flour	194	94	59	1,287	409	1,780	1,371
Sugar	14,805	12,978	11,697	33,525	16,251	38,752	18,501
Sulphate of ammonium	2,940	1,199	2,868	807	1,827	15,992	14,165
Phosphorite	3,408	2,780	5,099	5,070	4,075	8,618	4,542
Woolen and worsted yarns	899	1,450	769	241	715	10,087	9,372
Iron (pipes and tubes)	1,880	3,484	8,806	18,776	6,849	6,984	85
Materials for construction	822	1,072	9,700	16,924	7,130	7,686	556
Petroleum	8,464	5,571	5,805	8,588	6,969	11,102	4,133
Cotton tissues	4,679	4,079	8,090	5,701	4,837	10,084	5,696
Woolen tissues	3,628	5,181	6,219	11,486	6,627	12,445	5,818
Paper and paper manufactures	3,028	5,827	4,098	9,395	5,587	7,237	1,650
Locomotives and other vehicles	847	420	2,331	3,496	1,773	4,461	2,688
Machinery and engines	8,886	16,271	29,838	58,496	28,361	34,375	6,015

According to these tables, the imports which substantially increased were:

Raw cotton, steel (bar, rod, plate, sheet, wire, etc.), iron (pig, ingot, bloom, billet, and sheet), wool, oil cake, ores, flax, hemp, China grass, ramie, etc., caustic soda and soda ash, brass and bronze (ingot and slab), lead (ingot and slab), hides and skins.

These commodities are all raw materials or semi-manufactured articles. Those which substantially decreased were as follows:

Rice, sugar, sulphate of ammonium, woolen or worsted yarns, wheat, machinery and engines, woolen tissues, cotton tissues.

We come now to imports by countries during the War, and can compare them with the value of the imports which Japan received from the same countries in 1913.

Comparing the average value of imports during the war period (from 1915 to 1918), as classified by continents, with those in 1913, we note a decrease of about 60 per cent in the case of imports from Europe, and increases of some 40 per cent in the case of Asia. Other increases are 163 per cent for North America, 307 per cent for South America, and 227 per cent for Africa.

The decrease of imports from Europe was due to the fact that, on account of the War, European countries could hardly afford to sup-

<i>Countries</i>	<i>Average annual</i>						<i>Comparison</i>	
	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>	<i>Import, 1915-1918</i>	<i>1918</i>	<i>Increase</i>	<i>Decrease</i>
<i>Asia</i>								
China	85,847,785	108,688,686	188,271,086	281,707,888	152,866,185	61,228,088	91,148,147	.....
Kwantung Province	27,819,092	38,958,897	58,180,199	100,619,056	58,898,061	80,877,894	28,015,167	.....
Hongkong	1,594,118	1,015,298	1,808,808	888,766	1,811,744	1,294,749	16,995	.....
British India	147,585,810	179,464,598	228,941,804	268,185,185	204,794,098	178,178,861	81,620,287	.....
Straits Settlements	5,855,771	10,787,181	15,050,128	29,828,644	15,116,681	5,205,014	9,911,667	.....
Dutch Indies	16,812,259	14,228,028	17,888,100	48,887,198	24,177,646	87,889,257	.....	18,211,611
French Indo-China	8,687,889	6,086,641	7,295,718	55,407,802	18,106,875	24,699,894	.....	6,598,019
Asiatic Russia	8,564,492	1,774,216	8,755,281	4,866,624	8,865,158	750,486	2,614,667	.....
Philippine Islands	7,808,548	9,466,850	15,884,986	17,488,481	12,887,079	7,647,888	4,789,246	.....
Siam	2,807,776	2,949,008	4,852,801	5,780,984	8,960,142	5,798,124	.....	1,882,982
Other Countries	88,619	25,880	197,818	868,810	155,082	.....	155,082	.....
Total	801,916,054	868,289,228	475,515,674	812,818,888	489,688,696	848,055,150	141,578,546	.....
<i>Europe</i>								
Great Britain	58,084,868	81,782,097	68,804,884	66,067,257	67,297,027	122,786,970	.....	55,489,948
France	8,890,988	4,467,658	4,864,619	8,780,147	4,118,851	5,828,992	.....	1,715,641
Germany	5,919,464	4,189,447	2,520,241	8,480,898	4,002,886	68,894,798	.....	64,892,412
Belgium	872,098	842,822	12,897	8,901	182,808	9,448,028	.....	9,265,220
Italy	299,184	702,412	485,584	618,167	512,587	1,077,855	.....	565,268
Switzerland	1,512,551	1,880,042	8,086,082	2,278,198	2,176,717	1,794,995	881,722	.....
Austria-Hungary	70,457	86,885	22,920	1,680	82,848	8,890,017	.....	8,857,169
Holland	278,218	422,187	1,260,580	1,746,871	926,889	810,108	.....	.....
Sweden	6,299,409	11,801,985	5,290,659	8,700,948	6,648,249	5,089,514	1,558,785	.....
Norway	1,225,152	2,068,520	294,781	212,829	950,196	627,284	822,912	.....
Russia	607,245	1,104,828	1,809,488	685,588	926,647	40,948	885,704	.....
Spain	194,489	154,085	185,215	259,412	198,275	804,820	.....	106,545
Denmark	165,102	112,611	52,689	40,280	92,646	208,798	.....	111,147
Turkey	98,708	8,881	4,955	4	26,762	25,747	1,015	.....
Portugal	5,188	8,828	6,616	2,857	5,857	16,270	.....	10,418
Other Countries	8,002	10,876	24,499	14,488	18,202	.....	18,202	.....
Total	79,020,508	108,442,099	82,776,109	82,786,850	88,106,892	220,290,124	.....	182,188,782

Imports for 1915-1918, by Countries, Compared with Imports for 1913 (continued).

Countries					Average annual	Comparison			
	1915	1916	1917	1918	Import, 1915-1918	1913	Increase	Decrease	
North America									
United States	102,584,279	204,078,950	859,707,858	626,025,580	828,086,658	122,408,861	200,678,292	.....
Canada	1,068,009	1,666,280	2,557,108	7,775,180	8,265,882	1,889,426	1,425,956	.....
Mexico	6,864	7,177	6,467	45,192	16,425	5,957	10,468	.....
Other Countries	4,997	8,244	6,509	287,540	75,572	.....	75,572	.....
Total	108,609,149	205,755,601	862,277,987	684,188,442	826,444,082	124,258,744	202,190,288	.....
South America									
Peru	21,997	489,885	186,854	686,544	888,695	18	888,677	.....
Chile	2,998,668	6,091,419	9,717,228	11,216,081	7,517,084	2,778,888	4,748,696	.....
Argentina	81	61,179	8,148,526	8,768,898	2,994,584	7,522	2,987,012	.....
Brazil	.....	89,804	56,065	112,455	52,081	.....	52,081	.....
Other Countries	106,611	68,847	1,427,557	49,528	411,761	.....	411,761	.....
Total	8,127,807	6,745,684	14,485,725	20,877,956	11,809,155	2,780,928	8,528,227	.....
Africa									
Egypt	6,185,558	8,882,898	10,907,184	9,178,784	8,688,480	7,148,195	1,495,255	.....
Cape Colony and Natal	18	7,249	18,851,680	29,448,991	12,076,985	45,595	12,081,890	.....
Other Countries	26,017	226,462	10,086,858	656,860	2,786,549	.....	2,786,549	.....
Total	6,161,598	8,566,104	89,795,722	89,284,685	28,452,014	7,188,790	16,268,224	.....
Australia	28,571,466	48,882,688	82,984,502	48,874,878	88,428,246	14,948,145	28,485,101	.....
New Zealand	.....	10,676	11,819	6,487	7,121	.....	7,121	.....
Hawaii	48,255	75,460	258,718	69,156	111,646	90,588	21,108	.....
Other Countries	8,657,078	4,184,084	6,684,987	8,529,291	5,751,885	7,889,190	.....	1,687,855
Total	82,271,799	47,602,808	89,889,471	57,479,812	44,298,348	22,422,878	21,875,475	.....
Temporarily in Warehouse	4,808,890	8,481,245	17,554,842	17,672,872	12,129,887	8,941,888	8,187,954	.....
Unknown	1,584,688	2,545,196	4,165,627	8,095,488	2,885,228	498,652	2,886,571	.....
Total Imports	582,449,988	756,427,910	1,085,811,107	1,668,148,888	998,208,197	729,431,644	268,776,558	.....

ply their goods to Japan; while the increase of those from other Continents was caused mainly by the demand for raw materials to be used for Japanese manufactures.

Trade in all classes of goods did not, no need to say, increase or decrease in the same proportion. Even among Japan's staples there were wide differences. Space limitations do not permit us to follow the course of any commodity throughout, or to give in detail the reasons which governed its particular course. A few examples must suffice.

Thus war conditions cut down the demand for raw silk in France and Italy, two of Japan's leading customers. But the prosperity of the United States called for such quantities that the loss was much more than made good. In the case of china and earthenware, three of Japan's best markets, England, France, and Germany, were virtually lost to her. But their loss was more than offset by the opening of what in many cases were new markets, in the United States, Australia, British India, the Dutch Indies, China, etc.

In most cases there were increases both in the quantity of the commodity exported and in the money value represented. Copper, for instance—striking a yearly average for the total four years' increase or decrease during the War—increased by 21,870,000 kin² in quantity, and by ¥30,720,000 in value. But in some cases there was an increase only in value. Thus match exports had a money-value increase of ¥10,170,000, but a quantity decrease of 1,760,000 gross boxes.

As for imports, we find that great increases on that side of the account were far from indicating an adverse trade balance. Raw cotton, for example, had an average increase of 670,000 piculs³ in quantity and 101,380,000 in money value. But this was simply one indication of the great war-time growth in Japan's cotton-spinning industry. The same was true of wool, the import figures for it being 23,420,000 kin in quantity and 28,080,000 in value. Lead, imported as ore or in the pig, was exported in the form of war munitions commanding high prices. And this was equally true of many other things.

² 1 kin = 1.82 lbs.

³ 1 picul = 133.3 lbs.

4. *Obstacles to Foreign Trade.*

i. General Remarks.

a. *Shortage of Bottoms.*

Japan's foreign commerce was at first wholly carried in foreign bottoms. After the war with China a shipping trade developed; and Japan began more and more to be a shipowner. Before the Sino-Japanese War, the ratio between foreign and Japanese vessels entered and cleared had been 8.6 to 1.4 in tonnage, which changed to 6.2 to 3.8 in 1903, and to 4.9 to 5.1 in 1913.

After the outbreak of the World War, there was a great falling off in the number of foreign vessels which visited Japanese ports. To remedy this, Japan's shipping industry sought to purchase foreign vessels and to recall Japanese ships that had been chartered for service in foreign waters. But these efforts were not crowned with success. Furthermore, when the United States began to transport its army to Europe, and experienced an extreme shortage of shipping, Japanese vessels to the amount of 150,000 tons were furnished to the Allies. In 1918, the number of vessels in foreign trade which were cleared for Japanese ports was 21,011, representing 36,135,729 tons. This meant a decrease of roughly 7,000,000 from the tonnage of 1913.

As stated above, the foreign trade of Japan throve markedly during the War. But, as a result of the lack of shipping, the freight congestion in Kobe alone amounted to 120,000 tons, even at the end of 1916; and this lack of shipping was a great handicap.

The growing scarcity of bottoms also resulted in a notable advance in freight rates. By 1919 the average freight rate for general cargoes in the case of the Nippon Yusen Kaisha had advanced by from 50 to 120 per cent; and in the Bombay service by 500 per cent. The result showed itself in the rise in prices of Japanese goods in foreign countries. In certain cases it was no longer possible to export and make a profit.

b. *Currency Policies of Foreign Countries Which Affected the Foreign Trade of Japan.*

From the outbreak of the War, foreign-exchange quotations in every country fluctuated violently. Purchasing power was diminished for the countries in which the foreign-exchange market was

weak, while exports from the silver-standard countries were impeded by the rise in the price of silver. We shall try herewith to make a brief survey of the manner in which Japan's foreign trade during the War was affected by the attitude of other countries in the matter of exchange.

It goes without saying that payment became difficult in the case of countries which had relied on exchange provided through the medium of German or Austrian banks. But such difficulties were overcome by the establishment of connections with the banking machinery of the Allies.

At the end of 1915, the British Government restricted the issue of India Council Bills to 8,000,000 rupees a week, abolished the system of auction, and limited any single bank's permission to purchase to 1,000,000 rupees. The payment of Japanese obligations to India was beset with difficulties because of this limitation; and the importing of cotton and other raw materials from India was affected thereby. In January, 1917, the British Government increased the issue of India Council Bills to 12,000,000 rupees a week. But in June, 1917, imports of gold and silver bullion and specie were restricted; and from August 1, 1917, the issue of Council Bills was again limited to 9,000,000 rupees a week.

The foreign exchange banks of Japan exerted themselves to purchase Council Bills in Great Britain, and to export gold and silver bullion and specie, in order to render easy the importing of Indian cotton; in September, 1917, however, the United States restricted the export of gold and silver bullion and specie. And as the export of bullion and specie from Japan to foreign countries became difficult, the import of raw cotton from India became correspondingly difficult.

In June, 1917, the Russian Government decided to prohibit the drawing of money orders on foreign countries. Because of this prohibition Japanese merchants who had been exporting war materials and miscellaneous goods to Russia could not collect their accounts and sustained a heavy loss. From that time, Japanese trade with Russia declined rapidly.

c. Prohibitions of the Export of Gold and Silver Bullion and Specie.

The prohibition of the export of gold and silver bullion and specie by various countries during the War impeded the development of the

foreign trade of Japan. Of particular effect were the prohibitions by the United States and Russia.

The United States prohibited the export of gold and silver bullion and specie, except by special permission, on and after September 10, 1917. Before that time, Japanese trade with the United States had usually exhibited a favorable balance. In the years immediately preceding the War the excess of exports over imports, in this trade, taken together with freight, charterage, and other invisible items, had amounted annually to more than ¥100,000,000. The prohibition of the export of gold and silver from the United States accordingly exerted a great influence upon the foreign trade of Japan. Moreover, after the restriction placed on the issue of India Council Bills, in London, it became necessary to find specie for the India trade; and inasmuch as a part of this specie had been drawn from the United States, the prohibition of the export of gold and silver by the latter country affected even the importation of Indian raw cotton by Japan.

The Russian Government prohibited the export of gold bullion and coin on and after July 2, 1915. At that time Japanese trade with Russia showed a balance in favor of Japan of several million yen, apart from the exports of war materials to the Russian Government. These accounts were at that time settled through the medium of the banks of Great Britain and France, and the prohibition exerted no great influence upon the foreign trade of Japan. When, however, the Russian Government prohibited the drawing of money orders on foreign countries—on and after July 1, 1917,—Japanese traders with Russia found themselves in a very unhappy position. They appealed to the authorities, who were compelled to relieve them by advancing them money at low interest.

d. Trading with the Enemy Regulations.

In the beginning of the War, Japan announced that she would not interfere with individual intercourse with the enemy, so far as it had no direct connection with war. Precedents for this policy were afforded by the war with China and the Russo-Japanese War. But the British Government adopted the principle of prohibiting trade with persons residing in the enemy's territory. In December, 1915, it further prohibited trade not only with the enemy, but also with

persons having any connection with the enemy; and the names of persons with whom trade was forbidden were registered in a black list. As to China and Siam, the names of persons with whom trade was permissible were registered in a "white list." The British Government, trying by every available means to prevent trade with the enemy, proposed that all the Allies should adopt this principle, as one means of putting the greatest possible pressure upon the enemy.

Japan took this proposal in good part, but as she felt she would be taking a very serious step if she abandoned her policy of non-interference, she decided that she would not prohibit trade with the enemy absolutely, but would none the less assist with the utmost loyalty in the realization of the purpose of the British Government. Japan accordingly reproduced the British black and white lists, distributed them among her foreign traders, and warned them not to infringe the British regulations. Proportionately, too, the sphere of activity of Japanese traders was reduced. In particular, those who had been closely associated with German or Austrian merchants now registered in the black list, found their trade seriously hampered.

The Allied Economic Conference held at Paris in July, 1916, decided to carry out strictly the prohibition of trading with the enemy, and recommended that the Allied Governments should act on this decision. The Japanese Government approved it, and enacted the Trading with the Enemy Regulation, which was enforced from May 14, 1917. According to this regulation, a ban was placed upon transactions with or in the interest of enemy countries, enemy persons or corporations, persons residing in the enemy's territory, and persons designated by any competent agent of the Allies.

This regulation did not have any particular influence upon the foreign trade of Japan, for transactions with the enemy had been very largely restricted from the outbreak of the War, and brought almost wholly to an end by the carrying out of British and French trade prohibitions. But enemy subjects who resided in Japan were seriously affected; and their economic influence in Japan was rendered quite powerless. With the outbreak of the War, and the ending of trade and communication with their own respective countries, they had continued to trade with the Japanese themselves. But since even this was now prohibited, they were compelled to bring all business completely to an end.

ii. Obstacles to Export Trade.

a. *Control of Exports.*

From the beginning of the War, the Japanese Government sought to protect home industry. It was feared that the supplies of raw materials for manufacturing which had formerly been imported from Europe would begin to fail, and that their price would advance enormously. To meet this danger, in September, 1914, an embargo was placed upon the export of the following supplies on hand and commodities of domestic production:

Yellow phosphorus; red or amorphous phosphorus; caustic soda; borate of soda; chlorate of potash; glue of foreign origin; artificial dried indigo; alizarin and aniline dyes.

Moreover, in view of the risk that certain kinds of exports might pass into the enemy's hands, and in order to preserve raw materials for manufacturing purposes, about fifty classes of commodities were later added to the list of those exports which were to be put under strict supervision and control. Chief among them were:

Soda ash; artificial fertilizers of foreign origin; pulp for paper making; printing paper; superphosphate of lime; mixed fertilizers, composed of sulphate of ammonium, superphosphate of lime, or nitrate of soda; wheat flour; crude gums and gum manufactures; copra and coconut oil; tin, tin manufactures and alloyed tin; chrome; tungsten; nickel; manganese; spiegeleisen; cobalt; antimony; graphite; mica and mica manufactures; niter; tin plate; wool and wool manufactures; nitrate of soda; sulphate of ammonium; rice and wheat.

The control of the export of raw materials for manufacturing purposes did not hurt the export trade to any real extent, for it resulted in the encouragement of the export of articles wholly manufactured. But the control of exports to prevent them from passing into the enemy's hands did put serious obstacles in the way of the development of export trade.

b. *Import Prohibitions in Foreign Countries.*

During the War there were commodities which, in certain countries, were prohibited or restricted as to import to protect home industries, or because of financial necessity, the shortage of bottoms,

or other reasons. These prohibitions or restrictions dealt a heavy blow to Japanese export trade, as will be seen in the survey below.

(1) In Great Britain, the importation of machinery and parts thereof was prohibited on December 23, 1915; and, from 1916 on, successive additions were made to the prohibited list on more than thirty occasions. On the list were certain of Japan's chief exports, commodities, too, which had been exported chiefly to Great Britain. The prohibition therefore not only interfered with the export trade, but also threatened the existence of some of Japan's manufacturing industries. The British Government, heeding a Japanese entreaty for some mitigation of the prohibitions, permitted without restriction the import of starches, silk and silk manufactures, braids, and handmade cotton-lace threads; shoe strings, brushes, hats, caps, and bonnets up to the amounts imported in 1916; bulbs, lacquered wares, antimony manufactures, machine-made cotton-lace threads, and drawn-work, to the extent of 50 per cent of the imports in 1916. It permitted also limited imports of china and earthenware, pencils, cotton sails, mats, cotton knitted goods, etc.

(2) From November 23, 1917, the United States put the import of beans and peas, soya bean oil, coconut oil, etc., under control. But this control did not affect Japan's export trade, for its main object was not to prevent such imports, but to make impossible any cornering of the market, and to keep these commodities from falling into the hands of the enemy.

On March 23, 1918, the United States put a prohibition upon the import of 82 articles, including metals, foodstuffs, products of the fine arts, etc. Among these were rice, cotton manufactures, especially of lace, drawn-work, peanuts, toys, etc.; and the prohibition was one that hurt the export trade of Japan severely. But the Japanese Government considered the prohibition of unessentials, such as toys, as inevitable in time of war, and did not seek to have it modified.

The United States later determined to add to the list of prohibited articles, and, out of courtesy, gave previous notice to the Japanese Government. On the new list were Japan's principal exports; and it was feared that the prohibition of their import to the United States would have the most serious results. The United States sympathized with the Japanese position; and when it published the list on April 22, 1918, it omitted some of the chief items affected. The United

States, on several later occasions, also put into effect other export prohibitions. But they did not affect Japan seriously.

(3) In October, 1916, the Russian Government, to reduce the congestion in Vladivostok, closed that port to commodities belonging to individuals, with the exception of those recognized by the Government as necessary to the State. Most of the Russo-Japanese trade had been carried on by way of Vladivostok, and it was expected that this prohibition would affect trade considerably. The Japanese Government, therefore, opened negotiations with the Russian Government for the mitigation of this prohibition; and, as a result, personal baggage, shipments by parcel post, and the importation of commodities to be used in Vladivostok and its vicinity came to be permitted.

In February, 1917, the Russian Government likewise began to prohibit the import of luxuries. And in July of that year, it announced the prohibition of the import of all commodities save by special permission, with the exception of grains, vegetables, meat, and fish in limited quantities; natural fertilizers; fuel, including coal, etc. All these prohibitions greatly affected the export trade of Japan.

(4) France, Italy, Australia, the Dutch Indies, and other countries also prohibited the import of certain commodities, and some of the principal Japanese exports to those countries being included, here, too, Japan was correspondingly affected.

iii. Obstacles to Import Trade.

a. *Prohibitions of Exports in Foreign Countries.*

The belligerent Powers prohibited or restricted exports during the War, in order to protect the supply of war materials and other needful commodities, and to prevent them from passing into the enemy's hands. Above all, iron, machinery and engines, drugs, and raw materials for manufacturing purposes were considered by every country as of vital value. Their export was prohibited. And these prohibitions and restrictions meant that many of Japan's chief imports were blocked, and those who used them put to great inconvenience.

(1) In Great Britain, the export of many classes of commodities was prohibited from the outbreak of the War. Among these were

some British exports which were necessities in Japan, such as iron and iron manufactures, wool, raw cotton, flax, diamonds for manufacturing purposes, emery-cloth, graphite, crucibles, pumps, carbonic acid, caustic soda, glycerine, etc. These things could be exported only by special license, which was very difficult to obtain.

(2) From July 15, 1917, the United States prohibited the export of fuel, foodstuffs, iron, guns and munitions of war, etc., except by special license; and on February 16, 1918, all exports were placed under government control. By this control the import trade of Japan was not seriously affected. But the United States Government later decided that after September 17, 1917, it would not give permission to export iron and iron manufactures, etc., except in special cases. Their export was permitted only when they were to be used either directly or indirectly in the prosecution of the War; and in consequence Japanese industries were in time hard pressed for want of iron and iron manufactures.

(3) Other warring Powers and neutral states also prohibited the export of certain commodities. Among them, prohibitions of the export of mercury and silkworms by Italy, of raw cotton by Egypt, and of wool tops and beef tallow by Australia had the most serious effects upon Japanese industries.

b. The Control of Australian Wool.

In pre-war years, the woolen manufacturing industry of Japan had been of little account. On the outbreak of the War, the demand for woolen cloth for war purposes began to grow. Successive orders arrived from abroad, the industry gradually became thriving, and the import of wool and the export of woolen manufactures gained an important footing in Japan's foreign trade.

Raw wool is not produced in Japan, and was imported chiefly from Great Britain and Australia. Shortly after the War began, the export of wool was restricted, and later it was prohibited by those countries.

In December, 1916, the British Government, after consulting with the Australian Government, became the exclusive purchaser of Australian wool. That is, for Japan all further importation of wool from Australia became impossible; and Japanese traders planned to import wool from South Africa and South America. Fortunately, South

African wool was left without restrictions; and during the War the woolen manufacturing industry of Japan was able both to carry on and to increase its output.

c. Prohibitions of Imports Produced in Enemy Territory.

In Japan, prohibition of imports produced in an enemy territory was provided for in the Trading with the Enemy Regulation, promulgated on April 24, 1917. According to this regulation, the importation without special permission of articles produced in enemy territory, except dyes, drugs, books, and luggage, was prohibited. This regulation had no remarkable effect on the import trade of Japan; for, since more than three years had elapsed since the outbreak of the War, almost all commodities covered by it, scattered as they were all over the world, had either been stored, or had found their way to the consumer. They were no longer objects of trade.

In pre-war years, Japanese imports from Germany and Austria amounted to ¥60,000,000 and ¥4,000,000 respectively. These figures decreased to ¥6,000,000 and ¥70,000 in 1915. In the following tables will be found the value of the principal Japanese imports produced in Germany and Austria in 1915, in 1918, and in the pre-war year 1913.

Value, in yen, of Principal Japanese Imports Produced in Germany.

	1913	1915	1918
Wool	248,052	.....	.....
Leather	128,497	1,882	.....
Dyes	8,720,217	2,294,354	8,104,970
Woolen or worsted yarns	6,114,882	102,617	.....
Pulp	2,176,454	68,007	.....
Iron (pig, ingot, bloom, billet, and sheet)	794,680	.....	.....
Steel (bar, rod, plate, sheet, wire, etc.)	8,828,088	292,516	2,287
Iron (pipe and tube)	1,574,552	5,876	.....
Rails	1,197,106	41,429	.....
Shirtings (printed)	28,648	1,892	.....
Woolen fabrics	1,597,105	4,428	22,456
Cotton yarns	51,697	.....	.....
Dried indigo	8,010,522	.....	.....
Paper	2,545,262	54,906	.....
Iron nails	647,948	821	.....
Locomotives, etc.	1,281,691	189,218	.....
Machinery and engines	8,567,578	868,828	87,260

Value, in yen, of Principal Japanese Imports Produced in Austria.

	1915	1916	1918
Woolen or worsted yarns	1,829,862	....	....
Woolen fabrics	19,776	5,442	....
Paper	855,484	11,077	....
Iron (bar, rod, plate sheet wire, etc.)	856,684	878	....

According to these tables, such imports decreased markedly after the outbreak of the War; and by the time their import was prohibited they had fallen almost to nothing. Only in the case of dyes were imports during the War comparable with those of pre-war years. This was due to the fact that they could not be brought in freely, and to the exertions of the Japanese in hunting for them throughout the world.

5. Administrative Measures to Protect and Encourage Foreign Trade.

i. Despatch of the Committee of Investigation.

Soon after the outbreak of the War the dislocation of the normal state of trade, and the confusion into which all the natural trends of commerce had been thrown, led the Japanese Government to investigate industrial conditions and the influence of the War in her most important foreign markets.

At the end of November eight officials of the Department of Agriculture and Commerce, with some forty business men, visited successively North China, Central and South China, British India, the Dutch Indies, Australia, the United States, Canada, and Asiatic Russia. While the officials in question made their investigation, and sent their reports to the Government, the accompanying business men got in touch with their fellow business men in every country visited. Official reports were widely distributed in commercial circles at home; and when the committee of investigation returned, its members were commissioned to visit the chief cities of Japan and lecture on their observations. In August, 1916, a second committee of investigation was despatched; and South Africa, Central Europe, and Scandinavia were added to the itinerary.

In February, 1917, a special bureau was organized in the Department of Agriculture and Commerce and given the task of determin-

ing what industrial measures must be taken to meet conditions both in war-time and after; and the business of sending out investigating committees was taken over by the above bureau. Following this, in 1917 ten officials of the Department of Agriculture and Commerce, and eight more in 1918, visited the United States, Canada, South America, French Indo-China, British India, the Straits Settlements, Siam, Russia, Asiatic Russia, the Dutch Indies, the Philippine Islands, Australia, China, and Europe. These commissions investigated trade in general. And, then and later, many other officials of the bureau were despatched abroad to obtain specific information upon agriculture, fisheries, forestry, mining industries, and so on.

ii. The War-time Marine Insurance Compensation Act and the War-time Marine Reinsurance Act.

From the outbreak of the War, mercantile shipping and cargoes suffered frequent losses through the attacks of enemy ships. Marine insurance rates became very high, and trade was greatly embarrassed. The Japanese Government, realizing that this must seriously interfere with foreign trade, on September 12, 1914, put into force an insurance compensation act.

Under this act, when Japanese underwriters, or foreign underwriters represented in Japan, accepted applications for insurance at not more than the rate fixed by the competent authorities and paid claims arising from the War, the Government made good to the said underwriters 80 per cent of the amount of the claims so paid. Such government assistance could be extended only (1) to ships sailing under the Japanese flag, and on regular and authorized trade routes; (2) to cargoes carried on such ships; and (3) to cargoes exported from or imported to Japan. But the activity of enemy submarines and the expanding area of the War appreciably increased the dangers on the sea, and the above government compensation became a heavy drain upon the public purse. Accordingly the Government determined to abrogate the act and write reinsurance of its own; and it passed the War-time Marine Reinsurance Act, which was put into effect on July 20, 1917.

Under this law, Japanese underwriters, or foreign underwriters represented in Japan, who accepted applications for insurance at current legal rates could reinsure their risks with the Government.

And it was a law which helped greatly in safeguarding Japanese trade. Examining the figures during the period from September 20, 1917, to the end of March, 1918, the amount reinsured amounted to ¥1,121,218,754, representing about 64 per cent of the total value of exports and imports during this period—84 per cent of the exports, and 34 per cent of the imports. It may be said, indeed, that almost all exports which had to be transported through dangerous waters were reinsured.

The loss sustained by the end of 1918 was estimated at ¥11,597,625, and since this loss was less than the Government's receipts derived from the insurance premiums, the enforcement of the War-time Marine Reinsurance Act not only rendered a great service in removing obstacles to Japanese trade, but also increased the revenue of the National Treasury.

iii. Inspection of Exports.

On April 24, 1916, an economic commission was organized for the purpose of investigating and advising the Government on its economic policies during the War. This commission continued in existence until November 30, 1917; and its section which devoted itself to foreign trade came to the decision, and so informed the Government, that it would be advisable to put into force an inspection of exports.

Generally speaking, most of the principal exports of Japan are produced in small-scale factories, and hence it is very difficult to establish uniform standards. Moreover, when orders arriving from abroad had a great increase after the outbreak of the War, there were loud complaints of low standards due to careless manufacture. This was a matter for serious solicitude in view of the future of the export trade of Japan; and the Government determined to inspect exports and prevent the exportation of the fraudulent and the inferior. In December, 1917, it began its inspections, starting with matches, glassware, and manufactures of enamelled iron. In time it went on to braids, knitted goods, brushes, celluloid manufactures, pencils, etc.

The inspections in question were made by the associations of manufacturers and exporters of the articles concerned. As a general rule, the inspection was made at the place of production, and by sampling. And it was governed only by considerations of the export

trade. Articles which fell below standard were prohibited for export, and offenders against this regulation were liable to a fine. Inspection expenses were met by the members of the trade associations concerned, aided by the Government, which provided from 10 to 30 per cent of the total cost. This inspection system was enforced to maintain the credit and reputation of Japanese products; and together with the previously existing conditioning-houses for raw silk, habutae and hanagoza, it did good work for the purpose in view.

iv. The Control of the Shipping Business.

As stated above, the shortage of bottoms seriously interfered with the foreign trade of Japan, and the Government tried by every means to make good the deficiency. But after February, 1917, the sinking of vessels by German submarines was of frequent occurrence. In July of that year the United States began to prohibit the export of iron. The ship-building industry of Japan was disorganized. And the shipping question gave rise to heated controversies.

The Government, therefore, determined that from October 1, 1917, it would exercise control; a control that was guided by the following general rules:

(a) Japanese vessels should not be loaned, pledged, or in any way transferred to persons not legally qualified to possess Japanese vessels, without special permission of the Minister of Communications.

(b) Persons who desired to build ships for individuals not legally qualified to possess Japanese vessels were required to apply to the Minister of Communication for permission.

(c) Japanese vessels should not engage in navigation between foreign ports only, without an order from the Government, or special permission from the Minister of Communications.

(d) The Minister of Communications might prohibit or restrict transportation by Japanese vessels of passengers or cargo between foreign ports.

(e) The Minister of Communications might order Japanese vessels to navigate under fixed schedules, or to transport passengers or cargo, as specifically required.

(f) The Minister of Communications might limit the rates of freight and fares of Japanese vessels.

(g) The Minister of Communications might appropriate or make

use of Japanese vessels, dockyards, materials, machinery, and engines to be used for shipbuilding, by indemnifying the owner for all losses.

(h) Offenders against this regulation were liable to imprisonment for a term not exceeding two years, or to a fine not exceeding ¥5,000.

This control of the shipping business made for an increase of bottoms and an adjustment of freight rates. For instance, some 390,000 tons of shipping, tied up in port before the measure went into force, in a few months decreased to about 210,000 tons. And the freight rate on coal between Moji and Yokohama, which had been more than ¥10 per ton, dropped to ¥7 in the spring of 1918.

The Government, hoping to develop foreign trade, also made efforts to increase the supply of bottoms by encouraging shipbuilding, and by preventing the transfer of ships to foreign countries. But the hope of increasing trade was frequently subordinated to a desire to cooperate with the Allies. It was often necessary to allow the charter, transfer, or construction of vessels for owners in the United States, France, China, etc. Difficulties particularly troublesome were caused Japan by the necessity of furnishing bottoms to the United States in February, 1918. But Japan's ability to render help to the Allies, and to contribute to the victory, may be attributed to some extent to this war-time control of the shipping business.

v. The Establishment of Commercial Agencies and Consulates.

The trade of Japan with Siberia, China, India, and the South Seas developed remarkably during the War, and it became necessary to maintain her commercial position in those countries. For this purpose, commercial agencies were established in Harbin and Singapore, and opened in the summer of 1918. They devoted themselves to the investigation of industrial conditions in those countries, and to the introduction of Japanese products.

At the same time the extension of new markets meant an increase in Japanese emigration. And both to protect such nationals abroad, and to give further help to the afore-mentioned industrial studies, Japanese consulates were established in China, Asiatic Russia, South America, South Africa, and other countries.

vi. Measures Taken to Mitigate Foreign Export and Import Prohibitions.

As above stated, prohibitions or restrictions of export and import were put in force in various countries during the War. Japan endeavored to the utmost of her resources to extend help to the Allies; but the Government was obliged in some cases to listen to popular demands, and to open negotiations for the mitigation of these bans.

Prohibitions had been put on imports chiefly to save shipping, to prevent the import of luxuries, to protect home industries, and so on. But in the case of some of the prohibited commodities, Japan produced them most cheaply, and the import of such goods was desirable. On the other hand, in certain countries only Japanese articles were under prohibition. And the Government of Japan endeavored to lessen or to remove such obstacles to her export trade.

Foreign prohibitions of exports were designed to maintain the supply of war materials, and to prevent them from falling into the enemy's hands. The Japanese Government exerted itself to secure a limited supply of such prohibited goods as were needful to her home industries, and strictly supervised their use and re-export.

CHAPTER II

FOREIGN EXCHANGE

1. *Japan's International Trade Balance during the War.*

IN its early stage the War—though in the end it improved Japan's international position financially—was regarded as a source of disorder and injury to the country's economic life. Until the end of 1914, the foreign trade of Japan was afflicted by various economic disturbances of grave moment, such as the shortage of bottoms, increased shipping risks, the abnormal advance of marine insurance premiums and the strained condition of the money market, while the foreign exchange market was also deranged. But the continuation of the War brought Japan unanticipated economic prosperity. The export trade developed rapidly, due to successive orders arriving from abroad; and this in turn stimulated various new enterprises. Then followed the growth of the shipping business, and the development of the steel and shipbuilding industries. In 1916 and 1917 the economic life of Japan was at the meridian of its prosperity.

Foreign trade for the five years 1914-1918 amounted roughly to ¥5,900,000,000 in exports as against ¥4,500,000,000 in imports, a favorable balance of ¥1,400,000,000. Furthermore, the Government had sent great supplies of munitions of war¹ to the Allies, with the result that the trade balance in Japan's favor was materially increased by that.

Japan also derived large receipts from "invisible items" of trade income. The growing scarcity of the world's tonnage meant a growing income from ocean freights, and from the chartering of Japanese ships. Such receipts during the five years from 1914 to 1918 inclusive amounted to more than ¥1,300,000,000. Adding various other receipts, from half-hidden sources, Japan enjoyed in these five years a credit balance amounting to ¥2,400,000,000. The total balance in favor of Japan thus was more than ¥4,000,000,000 during this period. Notwithstanding her enormous remittances abroad for the redemption of her foreign liabilities, subscriptions to various

¹ The value of the munitions sent to the Allies, from 1914 to 1918 inclusive, has been roughly estimated at ¥240,000,000.

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Allied loans, foreign investments, and the like, the situation was highly favorable to Japanese credit.

The figures will be found in the table below. The amounts are in millions of yen.

	<i>Excess of exports over imports</i>	<i>Excess of imports over exports</i>	<i>"Invisible Items"</i>		<i>Excess of receipts over expenditures</i>	<i>Excess of expenditures over receipts</i>
			<i>Receipts</i>	<i>Expenditures</i>		
1914		4	198	201		12
1915	175		257	257	175	
1916	371		454	615	210	
1917	567		676	598	645	
1918	298		941	695	589	

This contrasts strikingly with pre-war times, when for year after year, Japan suffered from adverse trade balances, and attempted to balance her budget by such measures as foreign loans.

2. The Increase of Specie Reserves.

At the end of June, 1914, the specie reserves of the Government and the Bank of Japan amounted roughly to ¥360,000,000, of which ¥230,000,000 was held abroad. At that time it was feared that the War might work great harm to Japan's foreign trade, and affect her specie reserves accordingly. As we have seen, however, the trade balance worked out most favorably to Japan. Her specie reserves increased to an unlooked-for degree, and she was forced to cast about to find how best to make the fullest use of them.

To examine the figures, her specie reserves which had been roughly ¥340,000,000 at the end of 1914, swelled respectively to ¥510,000,000, to ¥710,000,000 and to ¥1,100,000,000 in the three years following. And at the end of 1918 they had grown to more than ¥1,500,000,000. We should also note just how these reserves were held. For, at the end of 1914, while the amount held by the Bank of Japan was more than ¥300,000,000, that held by the Government was only ¥50,000,000. But from then on, the latter increased greatly, especially in 1917 and 1918, when the Government, with the object of facilitating the settlement of international accounts, bought up the bills held by the exchange banks. And in the end its reserves came to exceed those of the Bank of Japan.

This increase of specie held by the Government changed the ratio

between those held abroad and those held at home. At the end of 1914, the amount of the latter had been ¥120,000,000, while the former amounted to ¥210,000,000. While the reserves held at home increased gradually, the rate of increase was not remarkable, the amount being roughly ¥400,000,000 at the end of 1918. On the other hand, the amount held abroad reached ¥480,000,000 at the end of 1916, and came to exceed ¥1,050,000,000 at the end of 1918.

To summarize, the growth of favorable international credits resulted in the increase of bills held by the exchange banks, and in consequence of the purchase of these bills by the Government and the Bank of Japan, specie reserves held abroad increased markedly. Since some part of these reserves was imported to Japan, the reserves held at home also grew in amount. These enormous specie reserves were without precedent in Japanese history.

A new question arose in Japanese economic discussion: how to make the best of these specie reserves. The principal opinions advanced were that foreign liabilities should be redeemed with the increased specie; that it should be hoarded in anticipation of economic disturbances after the War; that such specie should be employed as capital for the encouragement of home industries, the extension of markets, for foreign investments, etc.; and that it should be used in subscriptions to Allied loans.

In April, 1916, the Government decided to inaugurate a policy which with the preservation of its specie reserves, would also mean the redemption of foreign liabilities and the employment of specie as capital.

While the specie reserves of Japan were increasing, in some countries the exporting of gold was restricted. Down to September, 1917, Japan could still draw gold from the United States; but thereafter this source also was cut off. Accordingly, the Japanese Government was obliged in the same month to enter upon the control of the export both of gold coin and bullion.

3. Financial Measures taken for the Regulation of the Foreign Exchange Market.

As stated above, the gold reserves of Japan, especially those held abroad, increased markedly. This resulted in a rise in the value of Japanese money in exchange quotations.

But in studying Japanese exchange quotations, the following three points must be remembered:

(1) Japanese quotations, unlike those for Occidental countries, are not fixed by the open competition of all banking organs, but almost exclusively by the Yokohama Specie Bank.

(2) The rates of exchange quoted by the Yokohama Specie Bank are not decided entirely by itself, but are influenced to no small extent by the views of the Government and of the Bank of Japan. Furthermore, the Japanese financial authorities, following their traditional policy of encouraging exports, are prone to favor rates advantageous to exportation and disadvantageous to importation.

(3) Finally one must remember that there was a change in the specie point after the outbreak of the War. Ordinarily, the specie point is decided by the fineness and weight of the specie, and by the cost of moving it. But as a result of the rise in the cost of transportation, the appearance of paper standards and the prohibition of the export of gold in almost every country, exchange quotations fluctuated beyond the ordinary specie point.

i. Funds Required in the Foreign Exchange Market.

It had been a long-cherished desire of Japan to reverse her international financial position; and the World War afforded her an unexpected chance to do so. The Government availed itself of the opportunity. It sought to broaden the market for Japanese products; and the exchange banks coöperated with it in this movement for a greater development of trade.

As a general rule, exchange funds to be used by the banks of Japan are composed of (1) funds in their own hands, (2) funds drawn from the money market, (3) advances by the Bank of Japan; and (4) funds raised by specie shipment—the last resort.

As we have said, the trade balance in favor of Japan increased remarkably, and the bills held by the exchange banks grew in volume; consequently the lack of exchange funds steadily became more stringent.

An enormous amount of call money was withdrawn by the exchange banks from the market; and advances by the Bank of Japan to the Yokohama Specie Bank and the Bank of Taiwan as exchange funds were greatly increased. The increase of the issue of banknotes is attributed to the increase of these advances. Since, however, there

are limits to the increase of bank-note issues, and to the withdrawal of call money from the market, the exchange banks were obliged to import specie from 1915 on with the object of supplying the funds required in foreign exchange and facilitating the settlement of international accounts. From the middle of 1917, it became difficult, on account of the restrictions placed on the export of gold in other countries, to utilize even this last resort; and finally, from September of that year, on account of the prohibition of gold exports in the United States, it became impossible. Thus, the purchase of exchange bills by banks was brought to a standstill, and the exchange funds question became more serious.

In view of these facts, it was feared that the exchange banks would be driven to advance the rate of export exchange quotations, and even to refuse to purchase such bills. But since the economic prosperity of the country after the outbreak of the War was chiefly due to the development of the export trade, business interests felt an advance in the rate of exchange quotations, to the disadvantage of the export trade, would be intolerable.

Accordingly, these three measures were proposed: (1) The making of foreign investments, by (a) the redemption of Japanese foreign loans; (b) the purchase of foreign bonds; (c) the raising of foreign loans in Japan; (d) the granting of credits to foreign countries; and (e) the making of investments in foreign enterprises.

The chief object here contemplated was the disposal of resources; and, in the urgent state of the shortage of funds, they were not considered sufficient.

(2) The issue of internal loans.

This was considered superior to the first as a temporary expedient for supplying the funds demanded for exchange operations.

(3) Suitable changes in the rates of exchange quoted.

In 1918, Japan's imports began to increase in volume; but as the receipts from "invisible items" were still increasing, the foreign-exchange adjustment question remained unsettled.

ii. Measures taken to Adjust the Foreign-Exchange Market.

As stated above, the foreign-exchange adjustment question arose in 1916, when, the specie reserves of Japan having gradually increased, it became necessary to discover how to make the best use of

them. But, from 1917 on, the exchange banks suffered from a lack of funds, and to adjust the foreign-exchange market the following four measures were taken:

(1) The purchase of specie by the Government.

In September, 1914, the Government determined, with the above object, to purchase specie abroad; and, making arrangements with the Yokohama Specie Bank, the Bank of Taiwan, and the Bank of Chosen, it negotiated these specie purchases through the medium of the Bank of Japan.

(2) Foreign Investments.

During the War the amount of foreign investments which were made with a view to trade expansion overseas, and for the adjustment of the foreign-exchange market, reached an enormous figure. At the end of 1918 the foreign government bonds which had sold in Japan since the outbreak of the War amounted to the totals below:

British	¥198,171,282,259
French	130,280,670,900
Russian	250,628,882,600
Chinese	124,688,817,050
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Grand total	¥708,658,602,809

(3) The issue of Special Exchequer Notes.

In July, 1917, the Special Exchequer Notes Law was enacted to make easier the handling of such exchange funds as were needed for overseas trade, and for the arrangement of payment for munitions supplied to the Allies. Under this law, special exchequer notes might be issued up to ¥200,000,000. In 1918 the limit was extended to ¥500,000,000. The amount of issue of these notes at the end of 1918 was as follows:

(a) For arranging payment for munitions supplied to Russia	¥268,650,025
(b) For arranging payment for arms supplied to China	18,000,000
(c) For raising exchange funds	149,998,850
	<hr/>
Total	¥426,648,875
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Remaining amount of issue	¥ 78,856,125

(4) The Organization of a Special War-time Exchange Commission.

In September, 1918, with the object of providing funds for use in foreign exchange and of maintaining the stability of the rate, there was appointed a Special War-time Exchange Commission. To it was given the responsibility of considering and proposing the expedients which might be held to be most suitable for meeting the situation.

4. *Fluctuations of Foreign Exchange Rates.*

i. Exchange on Great Britain.

At the beginning of the War, for a time trading in European exchange was entirely interrupted by the dislocation of the London money market; and in general rates remained at a low level. However, the market began gradually to advance, and in January, 1915, exchange on London—the bank selling rate—registered an advance of one point. After that time it continued to advance, affected by the decline of the Anglo-American cross rate. This advancing tendency was noticeable in the rate on export bills, owing to the thriving condition of the export trade, and the bank buying rate advanced in July, 1915, to $2/1\frac{1}{4}$ for four months bills, a gain of 13 points over that for the preceding July.

After the outbreak of the War, European exchange on the United States became generally unfavorable, owing to the sudden increase of liabilities caused by the purchase of war materials and other commodities. The Anglo-American exchange rate showed a tendency to decline notwithstanding the great financial power of Great Britain and the various measures taken by her financiers. Naturally, the foreign exchange rates of Japan were affected by this general tendency. Exchange on London advanced four times in August, 1915; while on the 9th of September the bank selling rate advanced to $2/0\ 15/16$ for sight bills, a gain of 3 points, and the buying rate rose to $2/1\ 15/16$ for four months bills, gaining 5 points. Such a remarkable advance in exchange on Great Britain was mainly due to the above-mentioned favorable state of Japanese exchange conditions, but there were some other reasons. When the Anglo-American cross rate began to decline, the exchange banks of Japan attempted to oppose such a trend by making allowance for the advance of exchange on Great Britain, and by lowering the exchange rate on the United States. Consequently, conditions of Japanese exchange on the United States became unfavorable and caused an export on

specie. In view of this development, the Japanese exchange banks decided to change their attitude, and strove to accommodate themselves to the tendency, as a natural one. Thereafter, exchange on Great Britain was several times advanced, and in December, 1915, the bank selling rate reached $2/1 \frac{5}{16}$ for sight bills, while the buying rate attained $2/2 \frac{5}{16}$ for four months bills.

At the end of February, 1916, these rates stood at $2/1 \frac{3}{16}$ and $2/1 \frac{15}{16}$ respectively, and remained stationary until May 6. This was due to a sluggishness in exports from Japan, and to the recovery of the Anglo-American cross rate. However, in the latter half of this year the rate began to advance gradually, and with none of the sharp fluctuations of the preceding year. In the beginning of November the bank selling rate reached $2/1 \frac{9}{16}$ for sight bills, while the buying rate attained $2/2 \frac{7}{16}$ for four months bills, and remained stationary until August, 1917. In the following month the exchange banks of Japan were obliged to raise their rates owing to the want of exchange funds caused by the prohibition of the export of gold from the United States. Thereafter exchange on Great Britain was several times advanced and at the end of the year the bank selling rate reached $2/1 \frac{3}{4}$ for sight bills and the buying rate attained $2/2 \frac{11}{16}$ for four months bills.

During the next year, 1918, the foreign exchange rates of Japan continued to advance owing to the one-sided condition of international exchange and to the thriving condition of the export trade; and exchange on Great Britain was advanced several times. Finally, in June the bank selling rate reached $2/2$ for sight bills, and the buying rate attained $2/3 \frac{1}{16}$ for four months bills. This tendency to advance became conspicuous in the latter half of the year, the active period of Japanese export trade, and in November the rates were advanced to $2/2 \frac{3}{8}$ and $2/3 \frac{11}{16}$ respectively.

ii. Exchange on France.

Exchange on France is always affected by the fluctuations of British exchange, and of the Anglo-French cross rate, since it is settled through the medium of Great Britain. However, after the outbreak of the War, French exchange was more unfavorable than British exchange. This was due to the fact that France got a large supply of war materials and other commodities from Great Britain

and the United States during the War, and the condition of her international account became highly unfavorable.

In the first half of 1914 exchange on France had been generally quiet, but from the beginning of the War it declined; and at the end of the year the bank selling rate fell to 2.52 fr. for sight bills and the buying rate stood at 2.63 fr. for four months bills. If, however, we take into consideration the condition of the money markets of London and Paris, and the situation of the international account of France, such a low rate could not continue long; and after February, 1915, it began to advance. This tendency to advance was especially conspicuous in June, and at the end of that month the bank selling rate advanced to 2.71 1/2 fr. for sight bills and the buying rate to 2.85 fr. for four months bills, gaining 24 and 30 points respectively, over those at the end of the previous month. Later, though the rate declined slightly in the middle of July, the general tendency continued to be an advancing one; and at the end of the year the bank selling rate rose to 2.91 1/2 fr. for sight bills, and the buying rate to 3.14 fr. for four months bills.

In the next year, 1916, the rate began to advance in the latter part of March, in consequence of the unfavorable conditions of Anglo-French exchange, and in May the bank selling rate reached 2.97 1/2 fr. for sight bills and the buying rate attained 3.19 fr. for four months bills. Between the middle of September and the beginning of November it declined several times, owing chiefly to the recovery of the Anglo-French exchange rate which resulted from the adjustment measures taken by the French Government and financiers. At the same time, this decline may be looked upon as a reaction from an abnormal advance of Japanese exchange on France. On November 2, however, a gain of 2 points was recorded owing to the increase of exports and to the want of exchange funds.

In April, 1917, the United States entered the War and gave a great impulse to the Allied side. The advancing tendency of the Anglo-French exchange rate was tempered favorably by the news that the United States might render special assistance to France. Consequently, the bank selling and buying rates recorded a decline of 6 and 4 points respectively; but in the latter half of the year it was necessary to advance rates several times, owing to the advance of exchange on Great Britain; and at the end of the year the bank

selling rate stood at 2.96 for sight bills and the buying rate at 3.13 fr. for four months bills.

In the next year, 1918, the rate remained about the same until May; but after that it began to advance again owing to the arrival of the exporting period and to the want of exchange funds; in July the bank selling rate advanced to 3.01 fr. for sight bills, and the buying rate to 3.20 fr. for four months bills, while on November 14 both rates fell precipitately—30 and 8 points respectively—owing to the fall of the Anglo-French exchange rate caused by the news of the conclusion of the Armistice.

iii. Exchange on the United States.

Japanese trade with the United States went up even through the trade disturbances after the outbreak of war. When the United States' market became prosperous, through the growing war orders, Japanese trade with America was likewise greatly stimulated. The excess of Japanese exports over imports during the War may be attributed mainly to the succession of orders arriving from Europe for war materials, and from the South Seas and neighboring countries for Japanese goods. But the prosperous state of her export trade with the United States must also be reckoned as an important factor. Nevertheless, exchanges on the United States declined gradually after the outbreak of the War, because the exchange banks of Japan had refrained from raising the rate, with a view to encouraging this export trade. And as we have already stated, when the Anglo-American cross rate began to decline, the Japanese exchange banks attempted to halt this movement by making allowance for the advance of exchange on Great Britain, and by lowering the exchange rate on the United States. Consequently, the bank selling rate on New York fell below the specie shipping point (\$48 $\frac{7}{8}$ ² for sight bills) after February, 1915, and caused an export of specie. In August the Anglo-American exchange rate fell rapidly and after the 18th of that month the rate on the United States became nominal, because of the difficulty of anticipating the future. On the 25th, the bank selling rate fell to 48 $\frac{1}{8}$ for sight bills, a fall of 6 points compared to that at the beginning of the month; and in the middle of the month the buying rate stood at 50 $\frac{1}{4}$ for four months bills, a

² For ¥100.

decline of 1 point. This was due to the fact that the rate on Great Britain had not been advanced in accordance with the slump in the Anglo-American cross rate, and as a matter of course the outflow of specie continued. The result was that the exchange banks decided to change their attitude and accommodate themselves to the natural tendency. Exchange on the United States began accordingly to advance after the next month; toward the end of November it advanced twice owing to the active state of the export trade with that country. In the month that followed, it advanced several times; and at the end of the year the bank selling rate reached $49\frac{5}{8}$ for sight bills and the buying rate attained $51\frac{5}{8}$ for four months bills.

In 1916 the bank buying rate recorded a decline of 1 point in February, and again in March; and the selling rate gained 1 point in May. After that both buying and selling rates advanced, due to the thriving condition of the Japanese export trade, and at the end of October the bank selling rate advanced to $50\frac{1}{2}$ for sight bills and the buying rate to $51\frac{7}{8}$ for four months bills. Thenceforth, they remained generally stationary until August, 1917, except for a slight advance of the selling rate in May. The Japanese export trade continued brisk; and after the prohibition of gold exports from the United States in September, the lack of exchange funds became marked and the rate continued to advance. At the end of the year the bank selling rate rose to 51 for sight bills and the buying rate to $52\frac{3}{8}$ for four months bills and remained fixed until March, 1918. Then they began to advance again and from May to November they advanced almost every month. Finally, in November, the former reached $52\frac{1}{4}$ and the latter $54\frac{5}{8}$.

iv. Exchange on Russia.

After the outbreak of the War the foreign exchange rates of almost all the belligerent Powers became unfavorable on account of the raising of war funds, and because of the enormous amounts of war materials and other commodities which they were importing. Above all, the drop in the value of the Russian ruble was most striking. The following may be regarded as the principal factors concerned:

(1) In the years preceding the War a large amount of foreign capital had been required by Russia to settle her international accounts. This inflow of capital was stopped with the War; moreover,

her export trade was much reduced, while her imports of war materials and other commodities were growing to large amounts.

(2) The inflation of inconvertible bank-notes.

(3) Speculation in foreign exchange. After the outbreak of the Russian revolution in 1917, with the repeated political disturbances it caused in the principal cities, Russia's foreign exchange rate was particularly and most adversely affected. The following is a brief survey of the course of the fluctuations of Japanese exchange on Russia during the War.

Soon after the beginning of the War, exchange on Russia began to advance and at the end of July, 1914, the bank selling rate on Harbin rose to 99 and the buying rate to 100 for sight bills. These rates had been 96.85 and 97.60 respectively at the beginning of the month. After that time they continued to advance and at the end of the year the former reached 119½. In the next year, 1915, this upward trend continued. At the end of June the bank selling rate rose to 125 for sight bills and the buying rate to 128½ for thirty-day bills; while at the end of December the former reached 163 and the latter 168½. In February and March, 1916, though the upward tendency had been checked to some extent by the selling of Russian Treasury Bills in Japan, that measure did not suffice to relieve the situation. At the end of June the bank selling rate advanced to 165 for sight bills, and the buying rate to 171½ for thirty-day bills; while at the end of December the former reached 173 and the latter 181.

The Russian Revolution broke out in April, 1917. At the end of June the bank selling rate had advanced to 214 for sight bills and the buying rate to 224 for thirty-day bills, an increase of more than 100 per cent over the specie point. Trading in Russian exchange, therefore, came almost entirely to an end; and the Russian Government decided to prohibit the drawing of money orders on foreign countries on and after July 1. The value of the Russian ruble was not, however, improved by this measure, but continued to fall. The bank selling rate for sight bills advanced to 286, 290, and 430 at the end respectively of July, August, and September; and in December exchange was quoted for a time at 880. The bank buying rate for thirty-day bills rose to 298, 302, and 442 at the end of July, August, and September, and in December it even reached the level of 940.

In 1918 exchange on Russia showed no such sharp fluctuations as in the latter half of the preceding year, owing to the gradual restoration of public order in that country. In fact its tone became rather weak. In the last days of March the bank selling rate dropped to 350 for sight bills and the buying rate to 445 for thirty-day bills; while at the end of the next month they even fell to the level of 310 and 400 respectively.

v. Exchange on India.

Upon the outbreak of the War exchange on India declined for a few months owing both to the stringency of the Indian money market and to the approach of the period of demand for Indian cotton. At the end of 1914 the bank selling rate fell to $151\frac{1}{2}$ ^s for sight bills, and the buying rate to $154\frac{1}{2}$ for thirty-day bills. They had been $153\frac{1}{4}$ ^a and 156 respectively at the end of July. This decline was, however, checked from the beginning of 1915 owing to the favorable condition of Japan's exchange, due to the thriving condition of her export trade,—above all to the increase of her exports to India, and the sudden increase of revenues other than those from trade. The demand for Indian cotton also increased remarkably with the prosperity of the Japanese cotton spinning industry. At the end of June the bank selling rate advanced to 155 for sight bills, and the buying rate to $157\frac{1}{2}$ for thirty-day bills; at the end of December they rose to $158\frac{1}{2}$ and $161\frac{3}{4}$ respectively; and at the end of November of the year following, 1916, the former reached $159\frac{1}{4}$ and the latter $161\frac{1}{2}$. However, in December, 1916, the drawing of money orders on India was interrupted for a time by the restrictions placed in London on the issue of India Council Bills. Cotton dealers in Japan were panic-stricken, for Indian cotton constitutes about 70 per cent of the total imports of foreign cotton; and for a time the Japanese export trade to India was blocked. Consequently, the exchange rate on India was lowered twice in December, and the bank selling rate fell to $158\frac{1}{4}$ for sight bills and the buying rate to $160\frac{1}{4}$ for thirty-day bills.

In the next year, 1917, the maximum issue of India Council Bills was decreased several times and their sale price was advanced gradually. As a result, the exchange rate on India entered a phase of decline; at the end of June the bank selling rate fell to $150\frac{1}{4}$ for sight

^a For ¥100.

bills and the buying rate to $152\frac{1}{2}$ for thirty-day bills, while at the end of August the former declined to $148\frac{3}{4}$ and the latter to 151.

In September, 1917, the United States prohibited the export of gold and it again became difficult to settle international accounts between Japan and India. Consequently, Japanese exchange on India became unfavorable, and the rate continued to decline. In the following month the bank selling rate fell for a time to $144\frac{1}{2}$ for sight bills and the buying rate to 148 for thirty-day bills. Relief measures were promptly taken by the Government and the market was able to resume its normal condition, but it was impossible to restore the exchange rate. After February, 1918, in particular, it began to decline gradually, as may be seen in the following table, on account of the tightness of the Indian money market and the advance of the sale price of India Council Bills, until it assumed a tendency to advance after August.

<i>At the end of</i>	<i>Bank selling rate for sight bills</i>		<i>Bank buying rate for thirty-day bills</i>	
	Rupees	(per ₹100)	Rupees	
December, 1917	147		150	
January, 1918	147		150	
April, 1918	146		149	
June, 1918	148		146	
July, 1918	$148\frac{1}{2}$		$146\frac{1}{2}$	
August, 1918	$145\frac{1}{2}$		$148\frac{1}{2}$	
November, 1918	$154\frac{1}{2}$		$157\frac{1}{2}$	

vi. Exchange on China.

Exchange on China experienced sharp fluctuations during the War in sympathy with the condition of the London price of bar silver. Soon after the outbreak of the War, while the London bar silver market was closed for a time, the drawing of money orders on China was interrupted and it became impossible to quote an exchange rate. A nominal rate on Shanghai, in accordance with the spot price of silver, was published on September 3. A corresponding rate on Hongkong was published on the 7th, but the trading in Chinese exchange could not be restored to its normal condition. The London bar silver market was reopened, but the price continued to be low until October, 1915, due to the decrease of demand in China and India. Consequently, exchange on China generally maintained a high level, and the bank selling rate on Shanghai was always above

the level of 85 for sight bills and the buying rate above 87 for ten-day bills. In August, 1915, the former reached $91\frac{1}{4}$ and the latter $92\frac{3}{4}$.

During the month that followed, however, the price of bar silver began to advance owing alike to the increasing demand, the decrease of production and the prohibition of the export of silver in various countries. Speculation on the part of silver brokers also contributed to the advance. Exchange on China continued to decline; and when the silver price reached the level of 55 d. (the highest price since 1879) in September, 1917, the bank selling rate on Shanghai declined to $42\frac{1}{4}$ for sight bills, and the buying rate to $44\frac{1}{4}$ for ten-day bills. It was said that such a rate was unprecedented in the whole period of trading in Chinese exchange. It put Japanese importers under the greatest pressure. There was also a considerable outflow of specie, for there exist some differences between silver prices in London and in China.

From the end of 1917 the exchange rate on Shanghai maintained the level of 50 for a few months, while from April, 1918, the price of silver began to advance still further in anticipation of the increasing demand for that metal; and the exchange rate on China declined. At the end of May the bank selling rate on Shanghai fell to $47\frac{1}{2}$ for sight bills and the buying rate to 49 for ten-day bills; while at the end of June the former declined to $46\frac{1}{4}$ and the latter to $47\frac{3}{4}$. Thereafter the tendency to decline became more conspicuous, and in September the rates even reached the level of $38\frac{1}{2}$ and 40 respectively. This was due to the unusual tightness of the Shanghai money market as also to the advance in the price of silver.

CHAPTER III

DOMESTIC TRADE

1. *General Remarks.*

THE domestic trade of Japan during the War flourished greatly, we have said, as a result of the extraordinary growth of Japan's foreign trade. The easiness of the money market, caused by the abundant specie reserves and the inflation of the currency, had the effect of raising the value of bonds and stocks, and of stimulating the stock market. At the same time commodity prices steadily advanced, new enterprises were launched in rapid succession, and in general home trade prospered. The number and amount of capital of newly organized companies, launched in war-time—including both those which engaged in the storage business, in banking, insurance, trust company enterprises, and also those that went into regular buying and selling—was as follows:

<i>Year</i>	<i>Number of Newly Organized Companies</i>	<i>Capital of Newly Organized Companies (in yen)</i>
1918	1,584	24,898,989
1914	1,484	15,978,024
1915	1,407	18,718,065
1916	1,276	24,875,459
1917	1,629	83,760,668
1918	3,078	314,867,818

The figures for notes and currency, which serve as the medium of home trade, also tell the story—as below:

<i>At the end of</i>	<i>Total Amount of Notes Cleared (in yen)</i>
1914	10,269,206,710
1915	11,625,720,184
1916	20,284,749,616
1917	81,749,588,515
1918	53,273,378,832

<i>At the end of</i>	<i>Total Amount of Specie and Bank- notes in Circulation (in yen)</i>
1914	546,890,145
1915	582,486,995
1916	760,061,602
1917	1,014,266,142
1918	1,885,827,227

During the four years from 1914 to 1918 the former increased, roughly, five times, the latter two and a half times.

The thriving condition of oversea trade and the prosperity of the manufacturing industries meant easier money for the employer, and wages were advanced. Farming profits increased with the rise in the price of agricultural products. In city and country the growth of purchasing power was the same; and the market for staples, especially cotton and silk stuffs, became buoyant.

As evidence of the increasing means at the disposal of the people, one can point to the bank deposits. And here the war-time increase was a threefold one. The figures follow:

<i>At the end of</i>	<i>Total Amount of Deposits in the Post Office Savings Bank (in yen)</i>
1914	196,072,481
1915	219,547,766
1916	295,078,588
1917	411,788,584
1918	554,984,729

<i>At the end of</i>	<i>Total Amount of Deposits in the Savings Banks throughout the Country (in yen)</i>
1914	876,066,052
1915	528,988,560
1916	644,252,418
1917	858,222,984
1918	1,195,614,042

<i>At the end of</i>	<i>Total Amount of Deposits in Ordinary Banks throughout the Country (in yen)</i>
1914	1,519,760,482
1915	1,699,566,268
1916	2,256,881,009
1917	3,288,918,954
1918	4,689,814,957

Railroads, both state-owned and private, also profited, as the figures to follow make plain.

Freight Carried on Railroads, both State and Privately Owned.¹

<i>Financial Year</i>	<i>State owned Tons</i>	<i>Privately owned Tons</i>	<i>Total Tons</i>
1914-1915	85,272,875	4,948,292	40,216,167
1915-1916	85,800,664	5,790,479	41,591,148
1916-1917	42,100,784	7,664,474	49,765,208
1917-1918	48,758,041	9,281,840	57,984,881

Ton Mileage.

	<i>State owned Ton Miles</i>	<i>Privately owned Ton Miles</i>	<i>Total Ton Miles</i>
1914-1915	2,982,798,481	68,700,481	3,046,498,912
1915-1916	8,809,518,677	76,268,090	3,885,781,767
1916-1917	4,179,184,660	99,287,724	4,278,872,884
1917-1918	5,088,844,425	128,271,200	5,156,615,625

The Imperial Government Railroads did what they could to handle the traffic. But they were unable to cope with the sudden increase; and, from the end of 1916, there was a congestion of railway traffic which grew gradually until it reached its climax in the beginning of 1918, as shown below:

<i>At the end of</i>	<i>Congestion of Traffic on Imperial Government Railways Tons</i>
June, 1915	78,092
December, 1915	42,420
June, 1916	80,671
December, 1916	285,422
June, 1917	427,575
December, 1917	781,195
June, 1918	795,011
December, 1918	658,298

2. State of Domestic Trade during the War.

As stated above, the thriving condition of Japan's oversea trade during the War stimulated commercial transactions at home. The prices of commodities steadily advanced owing to the shortage of

¹ The figures for railroads privately owned include those for light railroads. The financial year consists of the 12 months from April 1 to March 31.

transport facilities, to prohibitions on exports in foreign countries, to the inflation of the currency, and to other causes. Moreover, dishonest merchants attempted to seize the chance to gain excessive profits by cornering markets or by withholding commodities from sale, and prices soared accordingly. This increase in prices at last provoked loud protests from one section of the people; and the Government determined to take certain measures to control it. In September, 1917, an anti-profiteering ordinance was adopted. At the same time the various municipalities and department authorities exerted themselves to protect consumers by establishing public markets and taking over the sale of the necessities of life. Certain phases of the matter will here be dealt with in greater detail.

If we take trade in the broadest sense, it includes not only buying and selling but also banking, railroading, shipping, stock exchange transactions, the storage business, insurance, and the like. Banking, railroading, and shipping will be dealt with in other parts of this work and transactions on change will be treated in the following chapter. We will deal here only with warehousing and insurance.

i. The Insufficient Supply of Commodities and the Advance in Prices.

After the outbreak of the War it became difficult to import many classes of commodities owing to export prohibitions abroad and the shortage of transport facilities. The demand for certain of these commodities was met in part by the production of substitutes at home, but the supply proving deficient, there was an abnormal advance in prices. Among other staples that became difficult to import were phosphorite, sulphate of ammonium, cubic niter, tinned iron sheets and tinned steel sheets, crude gums, glue, chlorate of potash, phosphorus, salicylic acid, carbolic acid, caustic soda, peroxide of soda; wool, iron and copper, machinery and locomotives, mercury, zinc sheets, dynamite.

The prosperity of certain industries, and the increase in the demand for commodities caused an increase of traffic at home. As, to repeat, railroad facilities proved unable to handle this increase and freight that could not be moved was piled in heaps. Moreover, the moving of some commodities became difficult because of the advance in freight rates and the increase in other expenses.

The index number of prices in Tokyo,—taking the ruling prices

in October, 1900, as 100—stood at 126 in July, 1914, and at 120 in December of the same year. Then it rose to 142 in December, 1915, 173 in December, 1916, 220 in December, 1917, and 283 in December, 1918. Compared with that of July, 1914, the last mentioned figure shows an advance of no less than 125 per cent.

On the one hand this advance in the prices of commodities brought about the inflation of the currency, while on the other hand the shortage of commodities brought about further declines in the value of money. Thus the inflation of the currency and the shortage of commodities worked together to drive prices steadily higher.

ii. The Anti-Profiteering Ordinance.

From the Spring of 1917 the advance in prices became intense. The increase in the cost of necessities came especially to be a menace to the stability of national life. As we have said, too, there were those who attempted to drive prices higher by cornering markets or withholding commodities from sale. The Government, therefore, determined to control such disturbers of society; and, in September, 1917, the Department of Agriculture and Commerce issued the Anti-Profiteering Ordinance, already mentioned.

Under this Ordinance the Minister of Agriculture and Commerce was empowered to warn all persons who attempted to profiteer in cereals, iron, coal, cotton yarns and fabrics, paper, dye, and medical supplies, against cornering or withholding such commodities from sale.

Offenders against this Ordinance were liable to imprisonment for a term not exceeding three months, or to a fine, not exceeding ¥100.

iii. The Establishment of Public Markets.

Public markets were established. They were established first in the large cities, such as Osaka, Tokyo, Kobe, Yokohama, and Nagoya, following the abnormal advance in the price of rice, in 1918; later they were established throughout the country. The management of these public markets was undertaken by the local department authorities and by the various municipalities concerned, or in other cases, they were entrusted to private hands. Markets of the latter kind were mostly established only for the time, and were meant merely to give help to the poorest people. As for the regular com-

munity markets, markets intended to play a permanent part in the supply of foodstuffs, at first they were few, their scale being small and their equipment imperfect. The first was established in Osaka, in April, 1918. Since, however, their establishment served to make life more tolerable, their number was increased rapidly. By the end of 1918 there were six in Tokyo, four each in Osaka, Yokohama, and Nagoya, and three each in Kobe and Kyoto.

The commodities which were sold in these community markets included almost all the necessaries of life, such as foodstuffs, cloth of every kind, clothing, fuel, and so on. Prices were from 5 to 50 per cent lower than those in the regular markets, and people of the middle and lower classes took full advantage of this. The establishment of community markets, therefore, while a blow to retailers, contributed to no small extent to check the advance of ordinary market prices, and to lessen the cost of living.

iv. The Warehousing or Storage Business.

As a matter of course the flourishing state of trade during the War led to activity in the warehousing or storage business, as will be seen in the following table:

<i>At the end of</i>	<i>Number of Warehouses</i>	<i>Value of Goods Stored</i> (in ¥1,000)
1918	50	127,848
1914	76	124,510
1915	77	157,672
1916	72	278,647
1917	78	485,288
1918	78	526,555

Value of Goods Entered and Withdrawn in the Principal Storage Warehouses of Tokyo, in yen.

	<i>Entered</i>	<i>Withdrawn</i>	<i>Balance</i>
December, 1914	11,049,170	10,181,125	24,944,772
December, 1915	15,835,201	18,718,410	82,268,824
December, 1916	28,692,782	19,512,656	44,672,082
December, 1917	28,441,578	28,598,445	57,580,275
December, 1918	88,278,782	85,808,979	86,917,000

*Value of the Chief Commodities Stored in the Principal Warehouses
Throughout the Country.*

<i>At the end of 1913</i>		<i>At the end of 1917</i>	
<i>Commodity</i>	<i>Value, in yen</i>	<i>Commodity</i>	<i>Value, in yen</i>
Rice (Formosan, Corean, and of foreign origin)	15,472,985	Rice (home grown)	11,772,504
Raw sugar	13,798,885	Rice (Formosan, Corean, and of foreign origin)	11,272,960
Indian cotton	12,768,407	Beans and peas	16,886,479
<i>At the end of 1914</i>		Other foodstuffs	12,540,680
Raw sugar	10,926,659	Cotton fabrics	48,040,722
<i>At the end of 1915</i>		Woolen fabrics	16,801,795
Rice (home grown)	23,950,601	American cotton	16,124,759
Cotton fabrics	10,298,788	Indian cotton	68,771,802
Indian cotton	18,270,892	Cotton yarns	22,495,880
<i>At the end of 1916</i>		Wool	18,086,715
Rice (home grown)	24,757,198	European paper	11,289,082
Beans and peas	14,887,286	Iron manufactures	81,780,911
Cotton fabrics	19,429,248	Metal manufactures	12,141,208
American cotton	23,167,079	Metals, miscellaneous	12,272,027
Indian cotton	42,107,849	Drugs, dyes, and paints	17,576,248
European paper	10,086,017	Miscellaneous	15,710,856
Metals, miscellaneous	12,858,527		
Drugs, dyes, and paints	10,702,865		

It can be seen from this table that until the end of 1915, the principal commodities stored were agricultural products or raw materials for manufacturing purposes, while at the end of 1917 many kinds of wholly manufactured articles, such as cotton fabrics, cotton yarns, woolen fabrics, European paper, metal manufactures, drugs, dyes, and paints were added. This may be taken as a further indication of the activity of the trade in these commodities.

v. Insurance.

Generally speaking, the prosperity of the insurance business rises and falls with the state of trade. For a while, after the outbreak of war, the insurance business of Japan was adversely affected by trade depression. But, with its recovery during the latter half of 1915, marine and transport insurance underwent an extraordinary expansion; and other kinds of insurance also displayed a moderate development as a result of the increase in national wealth. Below we at-

tempt to give a brief survey of the state of the insurance business of Japan in war time.

(1) *Marine Insurance.*

<i>At the end of Financial Year²</i>	<i>Number of Companies³</i>	<i>Number of Policies</i>	<i>Amount of In- surance in force (in ¥1,000)</i>	<i>Total (in ¥1,000)</i>
1912-1918	{ 11	24,109	92,823	107,258
	{ 12 ⁴	11,521 ⁴	14,985 ⁴	
1918-1914	{ 11	26,671	97,885	108,457
	{ 12 ⁴	8,471 ⁴	10,622 ⁴	
1914-1915	{ 11	89,599	189,550	208,948
	{ 12 ⁴	8,674 ⁴	19,898 ⁴	
1915-1916	{ 12	47,055	299,544	825,517
	{ 18 ⁴	8,186 ⁴	25,978 ⁴	
1916-1917	{ 17	68,807	265,792	817,958
	{ 18 ⁴	10,891 ⁴	52,161 ⁴	
1917-1918	{ 22	80,927	278,911	842,749
	{ 18 ⁴	18,286 ⁴	68,788 ⁴	

It was in this field that the effect of the War was most marked; and the growth in marine insurance during the War was caused by the expansion of Japan's oversea trade and the increased activity of enemy submarines. The above-mentioned War-time Marine Insurance Compensation Act and the War-time Marine Reinsurance Act were also of assistance.

(2) *Inland Marine Insurance.*

<i>At the end of Financial Year</i>	<i>Number of Companies</i>	<i>Number of Policies</i>	<i>Amount of Insurance in force (in ¥1,000)</i>
1912-1918	7	4,608	5,985
1918-1914	7	8,741	7,171
1914-1915	8	8,186	5,898
1915-1916	8	4,178	7,581
1916-1917	9	4,964	12,666
1917-1918	9	7,152	25,588

² The financial year consists of the 12 months from April 1 to March 31.

³ In the figures for the number of companies are included those for companies which write both marine and other forms of insurance. This also applies to the tables which follow.

⁴ Foreign companies writing insurance in Japan.

Inland marine insurance also owed much to the War, its development ranking next to that of marine insurance. According to the above table, although affected adversely by the depression in 1914-1915, it recovered in the year following and remained active after that time, especially in 1917-1918. The amount of insurance in force at the end of that year shows an increase to more than three times the pre-war financial year 1913-1914. Such an expansion was due to the increase of home traffic and the advance of commodity prices.

(3) *Life Insurance.*

<i>At the end of Financial Year</i>	<i>Number of Companies</i>	<i>Number of Policies</i>	<i>Amount of Insurances in force (in ¥1,000)</i>	<i>Total (in ¥1,000)</i>
1912-1913	{ 88 5 ^s	1,467,128 26,097 ^s	788,248 65,517 ^s	853,765
1913-1914	{ 42 5 ^s	1,697,624 28,902 ^s	964,488 51,204 ^s	1,015,687
1914-1915	{ 41 4 ^s	1,862,488 24,148 ^s	1,085,042 51,881 ^s	1,186,928
1915-1916	{ 41 4 ^s	1,816,292 24,287 ^s	1,072,229 52,498 ^s	1,124,727
1916-1917	{ 40 4 ^s	1,849,765 26,068 ^s	1,180,847 58,962 ^s	1,189,809
1917-1918	{ 40 4 ^s	2,027,022 28,281 ^s	1,295,906 68,595 ^s	1,864,501

According to this table, the amount of insurance in force shows a yearly increase, except in 1915-1916, and a somewhat conspicuous increase in 1917-1918 due to the general prosperity.

^s Represents the figures for foreign insurance companies in Japan.

DOMESTIC TRADE

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(4) *Fire Insurance.*

<i>At the end of Financial Year</i>	<i>Number of Companies</i>	<i>Number of Policies</i>	<i>Amount of Insurances in force (in ¥1,000)</i>	<i>Total (in ¥1,000)</i>
1912-1913	{ 24 24 ^o	697,448 61,254 ^o	1,566,488 530,772 ^o	2,097,255
1913-1914	{ 25 24 ^o	876,853 97,497 ^o	1,688,742 768,045 ^o	2,456,787
1914-1915	{ 20 23 ^o	908,841 109,880 ^o	2,110,737 788,189 ^o	2,898,926
1915-1916	{ 20 23 ^o	990,288 120,210 ^o	2,374,545 806,765 ^o	3,181,310
1916-1917	{ 22 23 ^o	1,109,260 151,819 ^o	1,808,754 1,060,268 ^o	2,869,022
1917-1918	{ 26 23 ^o	1,828,828 191,239 ^o	2,285,681 1,896,649 ^o	3,632,330

Fire insurance developed satisfactorily, not being greatly affected by the War.

As for other forms of indemnity, accident insurance showed an increase corresponding to that in life and marine policies. But there was little increase in fidelity insurance. And only in 1917-1918 was there any increase in either conscript or in locomotive and boiler insurance that was beyond the average.

^o Represents the figures for foreign insurance companies in Japan.

CHAPTER IV

THE EXCHANGES

1. *The Stock Exchange.*

i. General Remarks.

BEFORE the War, almost every year had brought its complaints of bad times from the business world; and the outbreak of the War was a hard blow to it. The continuation of the War, however, brought unanticipated prosperity. In general the stock market of Japan fluctuated with the general movements of business; but by careful examination some differences may be found.

The period from August to December, 1914, may be called the "period of stagnation." In this period the stock market was adversely affected by the War and it was as dull as it commonly was. This was followed in 1915-1916, and especially between October, 1915, and November, 1916, by unprecedented activity. Various causes contributed to it; and this period may be called the "period of the boom." The report, in December, 1916, that the German Emperor had made peace proposals caused a severe reaction on the stock market; and from then until the conclusion of the Armistice the prevailing tone was one of caution. This, indeed, may be called the "period of caution"; and the stock market was then less active than the general market.

ii. The Period of Stagnation (August-December, 1914).

With the outbreak of the War, the economic life of Japan was gravely affected and the stock market continued to fall from the end of July until about August 10. In the second ten days of August, its tone recovered slightly; but as no one knew how long the War would last nor what its financial and economic effects would be, the market remained unsettled. At the end of the year again it recovered slightly, in expectation of the enforcement at home of measures for the regulation of the price of rice, and for the relief of the raw silk market; but it was still as stagnant as it had been before.

iii. The Period of the Boom (January, 1915-December, 1916).

a. *The Situation in 1915.*

As has been said above, the temporary disturbances caused by the outbreak of the War were followed in 1915-1916 by unprecedented prosperity. The arrival of large orders for munitions from the Allies, and other orders from countries in the Far East and the South Seas, which had ceased to receive their usual imports from Germany and other belligerents, gave an impetus to export trade. The worldwide scarcity of cargo space, and the abnormal increase of the earnings of Japanese ships engaged in foreign trade brought in its train a phenomenal activity in shipbuilding. The sudden decline in imports of industrial chemicals and machinery, and the unmeasured advance in their price stimulated the launching of enterprises for their manufacture at home. Finally, the great accumulation of resources due to both above factors, when working together, made easy the expansion of trade and industry.

Influenced by these conditions, in 1915, the tone of the stock market was almost continuously strong save for a period of reaction in July and August. It was conspicuously active from October on; and its fluctuations for the year were controlled by the course of the War. This was especially true of shipping stocks, and those of companies manufacturing munitions.

Soon after the outbreak of the War, Japan entered it on the Allied side, but being remote from its theater, she sought to do her part by giving the Allies all the financial and economic help that was in her power. This also brought economic prosperity to Japan; and the stock market, for its part, was glad to see the War continue.

b. *The Situation in 1916.*

In 1916 foreign trade reached ¥1,127,000,000 in exports as against imports of ¥756,000,000, a favorable credit balance of ¥371,000,000. The shipping business was also in a very strong position and had earned an immense amount in freight and charterage, bringing the balance of the international account more and more in our favor. As has been said, the specie reserves of the Bank of Japan and of the Government naturally increased, the total reaching ¥714,000,000 at the end of the year. Inflation of the currency

caused a rise in bonds and stocks, and the stock market began to be active.

It continued to be strong throughout the year, save for a temporary fall in February and March. In the latter half of the year especially, notable operations took place almost daily, owing to the fact that the War situation had turned against the Central Powers, and people believed that the War would continue. Conditions were suddenly altered in December by the arrival of the news that Germany had made peace proposals. Shares slumped, and both the Tokyo and Osaka Exchanges had to suspend. A timely step taken by the Bank of Japan, which released such money as was required for the continuance of exchange accounts, averted the danger of a panic. But since the general prosperity was due to the War, the restoration of peace was greatly feared by the bulls; it was this that was behind the above reaction.

iv. The Period of Caution (January, 1917-November, 1918).

a. *The Situation in 1917.*

Though in the early part of this year the general economic situation continued to be buoyant, the extension of the sphere of the War began in time to affect export trade adversely. Abroad, it was affected both by the restrictions placed on the consumption of various commodities and by the various import and export prohibitions that were now in force overseas. At home the Government was taking counter measures. It was prohibiting the export of many things, while the money market, currency, prices, and freight rates were also placed under control.

In the latter half of this year the economic market entered a new era of which the chief characteristic was restraint, in striking contrast to the preceding two years. Fortunately the capital accumulated in the previous period of prosperity saved the market from too heavy a blow, and enabled it to end the year, on the whole, with a feeling of satisfaction.

The market, however, remembered the peace proposals and remained cautious. Its tone was generally weak and the special measures adopted by the United States upon entering the War, in their turn had a bad effect.

b. The Situation in 1918.

The economic situation in this year was also affected by varying conditions incidental to the development of the War. On the whole, however, the situation was favorable, with business conditions developing soundly. The prosperity of our oversea trade remained unbroken and our financial position highly favorable.

The stock market, nevertheless, did not, in 1918, reflect the prosperity of the economic world in general; and probably for these three reasons:

(1) It was unresponsive because of the shock it had received at the end of 1916.

(2) The one-sided condition of international exchange demanded a vast amount of capital for exchange operations; and the exchange banks endeavored to withdraw the required funds from the market. This resulted in an advance in the rate of interest.

(3) The Government enforced various war-time measures and strove to prevent the overdevelopment of the economic market.

The market in 1917-1918 was especially affected by the war-time measures enforced in various countries, and by the varying conditions incidental to the course of the War. The market, however, maintained its attitude of caution, and it did not suffer any profound disturbance even when November, 1918, brought the Armistice.

*2. The Rice Exchange.**i. State of the Rice Exchange during the War.**a. Introductory Remarks.*

The rice market in Japan is governed by its own laws of demand and supply. Generally speaking, the rice crop tends to increase year by year owing chiefly to increases in the area sown and to improvements in methods of cultivation.

The consumption of rice is also on the increase, because the population is growing, and because the use of rice as a food is becoming more and more widespread. In recent years, unless the crop has been unusually heavy, a deficit has had to be met by foreign imports. Japan's rice problem is, therefore, a very serious one, and the price of rice is easily swayed by the prices on foreign markets, and by the condition of the harvest. Moreover, rice quotations fluctuate sharply

because the rice market is not world-wide, and because the Japanese are a rice-eating people who have a special taste for rice that is home-grown.

If we follow the price of rice throughout the War we may say that it was low during the first two years and high during the last two. Conditions in the first two were due to a continuance of the abundant harvests that had marked the years immediately preceding the War. The abnormal rise in the last two war years was due to the increase in rice consumption which accompanied war-time prosperity, and to the increased exports of foodstuffs. Finally in 1918, when the price reached an unprecedentedly high figure, the situation resulted in much bitterness against the rising cost of living; and it resulted in demonstrations and rioting.

b. The Period of Falling Markets (August, 1914-September, 1916).

The price of rice, which had been falling from the beginning of 1913, continued to fall in 1914. With the beginning of the War, however, it advanced slightly because of the rise in prices abroad. Then it began to drop again because the supply was ample and a good harvest was anticipated. In December the fall was remarkable. The question of the stabilization of its price occasioned heated controversy.

In January of the following year—1915—the Government promulgated an Imperial Ordinance, by which it took upon itself the authority to purchase rice in the open market, and by so doing regulate its price. The result was a temporary recovery of prices, but soon they began to decline again owing to an abundant supply. The Government then purchased rice in enormous quantities in the great city markets, but without result. Although the market improved slightly in August because of bad weather, it became weak again owing to favorable weather and large offerings. Rice quotations continued to decline; and in anticipation of a good harvest, they fell below the level of the preceding December. In November there was a temporary recovery owing to the prosperous state of the country; but from February of the following year, the tone became weak again.

It may be said, therefore, that rice remained generally unaffected by the War during this period except for a slight advance in price at the beginning, and save for the influence of the general economic

prosperity at the end. It must be remembered, moreover, that the weak tone of markets in general at the beginning of the War likewise contributed to the fall in the price of rice at that time.

c. The Period of the Boom (October, 1916-December, 1918).

After October, 1916, and under the influence of the War, rice prices began to advance. During the latter part of the autumn they advanced rapidly, because of the inclement weather. But in December they fell again, affected by the shock which the stock market sustained from the peace proposals.

After May of the year following—1917—quotations began to advance conspicuously, reaching their climax in July. Then prices fell to a certain degree, on account of favorable weather; and in September the tone of the market became still more stagnant, on the promulgation of the Anti-Profiteering Ordinance. A violent storm on October 1 sent prices up again, and the Exchange had to close. During the following month prices remained high, and they continued to be so until the end of the year.

In 1918, the market became stronger and prices continued to rise. Almost all counter measures taken by the Government to halt the rise ended in failure, and several times business on the Rice Exchange had to be suspended. Protests against the high cost of living made themselves heard; and finally, in August, disorders broke out, first in several of the large cities, and then in various parts of the country. But while, influenced by the relief measures taken by the Government, prices then declined for a time, the tone of the market continued in general to be as strong as before. And, throughout this period, the condition of the market seems to have been what it was mainly because of the increase in rice consumption, the insufficient supply of foreign rice, the lack of substitutes, and the advance in general prices.

All these causes, directly or indirectly, arose in the War. It brought prosperity to general business; and this both added to the purchasing power of the people and increased their demand for rice. As in the case of staples previously dealt with, there were individuals who, taking advantage of the situation, undertook to drive prices still higher by cornering the market, or by withholding rice from sale. Again, the scarcity of foodstuffs throughout the world made the import of foreign rice difficult, causing rice substitutes to be ex-

ported in increasing volume. And the rice market was sustained and prices pushed upward by all these factors taken together.

ii. Government Measures for Regulating the Price of Rice, and their Influence upon the Market.

a. *Introductory Remarks.*

The war-time rice market suffered from falling prices in the first half of the War, and from rising prices in the second. It is highly interesting, too, that the Government took pains to raise prices in the first half, and to lower them in the second. Indeed, the rice market was continuously affected by Government measures; it is next to impossible to discuss it without referring to them and we shall glance briefly at the Government's efforts in the latter half of the War, when it sought to bring prices down.

Here its measures may be divided into the following three classes:

(1) Measures to lower prices naturally by increasing the supply of rice. Government control over rice imports, and the abolition of the customs duty upon it belong in this class.

(2) Measures to regulate the distribution of rice, control over rice within the country, and the encouragement of holders to dispose of their rice stocks belong in this class.

(3) Measures to control prices artificially by intervening in the operations of the Exchange. The promulgation of the Anti-Profitteering Ordinance and the closing of the Exchange belong in this class.

To compare the measures of the Terauchi Ministry with those of the Hara Ministry, the former employed control measures freely and undertook to intervene in the case of market operations, while the latter sought to follow a policy of *laissez-faire*, and to lower prices naturally by regulating distribution. We give herewith a brief survey of the measures of the Terauchi Ministry:

b. *Measures Taken by the Terauchi Ministry.*

Control of Transactions Which Made for Profitteering.

As already stated, in September, 1917, the Government, through the Department of Agriculture and Commerce, enacted the Anti-Profitteering Ordinance and it applied to all persons who attempted to raise the prices of the necessaries of life, either by cornering the market or by withholding such necessaries from sale. As a result,

the prices of cotton yarns and certain other commodities were notably affected. But the price of rice continued to advance; and as dishonest merchants became more and more active, the Government put the Ordinance into force. This had its effect upon the market, and disturbed it to no small extent.

Restrictions on the Export of Rice.

In pre-war years rice had been exported chiefly to Great Britain, the United States, and Hawaii, as foodstuffs for the Japanese in those countries, but the amount had not been large. The annual average for the three years preceding the War had been, roughly, some 220,000 koku.¹ After the outbreak of the War, there was a gradual increase; and in 1917 it reached 770,000 koku. The Government then determined to control the export of rice; and after March 8, 1918, it required all exporters to obtain export licenses from the Minister of Agriculture and Commerce. This regulation had the desired effect. It prevented the shipping of home-grown rice to foreign countries, and, to some degree influenced the home market itself.

The Suspension of Operations on the Exchange.

For the purpose of preventing abnormal advances in the price of rice, and of bringing about a drop, the Government several times suspended operations on the Exchange.

Pressue Put on Holders To Dispose of Their Rice Stocks.

As a result of a survey taken on July 1, 1918, the Government instructed thirty prefectures to take measures for preserving rice stocks. In the same month it also despatched officials to various points, where, it was thought, there was hoarding on a large scale, these officials having orders to investigate rice stocks and the conditions of transport. Certain persons were also advised to dispose of their stocks. This measure, however, had little effect upon the market.

Government Control in the Case of Rice Imports.

On April 25, 1918, the Government issued a special Imperial Decree, by which rice prices, where affected by the War, and rice

¹ The koku = 4.96 bushels.

imports from abroad, as also from Chosen and Taiwan, were put under government regulation. The Government did not itself import, purchase, and sell foreign rice. But certain designated importers were ordered so to do, the Government deciding what quantities they were to purchase and at what price such rice was to be sold. The said importers were also guaranteed against loss by such transactions. The fixed sale price was much lower than had been expected; and the rice-market was affected by this measure to no small extent.

Government Control over Home-Grown Rice.

The Imperial Emergency Ordinance for the Requisition of Cereals.

With the object of regulating rice distribution in the case of the large cities, the Government issued, on August 16, 1918, an Imperial Emergency Ordinance, empowering it, in extreme cases, to requisition surplus supplies of rice. But for the most part rice growers believed that this regulation would not be applied, because it lacked provisions to define the requisition price; and they did not try to dispose of their stocks. The Government was, therefore, obliged to fix the price at which it would requisition rice; and as a result the market showed a certain tendency to fall.

Government Purchases of Home-Grown Rice.

While the Government sought to accumulate sufficient quantities of rice in Tokyo, Osaka, and the other principal rice-markets, and planned to lower the price in these cities, at the same time it assigned to certain merchants of Tokyo, Kyoto, Osaka, and Kobe the responsibility of purchasing domestic rice, in quantities not to exceed 400,000 koku, and of selling it cheaply. This measure had the effect of advancing the local price of rice, for the Government purchased it at the market price; but to a considerable extent the rising market price was held down by the low figure at which such rice was sold.

c. Measures Taken by the Hara Ministry.

The Hara ministry considered that its predecessor's measures to control rice imports were ineffective, and undertook to remove obstacles to the importation of foreign rice. Accordingly, on November 30, 1918, it issued an Imperial Emergency Ordinance which ruled

that for one year from that date, rice should be placed on the free list. This measure had the effect of checking the rising market for a time; but when it became clear that it was a measure little to be feared in comparison with control of rice imports, prices began to rise once more.

3. The Raw Silk Exchange.

i. Introductory Remarks.

The effect of the outbreak of the War was especially marked in the case of the silk reeling industry. Generally speaking, raw silk ranks first among Japanese exports, its value constituting more than 30 per cent of the total. Prosperity or hard times in the silk reeling industry is a matter of supreme import to the whole life of the nation, Silk may be classed as a luxury and the trade in it is closely bound up with market conditions in the world at large. The silk reelers of Japan are not in a sufficiently strong financial position to maintain the market price, in case of adverse conditions. For these reasons the industry was seriously affected by the outbreak of the War, and there was a violent fall in the price of silk. In consequence, and to sustain the market, the Imperial Raw Silk Company was established, the market being thereby and fortunately saved from a threatened panic. Moreover, in the latter half of 1915 the industry began to prosper. On the Yokohama Exchange silk prices made one new record after another, due chiefly to the great general prosperity of the country. But the increase in the demand for silk in the United States, the depression of the industry in France and Italy, and the decrease of exports from China, owing to the rise in the price of silver, all played their part in bringing about this favorable market.

ii. The Market Collapses (August, 1914-June, 1915).

a. The State of the Market before the Outbreak of the War.

Pre-war conditions in the raw silk market in 1914 were good. For instance, Shinshu No. 1 commanded an average price of ¥1,000, and in the latter part of May it brought ¥1,035, a new record for ten years since 1917. This was due to an insufficient supply of silk in the home market and to the recovery of the silk-manufacturing industry of Europe, owing to the conclusion of the Balkan War, and

the good harvest in the United States. The silk market opened with high hopes, sales of Shinshu No. 1 being made on June 22 at ¥1,005, which was higher than that of the preceding year by more than ¥100. But, with the outbreak of the War, the market suddenly began to fall.

b. The State of the Market after the Outbreak of the War.

At the outset, although it was assumed that the War would be kept within certain limits, the tone of the market was uneasy. Soon it became apparent that the whole economic life of Europe was falling into unprecedented confusion. On August 1 the price of raw silk on the Yokohama Exchange went below the closing price for July by ¥146; and repeatedly business had to be suspended to stabilize the market. From then on, though it recovered for a time, it began to fall again when, on August 23, Japan declared war against Germany; and it continued to fall almost daily.

c. Proposals of Relief for the Raw Silk Market.

When the fall in raw silk prices became grave, the Silk Yarns Association of Japan arranged a national mass-meeting of silk reelers in order to obtain their coöperation in reducing the cost of production, and to get the situation under control. At the same time, the Association resolved to request the Government to take suitable measures, such as the furnishing of capital, the reduction of the freight rates on cocoons, and the closing of the Yokohama Exchange. In a second meeting, called by the Yokohama Silk Dealers Association, the country's silk reelers also decided to cut down production.

Notwithstanding these measures, the tone of the market went from bad to worse, and in the latter part of October, it experienced an unprecedented depression. The silk dealers, in consequence, urged the Bank of Japan to extend financial facilities, and the Yokohama Silk Dealers Association entered into an agreement to maintain prices. By this agreement, the falling market was checked. But as it was impossible to forecast the future, and the stock in Yokohama tended to increase, the Association decided to recommend the postponement of the spring reeling, and communicated this decision to the reelers.

A bill for the relief of the silk-reeling industry was laid before the Diet, but it resulted in nothing owing to the dissolution of the Diet. The Government accordingly planned to bring relief by the issue of a special Imperial Decree. But it was obliged to abandon this because of the opposition of the Privy Council. However, as there was a general outcry for relief, in the end the Government announced that it would undertake the purchase of raw silk under a system of co-operation between Government and people. The market then showed some signs of recovery.

d. The Establishment of the Imperial Raw Silk Company.

In accordance with the Government's announcement, on March 20, 1915, the Imperial Raw Silk Company was established, for the relief of the silk yarns market. The shares of this company were held by the silk dealers of Yokohama and by influential silk reelers throughout the country. The Government made it an advance of ¥5,000,000, out of which it was authorized to make good its losses. It was to carry on its business according to the commercial laws and procedure of Yokohama, and its purchases were restricted to silk stocks in that city. The purchase price was not to exceed ¥800 for Shinshu No. 1 and it was hoped that this fixed price could be maintained. At the same time, the Company announced that sales would not be made until the market had again been sufficiently steadied to make it safe to sell.

With the establishment of the Imperial Raw Silk Company, the tone of the market became much better, and it was thought that the actual purchase of silk yarns by the Company would not be necessary. But by mid-April the market had become doubtful of the purchasing power of the Company, the market tone began to be weak once more, and in consequence, the Company began to buy. Again the market recovered. At the end of May the Company made new purchases, and guaranteed that its fixed price would be maintained.

Purchases by the Company were restricted to raw silk reeled from cocoons produced in 1914: for cocoons produced in 1915 could be bought very cheaply, and silk reelers who had purchased 1914 cocoons at high prices had been hard hit. In the end, the Company had purchased almost all raw silk made from 1914 cocoons. And, on June 15, 1915, with the permission of the Government, it was dis-

solved. But it decided it would not dispose of its stock on hand until the price of raw silk had again returned to normal.

iii. Rising Prices (June, 1915-December, 1918).

Upon the dissolution of the Imperial Raw Silk Company, the market was completely stagnant for a time, owing to the precipitate selling of such silk stocks as the Company had not purchased. But in the latter part of June once more the market steadied, and toward the end of August it began to advance, a trend which in October and in November became marked. Silk reelers had become cautious, remembering their experience in the preceding year. The supply of old silk yarns had become small, because of the purchases of the Imperial Raw Silk Company. It could be inferred that the production of silk yarns in 1915 would be far smaller than that of the preceding year owing to the decline of sericulture abroad. And business conditions in the United States had become good again. From the end of November the market declined, but by the end of the year it had recovered to a certain degree.

In the following year, 1916, the tone of the market was firm from the beginning; and after a conference with the Government, it was decided that the silk stocks held by the dissolved Imperial Raw Silk Company should be sold. This decision unsettled the market for a time; but by the last days of January all such silk had been sold and the market began to advance. In March prices were at the peak, owing to the prosperous condition of the United States market, and in anticipation of decreased production in the case of the spring reeling. From then on the tone of the market was low, but with August it began gradually to rise again and reached a new high point in November. In the next month, however, it suddenly declined, affected by the blow the stock market sustained from the peace proposals.

In the beginning of 1917, the market began to advance, due to the arrival of large orders from the United States; but in February it dropped headlong, owing to the rupture of diplomatic relations between the United States and Germany. Operations on the Yokohama Exchange had to be suspended till the market could be stabilized. Its tone was steady when the Exchange reopened. But the measures taken by the United States after entering the War began to militate

against the further development of Japan's raw silk trade. Moreover, various rumors as to what the above measures were to mean notably affected the market, and prices declined greatly in October. By then indeed, the United States had prohibited the export of gold and silver; and there was a rumor that raw silk imports might be put under a like prohibition. The silk reelers in the province of Shinano, however, did what they could to maintain prices, and in November, a national gathering of silk reelers again decided to cut down production.

In the beginning of the following year, 1918, the market recovered. In February it had a relapse owing to the rumor that the United States might prohibit both exports and imports. After April prices were better again, due to the prosperous condition of the "habutae," or silk piece-goods trade; and local silk markets reached a very high point at the end of June. In August the market was slack, influenced by the rice riots; and in September, as stocks had become large, silk reelers in the province of Shinano decided to restrict their output. By this decision the tone of the market was restored to normal, and in the middle of November it showed an advance, being immediately affected by the news of the conclusion of the Armistice.

4. *The Cotton-Yarn Exchange.*

i. *Introductory Remarks.*

The cotton spinning industry of Japan, which had developed gradually in pre-war years, reached an unprecedented prosperity during the War. This was due to the increasing export demand for cotton yarns and manufactures thereof, and to the increasing demand for cotton fabrics at home. Indeed, production could not keep pace with this increasing demand. Moreover, the price of raw cotton and coal advanced remarkably during the War, as likewise did wages; and with this increase in production costs the price of cotton yarns inevitably rose. An abnormal advance in the price of cotton yarn, which is a necessity among the Japanese, especially in the case of the poorer classes, threatened the public welfare; and the question of regulating cotton prices occasioned heated controversy.

ii. Falling Prices (August-December, 1914).

The expansion of the cotton-spinning industry of Japan after the Russo-Japanese War resulted in an over-supply of cotton yarns, and in the years before the World War the market had been steadied by a reduction of spinning. With the outbreak of the War the industry suffered severely, due to the instant fall in the price of raw cotton, in that of silver, and to the advance in foreign exchange. The market went from bad to worse. Business on the Osaka Exchange had to be suspended from August 3 to August 8, to let the market return to normal. But its tone became worse again when Japan went to war against Germany; and toward the end of October it reached a condition of stagnation unprecedented since 1900. Even the news of the fall of Tsingtao hardly affected the market, and the downward course was checked only by a further curtailment of spinning at the end of November. Toward the close of the year the market again became stagnant because of a feeling of economic insecurity that was now general.

iii. A Gradual Advance (January, 1915-December, 1916).

In 1915 the stock market recovered its normal tone, and cotton-yarns quotations on the Osaka Exchange began to advance gradually due to news of an advance in the price of raw cotton and silver. After March, however, the tone of the cotton-yarn market weakened, because of the advance in dyestuffs, the decline in the price of raw cotton, the partial removal of restrictions on spinning, etc. The boycotting of Japanese goods in China had also much to do with this decline. In August the power of this boycott waned, and the demand for cotton yarns increased, with the coming of the buying season at home. At the same time the price of raw cotton and silver again began to advance. Cotton yarns appeared to be on the point of an advance; but the movement was checked in anticipation of an over-supply, because of the partial removal of the restrictions on spinning. Exporters, disturbed by the internal troubles in China, abstained from purchase. Moreover, country-wide economic conditions were bad, owing to the fall in rice prices; and the cotton-yarn market continued to decline. Sporadic speculative movements further complicated the market situation.

In the beginning of the following year, 1916, the market was

somewhat unsettled by the fear that the revolutionary troubles in China might interfere with the export trade. Then the market began to improve gradually, with the prosperity of the general export trade; and in March it reached a high point. In June and July it was somewhat dull, but from August on again it began to advance; and in October it made a new record, owing to the failure of the American cotton crop and to the brisk state of the market for cotton fabrics, which in its turn was a result of the prosperous condition of cotton exports. Moreover, the weak condition of the money market, the buoyancy of the stock market, and the general rise of prices, all worked together to send up cotton yarns. In November prices reached a climax. In December they were affected to some extent by the fall in the stock market resulting from the peace proposals. In short, it may be said that for the first time since 1916, the cotton-yarn market began to advance steadily.

iv. Boom Conditions (January-August, 1917).

At the beginning of 1917 the tone of the market was cautious, following the shock it had sustained at the close of the preceding year. In February and March it was shaken by the slump in the American cotton market caused by the rupture of diplomatic relations between the United States and Germany, by Great Britain's prohibition of the import of knitted goods, and by the attempt at tariff reform in China. From April the quotations began to rise sharply, due to the prosperous state of the general economic market; and the cotton-yarn market was carried to a condition of unprecedented prosperity. In July, operations on the Osaka Exchange were suspended till the market could steady itself. The demand for cotton yarns then began to fall off owing to the rise in prices. Imports of yarn from China also increased. The result was another sharp decline at the end of August; and in the following month the market was struck a much harder blow by the enactment of the Anti-Profiteering Ordinance.

v. The Period of Fluctuations (September, 1917-December, 1918).

After the promulgation of the Anti-Profiteering Ordinance, the market became more and more pessimistic, due to a succession of failures among the cotton dealers in Osaka; and on the part of the cotton-spinning market there was a general demand for help. In con-

sequence the Cotton Spinners Association of Japan decided that in October, and for the following three months, they would reduce spinning by 10 per cent. The market having been revived by this decision, again quotations began to advance and the advance was accelerated by a second decision to continue the reduction of spinning until June of the year following.

In 1918, the market maintained a cautious attitude and quotations showed a steady advance. This advance reached a climax in March; but from then on the tone of the market was extremely irregular.

CHAPTER V

PRICES

1. *General Remarks.*

PRICE changes in Japan from the time of the Meiji Restoration (1868) have shown an upward trend. The index numbers, taking the average prices of twenty-three kinds of commodities for the five years from 1873 to 1877 as 100 are as follows:

1887	108
1892	116
1897	177
1902	184
1907	254
1911	254

Fluctuations in prices were not marked until 1887, but the index number which stood at 103 in 1887 had, twenty years later, reached 254.

After the outbreak of the War, prices in Japan advanced abnormally because of general business activity at home, and, because of the enormous commodity demand from abroad. The index number, taking the ruling prices in July, 1914, as 100, had reached 231.4 in October, 1918. That is, the advance of prices during the War was almost equal to that of all the preceding twenty years.

i. Price Conditions Throughout the Country.

According to the investigations of the Bank of Japan the index number of wholesale prices of staple commodities in the principal cities throughout the country, taking the ruling prices in October, 1900, as 100, dropped to a certain degree in 1901 and 1902, then continued to advance, reaching 132.67 in 1907. In the next two years prices again declined somewhat as a result of the untoward effects of the Russo-Japanese War and the business crisis in the United States in 1908. The index number fell to 122.87 in 1909; but it began to advance once more in 1910 and stood at 140.16 in 1913.

*Index Numbers of Prices of Staple Commodities in the Principal Cities of Japan.*¹

(October, 1900 = 100)

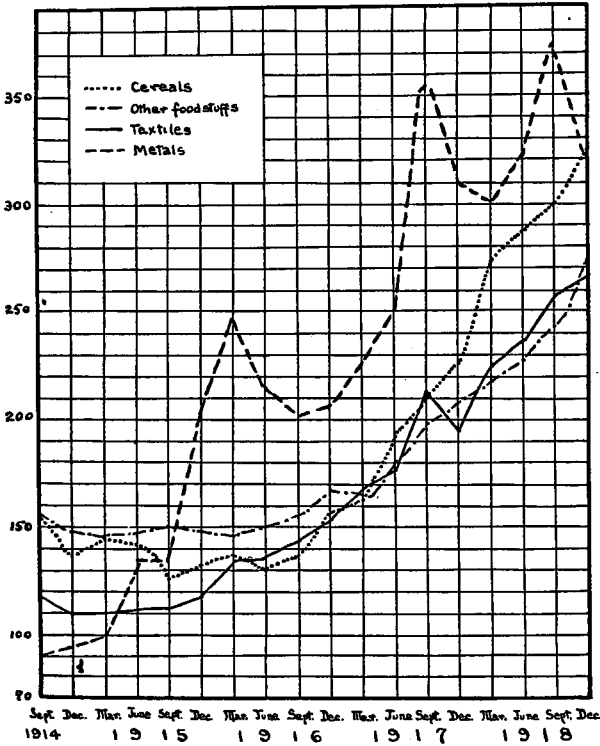
	<i>The country as a whole</i>	<i>Tokyo</i>	<i>Osaka</i>
1901	96	96	96
1902	98	97	97
1908	106	108	106
1904	111	108	114
1905	119	116	128
1906	124	120	127
1907	133	129	131
1908	129	125	128
1909	128	119	126
1910	125	120	128
1911	130	125	132
1912	139	132	139
1913	140	132	140
1914	134	126	134
1915	131	128	135
1916	152	155	160
1917	199	196	206
1918	278	259	281

To follow the monthly returns, it reached its peak in December, 1912, *i.e.*, 143.21; and from the first of the following year it gradually declined. This decline continued in 1914, and the index number stood at 132.13 in July of that year, almost equivalent to its level in 1907.

If we compare prices in Tokyo with those in Osaka we will find that in general they fluctuated concurrently, but there were differences in degree. Osaka prices fluctuated most remarkably, average prices throughout the country somewhat less, while those in Tokyo fluctuated least.

After the outbreak of the War, average prices in the principal cities throughout the country advanced slightly in August and September, 1914, then began to decline; and in July, 1915, the index number fell very low, *i.e.*, to 125.87. It began to rise again during the next month, and in November, 1915, stood at 134.66, exceeding that of July, 1914. In 1916, prices declined to a certain degree from

¹ As reported by the Bank of Japan.



Index Numbers of Wholesale Prices in Tokyo, 1914-1918.

(October, 1900 = 100)

April to June; but average prices for the whole year were higher than those for the preceding year.

This tendency to rise became marked from April, 1917, and the index number, which stood at 173.32 in that month, reached 228.06 in December. During the next year, 1918, prices still continued to advance, and the index number reached 270.22 in July, being more than twice that of July, 1914, and by November it had risen to 306.73.

By comparing average prices throughout the country with those of Tokyo and Osaka after the outbreak of the War, we find that although the fluctuations of these three sets of prices were similar, there were some differences between them. The index number of prices in Osaka stood highest, as before, but that for Tokyo presented some variations from pre-war years. It had been lower than that of average prices throughout the country until January, 1916, but from the next month to August, 1917, it was higher. Later it assumed its earlier relative position.

ii. Price Conditions in Tokyo.

a. *Outline of Price Fluctuations.*

Price fluctuations in the case of different commodities varied. Prices of commodities which were affected directly by the War advanced rapidly and greatly, while the rise in the prices of other commodities was slower. Here is a brief survey of price fluctuations in Tokyo, as shown by the index number kept by the Bank of Japan.

This index number takes the wholesale prices of 56 staple commodities in October, 1900, as 100, and the monthly quotation shows the average prices of those articles for the first, second, and third ten days, respectively, of the period. By dividing these 56 commodities into five classes (cereals; all other foodstuffs, beverages, and tobacco; textile manufactures; metals; and miscellaneous goods) by averaging the index numbers for all commodities of each class, and then by calculating the rate of fluctuations since July, 1914, we arrive at table on p. 85.

As before stated, prices in Tokyo, together with average prices throughout the country, had tended to decline from the beginning of 1913. In the year of the outbreak of the War, the same tendency continued, and in July, 1914, the index number of prices in Tokyo

declined to 125.75. It advanced in August and September of that year, but began to decline again in October, and in December reached the bottom. During the five years before the War (1909-1913) prices were usually lowest in the beginning of the year; then they rose until May; and then they fell until July, after which they would rise again to reach another peak in October; in November they would decline slightly, but advance once more at the end of the year. Contrary to this rule, commodity prices declined at the end of 1914. Average prices of commodities had advanced on the outbreak of the War owing to the rise of prices of metals, foodstuffs, and miscellaneous goods, but began to decline from October on, owing to the fear of a depression in trade.

In 1915 commodity prices began to rise but, save for a slight decline in July, there were no great fluctuations until October. In November prices advanced suddenly, the index number showing 133.41; and at the end of the year they continued to advance. In December the index number stood at 142.11. The advance in the first half of the year was due to the sudden rise in the prices of metals and cereals, while the decline in July was caused by the heavy fall of cereals. The advance at the end of the year was mainly due to the sudden rise of metal prices and the recovery of those of cereals; while the gradual advance in the prices of textile manufactures and miscellaneous goods contributed much toward the same end. Prices of foodstuffs except cereals were comparatively quiet during this period; and it may be said that prices in general began to advance after November, 1915. If we note the number of commodities in each month whose prices were higher than they had been in the preceding month, we find that there were 31 in November, 1915, this being the first instance since the outbreak of the War in which the prices of three-fifths of the whole number of commodities advanced.

In the next year, 1916, the index number continued to advance, reaching the peak in March. It then began to decline and fell to 147 in June and July, owing to the decline of prices of metals, textile manufactures, and miscellaneous goods. Then it began to advance again, and rose to the levels of 157 and 173 in October and December respectively, thus passing the record for March.

In the beginning of 1917 the index number declined gradually; but after March it began to advance; and owing to a sudden rise in

cereals and metals in May, in foodstuffs other than cereals and textile manufactures in June, and a further rise of metals and textile manufactures in July and August, in the latter month it reached the level of 223. From September on the upward tendency of commodity prices was checked by the announcement of the Anti-Profiteering Ordinance in that month, and the index number fell in November to 216, due to the decline of textile manufactures and metals. At the end of 1917, the prices of commodities showed a tendency to advance once more, owing to the sudden recovery of textile manufactures.

In 1918, prices of commodities continued to advance owing chiefly to the rapid rise of the prices of cereals, and in March the index number stood at 242.57. Although the prices of cereals declined again until June, those of other commodities advanced simultaneously, and the index number reached 285.5 in October.

To summarize, from the outbreak of the War, prices of commodities of all kinds, except metals were generally steady until October, 1915, but after that month they made a general advance till the beginning of the following year. They were generally steady in that year; but after October all together they began to advance once more, and the index number rose by leaps and bounds.

*b. Outline of Price Fluctuations in Tokyo for the Various
Classes of Commodities.*

If we examine the index numbers of the various classes of commodities for July, 1914, taking the prices ruling in October, 1900, as 100, we find that cereals were the highest of all (index number 154), non-cereal foodstuffs ranked next (index number 151); textile manufactures (index number 120) and miscellaneous goods (index number 117) were lower than the average; and metals were the lowest (index number 80).

After the outbreak of the War, the prices of cereals declined remarkably. Presumably the fluctuations of cereal prices were influenced by the price of rice, which declined markedly in 1914 and 1915 owing to the good harvests in those years. The prices of other cereals went down in sympathy. But the prices of cereals went back to the pre-war level in 1917, and because of their sudden advance in 1918, the question of regulating the rice market became a matter of general debate; nevertheless the rate of advance in this group of commodities had always been less than that of prices in general.

Prices of non-cereal foodstuffs showed comparatively slight fluctuations, and their rate of advance was the smallest of all.

Prices of textile manufactures advanced with the general average, and went higher than the latter in July and August of 1917. After September of that year they declined remarkably, they, too, being affected by the promulgation of the Anti-Profitteering Ordinance.

The fluctuations of the index numbers of the prices of miscellaneous goods were almost the same as those of textile manufactures.

The prices of metals showed an extraordinary advance after the outbreak of the War; and after October, 1915, were always higher than those of the other classes. Generally speaking, they reached a high peak three times, *i.e.*, in December, 1915, in August, 1917, and in September, 1918, that of August, 1917, being the highest, 385.

If we examine the index numbers of the various classes of commodities in October, 1918, we find that of metals, 367, the highest, with that of cereals, 325, coming next. Those of textile manufactures, 271, of non-cereal foodstuffs, 270, and of miscellaneous goods, 266, were lower than the general average.

Observing the upward movements of the prices of each class of commodities after the outbreak of the War, we find that those of cereals, and of foodstuffs except cereals, were always slower than those of average prices, while in general those of textile manufactures and of miscellaneous goods advanced in equal pace with the general average. The advance in the price of metals was extraordinary, their index number reaching a high point of 481.

If we examine prices in October, 1918, and their advance over those of July, 1914, we find that those of metals were the highest (358.75) and those of miscellaneous goods ranked next (127.35). The general average of all prices stood third (127.04), followed by those of textile manufactures (125.83), of cereals (111.04), and of non-cereal foodstuffs (78.81).

c. Causes of Fluctuations of Commodity Prices.

If we divide commodities into three classes, namely, those whose prices were affected by import circumstances, those whose prices were affected by export circumstances, and those whose prices were affected chiefly by reason of demand and supply on the home market, and observe the price fluctuations in each respective class, we find that there are certain differences between them.

According to the investigations made by the Bank of Japan, rice and 15 other kinds of commodities may be classified as those whose prices were affected by import circumstances. As a rule their prices advanced after the outbreak of the War and, of the three classes above, the price advance of this group was the greatest. The index number, taking the prices ruling in June, 1914, as 100, reached 284 in December, 1918. The index number for commodities whose prices were affected by export circumstances, including wheat flour and nine other kinds of commodities, declined at the end of 1914, then advanced gradually; but the advance was not so great as in the former case, the index number being 226 in December, 1918. The index number for commodities whose prices were affected chiefly by demand and supply on the home market, including barley and 29 other kinds of commodities, was lower than that of pre-war years until June, 1916. It then began to advance; but its advance was not so great as that of the index numbers for the other two classes. It registered 205 in December, 1918.

The commodities of the first class had in general come from foreign countries, and because of the restriction or the complete cessation of their import after the outbreak of the War, the prices of such commodities advanced suddenly and greatly.

Commodities of the second class were in general Japan's staple exports, and their export being blocked for a time after the outbreak of the War, here prices fell to a certain extent. However, when the demand from abroad began to increase, and it became easy to export, such prices advanced suddenly. The amount of advance was less, however, than that of the former class by reason of the relative shortage of supplies in the home market.

Commodities of the third class generally declined in price after the outbreak of the War, owing to the weak tone of the market and to the fall in the price of rice. But in the last two years of the War prices in this class began to advance due to the rise in the price of exports and imports, and to the increased purchasing power of the people at large, though here the advance was the least of all.

d. Retail Price Conditions, and the Relation between Wholesale and Retail Prices in Tokyo.

According to the investigations made by the Department of Finance into Tokyo retail prices, in the case of 24 kinds of com-

modities, retail prices moved for the most part as did wholesale prices; but there are, nevertheless, certain differences of fluctuation. (See table on p. 84.)

Generally speaking, average retail prices tended to decline on the outbreak of the War; and the index number, taking the average retail prices in July, 1914, as 100, fell to 91 in January, 1915, and remained near that point until October of the same year. But in November retail prices advanced with the first rise of wholesale prices, the index number being 102; and the advance continued until July, 1916, both index numbers remaining below 105. From August of that year they began to advance again, and the index number in November reached 126, also in company with the rise of wholesale prices; but the amount of the advance was less than was that of the latter.

In the beginning of 1917, wholesale prices declined somewhat, but the fall of retail prices was more conspicuous, and there were great differences between them. From May of that year retail prices began to advance along with wholesale prices, this continuing until August; while in September and October they declined, because of the Anti-Profitteering Ordinance; but at the end of 1917 they advanced again, and the index number reached 168.

In 1918 they ran closer and closer to wholesale prices and coincided with the latter in July. In October the index number of average retail prices reached 239 and took first place.

The advance in wholesale prices was greater than the advance in retail prices from the outbreak of the War until July, 1918. The difference between them was not very noticeable until November, 1915, when wholesale prices took their first forward movement; but from then the difference became marked. In November, 1917, prices in general declined, the result, as we have said, of the promulgation of the Anti-Profitteering Ordinance. After November, 1917, retail prices approached more nearly to the wholesale prices; and as before stated they coincided with the latter in July of the following year. Thereafter, the advance in retail prices tended to be the greater. (See tables on pp. 84 and 85.)

e. Price Advances and the Inflation of Currency.

The question of price advances necessarily involves that of the inflation of the currency; the one attends the other as the shadow

*Index Numbers of Retail Prices of the Necessities of Life in Tokyo.*²

(July, 1914 = 100)

	<i>Cereals</i>	<i>Subsidiary articles of diet</i>	<i>Other foodstuffs</i>	<i>Clothing</i>	<i>Fuel</i>	<i>General average</i>
1914 September	104	108	104	94	109	102
December	97	85	100	88	105	98
1915 March	108	88	105	91	105	96
June	100	88	104	92	99	94
September	95	88	105	94	102	96
December	104	107	106	101	118	105
1916 March	100	88	108	118	100	101
June	98	92	102	115	96	101
September	108	109	101	180	101	104
December	120	122	114	146	119	125
1917 March	109	98	118	141	116	115
June	188	117	114	181	110	182
September	150	149	134	198	148	155
December	162	170	184	229	198	175
1918 March	185	200	150	247	175	192
June	192	184	160	250	172	191
September	221	227	168	800	204	224
December	281	288	179	297	200	280

follows the object. In a period of flourishing credit transactions, the sphere of currency is very wide, and any study is incomplete which confines itself to metallic currency and convertible bank-notes. Nevertheless the volume of bank-notes in circulation varies with the activity of trade; and there may be some significance in the relation between this volume and the fluctuations of prices. In the five years before the War we find that ordinarily the seasonal fluctuations in the amount of gold and silver in circulation at the end of each month, together with the volume of bank-notes issued each month by the Bank of Japan decreased gradually from the beginning of the year until April; the amount of gold and silver and of bank-notes in circulation reached the lowest point in April and May respectively. In the latter half of the year, they increased gradually till they reached a high point in December. (See tables on pp. 85 and 86.) As before stated, the index number of prices in Tokyo during the five years before the

² As reported by the Department of Finance.

War was lowest in January, reached a peak in May, declined in June and July, advanced gradually in the latter half of the year, reaching another peak in October, and then remained the same until the end of the year. It might be argued, therefore, that the increased amount of currency led to the advance of prices in the latter half of the year; but the facts in the first half of the year do not justify this conclusion. The index number of prices and the volume of convertible bank-notes in circulation during the eighteen months before the War both tended to grow less. After the outbreak of the War, prices seemed to be falling somewhat until October, 1915; and convertible bank-notes also decreased in volume, while in December of that year the latter suddenly increased in volume. But this was only a seasonal fluctuation. After June of the following year, bank-notes

Index Numbers of Wholesale Prices in Tokyo, and a Comparison of the General Average with the Amount of Currency in Circulation.^a

(October, 1900 = 100)

1. *Index Numbers of Wholesale Prices in Tokyo.*

		<i>Cereals</i>	<i>Other food-stuffs, drink, and tobacco</i>	<i>Textiles</i>	<i>Metals</i>	<i>Miscellaneous goods</i>
1914	September	157	155	118	89	119
	December	185	147	109	92	119
1915	March	146	144	108	98	118
	June	143	145	118	132	120
	September	126	150	112	136	117
	December	181	149	120	205	121
1916	March	187	147	136	225	143
	June	180	150	137	213	146
	September	187	153	137	200	144
	December	153	169	155	213	156
1917	March	160	167	159	224	161
	June	195	180	173	254	171
	September	210	199	213	351	197
	December	226	208	197	306	217
1918	March	233	218	221	301	222
	June	234	227	229	321	235
	September	309	244	254	373	249
	December	323	274	267	324	272

^a As reported by the Bank of Japan.

2. Comparison of General Average of Prices with the Amount of Currency in Circulation; with percentage of increase over or decrease under figures for September 1914.

	General average of prices		Currency in circulation ⁴		Convertible banknotes in circulation	
		Percentage of increase over or decrease under (*) July, 1914		Percentage of increase over or decrease under (*) July, 1914		Percentage of increase over or decrease under (*) July, 1914
1914						
September	127	....	508,712	....	315,274	....
December	122	*3.9	508,797	.02	301,357	*4.4
1915						
March	128	*3.1	490,909	*3.5	308,723	*3.6
June	127	....	477,028	*6.2	283,173	*10.1
September	126	*.8	488,120	*4.04	298,937	*5.6
December	134	5.5	529,086	4.	320,941	1.8
1916						
March	151	18.9	534,898	5.5	388,501	7.4
June	151	18.9	543,226	6.8	388,166	7.3
September	151	18.9	587,727	15.5	384,097	21.3
December	166	30.7	682,816	34.2	444,735	41.06
1917						
March	168	32.3	659,890	29.5	450,362	42.3
June	183	44.1	709,253	39.4	463,512	47.02
September	216	70.1	833,111	63.7	569,756	80.7
December	217	70.9	905,580	78.	618,997	96.3
1918						
March	235	85.	924,358	83.7	646,519	105.06
June	247	94.5	953,759	88.5	643,170	104.
September	269	111.8	1,085,572	113.4	733,295	132.6
December	284	123.6	1,247,762	145.5	823,701	162.9

showed a somewhat abnormal increase. It may be said, therefore, that the inflation of convertible bank-notes dated only from June, 1916, while prices in general began to advance in November, 1915. (See table above.)

The volume of convertible bank-notes increased with the advance in prices. As has been shown in preceding sections, however, many reasons for the advance of prices may be found in the commodities themselves; and it would be a superficial view which attributed the rise in prices to the inflation of the currency alone.

⁴ In 1,000 yen.

2. Conditions under which Certain Commodities Greatly Advanced in Price during the War.

As stated in the preceding section, the advance of commodity prices during the War differed in degree according to classes, and within each class the advancing rates differed for the individual commodity. Below we make a brief survey of the conditions of staple commodities in Tokyo whose prices advanced remarkably during the War.

i. Wheat.

The price of wheat advanced somewhat on the outbreak of the War in consequence of the difficulty of importing it and the increasing demand from the milling industry. During and after May, 1917, it advanced suddenly owing to the increase in exports of wheat flour; and in April, 1918, stocks becoming small, it advanced abnormally. The index number, taking the ruling price in July, 1914, as 100, reached 244.

ii. Barley.

The price of barley tended to decline until October, 1916, dropping with that of rice. In November it advanced, owing to the rise of the price of rice, and to a shortage resulting from decrease in production. At the end of 1916 the price advanced again, because of army purchases. The market was also excellent in 1917, and in November of that year, the index number for barley reached 213; there had been a decrease in production and an increase in demand. In January, 1918, the index number mounted to 254, again due to large army purchases, during the month before; and in February it reached 307, notwithstanding the restriction on exports. After April it declined again but in August it rose once more, because of the failure of the barley crop.

iii. Rye.

In general the fluctuations in the price of rye were the same as those for wheat and barley. Until the end of 1914 the market tended to fall; and in 1915, though prices advanced in certain months on account of the withholding of supplies by the farmers, in general rye quotations went lower because of a good harvest. In 1916 there was

a return to pre-war levels; but in the next year prices began to rise sharply again, this time due both to the grower's refusal to sell, and to the increasing demand caused by the rise in the price of rice. In 1918 there was an abnormal advance owing to the increasing demand for rye as a substitute for barley.

iv. "Miso" (bean paste).

The price of "miso" tended to fall after July, 1914, owing to the fall in the prices of beans, etc. However, after August, 1916, it began to advance; and in December of that year it had returned to its pre-war level. It then continued to advance. The rate of advance was striking after May, 1917; and this was also due to the rise in the prices of the component materials.

v. Cotton Yarns.

The cotton-yarn market is usually governed by the price of the raw material, ginned cotton. But the rise in cotton yarns was greater than that of raw cotton because of export conditions. With the outbreak of the War the cotton-yarn market became weak owing to the difficulties of export caused by the advance of insurance rates, the impossibility of drawing money orders, and the belief that a trade depression would accompany the continuation of the War. By August, 1915, the export trade in cotton yarns regained its normal condition, and in 1916, the price began to advance on account of the prosperous condition of the export trade with China and the bad crop in America. The index number of cotton yarns, taking the ruling price in July, 1914, as 100, was 151 at the end of 1916; and in July, 1917, it reached 320, owing to the rise in the price of raw cotton. After that date a reaction set in which yielded to revived conditions at the end of 1917, on account of the advance in the price of raw cotton and the increase in exports to India. In 1918 there was a general advance owing to a succession of orders, the index number standing at 339 in October of that year.

vi. Shirtings.

The price of shirtings declined with the outbreak of the War, influenced by the heavy fall of raw cotton and cotton yarns, and re-

mained at a low level throughout 1915. The price began to advance in January of the next year, 1916, and from May, 1917, made an abnormal advance due to the prosperity of the export trade and the rise in the price of raw cotton. The index number of this commodity, taking the ruling price in July, 1914, as 100, was 246 in August, 1917. The market then became somewhat stagnant again owing to the fall in cotton yarn and stories of the dullness of the export trade. But in November the market recovered and in January, 1918, the index number reached 249, breaking the high record of the preceding August. This was due to the thriving condition of the export trade with India and the increasing demand from the home market. After August the market became more brisk, owing to the advance of price of raw cotton and the increasing demand; and in October the index number rose to 313.

vii. Imitation Nankeens.

The price of this commodity declined with the outbreak of the War, influenced by the heavy fall in cotton-yarn prices, and remained at the same low level until July, 1916. It then began to advance on account of the rise of cotton yarns and the increase of exports, and in August of the next year, 1917, the index number of the price of this commodity, taking the ruling price in July, 1914, as 100, reached 256. From September, 1917, it declined, influenced by the promulgation of the Anti-Profitteering Ordinance; but in January, 1918, it began to advance again; and although it declined somewhat in May as a result of weakness in the cotton-yarn market, it soon recovered and the index number stood at 259 in October.

viii. Ginned Cotton.

The ginned cotton price tended downward from the outbreak of the War. In October, 1915, it regained the pre-war level owing to the decrease of cotton production in China and at home, and in November, 1916, it began to advance conspicuously. The index number for ginned cotton, taking the ruling price in July, 1914, as 100, reached 205 in June, 1917, due to the rise in the price of Chinese cotton. The quotation continued to advance, owing to the rise in prices of cotton yarns and Chinese cotton, shortage of cargo space

and other causes, so that the index number registered 230 at the end of that year. In 1918 the price continued to advance due to the restrictions on the export of American cotton and the advance of freight charges; and the index number mounted to 329 in October, 1918.

ix. Silk Tissues (for lining).

The price of this commodity declined with the outbreak of the War in company with the fall in raw silk. At the end of 1915, it regained the pre-war level; and in 1916 it advanced owing to the decrease of production, the rise in raw silk and the increasing demand, the index number, taking the ruling price in July, 1914, as 100, showing 134 at the end of that year. In the beginning of 1917 there was a decline, influenced by the severance of diplomatic relations between the United States and Germany; but in May it began to advance again and in July its index number reached 189 on account of the advance in raw silk and the arrival of the purchasing period. It then declined somewhat owing to the fall of prices of raw silk and cotton yarn. With the beginning of 1918, the market became brisk and in June of that year the index number reached 216. Then it became stagnant again.

x. Muslin.

The tone of the muslin market was weak at the outbreak of the War, influenced by the depression of trade. In 1915 the price began a general advance due to the buying up of stocks in anticipation of an advance in the prices of wool and dyes. In March, 1916, the index number of this commodity, taking the ruling price in July, 1914, as 100, reached 190 owing to the prohibition of the export of tops from Australia. In July, 1916, it was rumored that the prohibition would be removed, and the market was tempered to a certain degree. In June, 1917, it was reported that the import of Australian tops would become difficult, and the demand for muslin increased more and more; accordingly, muslin quotations showed an abnormal advance, and the index number reached 293 in July. After that date the condition of the market became stagnant; but as a result of the conclusion of an export agreement with France at the end of June, 1918, it became brisk again.

xi. Coal.

The price of coal remained at the pre-war level until the end of 1914, due to speculative purchases in anticipation of the stoppage of exports from Australia. From January, 1915, owing to the increase of stocks, it declined. In November, 1916, the price of coal began to advance as a result of business prosperity, the decrease of coal production, the shortage of coal stocks, the reduction in the number of coal miners and the rise in their wages, the advance of freight charges and of crude petroleum prices, etc. In 1917, the condition of the market became more brisk on account of the reduction of transport capacity and other causes. In March coal prices suddenly rose, affected by the increasing demand for coal in industry and the shortage of bottoms. The index number of coal, taking the ruling price in July, 1914, as 100, reached 249 in September, 1917. From that month until the end of the year the price of coal remained stationary, due to the promulgation of the Anti-Profitteering Ordinance and the control of the shipping business. In the beginning of 1918 it began to advance again, owing to the increasing demand and an insufficient supply, the index number reaching 285 in October.

xii. Charcoal.

The price of charcoal did not undergo any great change until September, 1916. Then it began to advance on account of the decrease of production which was caused by the reduction in the supply of labor and the decline of transport capacity. The index number for charcoal, taking the ruling price in July, 1914, as 100, rose to 152 in December, 1916, then seemed to enter a period of reaction. From August, 1917, the quotation began to advance again, and the index number reached 252 in December. Then it declined, especially after March, 1918, owing to the decrease of demand and the increase of supply, while from July, 1918, it rose suddenly on account of the approach of the period of greatest consumption.

xiii. Indigo.

The price of indigo advanced at once on the outbreak of war, owing to the cessation of imports of Indian indigo and the impossibility of getting any more synthetic indigo from Germany. The price continued to rise in anticipation of the prolongation of the War. In

1915 the advance was not conspicuous; but after February, 1916, the price advanced abnormally. The index number, taking the ruling price in July, 1914, as 100, reached 431 in March, 1916. From April the market weakened to a certain degree on account of the arrival of Indian indigo; but with November the price advanced again, due to the scarcity of the raw materials for Japanese manufacturers of indigo. In 1917 the market settled down and remained quiet owing to the peace proposals. After June it became brisk again owing to the prosperous state of the textile industry. But this was only a wave of prosperity and after October, 1917, the price showed a tendency to decline owing to the fall in cotton yarn, the index number showing 315 in October, 1918.

The price of German synthetic indigo advanced abnormally with the outbreak of the War owing to the shutting off of imports. Accordingly, its manufacture was undertaken at home; but the supply could not keep pace with the demand, and the price continued to advance.

xiv. Plate Glass.

The price of plate glass rose sharply with the outbreak of the War, owing to the impossibility of importing more from Belgium, and the lack of a supply of materials. The index number, taking the ruling price in July, 1914, as 100, rose to 190 in September of the same year, then declined on account of the weakness of demand.

From March, 1915, it began to advance again owing to the shortage of supply caused by the destruction of a factory by fire. With November the price began to rise still more sharply due to the arrival of the purchasing period and the conclusion of export arrangements, the index number being 259 in December of that year.

In 1917 the price seemed to be tending downward, but with September it began to rise owing to the increasing demand. In the next year, 1918, it advanced steadily (owing especially to the raising of the price by the Plate Glass Dealers Association in April and May) the index number being 349 in October.

xv. Matches.

The price of matches advanced suddenly on the outbreak of the War in anticipation of the stoppage of the import of raw mate-

rials. The index number, taking the ruling price in July, 1914, as 100, rose to 138 in November; but at the end of the year it declined because of the weakness of demand. It began to advance again in January, 1915, due to the rise in the price of raw materials, and from the end of that year until March, 1916, the rate of advance was still more conspicuous, owing to the increase of exports and a succession of orders from local speculators. The index number rose to 265 in March, 1916, while after the next month it declined gradually with the fall of the price of materials and the decrease of exports to China and the South Seas. But from March, 1918, it began to advance once more owing to the good demand and the rise in the price of raw materials, the index number reaching 263 in October of that year.

xvi. Iron (foreign).

The price of this commodity experienced a succession of advances from the outbreak of the War; and its index number, taking the ruling price in July, 1914, as 100, reached 199 in April, 1915. This rise was caused by advances in iron prices in Europe and America, and further by interrupted shipments, a shortage of bottoms, and an advance of freight rates. In October it was rumored that the export sale of iron would be prohibited in the United States; and with a like prospect of the shutting off of imports from Great Britain, the index number reached 497 at the end of 1915.

In the first half of 1916 the tone of the market became somewhat weak in anticipation of the possibility of import from the United States, and because of the actual arrival of American supplies in May; but in September the price suddenly advanced in accord with the rise in price of American iron.

In February, 1917, the market became active in anticipation of the severance of diplomatic relations between the United States and Germany; and in April the tendency of the price to advance became more striking, on the declaration of war by the United States. The movement was intensified because the solution of the question of the embargo on certain exports in that country was making no satisfactory progress. From September the price began to decline on account of the promulgation of the Anti-Profitteering Ordinance. In the next year, 1918, it made a general advance in anticipation of a shortage of stocks and further difficulties in importing from the

United States. The index number stood at 743 in October of that year.

xvii. Cement.

The price of cement declined slightly on the outbreak of the War, and remained practically stationary until May, 1916, when it began to advance, owing to the increasing demand for factory construction and the increase of exports. This upward movement became conspicuous from March, 1917; and the index number of this commodity, taking the ruling price in July, 1914, as 100, reached 260 in November. It then gradually declined owing to the decrease of demand. This state of things continued for a long time and though the demand increased in March and April, 1918, the quotation remained unchanged.

xviii. Foreign Paper.

The price of foreign paper advanced on the outbreak of the War on account of the rise in the price of pulp and of the chemicals used in paper making, and then remained fairly steady until the end of 1915. In January, 1916, it advanced suddenly owing to a rumored embargo on the export of Swedish pulp; and its index number, taking the ruling price in July, 1914, as 100, rose to 187. In February the leading men in the paper trade reached a price agreement, and the index number went up to 240. In September a federation of paper manufacturers that was nation-wide decided to raise the price by 10 per cent, and the index number stood at 200 at the end of 1916.

In March, 1917, the federation decided to raise the price from 5 to 10 per cent on the ground of the advance in the prices of raw materials and machinery for paper manufacturing, and because of the rise of wages. In July a new increase in price was decided on, this time of 20 per cent, on account of the advance in the prices of chemicals, coal, freight charges, and wages. The index number stood at 267 in that month. It then remained stationary until November on account of the promulgation of the Anti-Profiteering Ordinance; but in December, notwithstanding the weak tone of the market due to the prohibition of export, it advanced owing to the arrival of the purchasing period and a new rise in the price of raw materials.

At the beginning of 1918 the paper men decided to raise prices at

their own discretion on the ground of an abnormal advance in the prices of raw materials and fuel, and the index number soared to 498 in October.

xix. Crude Lacquer.

The price of this commodity declined on the outbreak of the War on account of the poor demand for lacquered wares; but from November, 1915, the market tightened, and between June and August, 1917, prices made an abnormal advance owing to the increasing demand for lacquer as an anti-corrosive. The index number, taking the ruling price in July, 1914, as 100, stood at 238 in August, and then declined as a result of the promulgation of the Anti-Profiteering Ordinance. In February, 1918, it began to advance again owing to the good demand and the shortage of stocks in the Chinese market. The index number registered 268 in April and in May; then the market became stagnant, the index number standing at 206 in October.

3. *Relation between Prices and Wages.*

The advance of prices during the War meant a serious rise in the cost of living. Producers and merchants whose incomes grew with the general prosperity suffered little from this cause; but living conditions for people of fixed incomes came to be very hard. Wages increased greatly as compared with those of former times, but not in proportion to the increase in prices. This was especially true in the latter years of the War, as is obvious from tables of statistics; and it resulted in much distress.

It was little wonder that workers demanded higher pay, and that there were labor conflicts during the War. That however, must be left to a place of its own in the industrial history of Japan.

Any discussion of the relation between prices and wages in Japan would of course properly mean a discussion of conditions throughout the country. But, unfortunately, statistics for the whole field are unsatisfactory. It is next to impossible to secure materials for the entire country. Accordingly, our study will be confined to conditions in Tokyo; and we shall draw our conclusion from them.

Of all the investigations into wages in Tokyo, that of the Tokyo Chamber of Commerce is much the most adequate and trustworthy. We shall follow it, while also referring to that of the Department of

Finance. But again, the former investigation is confined to Tokyo alone and it supplies no information upon the wages in factories which sprang into existence in the suburbs. The present survey, it must also be said at once, is based upon the wages of handicraftsmen of all kinds; for only a small proportion of Tokyo's workers are employed in factories.

In this survey we shall divide 46 kinds of workers into five classes: Actual factory workers;⁵ ordinary handicraftsmen; skilled piece workers; unskilled piece workers; domestic servants. And we shall examine wage fluctuations in the case of all these classes.

If we take the general average wage paid all labor in June, 1914, as 100, we find that by the end of this year the index number had risen to 105. This advance cannot be considered as an effect of the War, but must be regarded as a seasonal fluctuation, for at every year end wages tend to advance. In the beginning of 1915, the index of wages declined to a certain degree; but this too may be taken as a

Index Numbers of Wages in Tokyo.⁶

(June, 1914 = 100)

		Quasi- factory workers	Handi- craftsmen	Skilled jobwork	Unskilled jobwork	Domestic servants	General average
1914	September	105	100	99	99	100	101
	December	105	112	100	99	77	105
1915	March	104	99	98	94	95	99
	June	102	99	99	95	100	99
	September	100	100	98	95	108	100
	December	111	114	98	102	90	108
1916	March	109	104	99	100	108	104
	June	109	108	100	100	108	104
	September	112	110	101	101	108	108
	December	123	128	109	104	108	119
1917	March	128	117	114	102	126	117
	June	128	125	128	127	126	125
	September	134	142	126	142	136	138
	December	143	158	137	169	146	150
1918	March	138	151	139	164	146	146
	June	140	154	140	167	163	146
	September	153	175	158	176	183	153
	December	181	198	169	175	183	181

⁵ In this class are included, however, not only factory workers but some handicraftsmen as well.

⁶ As reported by the Tokyo Chamber of Commerce.

seasonal fluctuation. The advance at the end of 1915 (index number 108) may be attributed to some extent to the general prosperity. Throughout 1916 the index number also rose for the most part. But the rate of advance was not great. In 1917 it became more noticeable, and the index number mounted to 117 in March and to 125 in June. At the end of 1917 it reached 150 owing partly to the seasonal fluctuation. In the year following it remained substantially the same, and stood at 153 in September.

Let us now turn to the fluctuations of the index numbers for various kinds of labor.

That for what might be called factory work underwent comparatively little change. From the outbreak of the War it did not fall below the pre-war average; and the rate of advance amounted to little; the index number standing at 153 in September, 1918.

In comparison, the wages of handicraftsmen changed considerably; in their case, by the same date, the index number had risen to 175. Wages of skilled casual workers increased very little; and though the index number reached 158 in September, 1918, in other months their wages were in general the lowest of all. On the other hand, wages of unskilled casual workers underwent the greatest changes. In June, 1917, they began to advance, and the index number in September, 1918, reached 176. The highest percentage of advance was made by the wages of domestic servants. There the index number mounted to 183 in September, 1918. In pre-war years, such wages had been too low, compared with those of other classes of labor; but in the course of the War the general prosperity of the industrial world and the higher wages it could offer meant that those who desired to keep domestic servants had also to increase their wages proportionately.

We can now examine the ratio between prices and wages. A study of that ratio is perhaps the only barometer that can tell us if the worker is occupying a position that can last. But it is a study that presents great difficulties; and how it should best be made is a matter on which there are various opinions.

First, to make any real study of the fluctuations of the cost of living in the case of labor, it may be best to base it not on wholesale prices but on retail. Table on p. 98 is taken from a Department of Finance investigation into retail prices in Tokyo. Eighteen of the primal necessities of life were selected and they were divided into five classes.

Index Numbers of the Cost of Living of Wage Earners in Tokyo.

(July, 1914 = 100)

	<i>Cereals</i>	<i>Subsidiary articles of diet</i>	<i>Other foodstuffs</i>	<i>Clothing</i>	<i>Fuel</i>	<i>General index- number</i>
1914 September	104	103	104	94	109	108
December	97	85	100	88	105	94
1915 March	108	88	105	91	105	98
June	100	88	104	92	99	94
September	95	88	105	94	102	95
December	104	107	106	101	118	106
1916 March	100	88	103	118	100	99
June	98	92	102	115	96	99
September	108	109	101	130	101	108
December	120	122	114	146	119	124
1917 March	109	98	118	141	116	112
June	138	117	114	181	110	132
September	150	149	134	198	143	154
December	162	170	134	229	193	172
1918 March	185	200	150	247	175	192
June	192	184	160	250	172	191
September	221	227	168	300	204	225
December	231	238	179	297	200	232

In the present study, however, we shall get nearer the truth if, instead of taking the index numbers of the table above, we weight every class of necessities in the worker's domestic budget. And from an investigation which Professor Takano made in May, 1916, into the cost of living in the case of labor, we quote the figures below:

	<i>Percentage</i>	<i>Weight</i>
Food and drink [†]	41.42	21
Rent	17.56	9
Fuel	6.14	3
Clothing	7.50	4
Miscellaneous	27.38	13
Total	100.00	50

[†] This item may be further analyzed as follows:

	<i>Percentage</i>	<i>Weight</i>
Rice	18.75	9
Subsidiary articles of diet	14.97	8
Relishes, etc.	7.70	4

As will be obvious from this table, about 73 per cent of the worker's total outlay is spent upon food, clothing, and rent. The above figures as has been said, are for May, 1916. But as prices had not advanced markedly at that time, we shall follow the increase further as shown by the above investigation. Properly, we should examine the increase in each several item of expense, and compare the increase in the cost of living, thus determined, with the increase in wages. But it is very difficult to determine changes in house rent and miscellaneous expenses; and we shall confine ourselves to an inquiry into the advance in the cost of food and drink, fuel, and clothing, and from these estimate the general increase.

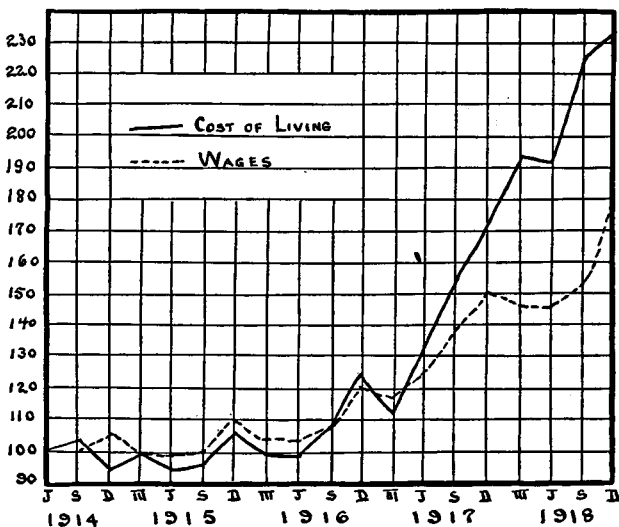
These three items together make up 55 per cent of the total, and together they should be sufficient. The results given when these three items are weighted and then multiplied by the index numbers of their retail prices in Tokyo, may be found in the graph on p. 100.

According to this graph, the cost of living for the worker did not fluctuate conspicuously until the first half of 1916; but with the latter half of that year it began gradually to advance, and by the end of 1916 the index number had reached 124. In the following year it continued to advance, and the index number stood at 154 in September, and at 174 in December. Conditions in 1918 showed the same tendency, the index number running up to 225 in September of that year.

We may now compare this rate of advance with the increasing rate of wages. In general, the index number of wages was higher than that of the cost of living until March, 1917; but after June of that year prices began to take a decided advance; and, wages failing to keep pace with this advance, the difference between the two became very noticeable. At the end of this year, the index number of wages stood at 150, while that of the cost of living was 172. As for the year following, the difference was even more striking. (See graph on p. 100.) It may be said, therefore, that from 1917 the rising cost of living became a serious problem for the worker; and in the same year there was a marked increase in the number of strikes which occurred in the Prefecture of Tokyo, the majority growing out of demands for wage increases.

*Strikes in the Prefecture of Tokyo.**Causes of Strikes*

	<i>Number of strikes</i>	<i>Number of strikers</i>	<i>Wage demands</i>	<i>Decreased wages</i>	<i>Demand for improved labor conditions</i>	<i>Opposition to foremen</i>	<i>Other reasons</i>
1914	6	2,455	2	2	0	1	1
1915	7	1,082	4	1	0	0	2
1916	9	297	0	0	0	1	8
1917	40	7,700	81	1	8	8	2
1918	58	5,786	40	1	4	5	8

*Relation between Cost of Living and Wages, 1914-1918.*

(June, 1914 = 100)

In a word, in the first two years of the War workers encountered no special difficulty in making ends meet; but in the last two years the abnormal advance in prices resulted in extreme hardships.

CONCLUSION

BEING remote from the theater of war, Japan did not suffer directly from its terrible effects. Moreover, the increased demand for munitions and other commodities from the warring powers, and for Japanese goods from Far Eastern countries, from the South Seas, and like regions which could no longer import from Germany and other belligerents, made for a great increase in Japan's export trade. This prosperity in the export trade was the principal factor in Japan's general economic prosperity during the War, and stimulated the development of industries and trade at home. Below we attempt a summary of the principal effects of the War upon the commerce of Japan.

In the matter of foreign trade we find:

- (1) A remarkable increase in the volume of trade;
- (2) An excess of exports over imports, forming a striking contrast to conditions in pre-war years;
- (3) In exports, the percentage of raw materials and foodstuffs decreased, while that of finished articles gradually increased; in imports, the percentage of the former increased and that of the latter decreased gradually;
- (4) An extension of the world market.

The volume of trade in 1918 attained roughly ¥3,630,000,000, more than three times that of 1914. As for the balance of trade, the customs returns recorded a yearly excess of exports over imports from 1915 on. Moreover, there was a great development during the War not merely in the volume of the country's foreign trade but also in the quality of it.

This thriving foreign trade coupled with similar activity in our shipping business yielded a large credit for Japan in her international account, and affected our financial position very favorably. The average annual credit balance for the four years from 1914 to 1918, inclusive, amounted roughly to ¥1,557,000,000; and Japan's specie reserve likewise grew apace.

Prices now rose to unprecedented heights, chiefly due to the increased purchasing power of the people, the insufficient supply of commodities, and the inflation of currency; while the profiteering of dishonest merchants, who attempted to raise prices by cornering or

withholding from sale, also played no inconsiderable part. Thus in November, 1918, the index number for prices in Tokyo was more than twice what it had been in August, 1914. Such increases were a menace to the country's well being; and the Government strove to check them by promulgating the Anti-Profiteering Ordinance, by exercising control over foodstuffs, and by cancelling the import duty on rice.

Industrial and commercial prosperity did not follow immediately upon the beginning of the War. At the outset Japan was hard hit, and dark clouds hung over her future; but by the middle of 1915 the market had recovered, as will be seen by the condition of the various exchanges. As to prices, they advanced slightly at the outbreak of the War, or in August and September, 1914; but after that they continued to fall until July, 1915. In November of that year they were higher than they had been in July, 1914, and they continued to advance. Wages did not increase in equal pace with prices; and in 1917-1918 there was a great increase in labor conflicts.

In short, the World War gave to the business world of Japan a golden opportunity for great development, and for a few years it brought prosperity. But trade activity which grows out of so uncertain a thing as war can never last long, and the arrival of a period of reaction was inevitable. The question, then, of whether the effect of the World War upon the commercial life of Japan was or was not to its advantage, must be judged from the condition of things in future years, when the period of reaction has in its turn been left behind.

**THE EFFECT OF THE WORLD WAR UPON
THE COMMERCE OF JAPAN**

PART II. POST-WAR PERIOD

INTRODUCTION

As a result of the World War the commerce and trade of Japan entered upon a period of unprecedented prosperity. For a time, after the outbreak of the War, Japan was, indeed, adversely affected, but as the fighting dragged on, orders from the belligerents for war materials and for ordinary commodities came to Japan in ever increasing amounts. As the European countries ceased to furnish manufactures to the world market Japan came to be regarded as the source of supply. The result was an extraordinary boom in her export trade, and a signal development of Japanese manufacturing industries. The favorable balance of trade, which was successfully maintained for several years, together with activity in the carrying trade, was instrumental in elevating the position of Japan in international finance. Accumulations of gold brought about an inflation of currency, a sluggishness of the money market, and a rise in commodity prices; with the result that even internal commerce experienced remarkable activity.

The termination of the War made the Japanese commercial world more cautious and observant. A fear lest a reaction from war-time prosperity might set in at any moment obsessed all business men. Nevertheless, when business had entered upon what might be called the post-war period, Japan enjoyed a greater boom than it had during the War. Speculation became rampant, the price of necessities kept on rising, and the economic life of the nation expanded inordinately. The inevitable result came in March, 1920. There was a financial panic which plunged the country into general business stagnation. The high prices of commodities now worked to obstruct the channels of export and encourage the entry of foreign manufactures, thus initiating a period when the balance of trade was dominated by excessive imports. Exports, both visible and invisible, declined, and Japan's financial prestige suffered seriously.

These changes in the post-war commerce and trade of Japan will be discussed in the following chapters.

CHAPTER I

FOREIGN TRADE

1. *General Remarks.*

i. During the War.

THE immediate effect of the World War was to place obstacles in the way of Japanese commerce and business generally. But as the War went on, drawing in more and more of the resources of the European belligerents, there were changes in the currents of trade which were favorable to Japan. Asiatic markets, which had been dependent on commodities from Europe, turned to Japan for what they needed. Orders for war materials and other manufactures or products continuously found their way to Japan from the belligerents. The demand for Japan's manufactures in the United States and China, two of her best customers, grew rapidly owing to a general business boom in the first-named country and the rise of silver in the second. Markets were secured in the countries of South Africa and South America, which had never been seriously considered before the War as a field for Japanese exporters. As a result, the value of Japan's export trade which had been estimated at ¥632,000,000 in 1913, reached ¥1,962,000,000 in 1918. There was a swift development of the various home industries and, finally, a period of unusual prosperity. In consequence of an enormous increase in demand for raw materials and other commodities, the volume of imports grew from ¥729,000,000 in 1913 to ¥1,668,000,000 in 1918.

Before the War the balance of trade was prevailingly unfavorable. From 1915 to 1918, the total annual exports exceeded imports by ¥1,400,000,000.

In short, the World War gave Japanese foreign trade an opportunity for unprecedented development, in spite of various obstacles, such as trade restrictions put into force by other countries, shortage of bottoms, interruptions in the foreign exchange markets and the like.

ii. Post-War Conditions.

a. 1919.

The eight months from the conclusion of the Armistice to the signing of the Treaty of Peace, on June 28, 1919, may be regarded as a transition period. Exporters and importers, as we have said, naturally pursued a cautious policy, with the result that, from February to May, 1919, the value of our exports was on the wane, as compared with the corresponding period of the preceding year. Owing to the slow readjustment of European industry to conditions of peace and to the world-wide dearth of commodities Japanese export trade again began to improve and the value of exports advanced to about ¥2,098,000,000 in 1919. This was 6.5 per cent above the previous year, a relatively small gain as compared with the War years. The restoration of peace had made it unnecessary for the belligerents to order any further war materials from Japan; and importers in other countries, affected by Japan's high prices, ceased to place orders, or even countermanded orders already placed, in anticipation of the appearance of European manufactures, and a fall in Japanese prices and freight charges. On the other hand, Japan's import trade continued to thrive even after the conclusion of peace, due to an improved shipping situation which brought deliveries in large volume of orders placed earlier, and due also to the ill-considered activities of speculators who were manipulating further increases in Japanese prices. The volume of imports rose to 2,173,000,000, or 23 per cent over 1918, and slightly exceeded the exports for the first time since 1914. Japanese exports to all parts of the world with the exception of Asia and North America declined, while imports from everywhere except South America increased.

b. 1920.

At the beginning of 1920 the foreign trade of Japan was enjoying an extraordinary boom. But toward the middle of March there was a reaction, which almost amounted to a panic on the stock exchange. A similar reaction had occurred in the United States and China, the two largest consumers of Japanese manufactures, to the serious embarrassment of manufacturers and exporters. This in its turn checked

the demand for raw materials, and the business of importers suffered accordingly.

Because of the lag in foreign trade between business contracts and deliveries the effects of the dullness of the export and import trade did not appear in the trade returns till the second half of 1920. For the first six months of the year the volume of foreign trade amounted to ¥4,284,000,000, consisting of ¥1,948,000,000 in exports and ¥2,336,000,000 in imports, with an import excess of ¥387,000,000. There was an increase in exports to all continents except North America, and in imports from all continents except Asia. Japanese trade with the United States and China diminished, exports to the United States falling by ¥263,000,000. Exports to Kwantung Peninsula, Great Britain, and Canada, and imports from China were also falling off.

c. 1921.

The foreign trade of Japan was even more stagnant in 1921. The value of exports dropped to ¥1,252,000,000, and of imports to ¥1,614,000,000, a balance in favor of imports of ¥361,000,000.

Only eight of the fifty-two principal exports increased in quantity over the preceding year, whereas one-half of the forty principal imports showed an increase. With the single exception of Germany, all countries showed a decline both in imports from Japan and in exports to her.

This condition was no doubt in some measure due to the world-wide depression. But the causes which were largely responsible were the high prices prevailing in Japan, the instability of foreign exchange rates, a fall in the price of silver, the increased arrivals of European manufactures on the world market.

As for the decline in imports, that may be attributed to,

- a. Decrease in the demand for raw materials, owing to industrial depression in Japan.
- b. A decline in the purchasing power of the Japanese people.

iii. Decline in the Value of Trade, by Continents and Countries.

During the World War, the number of countries with which Japan was commercially connected was considerably increased. A com-

parison of the figures for the four years beginning in 1915 with those for 1918 shows a 10 per cent decline in the trade with Europe and an increase in the trade with all other continents. The Asiatic countries represented an increase of 78 per cent; North America, 133 per cent; South America, 427 per cent; Africa, 385 per cent; other countries more than 140 per cent.

With the depression beginning in March, 1920, these markets failed. Compared with the values of 1918 those of 1921 show a decline for the Asiatic countries of ¥463,000,000; for Europe, of ¥23,000,000; for North America, of ¥93,000,000; for South America, of ¥48,000,000; for Africa, of ¥61,000,000; for other regions, of ¥63,000,000 (see tables below). Nevertheless there were some markets which registered a gain. In the Dutch East Indies it was more than ¥4,000,000; in Siam, about ¥2,000,000; in Germany, ¥46,000,000; in Belgium, ¥8,000,000; in Switzerland, ¥6,000,000; in Holland, ¥2,000,000; in Sweden, ¥9,000,000.

The two tables that follow give (1) totals for Japan's foreign trade from 1919 to 1921, inclusive, in value of merchandise, and (2) totals for 1918-1921, by countries.

Total Values of Exports and Imports of Merchandise.¹

	<i>Exports</i> Yen	<i>Imports</i> Yen	<i>Total of Exports and Imports</i> Yen	<i>Excess of Imports over Exports</i> Yen
1919	2,098,872,617	2,178,459,880	4,272,332,497	74,587,268
1920	1,948,894,611	2,886,174,781	4,284,569,392	887,780,170
1921	1,252,837,715	1,614,154,882	2,866,992,547	861,817,117

Foreign Trade by Countries, 1918-1921.

(in ¥1,000)

	1918	1919	1920	1921
<i>Asia</i>				
China	640,858	769,150	628,361	478,905
Kwantung Peninsula	216,892	312,522	310,547	189,501
Hongkong	64,584	60,698	76,298	60,821
British India	470,707	486,356	587,179	294,869
Straits Settlements	71,588	58,054	52,887	45,575

¹ In this table, the figures for the foreign trade of the Japanese Colonies are not included. This also applies to the tables which follow.

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	1918	1919	1920	1921
Dutch East Indies	120,514	122,882	175,854	124,688
French Indo-China	65,439	125,662	24,064	20,087
Asiatic Russia	44,401	75,888	26,694	20,604
Philippine Islands	40,939	84,086	50,781	86,088
Siam	11,808	88,882	7,446	18,911
Other countries	639	760	809	245
Total	1,748,268	2,029,880	1,940,921	1,284,789
<i>Europe</i>				
Great Britain	208,934	238,995	333,150	207,079
France	145,929	75,676	86,184	46,858
Germany	3,480	822	18,039	49,980
Belgium	4	3,480	8,276	8,712
Italy	12,190	7,130	8,494	4,080
Switzerland	2,858	9,052	9,831	9,640
Austria-Hungary	2	....	415	95
Holland	1,746	4,645	14,188	4,375
Sweden	3,725	12,019	17,798	18,020
Norway	214	1,651	1,888	514
Russia	848	854	596	488
Spain	446	1,175	1,734	1,178
Denmark	40	1,504	2,252	882
Turkey	....	848	1,340	279
Portugal	18	87	121	297
Other countries	668	575	2,660	377
Total	881,043	857,968	500,908	357,254
<i>North America</i>				
United States	1,156,155	1,594,479	1,438,199	1,070,685
Canada	85,110	30,966	26,721	22,868
Mexico	899	1,338	1,306	1,058
Other countries	2,751	3,776	5,459	7,722
Total	1,194,416	1,630,558	1,471,685	1,101,822
<i>South America</i>				
Peru	2,749	3,602	4,213	2,251
Chile	15,966	17,114	26,902	3,059
Argentina	34,442	13,764	27,614	3,185
Brazil	3,480	2,152	6,106	666
Other countries	1,188	2,388	6,375	437
Total	57,771	39,014	71,209	9,599

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	1918	1919	1920	1921
<i>Africa</i>				
Egypt	87,647	81,917	48,812	17,142
Cape Colony and Natal	47,792	46,859	82,101	6,712
Other countries	2,048	2,084	2,156	2,208
Total	87,486	79,860	128,070	26,058
Australia	118,702	87,456	120,575	57,957
New Zealand	8,754	5,854	9,691	1,618
Hawaii	7,799	8,897	18,517	7,582
Other countries	10,240	10,888	18,572	9,801
Total	140,496	112,544	157,856	76,958
Temporarily in Warehouse	17,672	20,658	12,000	9,070
Unknown	8,096	2,860	2,427	1,499
Grand Total	8,680,245	4,272,882	4,284,569	2,866,998

2. Export Trade.

Export trade became stagnant upon the conclusion of the Armistice (especially in the first six months of 1919); but recovered its activity and remained prosperous until the advent of depression in the middle of March, 1920. The most prosperous month after the restoration of peace was December, 1919, with exports of ¥276,000,000 as compared with ¥87,000,000 for December, 1920.

A comparison of the figures for 18 staple exports in 1918 and in post-war years shows that in 1918 half of these commodities were already showing a decline; and in 1919 two-thirds of them were affected. In 1921 trade in 15 of them fell off; the remainder alone showed increases over 1918. (See table on p. 114.)

The increase over 1913 in Japan's exports during the four war years totalled 125 per cent for Asia, 66 per cent for Europe, 113 per cent for North America, 629 per cent for South America, 1,002 per cent for Africa, and for other countries, 113 per cent. In 1919, trade with every continent except Asia and North America declined, but in 1920, trade with North America alone continued to decline. Asia and South America also fell behind the figures for 1918. In 1921 all continents showed a decline as compared with 1918 and 1920. (See table on p. 115.)

The increase of exports in 1919, which amounted to ¥136,000,000

was mainly due to an increase in the export of raw silk to the United States—the value being estimated at ¥282,000,000—while the export of staple goods diminished, as already shown. Thus signs of the post-war reaction in foreign trade were already discernible in 1919.

Since, however, the prosperity of export trade from 1914 to 1918 was due to the War, it is not surprising that a reaction followed. The activity of trade between the latter half of 1919 and the beginning of 1920 was only a mere wave of prosperity. Japanese exports could not maintain their war-time position in view of the world-wide decline in purchasing power, the disappearance of the Allies' need for war materials, the reappearance of European manufactures in the markets acquired by Japan during the War, notably in South America and Africa, the fall in the price of silver, which affected the trade with China and British India in 1921, and the high prices prevailing in Japan.

This last point is important. Prices in Japan, which had shown a downward tendency upon the conclusion of the Armistice, began to advance again at the end of the spring of 1919. In March, 1920, the index number of prices in Tokyo had reached 383, as based on 100 for July, 1914, whereas those in London and New York recorded only 326 and 240 respectively. In December, 1921, the Tokyo index number stood at 220, while that of London registered only 170, and the New York index was 131. Such a disparity in price movements inevitably affected Japanese exports unfavorably.

Another source of embarrassment to Japanese exporters was the instability of rates of exchange. Bills drawn on European countries showed a continued tendency to fall. Thus rates on Great Britain, which had maintained the level of 2/2 at the lowest during the War, began to decline gradually, due to the abolition in March, 1919, of the measures for the adjustment of the foreign exchanges. The minimum rate quoted in 1919 was 2/6, and that of 1920 was as low as 2/10. In 1921, though the highest quotation reached the neighborhood of 2/3, the lowest stood at about 2/8. Exchange on France, Italy, and Germany was much more seriously disturbed.

Finally, mention should be made of the anti-Japanese boycott in China in 1919 and 1920, and the fall of the ruble, which wholly demoralized export trade with Russia.

Quantity and Value of Chief Commodities Exported, 1919-1921.

	1918		1919		1920		1921	
	Quantity Piculs ^a	Value Yen	Quantity Piculs	Value Yen	Quantity Piculs	Value Yen	Quantity Piculs	Value Yen
Beans and peas	8,582,886	55,881,852	2,095,006	81,975,152	779,760	10,614,714	400,089	4,086,678
Fishery products		17,099,849		16,191,407		17,842,685		14,569,892
Refined sugar	1,908,781	28,252,186	1,095,006	21,627,295	1,005,445	80,592,980	798,052	15,799,096
Tea	885,708	28,056,897	282,008	18,402,054	198,288	17,112,548	118,972	7,718,586
Raw silk	248,444	870,887,055	286,224	628,618,507	174,687	882,716,898	262,028	417,124,148 ¹
Habutae	82,592	70,178,085	81,859	101,289,808	26,971	91,222,912	20,420	48,558,019
Cotton yarns	1,225,879	158,800,019	642,870	114,282,082	898,171	152,898,981	876,788	80,568,002
Cotton fabrics		287,918,120		280,811,062		884,966,026		208,678,879
Woolen fabrics		11,761,006		11,124,472		7,482,876		2,260,677
	Thousand bundles		Thousand bundles		Thousand bundles		Thousand bundles	
Hat braids	87,156	11,996,118	45,487	20,014,587	86,259	21,960,888	21,518	7,080,964
	Thousand gross		Thousand gross		Thousand gross		Thousand gross	
Matches	89,467	27,742,668	41,551	82,968,851	28,414	28,458,107	28,154	16,289,888
Paper		28,468,000		25,402,428		28,124,691		18,989,891
China and earthenware		19,957,782		22,629,775		81,452,252		20,791,905
Glass and glass manufac- tures		16,079,547		19,680,784		28,288,961		9,997,424
Toys		10,190,028		18,001,486		21,189,077		7,008,888
	Tons		Tons		Tons		Tons	
Coal	2,179,600	82,009,494	2,000,697	87,728,574	2,129,580	45,200,117	2,887,709	87,814,960
	Piculs		Piculs		Piculs		Piculs	
Copper (pig and sheet)	584,896	87,748,648	824,068	19,647,167	87,881	5,188,561	151,684	6,465,988
Wood		17,804,925		28,996,215		29,129,578		15,826,716

¹ 1 picul = 133.3 lbs.

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Exports, 1919-1921, by Countries.

(in yen)

	1918	1919	1920	1921
<i>Asia</i>				
China	859,150,814	447,049,267	410,270,499	287,227,081
Kwantung Peninsula	116,873,972	150,127,187	118,685,671	77,569,448
Hongkong	68,699,799	59,155,766	74,066,243	59,304,076
British India	202,522,289	116,878,729	192,249,065	84,506,635
Straits Settlements	42,208,858	29,844,874	85,749,598	21,739,940
Dutch East Indies	71,676,981	57,354,854	107,225,428	54,210,504
French Indo-China	10,030,960	1,536,716	8,444,853	1,023,423
Asiatic Russia	40,084,485	70,953,261	22,862,556	13,741,279
Philippine Islands	23,500,684	18,556,179	34,376,888	17,921,481
Siam	6,076,969	3,895,217	4,200,736	2,652,215
Other countries		148,639	242,671	197,129
Total	985,550,862	955,006,189	996,378,723	620,090,206
<i>Europe</i>				
Great Britain	142,866,369	111,452,780	97,797,246	82,772,308
France	142,199,063	66,844,652	71,652,639	85,166,991
Germany	.....	63,643	1,064,632	2,216,871
Belgium	.....	3,480,975	4,811,226	601,047
Italy	11,577,197	6,398,415	6,376,564	2,317,504
Switzerland	579,562	408,007	135,886	43,790
Austria-Hungary	.....	833	878,814	26,594
Holland	1	1,473,697	7,900,818	929,076
Sweden	24,120	734,423	414,866	191,737
Norway	1,625	1,480,955	83,614	5,439
Russia	162,268	464,390	209,475	50
Spain	187,012	209,175	699,999	895,208
Denmark	50	1,281,316	1,534,750	249,159
Turkey	.....	229,809	736,291	185,192
Portugal	10,470	29,373	109,169	6,444
Other countries		536,269	2,184,659	335,513
Total	298,256,518	194,998,212	195,590,098	75,442,923
<i>North America</i>				
United States	530,129,398	823,097,621	555,017,126	496,288,879
Canada	27,339,805	24,339,228	21,669,786	13,415,987
Mexico	353,950	1,155,104	1,373,095	976,942
Other countries		3,002,026	5,186,855	1,439,567
Total	560,282,070	851,598,979	598,146,862	512,116,375
<i>South America</i>				
Peru	2,062,758	2,788,929	3,724,101	999,816
Chile	4,705,366	3,290,467	2,222,326	845,697
Argentina	25,674,032	11,363,187	23,686,504	2,327,303
Brazil	3,367,935	1,506,304	4,320,168	388,607
Other countries		1,980,533	5,244,764	484,536
Total	36,898,291	20,880,770	39,097,863	4,496,464

	1918	1919	1920	1921
<i>Africa</i>				
Egypt	28,467,940	15,912,262	30,549,569	4,922,119
Cape Colony and Natal	18,842,599	8,195,472	9,206,066	8,860,658
Other countries		673,961	864,884	286,985
Total	48,201,815	24,781,695	39,620,509	9,089,757
<i>Australia</i>				
Australia	64,827,941	80,825,658	58,115,218	21,558,918
New Zealand	8,747,811	5,271,328	9,669,447	1,607,553
Hawaii	7,729,853	8,612,540	13,254,205	7,480,292
Other countries		1,425,757	1,526,785	1,015,282
Total	82,915,460	46,135,278	82,564,605	81,631,990
Unknown	662	82,494	951	.....
Grand Total	1,962,100,668	2,098,872,617	1,948,894,611	1,282,887,715

3. Import Trade.

Unlike the exports, the imports of Japan were not adversely affected by the Armistice. Imports were greater in the second half of 1919 than in the first half; the total for the year was ¥2,173,000,000, an excess of ¥505,000,000 over 1918. Trade remained prosperous until March, 1920, when the post-war reaction set in. Imports for July fell to about one-third of the value for March; December figures fell still lower. Nevertheless the total for the year was ¥2,333,000,000, an increase over 1919 of ¥162,000,000. For 1921, although the situation improved between August and December, the total imports were ¥1,614,000,000, a decline of ¥722,000,000 as compared with 1920.

Of eighteen staple imports three fell below the 1918 figures in 1919, four in 1920, and eight in 1921.

With the exception of South America, which was affected by a decrease in the trade of Argentina, all continents sent larger volumes of exports to Japan in 1919 than in 1918. Imports from Europe, which had fallen to a low level during the War, doubled in 1919 and increased in 1920 by ¥143,000,000 over 1919. In 1920, imports from Asia declined; in 1921, those from all continents declined. Nevertheless, imports from the Straits Settlements, from Asiatic Russia, the Philippine Islands, Siam, Germany, Belgium, Switzerland, Austria-Hungary, Russia, Portugal, Canada, Mexico, and Peru were greater in 1921 than in 1920.

The post-war changes in the importance of many individual exports and imports are so striking that they might well be given a

Imports for 1919-1921, by Commodities.

					1920		1921	
	Quantity Piculs	Value Yen	Quantity Piculs	Value Yen	Quantity Piculs	Value Yen	Quantity Piculs	Value Yen
Rice and paddy	11,617,919	89,755,678	11,605,955	162,070,840	1,177,708	18,059,194	8,988,444	28,812,918
Beans and peas	8,288,965	20,895,971	4,485,848	85,802,628	4,754,022	47,658,740	4,422,950	24,691,076
Sugar	8,725,887	88,525,458	4,548,080	58,188,575	2,978,451	60,212,864	5,089,808	69,815,887
Hides and skins	212,792	11,890,455	257,155	15,460,287	214,884	19,859,592	186,000	8,877,801
Raw rubber	122,706	12,948,286	180,996	17,864,192	101,857	18,422,242	889,162	15,724,019
Oil cake	20,516,299	92,255,027	24,592,756	185,188,720	20,197,782	150,904,952	22,112,755	94,811,268
Raw cotton	6,825,654	515,558,989	7,919,898	667,866,651	7,888,957	721,487,450	8,757,816	488,172,816
Flax, hemp, China grass, ramie, etc.	711,082	22,729,908	550,175	16,782,619	497,946	15,228,891	772,237	14,660,482
Wool	888,881	60,146,187	417,724	61,804,245	562,120	121,629,458	267,888	82,202,658
Woolen tissues	.....	11,485,511	.....	12,801,800	.....	81,270,266	.....	81,088,978
Chile saltpeter	815,092	11,294,611	1,095,100	18,887,954	2,042,781	24,745,519	808,864	2,601,098
Caustic soda and soda ash	1,062,242	14,661,558	1,495,195	14,520,818	1,467,788	11,628,079	757,029	8,211,840
Ores	.....	20,866,452	.....	20,902,784	.....	15,959,985	.....	11,215,088
Iron (pig, ingot, bloom, billet and sheet)	8,926,522	64,109,184	4,968,711	57,945,624	5,901,408	41,996,488	8,857,197	19,168,454
Steel (bar, rod, plate, sheet, wire, etc.)	8,710,680	204,788,584	9,087,898	156,677,654	18,889,698	200,891,487	8,181,167	115,160,958
Coal	761,698	15,768,704	699,646	18,588,181	797,155	19,917,588	777,255	14,092,998
Structural and railroad materials	.....	16,928,688	.....	24,877,154	.....	28,028,866	.....	19,818,065
Machinery and parts thereof	.....	58,497,998	.....	89,221,986	.....	110,571,878	.....	119,882,164

Imports for 1919-1921, by Countries.

(in yen)

	1918	1919	1920	1921
<i>Asia</i>				
China	281,707,333	822,100,828	218,090,911	191,678,314
Kwantung Peninsula	100,517,806	162,394,349	196,861,271	111,931,580
Hongkong	883,766	1,536,891	2,281,586	1,017,171
British India	268,185,185	819,477,561	894,980,201	210,365,194
Straits Settlements	29,323,644	28,209,944	17,187,422	23,885,429
Dutch East Indies	43,837,198	65,527,500	68,628,794	70,427,080
French Indo-China	55,407,802	124,124,826	20,618,843	19,063,862
Asiatic Russia	4,366,624	4,924,982	8,331,684	6,863,213
Philippine Islands	17,438,481	15,530,278	16,404,811	18,160,685
Siam	5,780,984	29,937,129	8,245,115	11,258,295
Other countries		611,183	566,192	47,954
Total	812,712,588	1,074,375,271	942,546,880	664,648,877
<i>Europe</i>				
Great Britain	66,067,257	127,541,962	235,352,505	184,306,793
France	3,730,147	8,331,291	14,431,320	11,691,319
Germany	3,430,393	258,584	11,974,686	47,718,096
Belgium	3,901	49,285	8,964,376	8,110,595
Italy	618,167	731,148	2,116,981	1,762,779
Switzerland	2,278,193	8,643,598	9,194,935	9,596,135
Austria-Hungary	1,630	13	35,343	68,116
Holland	1,746,371	3,166,549	6,281,304	3,446,142
Sweden	3,700,943	11,284,691	17,332,667	12,327,361
Norway	212,329	220,458	1,298,933	503,704
Russia	685,533	399,476	336,254	437,335
Spain	259,412	966,163	1,034,294	783,188
Denmark	40,230	222,296	717,020	133,120
Turkey	4	617,967	603,354	93,700
Portugal	2,857	7,130	11,531	290,523
Other countries		39,030	475,698	41,250
Total	82,786,950	162,969,641	305,312,751	281,311,101
<i>North America</i>				
United States	626,025,530	766,381,438	878,182,251	574,400,915
Canada	7,775,180	6,126,416	5,051,478	3,946,591
Mexico	45,192	177,853	82,875	75,624
Other countries		773,779	271,724	6,282,406
Total	634,133,442	773,459,486	878,538,328	589,705,532
<i>South America</i>				
Peru	686,544	862,823	438,998	1,251,255
Chile	11,261,031	13,323,479	24,679,330	2,713,096
Argentina	3,768,398	2,396,517	3,927,521	307,100
Brazil	112,455	646,287	1,885,646	277,374
Other countries		452,249	1,130,003	32,329
Total	20,377,956	18,133,360	32,111,300	5,102,156

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	1918	1919	1920	1921
<i>Africa</i>				
Egypt	9,176,784	16,004,502	18,262,899	12,219,908
Cape Colony and Natal	29,448,991	37,163,776	73,895,163	2,861,567
Other countries		1,409,798	1,291,168	1,916,506
Total	39,284,635	54,578,076	88,449,225	16,997,981
Australia	46,874,378	56,680,807	62,459,492	86,898,289
New Zealand	6,487	82,480	22,702	4,998
Hawaii	69,156	284,456	268,024	181,742
Other countries		9,411,886	12,045,681	8,786,581
Total	57,580,562	66,409,079	74,790,899	45,820,610
Temporarily in Warehouse	17,672,372	20,657,802	11,999,577	9,069,598
Unknown	8,095,488	2,827,165	2,425,671	1,499,182
Grand Total	1,668,148,838	2,173,459,880	2,386,174,781	1,614,154,882

section of their own. Furthermore, though the War and its ending were the great controlling causes of the rise and fall of Japanese trade in general, and of most of its outstanding variations, in the case of almost all commodities other influences were likewise at work.

If we take, for instance, refined sugar, exports of refined sugar to China—China being the great buyer of this export—were, in 1920, cut in half by a famine in North China and by the Chinese boycott.

In the case of tea, during the last years of the War a great dearth of cargo space had blocked Chinese tea exports; and, in the United States, Japanese tea had been rapidly taking its place. But the lack of cargo space was only temporary. Japanese tea could not hold the favor it had won. And three years after the War such exports—of a value of ¥19,000,000 in 1918—had fallen to ¥6,600,000.

In the case of raw silk, the great war-time prosperity of the United States continued to create a luxury demand that gave Japanese silk such a market as it had never had before. Where formerly exports to the United States compared with those to Europe had been as 7 to 3, in 1921 the ratio was 19 to 1. But the panic of 1920, and the resumption of sericulture in Europe soon changed this. Where raw silk exports to the United States amounted to ¥600,000,000 in 1919, in 1920 they were only ¥341,000,000.

In 1919 cotton yarns commanded prices so high in the home market that there were instances of such exports being reimported. Japanese matches lost much of the trade of China, one of its best customers, owing to the development of the match industry in that country. By

the end of the War such great stocks of copper had accumulated in Europe, that Japanese copper exports in 1919 were merely to fill orders already booked. And the falling off in the total for 1920, from ¥320,000,000 to ¥85,000,000 can readily be understood.

The story is much the same in the case of imports after the War. The ending of the War made the great difference. But often enough crop failures, speculation, tariff changes, overstocked markets, and removals of embargoes were also deciding factors.

CHAPTER II

FOREIGN EXCHANGE

1. *General Remarks.*

i. The Position of Japan in International Finance during the War.

BEFORE the War imports into Japan exceeded exports almost every year, and the nation had to settle its balance by floating loans abroad. A complete reversal of the position of Japanese in international finance came with the War. Japan was asked to undertake huge orders for war materials for the Allies, and to supply all parts of the world with substitutes for European manufactures. As a result, the four war years gave an export balance of upward of ¥1,400,000,000. A similar situation developed in the case of the so-called "invisible items," charterage, freight, marine-insurance premiums, etc. In consequence, the foreign indebtedness of Japan diminished and her credit accounts against other countries were greatly strengthened. Her specie reserves, which had been ¥360,000,000 in June, 1914, swelled to ¥1,588,000,000 at the end of 1918.

The new position of Japan as an international creditor was naturally very gratifying to the Japanese people. It gave a stimulus to industry and laid the basis for a great increase of business during the War.

The increase in the specie reserve gave rise to currency inflation and an advance of prices, which stimulated the promotion of various commercial and industrial enterprises. Gold embargoes proclaimed by certain foreign governments worked injury to Japanese exchange operations, especially in connection with the export business. Trade prohibitions by the United States, after September, 1917, acutely affected export merchants in Japan.

ii. Post-War Changes.

a. *The International Balance.*

The termination of the War had the effect of reducing both production and trade, especially exports. In the three years between 1919 and 1921, imports exceeded exports by about ¥820,000,000.

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Through her war-time excess of exports Japan was enabled to pay off a large part of her foreign debt, and even to make loans to other nations, and "invisible" or "non-trade items" also came to show a balance in favor of Japan. This balance continued after the War, but the excess diminished year by year, as the following table shows.

The "Invisible," or Non-Trade Account.

(in ¥1,000)

	<i>Receipts</i>	<i>Expenditures</i>	<i>Excess of Receipts</i>
1919	1,211,992	745,170	466,822
1920	1,868,545	1,169,126	194,420
1921	1,288,081	1,114,566	123,465

The following table, prepared by the Financial Bureau of the Department of Finance, gives such sources of income in detail.

The "Invisible" or Non-Trade Account Itemized.

(in ¥1,000)

I. Receipts.

	<i>1919</i>	<i>1920</i>	<i>1921</i>
1. Government receipts abroad	52,170	64,988	68,610
2. Foreign investments in Japan	6,097	7,826	9,441
3. Interest on Japanese investments abroad	59,669	50,447	45,915
4. Returns from Japanese capital invested abroad	290,980	518,575	666,255
5. Income from Japanese enterprises abroad	181,820	126,088	110,878
6. Ocean freights and charter fees	487,496	887,626	200,787
7. Amounts spent on foreign ships in Japanese ports	18,481	29,915	16,170
8. Insurance receipts	49,056	55,568	87,787
9. Amounts spent by foreigners in Japan	65,092	66,781	.....
10. Special trade accounts	101,181	105,786	82,198
Total	1,211,992	1,868,545	1,288,081

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II. *Expenditures.*

	1919	1920	1921
1. Government expenditures abroad	189,722	170,855	29,798
2. Japanese investments abroad	264,088	616,491	518,501
3. Interest on foreign investments in Japan	22,702	18,924	12,181
4. Returns from foreign capital invested in Japan	40,175	104,204	225,601
5. Income from foreign enterprises in Japan	10,845	15,844	17,927
6. Amounts spent on Japanese ships in foreign ports	74,658	100,492	76,769
7. Insurance receipts	90,801	101,006	78,989
8. Amounts spent by Japanese abroad	85,487	28,689	26,896
9. Special trade accounts	16,699	18,621	87,959
Total	745,170	1,169,126	1,114,566

In 1919, owing to the conclusion of the Peace Treaty and the lifting of the blockade against Germany, imports into Japan became larger, while exports remained quiet, and the excess of imports was ¥70,000,000. But non-trade receipts produced an excess of ¥460,000,000. This left a net balance in favor of Japan of ¥390,000,000. In 1920 the excess of imports rose to ¥380,000,000, while the increase in foreign investments in Japan and the decrease in ocean freights and charter fees reduced the excess of non-trade receipts to ¥190,000,000. In consequence there was a balance of ¥190,000,000 against Japan. In 1921, when trade was seriously depressed, imports exceeded exports by ¥360,000,000 while owing to a marked decrease in freights and charter fees and an increased return from foreign capital invested in Japan, the non-trade excess was only ¥120,000,000, leaving a net balance against Japan of ¥240,000,000.

Imports and Non-Trade Receipts.

(in ¥1,000)

	<i>Excess of Imports</i>	<i>Excess of Non-Trade Receipts</i>	<i>Difference</i>
1919	74,587	466,822	892,285
1920	887,780	194,420	-198,860
1921	861,817	128,465	-287,872

For the three-year period the balance against Japan amounted to nearly ¥40,000,000. Thus, in spite of war-time prosperity, the country seemed to be drifting back into its pre-war position on the debit side of international finance.

b. Specie Reserves.

During the War both trade and non-trade balances greatly swelled the specie resources of Japan. Some part of the rapidly accumulating gold balance was used to reduce the nation's foreign indebtedness; another part for floating a number of loans for the Allies; a part was employed for the promotion of home industry. Still gold continued to accumulate and the amount of the reserve reached ¥1,588,000,000 in December, 1918, an increase of ¥1,228,000,000 over June, 1914.

Bills drawn on Japanese credits abroad were purchased by the Imperial Government and the Bank of Japan from the Exchange banks. Part of the specie represented by these credits and held in the United States was shipped to Japan, but continued shipment became impossible after September, 1917, when the United States proclaimed a gold embargo. In consequence, the specie kept abroad came to be a much larger sum than the reserves maintained at home. The Japanese Government followed the policy of buying bills from the banks, for the purpose of financing the export trade, and thus came into possession of a larger sum of foreign credits than the Bank of Japan. Such a situation had never arisen before the War.

In the latter half of 1919, after the depression following the Armistice, there was a revival of business optimism due to the world-wide shortage of commodities, and to the common belief that countries which had given all their energies to the struggle would find it hard to revive their industries. At the same time speculation and high prices gave a stimulus to imports; but exports failed to prosper. The balance of trade turned against Japan, though the excess of non-trade receipts was sufficient to maintain a favorable international account. Toward the end of the year England redeemed her indebtedness to Japan in cash. It amounted to ¥100,000,000. Consequently the year end found Japan in possession of a specie reserve of ¥2,045,000,000 an increase of ¥457,000,000 over that of 1918.

In 1920, rampant speculation continued to stimulate import trade, with excesses of imports over exports totalling ¥260,000,000 for the three months January-March alone. The Imperial Government and the Bank of Japan had to sell a portion of the specie reserves they held abroad to the exchange banks to finance importers. Thus the amount of the reserves began to decline, and it fell to

¥1,860,000,000 by the end of April. In May, the British Government, which had to redeem a ¥20,000,000 loan in July, made a shipment of gold of ¥13,000,000 from Hongkong. The check to importation after the middle of March made it unnecessary for the exchange banks to keep a very large fund abroad for the financing of importers; consequently they began to bring home from the United States as much gold as possible and set it aside for settling their debts to the Bank of Japan or easing the stringency of the internal money market. Thus the amount of the specie reserves grew, at the end of the year, to ¥2,178,000,000, a gain of ¥133,000,000 over the preceding year.

In January, 1921, although the excess of imports over exports amounted to more than ¥30,000,000, the amount of the specie reserves increased again, and reached the record-breaking figure of ¥2,183,000,000 at the end of the month, owing to the redemption of exchequer notes by the British Government to the amount of ¥50,000,000. After February, 1921, the specie reserves began to fall, due to the monthly excess of imports over exports and the decrease in non-trade receipts. At the end of the year the reserves had dropped to ¥2,080,000,000.

Until the first half of 1919, no marked change had taken place in the reserves held in the country, owing to a favorable international account and the embargo on gold proclaimed by the various governments, including Japan herself. In June, 1919, the Government of the United States withdrew its embargo, and the exchange banks were enabled to bring home the sums they had accumulated in the United States. The amount thus drawn to Japan was ¥209,000,000. About ¥55,000,000 was imported from Asiatic Russia. At the end of the year, another shipment of ¥60,000,000 was received from Great Britain, as a result of the redemption of another loan. In consequence, the excess of imports of gold over exports in the latter half of the year aggregated ¥324,000,000, with the result that the specie reserves held in the country were ¥702,000,000 at the end of the year, a gain of ¥259,000,000 from the end of June.

In the first six months of 1920 the amount of specie held abroad gradually diminished, due to the extraordinary activity of imports, which, as we have said, made it necessary for the Government and the Bank of Japan to transfer credits to the exchange banks to finance importers. The specie reserve declined to ¥1,163,000,000 at

the end of December, a decrease of ¥180,000,000 since the end of June. But the gold reserves kept at home were increasing from May onward. This was chiefly due to the fact that the exchange banks, as already mentioned, brought back from abroad the gold that they owned, and sold it to the Bank of Japan. In July, August, and September, the balance of trade inclined to the exports side, while non-trade receipts and the profits of importers of raw cotton and sugar who sold their purchases at bargain prices abroad rose to an enormous figure. Accordingly the exchange rate on the United States rapidly advanced, and the importing of gold from that country was accelerated, the amount reaching ¥201,000,000 during the year. Besides, a large amount of specie was imported from Great Britain, India, Hongkong, Asiatic Russia, and China, through the redemption of British Government bonds, the fall of the ruble, speculation in exchange by Chinese merchants, etc., so that the excess of gold imports over exports during the year totalled ¥392,000,000. Consequently the amount of specie reserves kept in the country reached ¥1,116,000,000 at the close of the year, an increase of ¥414,000,000 over the previous year. On the other hand the specie held abroad declined, and, in December, 1920, dropped to ¥1,062,000,000.

The salient feature of the foreign trade of 1921 was the preponderance of imports. The Government and the Bank of Japan were obliged to let the exchange banks have their specie held abroad. By the end of the year, such specie reserves fell to ¥855,000,000. Reserves held at home continued to grow; and, at the end of the year were ¥1,225,000,000.

During the War, the reserve holdings of the Imperial Government enormously increased, until the specie owned by the Government exceeded that of the Bank of Japan. When the United States Government abolished the restrictions on the export of gold in June, 1919, and the banks were able to ship in gold with a view to paying their debts to the Bank of Japan or to tiding over the stringency of the money market, the reserves held by the Bank of Japan began gradually to increase while those of the Government dropped rapidly. At the end of 1920 the reserves of the Bank of Japan rose above those of the Government. This tendency continued till the close of 1921, when the Government's specie was less by ¥498,000,000 than that of the Bank of Japan. In sum, the aggregate specie reserves of Japan continued to rise until January, 1921, owing to the favorable

condition of the international account and the existence of gold holdings abroad. After that date they diminished, due to an adverse international balance. At the end of 1921, however, they stood at ¥2,080,000,000, a figure which exceeded that of November, 1918, by ¥528,000,000 and that of June, 1914, by ¥1,720,000,000.

c. Gold Exports and Imports.

Naturally, so great an accumulation of gold brought about an inflation of the currency. In November, 1918, bank notes in circulation amounted to ¥851,000,000; in 1919, to ¥1,126,000,000; in 1920 to ¥1,074,000,000; and in 1921, to ¥1,153,000,000. This inflation of the currency meant, of course, higher prices; in fact prices in Tokyo rose more rapidly than in New York during the period under review, and more rapidly than in London from July, 1919, to March, 1920, and from February, 1921, to the end of that year. This condition checked exports and reacted upon manufactures, causing widespread distress. An agitation arose for the repeal of the prohibition of the exporting of gold. It was believed by those who favored the repeal that a reduction in prices would follow, and imports of raw materials and machinery would be stimulated. Industries vital to the national welfare might be taken care of if free export of gold led to a flood of imports.

Opponents of repeal argued that so drastic a measure would tighten the money market; that the new enterprises which had sprung up during the War would be ruined before they had a chance to become established; and that large numbers of people would be thrown out of employment.

The Government decided against repealing the prohibition on gold exports, holding such action premature, since none of the leading nations except the United States permitted the free outflow of gold.

2. Funds for Foreign Exchange.

Because of the excess of exports and the increase in non-trade receipts during the War, export bills accumulated so fast that their financing became a serious problem. The situation was aggravated after September, 1917, when the United States placed gold exports under the ban. To relieve the situation the Government had to pur-

chase from the banks gold held in the foreign money centers, issuing therefore Special Exchequer Notes. This measure was insufficient, and the Bank of Japan was repeatedly called upon to advance funds for relieving the difficulties of the exchange market. At the end of October, 1918, the funds thus advanced aggregated ¥352,000,000, whereas it had been only ¥33,000,000 in June, 1914.

In the latter half of 1918, the exchange fund grew so small that it was feared the banks would be driven to raise the rate on export bills or even to refuse to purchase them. Therefore, in September, the Imperial Government organized a Special Exchange Commission to work out a remedy, placing upon it a number of the officials of the Department of Finance, as also bankers, financiers, and business men in foreign trade. Their task appeared almost impossible; but with the end of the War the problem solved itself. The balance of trade became unfavorable in 1919; and non-trade receipts declined, although not sufficiently to remove altogether the difficulties in financing export bills. In 1920 and 1921 the balance of international payments was against Japan and the Government, and the Bank of Japan had to employ specie held abroad to settle import bills.

The abolition of the gold embargo in the United States, in June, 1919, did much to relieve the exchange situation. Imports of gold from the United States from that time till the end of 1921 amounted to ¥418,000,000. The importing exchange banks used this gold for their own reserve or for redeeming their loans from the Bank of Japan. In consequence, the foreign trade advances of the Bank of Japan fell from ¥444,000,000 in 1918, to ¥76,000,000 at the end of 1920, and to ¥30,000,000 for the second half of 1921.

Thus the problem of funds for financing export trade settled itself. The Government dissolved the Exchange Commission in May, 1919. At the same time the Bank of Japan introduced the system of bank acceptances and stamped bills with a view to facilitating the circulation of money and reducing the volume of currency.

3. Measures for Facilitating Foreign Exchange.

One of the causes of the exchange difficulties during the War was the fact that the money market of Japan was not in very close touch with the world money market. The Yokohama Specie Bank had had the lion's share in the exchange business of Japan, enjoying many

privileges at the hands of the National Government and the Bank of Japan. In consequence, no other bank could hope to compete with it in this field. This arrangement might have been adequate while the volume of foreign trade continued to be small, or when the protection of the export trade was of great moment from the standpoint of national economy, as in pre-war years. But when conditions changed during the War, with the tremendous surplus of exports, the arrangement proved unsatisfactory. Furthermore, as the system of discounting trade bills was not yet fully developed, the exchange bank was unable to secure money in the open market by disposing of bills, in order to replenish its funds. Hence repeated calls were made on the Bank of Japan for loans, and this, in turn, invited inflation of the currency and a rise in prices.

i. The Creation of the Bank Acceptance Trade Bill.

The situation will be clear if we examine the practice of financing imports. Bills that an exchange bank of Japan is asked to purchase from export merchants abroad are drawn on importers in Japan. Such bills cannot be offered for sale in the Japanese money market; with the result that they must lie idle in the bank till the date of maturity. This is an unwise use of exchange funds.

In view of this, the management of the Bank of Japan called a conference of the representatives of the leading banks in May, 1919, and, with the consent of the latter established the system of bank acceptance trade bills, which had long since been developed in England, and which has also come into vogue in the United States. The advantage of trade bills consists in the fact that a Japanese importer, when he is about to do business with a manufacturer or exporter in a foreign country, may apply to his banker for the issue of a letter of credit, on the security of which the foreign exporter, when he has filled the order of the Japanese importer, may draw on the bank a bill of exchange. When the bill is sold, the buying bank forwards it to Japan and presents it for acceptance to the importer's bank here. These bills had a favorable reception in the Japanese market as advantageous investments, holding as they do the signatures of exporters in foreign countries, and being accepted by well-established banks in this country. The exchange banks can, at any time, sell such bills at the lowest rate of discount for commercial

bills. The demand for them is always so great that their sale will bring to the selling bank ready cash to replenish its exchange funds. Because of the high degree of security they bear low interest rates, thus furnishing import funds cheaply.

Realizing the great advantages of the bank acceptance bill, the Bank of Japan made every effort to bring it into common use and established arrangements for its rediscounting, offering to make its lowest rate available.

ii. The Introduction of Stamped Bills.

When the Bank of Japan undertook the discount of bank acceptance bills, the value of the system attracted both bankers and foreign traders, who took eager advantage of it. In practice, the plan was principally employed in the settlement of import bills; it proved less useful to exporters. In order to remedy this defect the Bank of Japan introduced another device called the stamped bill, in August, 1919. By this device the Bank of Japan took over export bills purchased by the exchange banks. The exchange banks then drew on the Bank of Japan bills to the amount of the export bills, calculated in Japanese currency, with a view to selling the bills on the Bank of Japan in the market. Such bills were called stamped bills because the Bank of Japan was required to put its stamped seal upon them. When presented, the bank would cash them at the lowest rate allowed on commercial bills. Like the bank acceptance bill, their payment was secured by the exchange bank. Moreover, they were secured by export bills, while the Bank of Japan stood ready to discount them at the best rate offered. This made it unnecessary for exchange banks to draw from the market the funds they needed for financing export bills. Stamped bills were, in fact, very well received by the banking and the export world.

Non-Trade Accounts, Itemized in Detail.

1. Receipts (in ¥1,000).

	1918	1919	1920	1921
I. Government receipts abroad	68,610	52,170	64,988	66,610
II. Foreign investments in Japan	10,489	6,097	7,826	9,441
Government bonds	6,846	1,268	1,908	5,665
Municipal bonds	867	141	133	9
Other securities	3,776	4,688	5,785	3,767

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	1918	1919	1920	1921
III. Interest on Japanese investments abroad	45,806	59,669	50,447	45,915
Foreign government bonds	87,294	46,960	84,448	83,971
Foreign municipal bonds	1,515	1,789	1,185	1,558
Other securities	6,997	10,970	14,814	10,491
IV. Returns from Japanese capital invested abroad	47,685	290,980	518,575	666,255
Redemption of foreign loans issued in Japan	.....	100,000	67,786	22,700
Redemption or sale of other foreign loans	84,468	161,759	409,695	564,846
Redemption of foreign municipal and commercial bonds	6,628	6,779	28,968	65,108
Sale of other foreign securities	5,057	5,784	15,077	21,419
Other investments	1,487	15,608	8,054	1,187
V. Yield of Japanese enterprises abroad	114,826	181,820	126,088	110,878
Profits	68,181	67,459	56,860	48,645
Remittances of emigrants and money brought back by them	51,695	64,861	69,728	67,228
VI. Freight charges and charter fees	495,184	487,496	887,626	200,787
Freight charges on goods imported	118,758	148,695	108,700	67,550
Freight charges on goods exported	192,541	124,186	79,900	46,406
Freight charges on goods transported between foreign ports	124,117	180,287	102,547	66,824
Fares of foreign passengers carried	11,502	18,976	18,664	15,828
Trucking charges	58,221	25,402	82,815	4,684
VII. Amounts spent on foreign ships in Japanese ports	10,788	18,481	29,915	16,170
Ship's stores sold	8,925	16,289	26,610	15,168
Repairs to ships	1,521	1,808	2,418	878
Tonnage dues and pilotage	842	889	887	624
VIII. Insurance receipts	110,076	101,181	105,787	82,198
Premiums for marine insurance	86,848	76,528	76,088	42,606
Premiums for life and fire insurance	8,088	12,669	18,478	26,749
Accounts due from foreign underwriters to Japanese underwriters	15,145	11,979	11,271	12,888
IX. Amounts spent by foreigners in Japan	87,258	49,056	55,568	87,787
By tourists	28,412	81,429	88,651	18,841
By ship's crews	920	1,886	8,652	1,701

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	1918	1919	1920	1921
By students studying in Japan	2,290	2,938	2,528	1,687
By missionaries	5,872	6,724	8,542	9,608
Amounts spent by embassies, legations, consulates, etc.	4,768	6,184	7,195	5,950
X. Special trade accounts	17,778	65,092	66,781	.....
Sales of ships not included in trade lists	17,778	65,092	66,781	.....
Total	958,400	1,112,992	1,868,546	1,288,081

2. Expenditures (in ¥1,000).

	1918	1919	1920	1921
I. Government expenditures abroad	140,810	189,728	170,855	29,798
Redemption of government bonds	86,504	80,887	82,017	8,906
Interest on government bonds	51,864	58,284	58,888	58,488
II. Japanese investments abroad	528,875	264,088	616,491	518,501
Foreign government bonds underwritten	827,814	17,490	126,294	22,985
Foreign government bonds purchased	149,666	191,811	496,928	889,727
Foreign, municipal, and other bonds underwritten or purchased	14,709	8,698	85,078	56,701
Other foreign securities purchased	28,717	28,800	87,489	84,571
Investments abroad	7,969	18,286	10,751	14,567
III. Interest on foreign investments in Japan	22,080	22,702	18,924	12,181
Municipal bonds	7,537	5,561	4,633	4,890
Commercial bonds	7,858	6,918	5,878	1,127
Borrowings	684	1,002	1,722	1,285
Dividends	4,811	4,714	8,880	8,680
Bank deposits	2,195	4,512	2,816	1,749
IV. Returns from foreign capital invested in Japan	18,802	40,175	104,204	225,601
Foreign-owned government bonds purchased	9,608	11,104	95,810	200,217
Foreign-owned municipal bonds redeemed and purchased	6,182	21,551	5,447	8,148
Foreign-owned commercial bonds redeemed and purchased	1,029	468	1,088	8,878
Foreign-owned securities purchased	1,588	7,057	1,864	8,858
V. Receipts from foreign enterprises in Japan	11,140	10,845	15,844	17,927
Profits	8,970	8,428	12,099	18,510
Remittances by foreigners and				

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	1918	1919	1920	1921
money carried out of the country by them	2,170	2,422	3,245	4,417
VI. Amounts spent on Japanese ships in foreign ports	50,886	74,653	100,492	76,769
Expenditures of branch offices of Japanese firms in foreign ports	8,006	13,245	12,488	10,772
Ship's stores purchased	84,696	46,784	70,898	50,866
Repairs to Japanese ships	8,820	8,378	5,237	3,608
Tonnage dues and pilotage	4,807	7,799	10,508	11,528
Charter fees	7	2,897	1,421	.....
VII. Insurance receipts	101,024	90,801	101,006	78,989
Marine insurance claims paid	65,180	54,418	56,565	36,092
Life and fire insurance claims paid	9,804	14,078	22,892	22,924
Accounts due from Japanese underwriters to foreign underwriters	28,604	19,766	18,276	17,852
Expenditures of branch offices of Japanese insurance companies	2,986	2,541	3,273	2,571
VIII. Amounts spent by Japanese abroad	22,786	85,487	28,689	26,896
Amounts spent by Japanese tourists abroad	11,858	18,717	15,500	18,062
Amount spent by ship's crews	7,425	11,998	9,666	10,542
Amounts spent by Japanese students studying abroad	3,889	4,706	3,187	2,877
Expenditures of other descriptions	164	71	886	415
IX. Special trade accounts	5,151	16,699	18,621	37,959
Purchases of arms and ammunition	4,811	16,117	18,010	89,276
Imported articles for Imperial Household	55	204	178	186
Books, magazines, papers, and other imports	285	378	483	497
Total	885,954	745,170	1,169,126	1,114,566

Amount of Specie Reserves.

(in ¥1,000)

<i>At the end of</i>	<i>Total Amount</i>	<i>As classified by Ownership</i>		<i>As classified by Location</i>	
		<i>Government</i>	<i>Bank of Japan</i>	<i>At home</i>	<i>Abroad</i>
January, 1918	1,042	824	718	459	588
February, 1918	1,056	837	719	457	599
March, 1918	1,055	830	725	457	598
April, 1918	1,101	872	729	457	644
May, 1918	1,179	449	730	457	722
June, 1918	1,210	484	726	457	753

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<i>At the end of</i>	<i>Total Amount</i>	<i>As classified by Ownership</i>		<i>As classified by Location</i>	
		<i>Government</i>	<i>Bank of Japan</i>	<i>At home</i>	<i>Abroad</i>
July, 1918	1,244	512	732	457	787
August, 1918	1,248	504	739	456	787
September, 1918	1,402	662	740	455	947
October, 1918	1,505	764	741	455	1,050
November, 1918	1,552	811	741	453	1,099
December, 1918	1,587	854	733	452	1,135
January, 1919	1,581	850	730	449	1,132
February, 1919	1,625	894	730	448	1,178
March, 1919	1,655	925	729	446	1,209
April, 1919	1,660	930	729	445	1,214
May, 1919	1,688	958	730	444	1,244
June, 1919	1,686	955	730	448	1,248
July, 1919	1,700	949	751	462	1,238
August, 1919	1,805	1,027	778	487	1,317
September, 1919	1,871	1,052	818	526	1,345
October, 1919	1,899	1,061	837	545	1,354
November, 1919	1,956	1,047	909	616	1,340
December, 1919	2,045	1,050	994	702	1,343
January, 1920	2,014	1,027	987	698	1,320
February, 1920	1,928	950	972	690	1,232
March, 1920	1,871	914	956	688	1,187
April, 1920	1,860	910	949	680	1,179
May, 1920	1,871	908	963	692	1,178
June, 1920	1,912	898	1,018	749	1,162
July, 1920	1,989	892	1,046	781	1,158
August, 1920	1,988	891	1,091	825	1,158
September, 1920	2,027	885	1,141	875	1,151
October, 1920	2,059	888	1,171	987	1,122
November, 1920	2,088	888	1,200	1,017	1,071
December, 1920	2,178	886	1,291	1,116	1,062
January, 1921	2,188	872	1,310	1,136	1,046
February, 1921	2,169	872	1,297	1,152	1,017
March, 1921	2,160	859	1,301	1,164	996
April, 1921	2,164	859	1,305	1,188	976
May, 1921	2,159	854	1,305	1,201	957
June, 1921	2,154	858	1,301	1,208	946
July, 1921	2,147	846	1,300	1,216	930
August, 1921	2,144	841	1,304	1,222	922
September, 1921	2,136	841	1,295	1,221	914
October, 1921	2,132	842	1,289	1,224	907
November, 1921	2,104	812	1,291	1,227	876
December, 1921	2,080	790	1,289	1,225	855

FOREIGN EXCHANGE

185

Gold Coin and Bullion.

	<i>Exports</i> Yen	<i>Imports</i> Yen	<i>Excess of Exports over Imports</i> Yen	<i>Excess of Imports over Exports</i> Yen
January, 1918	.....	99,788	.....	99,788
February, 1918	.....	8,021	.....	8,021
March, 1918	.....	241,247	.....	241,247
April, 1918	.....	.....	.....	.....
May, 1918	.....	7,584	.....	7,584
June, 1918	.....	465,964	.....	465,964
July, 1918	105,000	.....	105,000	.....
August, 1918	.....	.....	.....	.....
September, 1918	.....	900	.....	900
October, 1918	.....	8,200	.....	8,200
November, 1918	.....	2,420	.....	2,420
December, 1918	817,061	.....	817,061	.....
Total	922,061	829,069	92,992	829,069
January, 1919	.....	.....	.....	.....
February, 1919	.....	.....	.....	.....
March, 1919	.....	74	.....	74
April, 1919	.....	.....	.....	.....
May, 1919	.....	.....	.....	.....
June, 1919	.....	.....	.....	.....
July, 1919	.....	28,178,698	.....	28,178,698
August, 1919	.....	49,997,028	.....	49,997,028
September, 1919	.....	84,561,708	.....	84,561,708
October, 1919	.....	80,408,710	.....	80,408,710
November, 1919	481,440	51,848,786	.....	50,867,846
December, 1919	1,004,114	181,281,889	.....	180,277,225
Total	1,485,554	825,771,888	.....	824,285,779
January, 1920	.....	6,055,288	.....	6,055,288
February, 1920	.....	8,258,609	.....	8,258,609
March, 1920	.....	500,000	.....	500,000
April, 1920	.....	2,000	.....	2,000
May, 1920	.....	8,489,085	.....	8,489,085
June, 1920	.....	80,904,691	.....	80,904,691
July, 1920	.....	26,126,465	.....	26,126,465
August, 1920	.....	86,881,824	.....	86,881,824
September, 1920	10,000	56,168,119	.....	56,158,119
October, 1920	.....	60,122,086	.....	60,122,086
November, 1920	.....	68,221,410	.....	68,221,410
December, 1920	.....	96,078,701	.....	96,078,701
Total	10,000	892,808,178	.....	892,298,178

	<i>Exports</i> Yen	<i>Imports</i> Yen	<i>Excess of Exports over Imports</i> Yen	<i>Excess of Imports over Exports</i> Yen
January, 1921	24,005,946	.....	24,005,946
February, 1921	22,797,016	.....	22,797,016
March, 1921	19,579,060	.....	19,579,060
April, 1921	18,725,854	.....	18,725,854
May, 1921	18,989,407	.....	18,989,407
June, 1921	7,887,787	.....	7,887,787
July, 1921	8,775,886	.....	8,775,886
August, 1921	6,648,114	.....	6,648,114
September, 1921	6,812,592	.....	6,812,592
October, 1921	1,296,974	.....	1,296,974
November, 1921	69,626	.....	69,626
December, 1921	26,592	.....	26,592
Total	180,058,854	.....	180,058,854

Exchange Funds Loaned by the Bank of Japan.

	1918	1919	1920	1921
January	¥152,928,898	¥884,278,074	¥324,896,590	¥55,708,506
February	152,966,588	809,781,482	889,988,188	46,140,000
March	182,626,529	281,011,439	286,756,546	48,446,270
April	179,910,725	290,458,878	821,272,186	45,078,557
May	155,864,579	820,522,506	826,506,829	43,744,971
June	282,271,165	874,051,018	294,886,892	65,528,802
July	222,588,757	851,891,788	246,107,114	24,204,286
August	868,467,726	880,419,055	261,478,188	81,598,171
September	871,870,011	249,827,651	114,497,619	82,609,549
October	852,857,997	270,968,252	126,186,885	80,774,949
November	896,852,120	266,250,748	90,871,909	80,888,256
December	444,224,581	858,112,784	76,679,880	76,215,160

4. *Foreign Exchange Rates.*

i. *General Remarks.*

A serious obstacle to the smooth functioning of international trade after the War was the fluctuation of the exchange market. The War had shaken the international credit system and the balance of trade; most serious of all, the excessive issue of paper currency had disorganized the standards of many nations.

In 1919 the governments of England and France repealed the measures they had taken during the War for the stabilization of the

exchanges. This greatly impaired the stability of the rate between England and the United States, making Japanese exchange on England and France appreciate tremendously. American exchange, which had been gradually dropping since the restoration of peace, was noticeably affected by the repeal of the gold embargo in June, 1919. The appreciation of silver conferred much benefit on the silver-using countries, like China and India; therefore the rate on those countries fell considerably. In 1920 Japanese bills on England and France were more favorably received than in 1919. Those on the United States were at first stationary; but, when the export business of Japan became dull toward the end of the year, they tended downward. With reference to India and China, Japan reaped every benefit accruing from the fall of silver. In 1921, British exchange on the United States grew firm, with the result that Japanese exchange on England and France appreciated. The rate of Japanese bills on the United States was about \$48 per ¥100. Exchanges on the silver-using countries for the most part followed the movement of silver, which fluctuated greatly.

But let us now return to exchange on Great Britain specifically.

ii. Sterling Exchange (London).

After the conclusion of the Armistice, the tendency of requiring payments in London became more pronounced, culminating in a world-wide demand for bills on London and a recovery of the value of the sovereign. Foreseeing that the demand for money for financing import bills would enormously increase, the various exchange banks in Japan, including the Yokohama Specie Bank, eagerly bought bills on Europe. The supply of bills failed to grow at the same rate, owing to the fact that most India bills are settled in London. This weakened the tone of sterling exchange. The rate dropped from 26.250 pence in January to 23.625 pence in March. Later it rose and at the end of June was 25.625 d. In July, it advanced to 27 pence, through the fall of the sovereign in terms of the dollar. In November the sovereign fell to \$4.00 and the yen was quoted at 30.563 pence in December.

Under the circumstances, the Yokohama Specie Bank thought it advisable to increase the margin between its buying and selling rates. Moreover, it ceased to buy bills, so that the buying rate was merely nominal. This was a hard blow to the English trade of Japan.

Toward the end of the year, however, the outlook grew brighter, owing to indications of a recovery in the exchange between England and the United States. The Yokohama Specie Bank lowered its buying rate for bills on London by half a penny, thus giving some relief to exporters to England.

In January, 1920, the value of the sovereign in terms of the dollar was sinking, with a resulting rise of Japanese exchange on London to 32.313 pence in February. The exchange banks grew cautious in respect to bills on England, to the disadvantage of trade with that country. In consequence of rumors that both France and England would redeem the loans which they had jointly issued during the War sterling exchange was quoted at 27.563 pence at the middle of March. Exchange between England and America which had attained \$4.04 in April, depreciated, and the yen rose to 30 pence in May, through the fall of silver and the tightness of money. In the latter part of July the situation in Silesia grew so serious that the despatch of troops from England and France was generally expected. Besides, the importation of cereals from America to England was in full swing, as a result of which American bills on London dropped below \$3.71. The exchange between England and Japan rose to 31.313 pence; in August to 33 pence. Toward the end of the year the exchange rate became very favorable to Japan, so that the exchange banks fell short of funds for financing remittances to England. In the second half of December the rate rose to 32.438 pence.

In 1921 conditions were quite different. With the steady improvement of business, sterling exchange on the United States began to advance. The balance of trade between England and Japan favored England; consequently the exchange funds of the Japanese banks in London were constantly falling, the demand for bills payable there markedly increased, and Japanese exchange gradually weakened. The rate, which had been 34.438 pence at the end of 1920, abruptly dropped to 29.818 pence in January. The exchange banks (excepting the Yokohama Specie Bank) refused to handle bills on foreign countries, and even to quote exchange rates. In May, the rate was 29.188. Later at the end of June, 1921, the sovereign fell in terms of the dollar to \$3.88. The yen stood at 32.500 d. in July. Sterling, after declining to \$3.56 in August advanced to \$4 in December. As a consequence, the yen dropped to 27.125 pence at the end of the year.

iii. French Exchange (Paris).

French exchange was always subject to sudden fluctuations; but, owing to the fact that payment is made in England, it is largely influenced by the cross rates. In January, 1919, exchange on France stood at 2.84 fr. In April, it ran up to 3.01 fr.; at the end of June to 3.24 fr. From July on the rate grew firmer. On November 5, the level of 4 fr. was attained; and on December 19, 4.84 fr. These fluctuations were not due to changes in trade conditions between Japan and France, but to the effects of changes in the rate between England and America and between France and England.

At the beginning of January, 1920, the rate was 4.84 fr. It rose to 5.30 fr. toward the end of the month, and to 7.70 fr. in the early part of May. The tone of the exchanges weakened, and the rate dropped to 4.76 fr. at the end of June. But political uncertainties in Europe depressed French exchange on America, and, in consequence, Japanese bills on Paris advanced to 6.11 fr. in July, to 7 fr. early in September, and to 8 fr. in December. In 1921 the fluctuations of French exchange were extreme. The rate in January was 8.80 fr. Then the rate fell, and reached 5.41 fr. in May. Two reasons may be given for this fall, the improvement of business in France and the recovery of English exchange on America. Later the general financial unrest and the inflation of the currency in France served to advance the yen; but, toward the end of the year the dullness of trade with France forced it down to 5.89 fr.

iv. American Exchange (New York).

Quotations for bills on New York, which had been \$52 for the hundred yen in January, 1919, began to decline, and, in June, dropped to \$50.75. This was a result of the small volume of exports to the United States, following the Armistice, and of the fact that a very large sum would be required to settle cotton bills, the amount of which reached an extraordinary figure. The rate fell to \$50.50 in July, a rate which held until November; in December, \$50 was reported. On the whole, rates were unfavorable to Japan in the latter half of 1919, despite the fact that raw silk shipments are active in that period. In December, cable transfers dropped to \$49, a decline of more than \$3.00 as compared with the end of 1918.

At the beginning of January, 1920, the rate was \$49.75; but, as

the balance of trade became constantly unfavorable, it kept on falling, so that, toward the middle of March, the extraordinary level of \$47.857 was reached. Although the balance of trade continued to run against Japan there was some improvement in the exchanges. In the middle of April, a rate of \$49 was quoted; at the end of June, \$50. The rate was \$50.125 in July, \$50.75 at the end of August, and well over \$50 for November. In December, the decline of export shipments to America brought down the rate to \$48.375.

At the beginning of 1921, American exchange was as much affected as English exchange, due to the dullness of exports and the shipment home of gold reserves held in foreign monetary centers. In consequence, the rate remained at \$48. Toward the end of the year cable transfers dropped below \$48 because of the continued excess of imports from the United States.

v. Chinese Exchange (Shanghai).

The method of quoting bills payable in the Chinese ports underwent a change during the World War. In pre-war days Chinese exchange was under the influence of bar-silver quotations in London and New York; but America's embargo on silver exports and the shortage of cargo space made this impracticable. The result was that Japanese bills on China were more directly affected by the quotation of speculators in Oriental ports than by the rates given out by the London market.

In January, 1919, the exchange rate was Tls. 41.50 per ¥100. The price tended upward from February, due to the decline of the metal. In May, the United States abolished its embargo on silver, and it was expected that the price would fall. The actual effect was the opposite. The exchange rate began to fall, with Tls. 39 for June, Tls. 35 for October, and Tls. 30 for December. On December 19 demand bills payable in Shanghai were sold for Tls. 29, while on March 19 they had been quoted at Tls. 45.50.

In January, 1920, the exchange rate on China was Tls. 31, when the London quotation reported 85 d. As the rate maintained its firmness, bills payable in the Chinese ports were affected till March. From this time the precipitate fall of silver caused the rate to rise again, so that Tls. 53 was quoted in June. In August, bar silver had a slight recovery, in consequence of which the rate dropped to Tls.

47. Subsequently the collapse of the metal reversed conditions, and the rate was Tls. 69 for December.

The price of silver, which had been quoted at 89.50 d. in August, 1920, dropped to 30.625 d. in March, 1921. Although it began to rise in April, China, a great silver-using country, was affected by the decrease of her export trade and did not require so much metal for the payment of trade bills as before. Bar silver, which remained at 42 d. for January, fell to 30.625 d. in February, while bills on China advanced from Tls. 61.50 for January to Tls. 81.75 for March, the highest rate for the year. The conditions were different from April onward, for bills dropped in spite of the upward tendency of the metal. Thus, in September, the bar was quoted at 43.375 d. and the rate of exchange, Tls. 57.50.

vi. Indian Exchange (Bombay).

Rates on India, for 1919, ranged between 147 Rs. (in January) and 110 Rs. (in December). For these prevailingly low rates there were several causes working in conjunction: the need of making large remittances to India for settling cotton bills; exports to that part of the world, which had been huge during the War, had become stagnant; again, the rate on India had been artificially lowered, to make it compatible with the rate of Indian bills on Japan, which was dropping rapidly. The rate of 144 Rs., realized in April and May, is explained by the abundance of money in India at the period of agricultural exports, and by large shipments of bar silver from America. In July and August the rate was 130 Rs., but it weakened later, and the record of December was 106 Rs. This may be explained by the restrictions placed on the sale of Council Bills, the adverse exchange between India and England and the dearth of silver.

Although the Indian exchange rate was 109 Rs. for January, 1920, the inadequacy of the fund set aside for settling cotton bills, and the rise of bar silver in London made it decline to 96 Rs. in the latter part of February and the early days of March. Later, the diminished volume of cotton imports from India, the tightness of money in Japan, and the dullness of silver combined to raise the rate to 140 Rs. in June. At the beginning of October a rate of 193 Rs. was realized and in December, 208 Rs. The rise is explained by the fact

that India's shipment of raw cotton to Japan had come to an end, while Japan's exports to India totalled a fairly large sum, so that payments due to Japan were fast amassing.

In January, 1921, silver experienced an extraordinary fall in London. Hence Japanese exchange on India rose. In January, 1921, when silver dropped to 35.125 d., the exchange rate ran up to 187 Rs. In July, owing to the unusual violence of the monsoon, the rate rose to 211 Rs. Subsequently the rate fell to 169 Rs. in December.

vii. Russian Exchange (Harbin).

Fluctuations of the exchange market in Harbin were exceptional in 1919. The rate advanced from 535 rubles, in January, to 1,390 rubles in June. This rise was due to the breakdown of commerce and industry in Russia, an utterly demoralized balance of trade, which had resulted from an unusual preponderance of imports from Japan, and the decline of the value of the Russian currency. In August the rate rose to 2,295 rubles, and to 7,995 rubles in December. In November, the rate advanced to 8,190 rubles.

Owing to the political and economic chaos in Russia in 1920, exchange conditions were far more seriously upset than in 1919. In January and February exchange weakened, but in March it rose again and, in June, it reached 19,250 rubles. July, August, and September hovered at the level of 6,000 rubles; but in December 39,250 rubles was quoted.

In 1921, the Soviet Government was in a stronger position; but, economically the country was still exhausted and nervous; the credit system and the mechanism of commercial transactions were demoralized. Therefore, the rate stood at 29,250 rubles in January, and 44,250 rubles in March. After April direct business with Harbin ceased, and all transactions were carried on through Dairen.

Fluctuations of Foreign Exchange Rates.¹

1919

Selling rates for sight bills drawn on

	London (£1)		New York (£100)		Paris (₣1)		Shanghai (₣100)		Bombay (₣100)		Harbin (₣100)	
	Highest Pence	Lowest Pence	Highest Dollars	Lowest Dollars	Highest Francs	Lowest Francs	Highest Tls	Lowest Tls	Highest Rs	Lowest Rs	Highest Rubles	Lowest Rubles
January	26.250	26.188	52.000	51.875	2.840	2.880	41.500	40.500	147.000	145.000	585	485
February	26.068	25.875	51.625	51.875	2.820	2.800	45.250	41.500	145.000	145.000	595	485
March	25.988	25.625	51.125	50.875	2.820	2.770	46.750	45.000	144.000	148.000	815	595
April	26.250	25.988	50.875	50.875	8.010	2.820	45.500	42.750	144.500	148.000	1,495	805
May	26.875	26.068	50.875	50.875	8.240	8.010	42.750	40.000	144.500	182.500	1,695	1,245
June	26.875	26.875	50.875	50.750	8.240	8.240	41.000	89.000	184.500	125.500	1,895	995
July	27.000	26.875	50.750	50.500	8.290	8.240	40.500	89.000	180.500	125.500	1,995	1,865
August	27.188	27.000	50.500	50.500	8.510	8.290	89.000	86.750	180.500	128.500	2,295	1,995
September	27.488	27.188	50.500	50.500	8.760	8.510	87.500	85.000	128.500	115.500	2,595	1,945
October	28.188	27.688	50.500	50.500	8.880	8.580	85.500	24.000	117.000	115.500	5,495	2,645
November	29.875	28.188	50.500	50.875	4.510	8.880	85.250	26.500	118.500	110.500	8,195	4,295
December	80.568	29.488	50.250	50.000	4.840	4.480	80.000	28.000	110.500	106.500	7,995	4,995

¹ See p. 44. These rates are *inflation rates* on ₹100.

Fluctuations of Foreign Exchange Rates (continued).

1920

Selling rates for sight bills drawn on

	London (£1)		New York (£100)		Paris (£1)		Shanghai (£100)		Bombay (£100)		Harbin (£100)	
	Highest Pence	Lowest Pence	Highest Dollars	Lowest Dollars	Highest Francs	Lowest Francs	Highest Tls	Lowest Tls	Highest Rs	Lowest Rs	Highest Rubles	Lowest Rubles
January	81.818	80.568	50.000	49.750	5.800	4.840	81.500	29.000	109.500	106.500	5,795	3,995
February	82.818	81.818	49.750	48.875	5.650	5.800	81.500	28.000	112.500	97.500	3,995	2,195
March	81.688	27.568	48.875	47.875	5.540	4.960	88.000	29.500	98.000	96.500	5,495	2,195
April	29.568	27.568	49.000	47.875	7.010	5.510	87.750	81.000	105.500	98.000	7,295	5,295
May	80.068	29.508	49.750	49.000	7.070	5.510	42.500	86.750	180.500	105.500	10,995	6,195
June	80.068	80.068	50.125	49.750	5.510	4.760	58.500	42.000	140.500	125.500	19,250	9,250
July	81.818	80.068	50.625	50.125	6.410	4.760	49.000	45.000	145.500	138.500	12,250	9,250
August	83.068	81.988	50.750	50.625	6.980	6.380	47.000	42.000	151.500	145.500	9,250	8,250
September	84.188	83.068	50.750	50.750	7.580	6.980	47.500	45.500	157.500	151.500	8,250	6,250
October	84.188	84.188	50.750	50.750	7.560	7.380	54.500	47.000	188.500	158.500	15,250	6,250
November	84.488	84.188	50.625	50.875	7.880	7.560	62.500	51.500	186.500	170.500	20,250	12,250
December	84.488	82.488	50.875	48.875	8.080	7.880	69.500	61.500	208.500	186.500	39,250	20,250

Fluctuations of Foreign Exchange Rates (continued).

1921

Selling rates for sight bills drawn on

	London (£1)		New York (£100)		Paris (£1)		Shanghai (£100)		Bombay (£100)		Harbin (£100)		FOREIGN EXCHANGE
	Highest Pence	Lowest Pence	Highest Dollars	Lowest Dollars	Highest Francs	Lowest Francs	Highest Tls	Lowest Tls	Highest Rs	Lowest Rs	Highest Rubles	Lowest Rubles	
January	82.488	29.818	48.875	48.125	8.080	6.510	78.750	61.500	187.500	170.500	29,250	24,250	
February	29.818	29.568	48.125	48.125	6.710	6.410	74.500	68.000	195.500	175.500	27,250	19,250	
March	29.568	29.818	48.125	48.125	6.710	6.410	81.750	78.500	198.500	185.500	44,250	27,250	
April	29.568	29.818	48.125	48.125	6.710	6.810	76.500	70.250	187.500	186.000	108,000	98,000	
May	29.188	28.818	48.250	48.125	6.810	5.410	78.750	68.500	189.750	184.250	106,000	100,000	
June	80.875	29.250	48.125	48.000	5.990	5.610	78.250	70.750	199.250	189.750	102,000	99,500	
July	82.500	80.875	48.125	48.000	6.280	5.810	71.750	68.500	211.000	199.500	104,500	95,000	
August	82.500	81.875	48.875	48.125	6.280	6.010	72.000	69.500	211.000	185.000	105,500	100,000	
September	81.875	80.750	48.875	48.125	6.880	6.080	69.750	57.500	187.500	172.500	124,500	102,000	
October	80.750	29.000	48.125	48.125	6.640	6.410	62.250	58.000	179.500	167.500	125,000	116,000	
November	29.875	28.750	48.125	48.125	6.860	6.480	64.000	60.500	181.000	176.000	119,000	111,000	
December	28.750	27.125	48.125	48.125	6.740	5.880	64.000	61.500	180.000	170.750	116,500	112,000	

*Exchange Rates between England and the United States, and
Silver Quotations in London.*

	<i>Rates for American bills on London</i>		<i>Silver quotations in London</i>	
	<i>Highest Dollars</i>	<i>Lowest Dollars</i>	<i>Highest Pence</i>	<i>Lowest Pence</i>
January, 1919	4.76	4.75	48.488	48.488
February, 1919	4.75	4.75	48.488	47.750
March, 1919	4.75	4.70	50.000	47.750
April, 1919	4.67	4.60	49.568	48.568
May, 1919	4.69	4.68	58.000	48.568
June, 1919	4.62	4.59	54.875	58.000
July, 1919	4.57	4.81	55.568	58.000
August, 1919	4.86	4.14	61.75	55.750
September, 1919	4.25	4.14	64.000	59.000
October, 1919	4.22	4.15	66.500	62.750
November, 1919	4.16	4.00	74.000	65.500
December, 1919	8.99	8.66	79.125	78.125
January, 1920	8.79	8.49	85.000	75.625
February, 1920	8.54	8.28	89.500	82.000
March, 1920	8.95	8.42	84.000	65.750
April, 1920	4.04	8.81	72.125	64.500
May, 1920	8.81	8.91	65.500	57.625
June, 1920	8.98	8.89	57.625	44.000
July, 1920	8.95	8.71	56.625	50.750
August, 1920	8.66	8.54	68.750	57.000
September, 1920	8.55	8.46	60.750	57.625
October, 1920	8.50	8.42	59.000	50.500
November, 1920	8.50	8.38	54.625	48.875
December, 1920	8.58	8.48	44.750	38.875
January, 1921	8.52	8.48	42.500	35.125
February, 1921	8.88	8.60	37.750	31.875
March, 1921	8.91	8.82	84.125	80.625
April, 1921	8.98	8.86	86.500	82.500
May, 1921	8.96	8.89	85.500	88.125
June, 1921	4.00	8.88	85.750	88.500
July, 1921	8.72	8.91	89.500	85.250
August, 1921	8.56	8.78	88.875	86.250
September, 1921	8.75	8.56	48.875	37.750
October, 1921	8.70	8.78	42.875	39.125
November, 1921	8.78	8.94	40.500	37.875
December, 1921	8.91	4.00	87.625	84.500

CHAPTER III

DOMESTIC TRADE

1. *General Remarks.*

i. *During the War.*

As we have seen, the World War afforded Japan a tremendous opportunity to push her foreign trade, and the activity of exports from the middle of 1915 gave rise to the promotion of many manufacturing enterprises. This, together with an extraordinary development of the shipping trade, consolidated the position of Japan in world finance, while the increase in gold brought about an inflation of currency and a sluggishness of money, and a great rise of prices which further helped in a prodigious promotion of business enterprises.

This state of affairs was soon reflected in domestic trade. The amplified buying power of the public greatly increased the demand for commodities. Japanese manufacturers and exporters came to be regarded as able to fill orders from any possible source; but their capacity did not keep pace with the demand. This, together with the increase in the volume of currency, and a serious rise in the cost of living, resulted in an advance of the price of commodities. The existence of profiteering everywhere aroused a great deal of angry comment; and the Government was finally forced to act. An official control of foodstuffs was instituted, an Anti-Profitteering Law was enacted, and public produce markets were opened and necessaries sold at reasonable prices.

ii. *After the War.*

a. *1919.*

On the conclusion of the Armistice Japanese business took fright at the inevitable reaction. Exports began to fall off in February, 1919; and the balance of trade was adverse from the beginning of the year. Shipping was equally affected. Prices dropped month by month; and the chief stocks on the Exchange were more seriously depressed than at the end of 1918.

But it soon became plain that manufacturing could not be re-

sumed at once by the former belligerents, at least with their full efficiency. There was also a world-wide shortage of commodities. And as this came generally to be realized, Japan's export business experienced a post-war boom, particularly in the second half of the year. Shipping seemed to recover. Gold accumulated; and there was more currency inflation. In May, falling prices began to rise; and in June they passed their former high point. Again there was a feverish promotion of new business schemes. The market had become buoyant by April; and by September it was higher than it had been during the War. (See tables on p. 149 and pp. 151-155.)

The Government and the banking world were optimistic, and both lent their influence. Note issues by the Bank of Japan grew till they were ¥1,555,000,000 at the end of the year, or ¥410,000,000 greater than the figures for 1918. At the same time the associated banks in the six largest cities of the country had granted loans totalling ¥4,162,000,000, or ¥845,000,000 in excess of the record for the year before. (See table on p. 149.)

Clearing House transactions in June were larger than at the end of 1918. At the year end they totalled ¥9,606,000,000, or ¥3,334,000,000 above those of 1918.

Speculation was rife everywhere, and the price of commodities kept on increasing. At the end of 1919 the price level was three times higher than that before the War. There was also a constant increase in unsold stocks. Goods held in warehouses which were valued at ¥526,000,000 at the end of 1918, were valued at ¥751,000,000 at the end of 1919.

Some attempt was made to cope with this situation. The Bank of Japan lowered its interest rate in October and November. The Government proclaimed an embargo on the export of cotton yarns, and repealed the import duties on them. It also repealed the same duties on cotton fabrics, beef, eggs, and beans. Bankers showed more caution in advancing loans. But all this had little perceptible effect.

b. 1920.

The recovery of business in the latter half of 1919 had been too galvanic to last. It had been marked by a sudden rise in prices more extreme in Japan than in the Western world, as the following table indicates:

Index Numbers, Showing Price Increases.

	<i>At the outbreak of the War (July, 1914)</i>	<i>Average Index Number of the fourth year after the outbreak of the War (July, 1917-June, 1918)</i>	<i>Average Index Number of the fifth year after the outbreak of the War (July, 1918-June, 1919)</i>	<i>December, 1919</i>
Tokyo	100	182.8	218.8	808
London	100	226.8	235.1	287
New York	100	208.8	212.8	288

Another result of the 1919 boom was the excessive promotion of business enterprises.

Capital Invested in Business, 1914-1919.

	<i>In yen</i>
1914	250,797,000
1915	292,584,250
1916	658,697,000
1917	1,562,580,000
1918	2,676,901,800
1919	4,068,474,900

The natural outcome of such an expansion of speculation and business was a marked increase in bank loans. The following table shows the loans advanced by the associated banks in Tokyo, Osaka, Kyoto, Nagoya, Yokohama, and Kobe:

July, 1914	¥1,076,890,626
July, 1915	1,082,597,021
July, 1916	1,899,871,008
July, 1917	2,021,557,025
July, 1918	8,060,259,909
December, 1918	8,817,870,080
July, 1919	8,794,688,705
December, 1919	4,162,872,664

Obviously the business of Japan was undergoing a boom which had no solid foundation. The bankers attempted unsuccessfully to hold the speculative movement in check, but business continued to follow its unsafe course, the result being inflation of prices and more speculative promotions. Naturally the import trade was stimulated, and the balance of trade inclined against Japan. The specie reserve,

which had been increasing till 1919, began to decline. As a result the attitude of the Bank of Japan became thoroughly pessimistic. This influenced the banking world, and led to a movement to reduce credits.

In February, the excess of imports increased by about ¥96,000,000, and the specie reserve suffered a decline of ¥90,000,000. The Bank of Japan was compelled to restrict its loans, and this affected the Stock Exchange. There was a collapse of prices on the Tokyo Stock Exchange on February 15; and on April 15 this was followed by a similar development in Osaka, precipitated by the failure of a bank. This started a general collapse. All business was affected, but more especially the export and import trade, cotton yarn, raw silk, and sugar.

The fundamental cause of the reaction was the activity of speculation, induced by a misleading belief in continued prosperity. This is shown strikingly in the import trade of the year. The excess of imports was ¥28,000,000 in January, ¥96,000,000 in February and ¥135,000,000 in March. Commodities in the principal warehouses amounted to a value of ¥765,000,000 in January, ¥823,000,000 in February, and ¥983,000,000 in March.

This excessive import trade soon told on the specie reserve, which was constantly dropping. With reserves falling and business promotion still active the banks found themselves unable to accommodate their customers. A reaction ensued, and the Government, the Bank of Japan and the outside banks had to coöperate in extending relief. Importers were compelled to cancel orders they had given to foreign dealers or manufacturers, and to dispose of the goods they had already imported, at special sales; manufacturers had to cut down production in order to move surplus stocks from the market. But all these efforts proved unequal to the gravity of the situation.

In the domestic situation the gravest problem was the congestion of stocks. According to warehouse reports, the principal warehousing companies in the country were carrying goods valued at ¥1,285,000,000 in July, an increase of ¥300,000,000 over March, and of ¥500,000,000 over January.

Clearing house transactions in March totalled ¥9,385,000,000. After the advent of the reaction, these figures rapidly declined, and in August they were less than half of what they had been in March. (See table on p. 134.)

c. 1921.

At the beginning of the year, the domestic business of Japan continued to be depressed. But an improvement of conditions was on its way. The congestion of stocks, which had been at its worst in July, 1920, had been successfully removed, through the restriction of import trade and manufacturing. In March, the value of goods kept in warehouses fell below half of the figure for July, 1920, and continued to fall till August. The depression continued, however; business was stagnant, and the bank rate had to be lowered. The market rate quoted in Tokyo, which had been weak from the beginning of the year, dropped to ¥0.017, per diem in May and remained stationary till July. (See table on p. 154.)

With the clearing away of idle stocks the tone of the market became more hopeful. The high prices of farm products, gave the rural districts an unexpectedly large buying power. The resources of the wage earners, whose pay did not diminish, in spite of the business depression, proved equal to their needs. Business improved in the summer, and the price of commodities tended upward from July to October. (See table below.)

This improvement, however, was without any sound basis, and therefore was not lasting. The very high cost of raw materials meant that Japanese manufacturers could sell their goods only at high

*Index Numbers of Wholesale Prices in Tokyo.*¹
(as reported by the Bank of Japan)

	1918	1919	1920	1921
January	181	221	317	211
February	188	219	330	205
March	198	218	338	201
April	197	218	316	200
May	196	221	286	201
June	198	235	261	201
July	204	254	252	207
August	216	258	247	210
September	222	265	242	218
October	227	280	237	230
November	225	294	233	225
December	225	308	216	220

¹ The table is based on July, 1914.

prices, which was a great handicap to exporting. Imports continued to be heavy, and the balance of trade was persistently adverse. An outflow of gold ended in a money stringency. The rate of interest began to advance, and again business became stagnant. (See table below and tables on pp. 153-154.)

Index Numbers of the Prices of the Principal Stocks.²

(as reported by the Bank of Japan)

	1918	1919	1920	1921
January	190.62	178.20	250.84	126.25
February	186.56	178.81	246.85	136.89
March	177.92	176.18	225.41	180.80
April	180.07	182.56	165.68	181.98
May	188.08	189.71	149.18	129.89
June	182.04	208.16	118.11	180.41
July	180.80	222.45	126.87	180.52
August	190.10	228.41	127.92	188.40
September	187.98	244.88	120.76	184.67
October	180.78	244.17	118.85	128.49
November	192.12	288.51	120.98	128.18
December	188.89	288.64	119.55	125.82

Notes Issued by the Bank of Japan.

(in ¥1,000)

<i>At the end of</i>	1918	1919	1920	1921
January	746	1,025	1,875	1,285
February	699	897	1,860	1,141
March	708	898	1,868	1,178
April	687	878	1,867	1,147
May	689	927	1,828	1,118
June	809	1,080	1,849	1,219
July	770	1,085	1,202	1,148
August	849	1,097	1,217	1,198
September	884	1,178	1,170	1,288
October	906	1,201	1,192	1,256
November	988	1,244	1,180	1,288
December	1,145	1,555	1,489	1,547

² The table is based on July, 1914.

DOMESTIC TRADE

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Deposits and Loans of the Associated Banks in Tokyo, Osaka, Kyoto, Nagoya, Yokohama, and Kobe.

(in ¥1,000)

<i>At the end of</i>	1918		1919		1920		1921	
	<i>Deposits</i>	<i>Loans</i>	<i>Deposits</i>	<i>Loans</i>	<i>Deposits</i>	<i>Loans</i>	<i>Deposits</i>	<i>Loans</i>
January	2,748	2,890	3,814	3,400	4,872	4,844	4,882	4,890
February	2,729	2,416	3,882	3,480	4,411	4,458	4,427	4,898
March	2,787	2,425	3,889	3,405	4,486	4,497	4,889	4,406
April	2,918	2,602	3,888	2,996	4,484	4,545	4,488	4,888
May	3,126	2,720	3,880	3,506	4,404	4,586	4,472	4,458
June	3,288	2,856	4,128	3,786	4,877	4,525	4,567	4,548
July	3,480	3,060	4,101	3,795	4,254	4,506	4,547	4,544
August	3,869	3,047	4,183	3,959	4,096	4,424	4,554	4,572
September	3,505	3,101	4,195	4,097	4,168	4,880	4,568	4,594
October	3,672	3,199	4,232	4,182	4,198	4,408	4,505	4,598
November	3,664	3,244	4,380	4,287	4,289	4,462	4,562	4,629
December	3,982	3,318	4,428	4,168	4,858	4,411	4,624	4,684

Per-Diem Discount Rates in Tokyo.

	1918		1919		1920		1921	
	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>
	<i>rin</i> ^a		<i>rin</i>		<i>rin</i>		<i>rin</i>	
January	17.0	15.0	20.0	18.5	27.0	24.5	28.0	22.0
February	17.0	15.5	19.5	18.5	28.0	25.0	29.0	20.0
March	17.5	16.0	20.0	19.0	30.0	26.0	26.0	19.0
April	18.0	16.0	20.0	19.5	30.0	27.0	25.0	18.0
May	17.5	16.5	20.0	19.0	31.0	27.5	25.0	17.0
June	18.0	16.5	20.0	19.0	31.5	29.0	25.0	17.0
July	18.0	16.5	20.0	19.5	31.0	25.0	25.0	17.0
August	17.0	16.0	20.0	19.5	30.0	26.0	22.0	18.0
September	18.0	16.5	22.0	19.0	30.0	24.0	22.0	18.0
October	18.0	16.0	23.0	20.0	30.0	24.0	22.0	18.0
November	19.0	16.0	26.0	22.0	30.0	24.0	25.0	19.0
December	20.5	18.0	27.0	22.0	29.0	24.0	26.0	21.0

^a 1 rin = $\frac{1}{1000}$ of a yen, or about $\frac{1}{500}$ of a cent.

Clearing House Totals.

(in ¥1,000)

	1918	1919	1920	1921
January	3,088	4,996	7,210	4,280
February	3,128	4,919	7,859	4,721
March	3,415	5,805	9,886	5,156
April	3,697	5,281	7,522	5,212
May	4,076	5,865	6,575	5,369
June	4,354	6,594	5,648	5,785
July	5,009	6,892	4,876	5,386
August	4,705	6,242	4,641	6,037
September	4,831	6,344	4,669	6,125
October	5,211	7,166	4,497	6,088
November	5,542	7,521	4,909	6,373
December	6,272	9,606	5,927	7,527
Total	58,278	76,781	78,714	67,918

Total of Notes Protested.

(in yen)

	1918	1919	1920	1921
January	81,825	178,290	156,681	276,265
February	76,665	236,865	261,036	316,768
March	50,986	205,094	270,252	380,810
April	72,188	269,894	330,885	272,391
May	75,612	246,799	1,531,211	308,906
June	136,507	277,203	1,185,072	234,060
July	85,495	175,092	574,597	223,332
August	77,161	125,740	452,599	521,492
September	120,401	113,253	374,073	336,451
October	113,743	113,253	312,207	614,506
November	144,895	167,607	309,734	332,356
December	303,921	194,432	673,452	568,644
Total	1,839,849	2,425,784	6,681,804	4,485,531

Capital of Newly Organized Banks and Business Enterprises.

(as reported by the Bank of Japan)

(in ¥1,000)

	1918	1919	1920	1921
January	228	201	670	192
February	188	207	968	169
March	170	158	1,148	220
April	251	176	719	207
May	212	214	418	264
June	262	288	170	126
July	215	268	199	207
August	226	484	151	96
September	210	428	204	191
October	211	591	176	198
November	191	554	119	246
December	327	655	102	222
Total	2,677	4,068	5,114	2,286

*2. Insurance.**i. General Remarks.*

The business of insurance companies increased greatly during the War. At the end of 1918 policies outstanding amounted to ¥5,200,000,000 for home companies, ¥1,700,000,000 for foreign companies, and ¥100,000,000 for Post-Office or Government insurance, a total of ¥7,000,000,000. The end of the War brought certain changes in the situation. Some branches of the business did not do so well; but the total of insurance written increased steadily. In 1919 it reached ¥9,600,000,000, and marine insurance was especially active. In 1920 the total was ¥11,700,000,000. All kinds of insurance did a heavier business, especially marine and inland marine, or transport. In 1921 the total was ¥13,500,000,000. Fire insurance was most active, and both marine and automobile insurance were falling off. The main facts appear in the table below.

	<i>Home Companies</i>	<i>Foreign Companies (in ¥1,000)</i>	<i>Post-Office Insurance</i>	<i>Average Amount of Home- company Policy</i>
1918	5,265,828	1,704,480	105,841	1,485
1919	7,265,076	2,264,914	158,169	1,869
1920	9,061,987	2,421,680	224,514	1,487
1921	10,870,858	2,876,005	862,761	1,402

The fall in the per-policy average for 1919 was due to the general prosperity, which enabled the companies to gain a very large number of small-policy holders. The decrease in the amount for 1921 was a result of depression.

Capital and surplus of the home companies totalled over ¥200,000,000 in 1918, of which ¥59,000,000 was paid up; in addition they had reserves amounting to ¥320,000,000. These figures showed a substantial increase in the period 1919-1921, as the following table indicates.

Insurance in General.

(amounts in ¥1,000)

	<i>Total Number of Companies</i>	<i>Capital and Surplus</i>	<i>Paid-up Capital</i>	<i>Reserves</i>
1918	79	201,280	59,788	822,696
1919	88	218,480	68,858	897,112
1920	89	274,980	80,065	470,007
1921	98	806,970	98,676	584,070

In the post-bellum period the number of firms which began to write other forms of insurance, together with their principal line, was on the increase.

ii. Life Insurance.

Life insurance came through the Armistice crisis with less damage than most other branches of business. In 1918 the amount of new business had aggregated ¥500,000,000, while decreases resulting from the death of the insured, cancelled policies, etc., amounted to ¥180,000,000. Toward the close of the year there was a serious outbreak of influenza, which resulted in a heavy death rate. Yet the total demand on the companies was only ¥21,000,000 as against ¥73,000,000 in premiums received.

Life Insurance, 1918-1921.

(in ¥1,000)

		Polices issued, etc.	Cancellations, etc.	Year-end Accounts	Premiums received	Claims paid	
1918	Home companies	{ Life	422,469	185,144	1,588,280	67,768	19,886
		{ Military Service	28,029	4,588	69,711	2,207	171
		{ Accident	40,820	84,828	86,604	482	162
		Total	485,818	174,005	1,689,545	70,407	19,669
	Foreign companies	Life	14,974	5,145	78,424	8,092	1,655
	Grand total	500,792	179,150	1,767,969	78,499	21,324	
1919	Home companies	{ Life	681,204	180,776	2,068,658	92,186	25,525
		{ Military Service	89,527	9,917	99,821	8,509	289
		{ Accident	88,045	87,127	87,522	855	178
		Total	708,776	197,820	2,200,501	96,050	25,942
	Foreign companies	Life	17,994	6,917	89,501	5,197	1,809
	Grand total	726,770	204,737	2,290,002	101,247	27,751	
1920	Home companies	{ Life	651,467	217,481	2,497,694	107,428	82,089
		{ Military Service	57,448	15,805	140,959	5,842	275
		{ Accident	87,158	88,718	85,962	295	215
		Total	746,068	271,954	2,674,615	118,065	82,529
	Foreign companies	Life	17,140	7,582	99,059	5,718	1,571
	Grand total	768,208	279,536	2,778,674	118,778	84,100	
1921	Home companies	{ Life	640,016	820,876	2,817,888	121,789	81,867
		{ Military Service	60,897	26,029	175,827	6,964	888
		{ Accident	47,046	89,506	48,502	272	110
		Total	747,459	885,911	3,086,162	128,975	81,810
	Foreign companies	Life	18,422	10,044	107,456	6,148	1,625
	Grand total	765,881	895,955	3,148,618	185,128	83,485	

NOTE: Annuities are included in the table. The business year of the Japanese companies commences with April.

The year 1919 was a satisfactory one for underwriters, and their monthly increase of business was over ¥50,000,000.

In December the amount was over ¥100,000,000. Cancelled policies, death benefits, etc., increased by only ¥20,000,000. At the end of the year policies outstanding had increased by ¥520,000,000. The payment of indemnities increased by only ¥6,000,000, in spite of another epidemic of influenza, while premiums received increased by ¥28,000,000.

In 1920, underwriting suffered from the general depression until July, but was active during the rest of the year. The total of policies outstanding at the end of the year exceeded that of the previous year by ¥480,000,000. Death benefits paid increased by ¥7,000,000 over those for 1919, and premiums received increased by ¥17,000,000.

Nineteen hundred twenty-one was an unsatisfactory year. The effects of the economic depression, which had been felt first in the cities, spread to the provinces. The buying power of the farmer diminished as a result of the decline in the price of agricultural products; while the business world was forced to reduce expenses in every way possible. Insurance was inactive except in the brief boom between July and October. Cancellations, death benefits, etc., exceeded those for the previous year by ¥120,000,000. Nevertheless the year end showed an increase in volume of contracts of ¥370,000,000. Benefits paid, as compared with 1920, fell by ¥1,000,000, while premiums increased by ¥17,000,000.

iii. Fire Insurance.

Fire insurance was not seriously affected by the Armistice crisis. The net increase in business for the year 1918 had been ¥800,000,000, the total of policies being then ¥4,500,000,000. Losses paid aggregated ¥8,000,000 and premiums received, ¥22,000,000.

In 1919 fire underwriting was active in consequence of the general prosperity. This was particularly true of the second half of the year, when prices were rising, imports active, and extensive factory-construction under way. The year-end figures showed an increase in the volume of policies outstanding of ¥1,760,000,000. The conflagrations in Yokohama, Osaka, Yonezawa, and elsewhere increased the total of losses paid by ¥5,000,000. Premiums received increased by ¥12,000,000.

In spite of the general slackness of business after March, 1920,

fire insurance held its own. The reason appears to be that the vast accumulation of surplus stocks resulting from overproduction and excess imports required insurance protection, as did the factory buildings projected during the boom and now being pushed to completion. The year-end total increased by ¥167,000,000. In consequence of serious conflagrations, claims represented an increase of ¥1,000,000; premiums received increased by ¥13,000,000.

In 1921, the general business depression led to a cut in premium rates of 10 to 20 per cent on warehouses and spinning mills. The fall in prices led underwriters to adopt lower standards in estimating the value of risks offered. Active competition developed among the insurance companies which wrote both fire and marine business, due to the dullness of the carrying trade. Nevertheless the year-end reports showed an increase of ¥1,430,000,000. Claims increased by ¥5,000,000 over the preceding year, owing to conflagrations in Hokkaido, Tokyo, Kanazawa, and elsewhere, while premiums increased by ¥4,000,000.

Fire Insurance, 1918-1921.

(in ¥1,000)

	<i>Insurance Written*</i>	<i>Cancellations, etc.</i>	<i>Insurance Outstanding Premiums</i>	<i>Losses Paid</i>	
1918 { Home companies	5,760,891	4,978,698	3,017,374	17,568	4,995
1918 { Foreign companies	2,594,264	2,427,106	1,568,807	8,951	3,246
Total	8,354,655	7,405,804	4,581,181	22,564	8,242
1919 { Home companies	7,551,282	6,319,741	4,248,865	24,704	8,994
1919 { Foreign companies	3,186,564	2,608,060	2,092,311	10,112	4,759
Total	10,687,796	8,927,801	6,341,176	34,817	13,753
1920 { Home companies	12,080,899	10,537,492	5,742,272	36,737	9,751
1920 { Foreign companies	3,689,571	3,510,689	2,271,243	10,384	4,273
Total	15,720,470	14,048,181	8,013,515	47,122	14,024
1921 { Home companies	10,527,899	9,048,664	7,221,007	42,027	14,664
1921 { Foreign companies	2,564,241	2,607,978	2,227,506	9,336	4,910
Total	13,091,640	11,656,642	9,448,513	51,364	19,574

* Reinsurance policies and per-day interest accounts are not included under the head of Insurance Written.

iv. Marine Insurance.

Marine insurance became depressed after the Armistice, as a combined result of stagnation in the shipping trade, the collapse of freight rates, and the diminished volume of goods carried. For 1918 policies issued totalled ¥7,110,000,000; cancellations, etc., ¥6,930,000,000; the net increase was ¥230,000,000; and the increase in insurance outstanding ¥570,000,000. Payments of claims amounted to ¥19,000,000, and premiums aggregated ¥42,000,000.

The year 1919 was active, especially in the latter half, when the carrying trade grew brisk, as a result of the prosperity of manufacturing and the import trade. The year-end total showed an increase of ¥220,000,000. There was a decline of ¥3,000,000 in claims paid, and of ¥5,000,000 in premiums received.

The business depression beginning in March, 1920, was a severe blow to marine insurance. Shipping was very seriously affected, and this caused a decline in the price of vessels and the volume of cargo handled and freight rates. The volume of policies issued began to decline. The adoption by underwriters of lower premium rates, and active competition resulted in a decrease in premium receipts. The occurrence of numerous shipwrecks led to an increase in indemnities paid. There was an increase of ¥430,000,000 in the value of policies cancelled, while the increase in policies written and other business was only ¥30,000,000. There was a decrease of ¥170,000,000 in the amount of insurance outstanding. Claims paid increased by ¥10,000,000, while premium receipts remained stationary.

The year 1921 was still worse. There was a great increase in idle tonnage, and foreign trade decreased in both volume and value. The fall in the price of ships and commodities curtailed the issue of policies. Besides, there were frequent accidents to old ships which had been overworked during the War, and to badly built vessels, which had been turned out hurriedly in the course of it; and these accidents increased the volume of claims to be met. Competition and rate-cutting also had their influence on receipts. The total value of policies written showed a decline of ¥3,770,000,000, while cancellations were approximately the same. By the year-end showing the decrease in insurance outstanding amounted to ¥50,000,000. Claims paid amounted to ¥6,000,000, and premiums received to ¥12,000,000.

Marine Insurance, 1918-1921.

(in ¥1,000)

		<i>Insurance Written</i>	<i>Cancellations, etc.</i>	<i>Insurance Outstanding</i>	<i>Premiums</i>	<i>Losses Paid</i>
1918	{ Home companies	6,545,241	6,808,580	515,512	87,998	16,712
	{ Foreign companies	622,104	628,592	62,250	4,598	2,289
	Total	7,167,345	6,982,172	577,762	42,586	19,002
1919	{ Home companies	8,557,290	8,848,798	724,054	84,261	14,919
	{ Foreign companies	741,788	782,886	78,102	8,088	1,505
	Total	9,299,028	9,081,684	797,156	87,800	16,424
1920	{ Home companies	8,282,269	8,486,704	569,619	85,187	28,809
	{ Foreign companies	1,058,698	1,075,467	51,828	2,590	2,789
	Total	9,885,962	9,512,171	620,947	87,778	26,049
1921	{ Home companies	5,298,851	5,888,062	529,908	28,845	19,274
	{ Foreign companies	264,478	274,989	40,817	1,842	1,528
	Total	5,562,829	5,618,051	570,725	25,187	20,797

v. Other Forms of Insurance.

In 1918, transport or inland marine insurance increased by ¥5,100,000; automobile, by ¥3,900,000; engine and boiler, by ¥500,000; fidelity, by ¥360,000; burglary, by ¥40,000. The ratio of claims to premiums was 22 per cent for inland marine; 52 per cent for automobile; 33 per cent for fidelity; 9 per cent for burglary. No claim was made for engine or boiler losses. In 1919, there was an increase in insurance totalling ¥36,000,000 for inland marine, ¥12,000,000 for automobile, ¥450,000 for engine and boiler, ¥140,000 for fidelity, and ¥150,000 for burglary. The losses paid constituted 23 per cent of the premium receipts for inland marine, 52 per cent for automobile, 39 per cent for fidelity, and 27 per cent for burglary. There were no engine and boiler losses.

In 1920, the business of inland marine underwriters remained stationary; engine and boiler insurance was represented by an increase of ¥710,000; that of fidelity, by ¥570,000; of burglary, by ¥70,000. In the case of inland marine, claims settled amounted to 30 per cent of the total premiums received. The ratio for automobile insur-

ance reached 58 per cent; for fidelity, 17 per cent; for burglary, 43 per cent. And, again, there were no engine and boiler losses.

The increase in inland marine insurance was ¥30,000,000 in 1921, engine and boiler ¥70,000, and fidelity, ¥40,000. Automobile insurance fell off by ¥21,000,000, and burglary by ¥8,000. The percentage ratio of claims paid to premiums received for inland marine insurance was 36; automobile, 81; fidelity, 26; burglary, 47; and engine and boiler, nil.

Every branch of the insurance business was affected by the depression of the business world, but each in its own way. Inland marine was prosperous in 1919, as a result of activity in shipping; but it was hard pressed in the following year; while again it improved somewhat in 1921. Automobile was good in 1919, and weak in the following two years. Engine and boiler, which was active in 1919, was more so in 1920, and was depressed in 1921. Fidelity, which was badly affected in 1919, was better in the following year, and became stagnant in 1921. Burglary insurance flourished in 1919; but conditions were not so favorable in 1920, and bad in 1921.

Other Forms of Insurance, 1918-1921.

(in ¥1,000)

	<i>Policies Issued, etc.</i>	<i>Cancellations, etc.</i>	<i>Premiums</i>	<i>Claims Paid</i>
1918				
Inland Marine	1,096,088	1,090,987	579,988	126,998
Automobile	11,610	7,787	184,895	98,656
Engine and boiler	8,194	2,688	89,251	.....
Fidelity	2,266	1,904	27,224	9,487
Burglary	655	610	8,458	801
1919				
Inland Marine	1,788,787	1,747,406	881,894	206,249
Automobile	25,418	13,227	882,896	174,186
Engine and boiler	8,648	8,194	46,274	.....
Fidelity	2,445	2,806	28,167	11,027
Burglary	660	511	4,064	1,191
1920				
Inland Marine	2,828,510	2,857,688	1,224,871	841,286
Automobile	86,820	25,224	518,428	299,221
Engine and boiler	4,858	8,648	58,101
Fidelity	5,191	4,620	62,029	11,126
Burglary	822	751	6,480	2,827

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	<i>Policies Issued, etc.</i>	<i>Cancellations, etc.</i>	<i>Premiums</i>	<i>Claims Paid</i>
1921				
Inland Marine	1,845,878	1,815,692	889,640	804,422
Automobile ^a	19,548	41,266	898,185	820,112
Engine and boiler	4,427	4,858	68,108	.....
Fidelity	8,269	8,222	41,681	11,784
Burglary	808	816	5,728	2,744

vi. Post-Office Insurance.

Post-office insurance had a very satisfactory growth throughout the period 1919-1921. New business and renewals of policies cancelled, etc., totalled ¥56,000,000 in 1918; cancellations, claims paid, etc., ¥11,000,000. At the end of the year, the total accounts reached ¥105,000,000. In spite of the outbreak of influenza in December, claims did not rise much above ¥500,000; and premiums received aggregated ¥4,200,000.

The general business prosperity of 1919 had little effect on post-office insurance. Insurance written increased by ¥6,000,000; cancellations, claims paid, etc., ¥4,000,000. Insurance outstanding at the year end showed an increase of ¥47,000,000. In December there was another epidemic of influenza; but claims increased by only ¥520,000. Premiums totalled ¥2,800,000.

In 1920, policies issued, etc., showed a gain of ¥28,000,000;

*Post-Office Insurance, 1919-1921.**Annual Business.*

	<i>Policies Issued, etc.</i>	<i>Cancellations, etc.</i>	<i>Net Business Increase</i>	<i>Insurance Outstanding at Year End</i>	
1918	{ Number of policies	681,927	174,870	450,057	1,165,615
	{ Amount in ¥1,000	56,114	11,072	45,042	105,841
1919	{ Number of policies	600,860	166,760	434,100	1,599,715
	{ Amount in ¥1,000	62,766	15,488	47,228	153,169
1920	{ Number of policies	804,082	182,442	621,590	2,221,805
	{ Amount in ¥1,000	90,810	18,966	71,844	224,514
1921	{ Number of policies	1,178,090	814,785	863,305	3,084,610
	{ Amount in ¥1,000	186,957	84,710	102,247	826,761

^a The figures for automobile insurance for 1921 do not include foreign companies.

Balance Sheet.

		1918	1919	1920	1921
		Yen	Yen	Yen	Yen
Assets	Reserves	1,719,785	4,868,626	8,665,695	14,718,247
	Premiums	4,287,549	7,020,087	9,985,122	15,668,569
	Interest and other receipts	15,848	97,441	867,468	605,602
	Total	5,978,182	11,481,154	18,968,285	30,982,418
		Yen	Yen	Yen	Yen
Liabilities	Business expenses	1,071,184	1,781,674	2,607,489	8,704,492
	Claims paid	514,222	1,081,180	1,549,971	2,168,998
	Surrender	28,898	52,656	95,578	208,145
	Reserves	4,868,626	8,665,695	14,718,247	24,905,788
Total		5,972,875	11,481,155	18,966,285	30,982,418

cancellations, etc., ¥4,000,000. The year-end showing represented an increase of ¥72,000,000. Premium receipts were ¥2,900,000, and claims paid ¥510,000.

In 1921, in spite of business dullness post-office insurance remained unaffected. The increase in the amount of policies issued, etc., was ¥46,000,000; the cancellations, etc., ¥15,000,000. Insurance outstanding increased by ¥31,000,000; premium receipts by ¥5,700,000; and claims paid by ¥1,100,000.

3. Warehousing.

i. General Remarks.

The exceptional growth of the warehousing or storage business during the War was due to the activity of both home and foreign trade. The Armistice crisis did not affect warehousing adversely. The average value of goods at the end of the month, in the principal storage warehouses, which had been ¥520,000,000 for 1918, increased by ¥120,000,000 for 1919, and ¥480,000,000 for 1920. In 1921, when general business began to recover, the amount of goods warehoused dropped to ¥580,000,000.

In 1918, the amount of new capital invested in the warehouse business was ¥34,000,000. In 1919, as a result of the Armistice, it dropped to ¥10,000,000. In 1920, it rose to ¥70,000,000; in 1921 it declined to ¥16,000,000.

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Year	Registered capital ₹	Capital of newly established firms	Capital increases in existing firms
		(in ₹1,000)	
1918	84,984	14,815	20,120
1919	10,517	9,551	967
1920	81,289	69,021	2,269
1921	16,845	9,128	7,217

ii. General Conditions.

At the end of 1914 there were stored in the 49 principal warehouses in the country 15,000,000 parcels of merchandise, valued at ₹120,000,000. With the business boom in the following years and the ordinary rise of prices, the figures advanced to 24,000,000 parcels and ₹520,000,000 in 1918. In the early part of 1919 commerce and industry were inactive, and there was no great increase in the volume of goods warehoused or in their value. In May conditions improved, and the value of goods warehoused continued to rise, though the volume was diminishing, till August. From September, both the value and the volume were slowly and steadily increasing, with December represented by 28,000,000 consignments, valued at ₹750,000,000.

In 1920 the value of merchandise warehoused was constantly on the increase. This increase was due more to the rise of prices than to a larger volume of goods. In April prices started to decline, but the tremendous increase in commodities accepted for storage caused warehoused values to rise above ₹1,000,000,000. This increase may be explained partly as a result of overstocking in the previous boom period, partly as a result of the need for credits based on warehouse warrants. In July warehoused goods reached a maximum of ₹1,280,000,000. The amount dropped to ₹1,000,000,000 in October and to ₹850,000,000 in December. This decline was due partly to the fall in prices; but there can be no doubt that it was, in a large measure, due to the consumption of accumulated stocks, a result of the curtailment of production and imports.

The congestion of warehoused goods was largely relieved in the early part of 1921; but at the end of January, there were still 23,000,000 consignments, valued at ₹530,000,000 in warehouse. From July to October, the time of the brief boom in general business,

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no great change took place in either the value or the volume of goods accepted. After November the quantity of commodities warehoused gradually increased, but the fall of prices prevented the total value from rising. At the close of December, there were 27,000,000 parcels, valued at ¥550,000,000.

CHAPTER IV

THE VARIOUS EXCHANGES

1. *General Remarks.*

i. *During the War.*

At the end of 1914, there were in Japan forty-six exchanges of various descriptions, with a nominal capital of ¥33,000,000 (over ¥28,000,000 being paid up) and a reserve fund aggregating ¥2,300,000. Conduct of their business required the expenditure of about ¥4,000,000, and earnings were about ¥6,500,000. The dividends declared averaged 7.5 per cent. Attached to them were 986 brokers, who were required to pay in more than ¥7,500,000 of surety money.

With the progress of the War the business of these establishments grew and prospered. At the end of 1916, forty-two exchanges were in existence, their combined nominal capital amounting to ¥34,000,000; paid-up capital to ¥28,000,000; reserve funds, ¥3,100,000; business expenditures, more than ¥3,700,000; earnings about ¥10,000,000; and the deposits of the member brokers, who numbered 806, ¥7,500,000. Dividends declared amounted to an average of 19 per cent.

At the corresponding period of 1918 the capital of the forty-two exchanges was ¥54,000,000, ¥41,000,000 being paid up; reserve funds, ¥4,500,000; business expenditures, ¥4,100,000; earnings, ¥13,000,000; the membership surety, ¥12,100,000. The rate of dividends was 14 per cent.

Of the business handled in these exchanges for 1914, securities totalled ¥807,000,000; cereals, 129,000,000 koku;¹ cotton yarns, 42,000,000 kin;² raw silk, 10,000,000 kin. For 1916 securities totalled ¥3,190,000,000; cereals, 330,000,000 koku; cotton yarns, 590,000,000 kin; raw silk, 12,000,000 kin. For 1918, securities, ¥2,230,000,000; cereals, 230,000,000 koku; cotton yarns, 1,970,000,000 kin; raw silk, 16,000,000 kin.

¹ 1 koku = 4.96 bushels.

² 1 kin = 1.82 lbs.

ii. After the War.

The exchanges were considerably depressed after the conclusion of the Armistice. But improvement was noted about March, 1919. At the end of 1919 the capital invested was ¥56,000,000, of which ¥45,000,000 was paid up; reserve funds, ¥5,100,000; expenses, ¥6,600,000; income, ¥18,100,000; the membership surety, ¥14,000,000 for a total of 1,002 persons. Dividends were declared at the rate of 21 per cent.

In 1920 not a single exchange was able to escape the consequences of the business depression. One additional exchange was opened, making forty-three in all, with a total capital of ¥116,000,000 (¥67,000,000 being paid up); reserve funds, ¥7,000,000; expenses, ¥10,500,000; income, ¥21,300,000; dividends, 13 per cent. And 1,054 members furnished an aggregate surety deposit of ¥23,000,000. In 1921, the capital reached ¥131,000,000; the paid-up capital was ¥81,000,000; the reserve fund, ¥7,700,000; expenses, ¥8,100,000; income, ¥22,000,000; dividend, 14 per cent. And 1,086 brokers furnished a surety deposit of ¥32,000,000.

Of the business handled in 1919 securities amounted to ¥3,440,000,000; cereals, 240,000,000 koku; cotton yarns, 2,890,000,000 kin; raw silks, 36,000,000 kin. The succeeding years were less prosperous. In 1920 there was a reduction in all items save cereals, which

Quotations for ¥50 Shares of the Tokyo Stock Exchange.

(in yen)

(future deliveries)

	1918		1919		1920		1921	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
January	198.00	178.40	224.00	183.10	528.00	454.00	132.40	118.60
February	200.10	155.00	211.00	185.70	496.00	450.10	148.70	126.50
March	165.80	154.80	238.90	210.00	549.00	849.00	141.80	181.60
April	166.50	157.10	243.00	217.00	369.90	271.50	139.10	133.10
May	174.20	142.70	305.00	234.00	231.30	162.00	144.30	133.10
June	152.90	142.00	341.80	288.00	212.00	155.10	150.80	140.90
July	188.50	143.90	357.00	298.90	149.00	120.00	152.90	142.60
August	191.00	153.10	318.90	275.80	129.30	109.10	169.40	149.10
September	175.10	162.00	442.60	317.40	129.80	100.50	173.80	150.80
October	179.20	163.00	478.90	385.10	126.40	101.00	156.20	143.40
November	248.00	173.50	449.90	380.00	139.90	139.90	152.20	144.00
December	230.10	205.80	433.90	441.60	126.60	118.50	161.00	154.80

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rose to \$40,000,000 koku. Securities registered ¥2,980,000,000; cotton yarns, 2,680,000,000 kin; raw silk, \$0,000,000 kin. 1921 showed still greater declines save for securities and cotton yarns, the figures being ¥3,800,000,000 for securities, \$10,000,000 koku for cereals, \$,320,000,000 kin for cotton yarns, and 13,000,000 kin for raw silk.

Official Quotations for Standard Grade Rice.

(in yen)

(future deliveries)

	1918		1919		1920		1921	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
January	25.07	23.80	39.80	37.60	51.98	47.80	27.32	25.70
February	25.90	24.94	39.28	25.10	51.98	47.94	26.29	24.88
March	26.86	25.89	35.29	27.05	52.69	46.80	25.54	24.60
April	27.12	25.79	38.00	29.50	47.00	37.51	27.95	25.49
May	27.39	25.85	38.82	32.11	42.49	36.80	23.80	27.26
June	26.76	25.52	37.79	33.49	38.49	26.59	23.14	27.19
July	28.98	23.80	38.69	35.15	36.89	31.39	31.16	28.19
August	29.50	25.51	38.05	36.49	34.80	31.90	35.11	32.49
September	28.95	25.90	38.80	35.51	30.75	24.51	42.69	35.01
October	34.10	31.59	42.79	37.89	28.49	26.09	44.99	39.40
November	36.69	32.20	52.00	45.81	27.19	25.31	48.85	39.85
December	38.69	36.34	52.69	49.71	28.31	23.48	48.40	37.51

Quotations for Standard Grade^a Raw Silk.

(in yen)

	1918		1919		1920		1921	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
January	1,800	1,800	1,520	1,350	3,350	3,480	1,500	1,500
February	1,800	1,200	1,480	1,300	4,250	3,550	1,500	1,500
March	1,400	1,180	1,490	1,400	3,500	3,250	1,500	1,500
April	1,500	1,350	1,710	1,510	3,480	2,000	1,500	1,500
May	1,600	1,400	1,900	1,700	2,000	1,500	1,500	1,500
June	1,650	1,400	2,320	1,900	1,620	1,250	1,480	1,360
July	1,650	1,500	2,360	2,170	1,500	1,100	1,500	1,360
August	1,600	1,540	2,270	2,150	1,270	1,180	1,440	1,370
September	1,550	1,510	2,350	2,280	1,550	1,180	1,560	1,380
October	1,620	1,540	2,700	2,400	1,500	1,500	1,620	1,520
November	1,620	1,550	3,120	2,650	1,500	1,500	1,390	1,370
December	1,570	1,460	3,280	3,080	1,500	1,500	2,080	1,390

^a The prices quoted are for Shinshu Best No. 1.

Quotations for Standard Grade⁴ Cotton Yarn.

(in yen)

	1918		1919		1920		1921	
	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>
January	874.75	264.85	407.78	358.53	598.87	411.28	405.07	249.66
February	869.76	260.39	405.60	353.32	689.11	438.16	334.36	230.84
March	889.48	277.68	405.00	361.25	606.00	484.79	299.84	177.47
April	896.58	280.91	425.00	363.95	594.77	438.25	260.17	189.09
May	891.29	282.74	440.55	376.50	581.55	411.62	258.07	206.44
June	889.19	282.50	430.88	368.65	581.60	409.70	258.34	220.78
July	895.91	326.10	498.60	361.94	495.57	380.00	261.15	238.61
August	410.00	332.44	518.39	375.44	461.40	365.08	268.88	241.56
September	410.22	340.87	518.39	379.05	450.89	324.18	292.16	249.92
October	420.10	355.27	542.39	384.17	460.35	281.23	308.00	269.56
November	411.18	351.78	590.50	391.06	453.58	305.56	310.76	256.56
December	406.48	347.87	605.72	392.17	424.09	284.02	300.08	258.16

*2. The Stock Exchange.**i. General Remarks.*

The Stock Exchange, after experiencing severe depression on the declaration of war, enjoyed the highest degree of prosperity from October, 1915, to November, 1916, due to the prosperity of commerce and industry. In December, 1916, when a press despatch reported that the German Emperor had sued for peace, there was a panic in the market, and from that time, despite the general activity of business, caution was the predominant note on the Exchange.

The conclusion of the Armistice made no marked change. At first elation over the final and complete victory of the Allies meant a rise in prices to what were called "victory quotations." But this did not last long, and the market returned to dullness. In April, 1919, it became active again, in response to general business activity; and it continued to be strong for almost a year. The Tokyo Stock Exchange's own shares were quoted at ¥549 in March, 1920, a higher figure than they had reached in the war period. But at this time signs of a crisis were already visible; and on March 15 it came. The doors of the Exchange were closed from the middle of April to the first days of May. Prices fell precipitately, and the shares of the

⁴ The prices quoted are for Count No. 20, left-twisted.

Exchange dropped to ¥100.50. With the exception of a few outstanding stocks, the market was completely dead for the remainder of 1920, and throughout 1921.

ii. Financial Stagnation (November, 1918-March, 1919).

When it became plain that peace was soon to come, the reaction from war-time prosperity was generally anticipated, and the stock market grew dull. But, on November 12, 1918, when the news of the Armistice was received, under the uplift of victory all stocks soared. Toward the end of the month weakness came. December was a momentous month. The nations that had been engrossed in war were now getting back to peace conditions. The prospective abolition of British and American trade restrictions with the tremendous fall in the price of ships, iron and steel, chemicals, dyestuffs, etc., threw the market into a frenzy. In January, 1919, business conditions were further depressed by the slump of cotton yarn, the dullness of the paper trade, the reported nullification of the Sino-Japanese Convention, press reports of runs on banks in Shanghai, by England's restriction of imports and so on. Shares of the Tokyo Stock Exchange were quoted at ¥183.10. The attitude of the public toward the Exchange was anxious and uneasy in early February, when various securities were still tending downward. As the stagnant period had already continued for three months, an impression gained ground that the market had reached its lowest point. At the same time movements were started in many quarters for the relief of the iron industry, of the raw silk situation, etc. In consequence, although commerce and industry remained dull, a somewhat strong tone characterized the Exchange itself, toward the middle of February.

At this time, however, a rumor gained currency that the Japanese Minister at Peking had been assassinated. This gave rise to apprehensions that relations with China would become strained. The effect on the market was serious. The situation was aggravated by the utter collapse of copper and by a trade balance in February showing an excess of imports. In the early part of March the market picked up, although a slump in rice was a discouraging influence. Toward the middle of the month the tone of the market was bullish, but the large operators were conspicuously absent. The rise of silver in London, the collapse of rice, and the fall of cotton yarn and raw

silk, produced a dead-alive condition. Toward the end of the month, the revolution in Hungary and runs on a bank in Osaka also affected the market adversely.

iii. The Market Revives (April, 1919-March, 1920).

The long-continued depression had resulted in winnowing out worthless enterprises. The carrying trade, and iron and copper, successfully passed through the most critical stage. Accordingly, from April there was an all-round improvement in conditions. The Peace Conference was reported to be progressing satisfactorily. Business conditions in the United States and England were rapidly returning to normal, with the result that the demand for Japanese raw silk in these countries became lively; the high price of raw cotton had a very favorable effect on the cotton-yarn market. A speech of the Minister of Finance before a bankers' gathering in Osaka, proposing a positive economic policy, affected the market favorably. The market became bullish, although there was a flurry at the beginning of May caused by a reaction on the markets in Osaka and elsewhere, and the report of disorders in Peking. In the latter half of the month, the market was stimulated by the sudden rise of raw silk and cotton yarn, the buoyancy of the rice market, and the putting into operation of the bank acceptance system. June was characterized by fluctuations; but, on the whole, the market rose. The dominant causes were the imminent conclusion of peace, and the abolition of the gold embargo in the United States. During the first ten days of July, the market was steady; it was rather restless in the second ten days; the third ten days were disturbed, owing to labor disputes in many parts of the country. There was a sudden break in prices on the twenty-third. Toward the middle of August, the market gave way precipitately under the assaults of the bears. Later the news became more cheerful. It was rumored that large operators were about to enter the market, when it had reached its lowest point; that the Osaka and the Tokyo Stock Exchanges were contemplating additions to their capital; and that the Hara Cabinet would pursue a positive financial policy. In September, the labor disputes were finally settled, and as it became evident that projects for official measures for the adjustment of prices would be abortive the market became firm. There was a decline on September 25, but the extraordinary strength of cotton yarn and the general business activity in

the western cities brought about a quick recovery. At the beginning of October conditions appeared favorable, but soon turned downward again. It was believed by many that the recovery had gone too far. The balance of trade showed an excess of imports for September. The increase of the bank rate by the Bank of Japan was regarded by the public as indicating that the Government was bent on the regulation of prices. Later, numerous bearish rumors were in circulation and the market became nervous. In early November, there was some weakness in evidence; but a notable change took place toward the middle of the month. When the order restricting the cotton-yarn trade was promulgated on November 11, textiles gained many points instead of sinking under the news; and almost all other stocks moved quickly upward, to the discomfiture of the bears. There was a hitch on the nineteenth, owing to another increase of the bank rate and to the repeal of import duties on cotton yarn and a few other articles. There was a prompt recovery on the following day, due to the sudden rise of Shanghai Exchange stocks, which brought about general activity in Osaka and Kobe. In the first half of December conditions were weakened by the circulation of many adverse rumors. Toward the end of the month sentiment became bullish, and many of the bears were forced to retire from the market.

The money market improved in January, 1920, and the rise of raw silk and cotton yarn and a number of other commodities greatly stimulated the bulls. In the second half of the month these articles began to decline, and conditions underwent a change. Trading in February was dull, except where larger dividends were to be declared, or an increase in the amount of capital was under consideration. Toward the end of February the market improved. On the twenty-sixth, the Imperial Diet was dissolved. But the setback that resulted did not last long. On March 1, the bulls overwhelmed the bears, and the shares of the Tokyo Stock Exchange rose ¥30 in a single leap. Again, however, signs of a reaction soon began to appear. The balance of trade showed an excess of imports of ¥96,880,000, while the tightness of money and the slump of silver forced down the price of raw silk, cotton yarn, and other staples. The crisis came on March 15. There was a fall of ¥80 in the shares of the Tokyo Stock Exchange and ¥10 to ¥50 in all other shares. No such panic had occurred since December 13, 1916. The day's business amounted to 559,510 shares, and required the payment of about ¥61,000,000 in

additional margins. The Exchange had to be closed for two days to effect adjustments.

iv. The Market Collapses (April-December, 1920).

The Exchange was unable to recover its strength after the slump of March 15, 1920. On April 7 the failure of a firm of bill-brokers in Osaka was reported, as a result of which the Osaka stock market was very seriously affected. Almost simultaneously there occurred a heavy fall in rice and cotton. The Tokyo Stock Exchange became utterly demoralized, and had to close its doors for several days. A conference of the Exchange officials met to work out remedial measures. The brokers agreed on measures for the elimination of speculators lacking sufficient funds. Appeals were made to the Government and to the Bank of Japan for a loan to tide over the critical period. After a long consultation, it was granted, and the Exchange was reopened on the thirteenth. Another slump followed, and the Exchange was closed again. Radical measures of relief had become imperative. Accordingly, arrangements were made between the Stock Exchange and the Bank of Japan, by the terms of which the latter was to advance, through the medium of the Syndicate Banks, loans within the limit of ¥50,000,000. The money was turned over to the brokers' body of the Exchange, to enable them to complete their month-end deliveries.

The Exchange resumed business on May 10. But there was no improvement in conditions. Not even the news that the Government would repeal the law prohibiting certain speculative practices gave any stimulus to the market.

There was some activity at the beginning of July, but soon the market became depressed again, and press despatches reporting the buoyancy of the stock markets in New York and London failed to improve conditions. There was no marked change till well into August. Then the steady improvement in general business finally began to exert an effect on the market itself. In September general business was uncertain, and the stock market again became stagnant. Shares of the Tokyo Exchange dropped to ¥100.50. On October 18, the market suddenly became active; and on the twenty-fifth the rumor that the bank rate would be increased gave it a great impetus. In the middle of November the market again became dull. Conditions

were better in December; and toward the end of the month the market was decidedly bullish.

v. The Market Is Steady Again (January-December, 1921).

The market was weak at the beginning of January, 1921; but it improved on foreign reports that silver, raw silk, and American cotton were very firm. Toward the middle of the month the slackness of money further consolidated the situation. In the latter part, money remained easy, and the news from abroad was encouraging, but the market was hesitant. In February, the continued cheapness of money brought in many investors. On the twenty-second, the fall of prices in Osaka and elsewhere depressed the market. In the middle of March the rise of raw silk in Yokohama, and the recovery of the New York market afforded favorable news, but this was more than counterbalanced by the unsatisfactory condition of affairs in Europe. At the end of the month the market was encouraged by the activity in raw silk, the firmness of cotton yarn, and the tendency of many commodity prices to move upward. But many discouraging influences appeared in April. The excess of imports had amounted to ¥39,750,000 for the previous month; and in view of the general depression there was doubt as to the rate of coming dividends. Some hope was afforded by the activity of petroleum, but after the merging of the Nihon Seki-yu (The Japanese Petroleum Company) and the Hoden Seki-yu (The Hoden Petroleum Company), oil stocks failed to attract the desired attention. At the end of June the briskness of the markets in New York and London afforded a stimulus to the Exchange. Oil stocks grew active again. There was considerable activity in July. Reports on political conditions in other parts of the world were all favorable; cotton yarn, rice, raw silk, and silver were becoming animated. There was activity in particular in textile stocks. In August textiles were sluggish, but there was considerable activity in sugar. The tone in September was decidedly weak. Under instructions from the Government the banks made efforts to discourage loans, in order to curb speculation. Imports were again in excess of exports, and arrangements were made by the Government for another bond issue. These factors operated to depress the market. In October, the market was unsteady. The assassination of Premier Hara, at the beginning of November, kept the market in suspense

for a time. At the end of the month raw silk became lively and the market grew stronger. In December the market was listless. The slowness of banks in granting loans, and anxiety about the Washington Conference kept the market unsettled. Toward the end of the month there was some improvement, the banks having made their arrangements for the year-end settlement, and raw silk having gained in firmness.

3. *Rice Exchange.*

i. General Remarks.

The yield of rice in Japan, unless a bumper crop is harvested, is inadequate for the nation's requirements. The deficit is made up by imports. Rice does not command a world market and therefore shows greater fluctuations than does wheat. Moreover, the Japanese people have a marked preference for the home product. Hence the Japanese domestic price fluctuates even more widely than the international price.

Large crops for several years before the War kept prices at a low level until September, 1916. After that the price began to rise. Commercial prosperity greatly increased consumption, and importation was often difficult, while the exportation of substitute foodstuffs was active. The result was a continuous rise in price, culminating in the "rice riots."

The general prosperity in 1919 maintained consumption; and speculation for higher prices and the holding back of supplies by the growers resulted in record prices, in spite of the fact that the harvest of 1919 was a fairly good one. The business depression of 1920 tended to lower the price; but unfavorable weather in July, 1921, made the market rise again.

ii. Rising Prices (November, 1918-March, 1920).

Estimates of the Department of Agriculture and Commerce for the harvest of 1918 indicated a short crop, with the result that futures swiftly rose to ¥37 per koku. In December it was rumored that the Government was planning to import foreign rice on an extended scale; but the market was so firm that even these rumors failed to shake it. Because deliveries from the country were not so active as had been expected, the tone was firmer than ever in January, 1919.

Future deliveries were quoted at ¥42, with an intimation that higher prices were coming. The price was excessive and stirred up much ill-feeling. Cereal exports were placed under restrictions; the import duty was repealed for the time; arrangements were made to legalize Formosan and imported rice as substitutes for home-grown rice when making market deliveries. These measures resulted in a fall in the market. Toward the middle of the month, the price dropped by about ¥1.50. But it became evident that the stock of cereals could not be so easily replenished as had been believed. Imports could not be made without difficulty; shipments from Formosa were restricted, for the growers there insisted on good prices.

An abrupt collapse took place on February 24, on a cable report that permission had been obtained for the export of 60,000 tons of rice from Saigon. The spot market dropped to ¥39.40 at the end of the month, a decline of ¥1.90 as compared with the beginning of February. In March spot rice declined by about ¥7 and futures by more than ¥12. The market remained practically stationary during April.

After April it began to rise. Doubt was felt as to the possibility of further imports. The buoyancy of securities, raw silk, and cotton yarn strongly influenced the cereal market. The belief that rice would go higher checked sales; while the unabated consumption of it led to a rapid reduction of stocks.

From the middle of July, high prices offered for rice, together with the announcement that railroads would transport rice free of charge brought a certain amount to the market, though not enough. At the end of July quotations rose to ¥50.30 for future deliveries. Shipments were increasing at the beginning of August, but not in volume large enough for even the needs of Tokyo alone. About the middle of the month the prevailing unfavorable weather stiffened the market. The tone weakened toward the end of the month, under the combined influence of the official announcement that the Government would sell in the market stocks of foreign rice it had been gathering, the report that the authorities of Saigon would repeal the embargo on rice, and the fact that better weather assured a successful harvest. Nevertheless prices remained almost unchanged. The maximum average price of spot rice for the month—¥50.50—was only ¥1.50 higher than the minimum price.

In the early part of September, although stocks were rapidly

diminishing, the market remained stationary, due to anticipation of the new crops. In the second ten days, though the decline of stocks was disturbing, the new harvest did not come in so fast as had been expected, with the result that quotations were daily rising. In the last ten days arrivals were active, and the market was stationary. In October, the market at first tended downward, due to increased shipments from the country. The average price of spot, which had been hovering about ¥53, fell to ¥48.50. Later the farmers, seeing that prices were falling, held back the crop, the result being that the market advanced to about ¥51 toward the end of the month; and in the middle of November, the price reached ¥52. Toward the end of November it advanced to ¥53.70. Owing to increased deliveries, at the middle of December quotations fell. But the increased supplies were manipulated by the bulls, who had no intention of putting their purchases on the market at once; and the price rose to ¥54.70 before the Exchange closed for the year.

When the market opened in 1920 the price of rice of standard grade was ¥55.10. It was being shipped in increasing volume, with decreased sales. In consequence, the price dropped to ¥54.30 at the middle of the month. Toward the end, spot rice was affected by the dullness of the futures market, and the price fell to ¥52.90. The situation was quite different in February. Owing to the fact that the farmers were reluctant to sell their cereals at the prevailing price, consignments diminished toward the middle of the month; and the market advanced from about ¥50 to ¥54.60. The situation was firmer than ever at the beginning of March, and rice rose to ¥55.10. Then, on the sudden fall in the stock market toward the middle of the month, spot rice fell about ¥1.70.

iii. Falling Prices (April, 1920-June, 1921).

The market for futures was the first to suffer. Spot rice held up for a time, because of hoarding by the growers. But the rice market could not long maintain itself in the face of the general depression. Toward the end of the month the price dropped to ¥53. In April the futures market was utterly upset, with ¥47 for the beginning of the month, ¥37 for the middle, and ¥41 for the end. Transactions in the Rice Exchange were suspended on the fifteenth and seventeenth. But nevertheless the spot market declined only ¥3 or ¥4. This may

be explained by two things. The effects of the financial reaction were not felt at once in the rural districts; and tightness of money prevented the shipping of rice. In May, deliveries were inadequate, and spots advanced to ¥51.00.

In time the commercial depression spread from the cities to the country, and growers had to dispose of their crop at lower prices. There was a big slump in futures, causing the doors of the Exchange to be closed from the twenty-fourth to the twenty-sixth of May. The month-end price of spots was ¥47.80. In early June heavy sales by growers, and the continued decline of futures brought spots down to ¥38.60. Later, when shipments from the country declined, the market rebounded to ¥45.60 at the close of the month. The market declined under the influence of the general depression at the beginning of July, and under the impression that the season promised good crops. But as futures were slowly but steadily getting stronger, growers again insisted on better prices for their crops. Moreover the typhoon season was at hand, and the month-end market advanced to ¥46.20. In August futures tended steadily downward, dropping from ¥45 to ¥43 at the close of the month. In September, when the typhoon season had been safely passed, the market weakened and spots were quoted on an average at ¥43.20 for the first five days, and at ¥40 on the eleventh.

Because of the fact that almost all the principal articles of commerce in Japan had fallen in price, an agitation arose for measures to lower the price of rice. On September 25, therefore, the authorities gave notice that there would be changes in the grading of standard rice. In October the market was altogether spiritless. The daily average price of spots stood at ¥36.20 for the first three days; but, encouraged by the firmness of cotton yarn it advanced to ¥39.20 on the fourth. Later the cotton-yarn market became dull, and silk producers, having failed to obtain an adequate cocoon crop, were forced to sell their rice. Moreover it was reported that the rice crop of the year would be about 60,000,000 koku. Accordingly the market on October 26 fell to ¥33. Toward the end of the month cotton yarn recovered somewhat, and the stock market showed some improvement. As a result rice was quoted at ¥34.40 at the end of the month. In November, spots stood at ¥33.60 in the early part of the month, at ¥29.40 at the end of the month, and at ¥25.20 in the early part of December. Naturally at such prices the farmers held back their

grain. They were encouraged in this policy by a resolution passed by the representatives of the Agricultural Societies, which called on growers to sell no more grain, till the market underwent a change. An upward tendency was noted in the latter half of December; and at the last of the month ¥28 was realized. Efforts were made by the Agricultural Societies and the Financial and Economic Council of the Cabinet to improve the rice market, but without result. The average price of spots, which had been ¥30.10 at the beginning of January, dropped to ¥27.20 at the close of the month. In February the activity of the stock market and an official forecast indicating a smaller crop strengthened the market, but only temporarily. The market soon weakened, with ¥26.50 for the month-end figure. March was depressed, the highest figure for the early part of the month being ¥26.20, and the lowest, at the end of the month, ¥25.40. The quantity of cereals in the warehouses at Fukagawa never fell below 210,000 koku. A cereals law was passed by the Imperial Diet but the market failed to respond. Although there were signs of improvement at the very beginning of April, a reaction soon followed, and the average quotation for the various grades of spots could not get above ¥25. Throughout May quotations hovered about ¥26. Growers and dealers were impatiently awaiting the policy of the Government as to the purchase of rice. Consequently sales were limited to meeting immediate needs for consumption. On May 25, the Government announced its policy, and on June 10, the authorities made their first purchase of the cereal. Neither event affected the market materially.

iv. Prices Rise Again (July-November, 1921).

Owing to the Government's purchases of rice and to the unfavorable weather, both futures and spots gradually rose. On July 9 futures rose to ¥28 and remained about that level for the month. Spots advanced to ¥29.80 early in the month and became somewhat stronger later. Unseasonable weather in September brought spots up to ¥33 early in the month; to ¥39.70 on October 1 and ¥41.30 on October 3. A slight recession followed, but the price at the close of the month held at ¥39.60. In November the price was never below ¥39, a consequence of the low yield of the season. In December the market started bullish, but the announcement that the Govern-

ment would sell 120,000 koku purchased in the early summer promptly brought futures down from ¥43 to ¥37. This condition was reflected in the spot market, which dropped from ¥40 to ¥35.90.

4. *The Raw Silk Exchange.*

i. General Remarks.

Raw silk is the chief staple export of Japan, and the chief market for it is the United States. As an article of luxury the demand is subject to acute fluctuation, with prosperity or depression. Therefore its price is subject to abrupt changes. Thus on the outbreak of the War, Shinshu Best No. 1 was quoted at ¥700 per bale of 100 kin, an abnormally low price. In August, 1917, the price was ¥1,750.

The post-war fluctuations were more remarkable than those of war-time. After a brief period of slackness at the time of the Armistice, the market tended upward from March, 1919, to January, 1920, when it reached ¥4,350. After the middle of the month the price began to fall, due to the decrease in demand in the United States, and the growing depression in Japan. The resulting situation was such that, in July, 1920, the price fell to ¥1,100, and then arose a widespread demand for relief measures, as at the outbreak of the War. But the market grew buoyant again in September, 1921, owing to active American buying and the short-lived industrial boom, and raw silk was quoted at ¥2,330.

ii. Prices Fall (November, 1918-February, 1919).

The market was fairly lively about the middle of November, 1918, upon the receipt of news of the Armistice. Later, because of the abolition of the agreement for reducing production and because of increasing apprehension over the general business outlook the market became hesitant. It was bearish in January and early February, 1919. Shinshu Best No. 1 was quoted at ¥1,300, but this low price was not effective in clearing off surplus stocks, and the spring reeling season was opening. To relieve the situation, silk reelers, or filature-owners, and silk dealers, under the lead of the National Sericulturists Society, agreed that they would postpone the date for opening the season, curtail operations, and that dealers should refuse all shipments from filature-owners. These measures were effective, and toward the middle of February the price rose first to ¥1,400 and

then to ¥1,440 as American demands strengthened. Later there was a relapse, and the price was ¥1,350 at the end of the month.

iii. An Active Market (March, 1919-January, 1920).

March, 1919, began dull owing to the slackness of both exports and home consumption. Dealers and filature-owners again agreed to measures of control, with the result that the congestion of stocks visibly grew less. Soon export merchants appeared in the market, while the buying season for the domestic weaving-mills opened. The price rose to ¥1,510 at the end of the month. In April, European buying stimulated the market, and the price reached ¥1,700 at the end of the month. By the end of June the price had risen to ¥2,300. There was a setback in July, owing to rumors of large shipments of silk from Italy to the United States. In August the market was discouraged by a falling-off in the American demand; and the price dropped from ¥2,240 for the early part of the month to ¥2,180, and to ¥2,150 in the middle and latter part of August. In the latter half of September the market became livelier. The labor questions which had been harassing the manufacturing industry of the United States were reported to have been settled, and American weavers were in the market for Japanese raw silk. Production fell off, owing to the unsatisfactory character of the cocoons and labor troubles in the filatures. On the twenty-fifth, the Best No. 1 advanced to ¥2,320. In October, the activity of the stock market and cotton yarn was reflected in raw silk. Quotations were ¥2,500 early in the month and ¥2,650 at the end of the month. In November, both exports to the United States and purchases by weavers in Japan were immense, while Europe, after a certain slowness of demand, came into the market with fresh vigor. Month-end quotations rose to ¥3,120. The tightness of money and an over-stocking in the United States weakened the market at the beginning of December. Later American demands recovered and on December 31, the Shinshu Best No. 1 advanced to ¥3,440. Speculation for a rise continued until January, 1920, when the market suddenly collapsed.

iv. Prices Fall Again (February, 1920-August, 1921).

In February, 1920, the market was characterized by reaction. American importers held aloof, owing to superabundant stocks-on-

hand and uncertainty as to prices. By the end of the month quotations had dropped to ¥3,550. Home consumption showed a great decline, with depression setting in about the middle of March. In April the silk market was demoralized, the price fell to ¥2,000 toward the end of the month, and in May there was a further fall to ¥1,800. The silk merchants of Yokohama resolved to cease to transact business if the market went still lower; but this resolution proved impracticable. The market dropped to ¥1,500 at the close of May. A further drop to ¥1,300 took place in early June; but, subsequently, when buyers for European and American manufacturers came into the market, futures became steady, and the quotation advanced to ¥1,620. Simultaneously the Silk-Dealers' Association agreed not to receive any consignments from filatures from June 11 to July 5, advising filature-owners to reduce production for some time. These measures had the effect of diminishing the stocks; but, when the purchases for Europe and America had all been made, conditions became again dull, and the standard grade was quoted at ¥1,400 at the end of June. After July 6, shipments from the country once more began to accumulate. An attempt to curtail incoming stocks failed, and the price fell to ¥1,100 at the end of the month. On August 10 a conference of silk reelers adopted an agreement to control production. According to this agreement filatures were to be operated only nine hours a day instead of the usual thirteen, and there were to be four rest days a month instead of the usual two. Raw silk received at Yokohama should be reduced by 50 per cent and no lot should be received between October 20 and the end of the year. Neither filature-owners nor dealers should resort to any covert dealing, and only silks contracted for before August 10 should be accepted after January, 1921.

This agreement failed to be effective, owing to the facts that the requirements of the American people further declined, and that silk stocks on the market were gradually increasing. Thereupon filature-owners, silk dealers, and silk exporters appealed to the Government for an advance of ¥50,000,000, in order that they might incorporate themselves. Their object was to keep prices from falling below a limit of ¥1,500. At the Cabinet meeting of September 17 such an incorporation was authorized under the name of the "Teikoku Sanshi Kabushiki Kaisha." The nominal capital stock was fixed at ¥16,000,000. The Government agreed to place at the disposition of

the company a loan of ¥50,000,000, at low interest, for a term of two years. This money was to be employed only for buying and selling silk for export. The rate of dividend was limited to 10 per cent.

Immediately upon the announcement that the foregoing relief measures would be put into effect the market began to improve, and on September 17, the standard grade was quoted at ¥1,510. But the Teikoku Sanshi Kabushiki Kaisha was not as yet in active operation, and the market sagged again. On November 10, the representatives of the silk industry met in conference in Tokyo to work out radical relief measures. They adopted a resolution to the effect that from November 30, 1920, to February 15, 1921 (in case of Nagano, March 20), no filature should be operated even to execute orders on hand; and that during the time specified no raw silk dealer in Yokohama should receive delivery of consignments from filatures.

The Teikoku Sanshi Kabushiki Kaisha was opened for business on November 19, but it did not work so effectively and smoothly as had been hoped. First, its purchases were not half so large as its management had announced they would be. Then the Silk Piece-Goods Manufacturers' Association, believing that artificial measures for forcing up the price of raw silk would result in unreasonable prices for finished silk goods, and thus in the end defeat its own object, petitioned the Government to compel the silk manufacturers and dealers to revise their agreements on minimum prices. In January, 1921, the Teikoku Sanshi Kabushiki Kaisha began to buy, but without exerting any perceptible influence. In March purchases by exporters to the United States were large, and the market became firm. The House of Peers passed a bill authorizing the Government to indemnify, to an extent of ¥30,000,000, the losses of the Teikoku Sanshi Kabushiki Kaisha for the previous year. The market was active in early April and the price rose to ¥1,533. But in the middle of the month the market grew dull again and failed to respond to another purchase by the Teikoku Sanshi Kabushiki Kaisha. In May, transactions were large, but prices remained inactive. In June, the Teikoku Sanshi Kabushiki Kaisha ended its operations in raw silk, and sales became very much freer, while reports of the failure of the spring cocoon crop led to increased activity in purchasing cocoons. The market grew stronger, and in the middle of the month a price of ¥1,546 for futures was realized. But this upward tendency was

soon checked, and in both July and August the market was exceptionally weak.

v. Rising Prices (September-December, 1921).

In September the volume of selling which had been depressing the market was relieved by the failure of the autumn-cocoon crop. The rice and the cotton-yarn markets were unusually strong. The raw silk market began to show buoyancy. Professional buyers appeared in the market and Shinshu Best No. 1 was quoted at ¥1,560. The future market was extraordinarily prosperous in October. Buying was active not only for the home consumption market, but also for export. In November the market showed much activity. Buyers for America, who had been content with supplying immediate needs, came to a realization that supplies in Japan were short and proceeded eagerly to lay in stocks. Exporters to Europe were also active. In the middle of December, as a result of the sale by the Teikoku Sanshi Kabushiki Kaisha of 2,000,000 pounds of raw silk, all classes of future deliveries declined, which affected spot prices considerably. Since the market was inadequately supplied with stocks, what was sold by the Teikoku Sanshi Kabushiki Kaisha was quickly absorbed; and the market picked up again as soon as these surplus stocks had been disposed of.

5. *The Cotton-Yarn Exchange.*

i. General Remarks.

The conclusion of the Armistice did not affect the cotton-yarn market adversely. The shortage of stocks, the growing activity of exports, the high price of raw cotton, the high price of cotton yarn abroad, and the demand for silver all combined to make the trade prosperous. As business thrived, the consumption of cotton yarns increased remarkably. Speculation helped to increase prices. In November, 1919, cotton yarn (Count No. 20, left-twisted) was quoted at ¥710 for current-month delivery and ¥686 for delivery in April, 1920. In response to public agitation the Government had to step in to curb the rise of prices. Laws for the repeal of the import duty on cotton, for the official control of cotton exports, and the prohibition of speculation in goods for future delivery, were promulgated. With the post-bellum depression beginning in the middle of March,

1920, the tightness of money and the selling pressure of those who had bought unwisely brought about a collapse of the market. Although manufacturers and dealers tried to diminish production by reducing the working hours of mills, the dullness of exports left the market congested. The cheapness of raw cotton and silver seriously aggravated conditions, with the result that, in the middle of March, 1921, the price of yarns for delivery in July dropped to ¥172. Later, as the congestion was somewhat relieved, and the price of raw cotton rose, the market improved; the price of current-month deliveries advanced to ¥330, and of futures (for delivery in January) to ¥314 by the middle of October. Toward the close of the month, the increase in the volume of goods on the market, coupled with the weakness of raw cotton and silver, brought about a decline.

In the following pages the cotton-yarn market will be discussed with reference to business on the Osaka Three-Commodities Exchange. Quotations are given for 300 kin of left-twisted yarns of the Count No. 20.

ii. An Active Market (November, 1918-March, 1920).

At the beginning of December, 1918, when both the cotton-yarn and the raw-cotton markets showed the effects of the conclusion of the Armistice, yarns for delivery in April, 1919, were quoted as low as ¥288. Toward the end of the year, ¥340.50 was realized. In January, 1919, the market tone was generally firm; but the fall of American cotton and the business depression affected the cotton-yarn market, especially for futures. Current-month deliveries held up better, owing to the inadequacy of spots. The difference in the quotations for futures and current-month deliveries was ¥50 and more. In February the market was active due to the shortage of supplies and seasonal demands. The rise continued until April, when current-month delivery ranged from ¥391.40 to ¥469. There was a reaction in May; but the advance of rice and cotton, improvements in business conditions, the greater activity of exports, and the shortage of stocks, produced an active market through June. In July, on information that the Government was considering measures for the regulation of the price of cotton yarn and fabric, futures collapsed, weakening the spot market. August was active, due to the business boom and to shortage of stocks as the season of active consumption

approached. September and October were prosperous. Current-month deliveries were quoted at ¥615 on October 15. In November, the market continued to soar, and on the tenth current-month deliveries rose to ¥710 and April, 1919, deliveries to ¥686. The Government was forced to restrict transactions in long-dated deliveries and exports of cotton yarns, and to repeal the import duty on manufactured cotton. As a result of these drastic measures, both futures and spots slumped. The market was encouraging in January, 1920. General business was active; the cotton-yarn market abroad was brisk; and production had decreased. In February and March, current-month deliveries advanced to ¥700. But a serious collapse occurred toward the middle of the month.

iii. Falling Prices (April, 1920-March, 1921).

The cotton-yarn market suffered severely from the reaction beginning in the middle of March, 1920. In the following month, the difficulties of the situation were aggravated by the tightness of money and the presence of surplus stocks. The Osaka Three-Commodities Exchange had to close its doors for three days. Even after the reopening of the Exchange, no improvement was noted, and on April 26, current-month deliveries dropped to ¥390, and future deliveries to ¥400.

Aroused by this state of affairs, the committee of the Cotton Spinners' Association of Japan held a conference in Osaka on May 5, and adopted a resolution recommending a suspension of the business of the mills for six days, during the month beginning May 10. The object was to curtail production by 10 per cent. There was, however, no sign of improvement in the situation, since orders for the delivery of spot goods extended as far ahead as June or July, 1921. Under the circumstances relief of the trade was impossible, unless some compromise could be made that would take care of these orders. This required a considerable sum of money. In order to obtain it, the cotton-yarn dealers, mill-owners, and bankers of Osaka agreed upon a plan for the formation of a syndicate of dealers, for which the mill-owners promised to act as surety, and to which the Bank of Japan gave assurance that the needed money would be forthcoming through the medium of the exchange banks. In June it was decided that, in order to cut down production by 80 per cent,

all the mills in the country should be closed for four days a month for the six months beginning June 15, and, in addition, be operated for only ten hours a day or less during the time specified. Dealers in Tokyo organized themselves into a syndicate, as their fellow-traders did in Osaka, and succeeded in obtaining funds from the Bank of Japan.

In spite of all these efforts the situation became graver than ever, due to the dullness of the export demand, a startling decline in home consumption, and the presence of unprecedentedly large stocks on the market. The Cotton Spinners' Association of Japan passed another resolution, this time to curtail production by 40 per cent. Again, however, this failed to accomplish the desired results. More radical measures were suggested, but came to nothing.

The market in October gave some display of activity, as a result of an increase in demand, and a decline in stocks on the market. But from November on, the dullness of American cotton and of silver demoralized the market, and current-month deliveries fell to ¥234.90.

January, 1921, began dull. The market improved somewhat toward the middle of the month, but turned stagnant again, and remained so until the middle of March. On March 19, there was a decided collapse, and July deliveries dropped to ¥172.20, the direct causes being the fall of silver and raw cotton, and an increase in the Indian import duty on cotton fabrics. Some improvement was observed toward the end of the month.

iv. Prices Rise Again (April-October, 1921).

In April the firmness of silver and of American and Indian cotton, together with the fact that home consumption was on the increase, brought a distinct improvement in the market. Stocks that had been kept in warehouses in Osaka and Kobe were for the most part absorbed. The market moved upward till the end of July. But in August the stagnancy of the stock market, increases in the stocks held in Osaka and Kobe, the inactivity of the trade with China, and the weakness of American cotton depressed first the futures, and then the spot market. Toward the end of October forecasts of failure of the cotton crop in the United States gave strength to the market. The continued rise of raw cotton, the increase in the demand, the

firmness of silver, and the shortage of stocks operated to raise prices. January deliveries advanced to ¥314, and the current-month deliveries to ¥330. In the latter part of October, however, prices dropped about ¥35, the causes being increased stocks in Osaka and Kobe, and the weakness of silver and American cotton. From November on the market remained weak.

CHAPTER V

PRICES

1. *General Remarks.*

i. During the War.

PRICES had tended to drop during the year and a half previous to the outbreak of the War. In August and September, 1914, they were firm, owing to the insufficient supply of some commodities which could not be imported. Later the tendency was downward until the end of 1915, when the prosperity of the export trade and the resultant general business activity turned prices upward. Inflation of the currency intensified the factors making for a rise. The index number of prices in Tokyo, based on July, 1914, had advanced to 225 in November, 1918.

ii. After the War.

On the conclusion of the Armistice business became stagnant and prices fell. The index number of the Bank of Japan for Tokyo (based on October, 1900) was 280.26 in October, 1918, the highest figure for the war period. It began gradually to decline. After April, 1920, the export trade became active, business picked up and prices began to advance. They passed the highest point of the war period in June. The result was an active speculation for the rise. The index number registered 381.50 at the end of the year.

In all the principal cities, according to the index numbers prepared by the Department of Agriculture and Commerce, prices for 1919 and the early part of 1920 showed an advance over 1918. The general average for all cities (based on 1912) was 238 for 1919. The grand average in Tokyo, for March, 1920, was 425.25, or 50 per cent above the war-time maximum. The boom collapsed on March 15, and prices declined gradually, with the Tokyo index numbers falling to 327.68 in June and 271.98 in December. Similar declines took place in other cities.

The decline continued until the middle of 1921, the general average for the principal cities falling to 199. In the following six months, conditions showed some improvement, because of the brief

and deceptive boom. In November prices turned downward, and the Tokyo index stood, at the end of the year, where it had stood at the Armistice.

2. Prices in Tokyo.

i. Introductory Remarks.

In the first part of this volume the index numbers of wholesale prices in Tokyo are those of the Bank of Japan, and the index numbers of retail prices, those of the Department of Finance. We now, for the sake of uniformity, follow exclusively the index numbers of the Bank of Japan. The basis of these index numbers are the prices of July, 1914.

ii. Wholesale Prices.

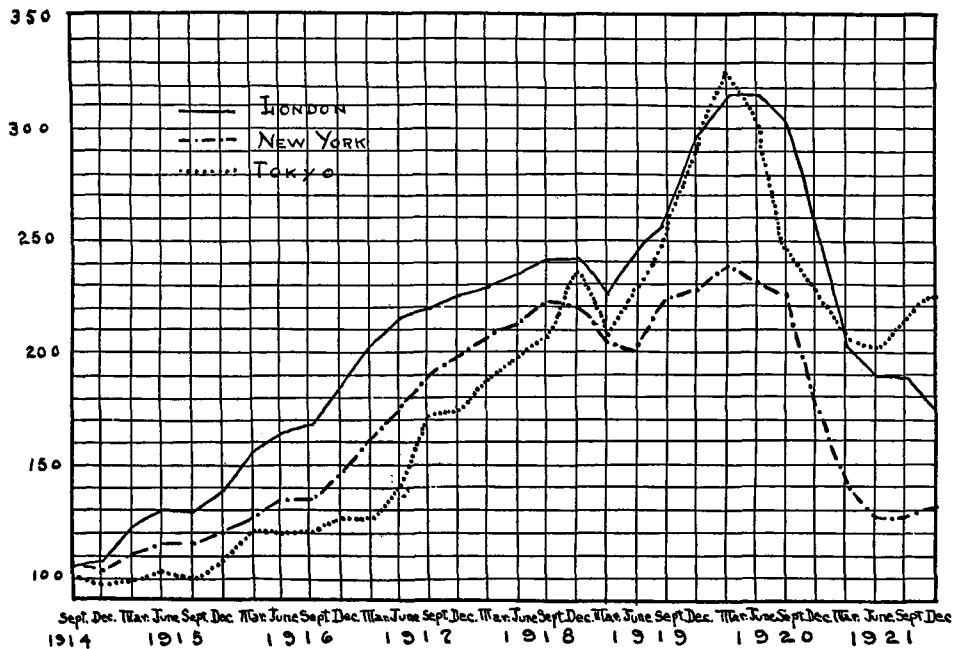
a. General Fluctuations.

Wholesale prices in Tokyo, after attaining a maximum of 227 in October, 1918, began gradually to drop in the following month, and stood at 213 in March, 1919. After remaining about stationary in April, they turned upward in May with the post-war boom, and rose higher and higher until the figure of 338 was attained in March, 1920, 111 points higher than the war-time maximum. About the middle of March a reaction set in and the index number declined to 216 in December, 1920. In 1921, the market was weak till April; in May, the situation showed some improvement; in June, it was stationary. Between July and October prices were firm, in consequence of a short-lived boom. In November they again declined, and in December, the index number fell to 220.

In comparing wholesale prices in Tokyo with those in New York and London, it appears that the Tokyo index was higher than that of London from July, 1919, to March, 1920, and from February, 1921, to the end of the year. It was always higher than that of New York after September, 1918. In London the highest point was 326 (March, 1920); in Tokyo, 338 (March, 1920). (See graph on p. 192.)

b. Prices of Various Commodity Groups.

The Bank of Japan works out its wholesale index numbers from the prices of fifty-six staple commodities in Tokyo. These com-



Comparison of the Index Numbers of Wholesale Prices in Tokyo, London, and New York, 1914-1921, as reported by the Bank of Japan.

modities are divided into the following nine classes (see tables on pp. 194 and 195):

- (1) Cereals: Rice, barley, rye, wheat, soya beans, Adzuki beans, wheat flour.
- (2) Various other food articles and tobacco: Sugar, tea, salt, *miso* (bean-paste), soya, *sake*, *katsubushi* (steamed and dried bonito), eggs, Japanese tobacco, foreign tobacco.
- (3) Textiles: Raw silk, habutae silk, silk handkerchiefs, *Kaiki* silk, silk linings, floss silk, cotton yarn, imitation nankeen, shirtings, ginned cotton, hemp (jute, ramie, and flax included), flannel, muslin, sateen.
- (4) Metals: Iron, nails, copper.
- (5) Fuel: Coal, oils, petroleum, firewood, charcoal.
- (6) Building materials: Lumber, stone, bricks, tiles, cement.
- (7) Special manufactures: Indigo, plate glass, Japanese paper, foreign-style paper, leather.
- (8) Fertilizer: Rice-bran, fish-manure, oil cake.
- (9) Miscellaneous: Mats and mattings, raw lacquer, wood wax, matches.

In the first part of this volume, the above-mentioned fifty-six articles are divided into five categories. They are treated here as forming nine for the purpose of closer analysis.

The rate of advance, after the end of 1915, varied greatly for different classes of articles. The index based on October, 1900, gives the following percentages of advance for November, 1918:

(1) Special manufactures	291 per cent
(2) Fuel	285 per cent
(3) Metals	281 per cent
(4) Cereals	218 per cent
(5) Various other foodstuffs, beverages, and tobacco	178 per cent
(6) Miscellaneous	174 per cent
(7) Textiles	155 per cent
(8) Fertilizers	105 per cent
(9) Building materials	100 per cent

The following table shows the advance of each class in November, 1918, based on the index number of July, 1914.

(1) Metals	318 per cent
(2) Special manufactures	208 per cent
(3) Fuel	166 per cent
(4) Miscellaneous	128 per cent
(5) Textiles	128 per cent
(6) Cereals	100 per cent
(7) Building materials	96 per cent
(8) Various other foodstuffs, beverages, and tobacco	84 per cent
(9) Fertilizers	79 per cent

After the conclusion of the Armistice all classes showed a downward tendency. From the spring of 1919 prices moved upward. The following table shows the percentage of advance above the level for November, 1918, taking the highest index number of each class of commodities in the period between February and April, 1920.

After the conclusion of the Armistice all classes showed a downward tendency. From the spring of 1919 prices moved upward. The following table exhibits the percentage of advance above November, 1918, taking the highest index number of each class of commodities in the period between February and April, 1920.

(1) Building materials	108 per cent
(2) Textiles	70 per cent
(3) Miscellaneous	68 per cent
(4) Cereals	51 per cent
(5) Fertilizers	40 per cent
(6) Special manufactures	38 per cent
(7) Other foodstuffs, beverages, and tobacco	36 per cent
(8) Fuel	28 per cent

The index for metals remained steadily below the level of November, 1918.

These highest points of the post-war period, when compared to prices at the time of the outbreak of the War, show the following percentage increases:

(1) Special manufactures	318 per cent
(2) Building materials	299 per cent
(3) Textiles	280 per cent
(4) Miscellaneous	272 per cent
(5) Fertilizers	241 per cent
(6) Fuel	227 per cent
(7) Cereals	208 per cent
(8) Various other foodstuffs, beverages, and tobacco	151 per cent

After March, 1920, the prices of all classes of goods went down and did not recover until the short-lived boom in the summer of 1921. After the boom, prices went down again, the December average being nearly that of the time of the Armistice. For four of the classes, however, the prices of December, 1921, ranged higher than those of November, 1918.

	<i>Index number in November, 1918</i>	<i>Index number in December, 1921</i>
Cereals	818	265
Various other foodstuffs, beverages, and tobacco	278	805
Textiles	255	283
Metals	331	155
Fuel	335	335
Building materials	200	295
Special manufactures	391	315
Fertilizers	205	215
Miscellaneous	274	377

Wholesale prices in December, 1921, as compared with those in July, 1914, show a general advance, but with wide differences in the rates of advance.

(1) Miscellaneous	214 per cent
(2) Building materials	189 per cent
(3) Fuel	166 per cent
(4) Special manufactures	144 per cent
(5) Textiles	104 per cent
(6) Various other foodstuffs, beverages, and tobacco	102 per cent
(7) Metals	98 per cent
(8) Fertilizers	88 per cent
(9) Cereals	69 per cent

c. Fluctuations of Wholesale Prices of Staple Commodities.

Of the fifty-six commodities on which the foregoing tables are based, fifteen may be regarded as staples: rice, wheat, sugar, soy, raw silk, habutae, cotton yarn, muslin, imported iron, copper, coal, charcoal, lumber, oil cake, and matches. (See tables on pp. 196-197.)

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*Index Numbers of Wholesale Prices of Staple Commodities in Tokyo.*¹

(October, 1900 = 100)

	<i>Rice</i>	<i>Wheat</i>	<i>Sugar</i>	<i>Soy</i>	<i>Raw silk</i>	<i>Habutas</i>	<i>Cotton yarn</i>	<i>Muslin</i>
1914								
July	185	121	221	99	180	87	128	94
1918								
March	218	278	278	148	168	186	871	244
June	285	287	805	(187) ²	195	152	(857)	(287)
September	804	299	(802)	158	204	169	414	259
December	852	(284)	889	189	204	(168)	(410)	269
1919								
March	(888)	(271)	848	(182)	(186)	(145)	426	280
June	855	(261)	416	182	288	171	500	318
September	420	812	576	278	295	210	682	396
December	446	882	(558)	811	879	272	710	499
1920								
March	600 ³	372	663	392	486	324	719	528
June	(411)	(280)	(661)	(288)	(259)	(222)	(458)	(841)
September	(868)	(228)	(582)	(229)	(172)	(147)	(848)	(295)
December	(269)	(209)	(414)	285	197	148	(294)	318
1921								
March	(228)	220	(879)	(254)	197	(146)	(288)	(810)
June	(228)	251	(812)	258 [*]	(194)	(189)	240	841
September	265	(226)	819	262	(189)	147	297	(820)
December	882	254	822	290	228	171	805	(284)

	<i>Iron</i> (imported)	<i>Copper</i>	<i>Coal</i>	<i>Charcoal</i>	<i>Wood</i>	<i>Oil cake</i>	<i>Matches</i>
1914							
July	69	90	142	94	104	127	98
1918							
March	411	159	867	220	187	196	218
June	461	168	878	(200)	194	216	218
September	558	177	890	248	194	(214)	227
December	(424)	190	418	264	218	215	266

¹ As reported by the Bank of Japan.

² The figures in parentheses denote the decline from the previous month.

³ The highest index numbers are in italics.

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	Iron (imported)	Copper	Coal	Charcoal	Wood	Oil cake	Matches
1919							
March	(288)	(148)	418	(241)	215	234	249
June	(271)	(146)	418	(231)	(199)	245	(230)
September	281	173	(416)	260	279	259	269
December	(254)	(168)	431	345	314	336	292
1920							
March	341	162	441	411	437	433	379
June	(266)	144	441	(398)	(411)	(373)	413
September	(227)	143	(409)	(378)	(358)	(249)	(345)
December	(204)	124	(385)	(347)	(346)	(203)	(298)
1921							
March	(175)	(106)	(356)	(334)	(345)	(179)	(256)
June	(164)	107	(313)	(319)	(337)	188	(233)
September	(147)	(104)	(295)	(309)	(315)	191	265
December	(149)	107	304	364	335	221	273

Of these staple commodities all exhibited price fluctuations occasioned partly by the general causes affecting all prices, partly by causes peculiar to themselves. With the exception of imported iron and copper, all attained a higher maximum in the post-war period than during the War. The following table shows the percentage of advance these maximum index numbers represent over those prevailing at the beginning of the War :

(1) Muslin	508 per cent	(8) Habutae	277 per cent
(2) Cotton yarn	483 per cent	(9) Oil cake	245 per cent
(3) Charcoal	366 per cent	(10) Rice	242 per cent
(4) Matches	365 per cent	(11) Sugar	214 per cent
(5) Lumber	333 per cent	(12) Coal	212 per cent
(6) Soy	307 per cent	(13) Wheat	211 per cent
(7) Raw silk	300 per cent		

If instead of comparing maximum prices with those for July, 1914, we compare with the latter the prices of December, 1921, we get the results shown in the following table :

(1) Charcoal	397 per cent	(5) Muslin	250 per cent
(2) Lumber	330 per cent	(6) Rice	240 per cent
(3) Matches	278 per cent	(7) Cotton yarn	221 per cent
(4) Soy	275 per cent	(8) Coal	218 per cent

(9) Imported iron	211 per cent	(18) Oil cake	171 per cent
(10) Wheat	206 per cent	(14) Sugar	142 per cent
(11) Habutae	201 per cent	(15) Copper	121 per cent
(12) Raw silk	194 per cent		

iii. Retail Prices.

a. *General Fluctuations.*

Retail prices are commonly far less responsive to general economic changes than wholesale prices. But the war and post-war periods released such powerful economic forces that retail prices also fluctuated greatly.

The retail index numbers of the Bank of Japan for Tokyo cover seventy staples; the base consists of the prices current in January, 1904. These staples are divided into five classes: namely, Food Products (thirty-three), Fuels (four), Building Materials (ten), Articles of Clothing (seventeen), and Miscellaneous (six). The statisticians of the Bank of Japan work out the average for each class and then proceed to obtain the general average for all five classes. We shall make use only of the general average to determine the general movements of the retail market.

At the time of the Armistice retail prices weakened, in sympathy with commerce and industry. From April, 1919, there was a constant rise of retail prices until March, 1920, in consequence of the increased buying power of the public. With the post-war reaction in business beginning in the middle of March, 1920, retail purchases were curtailed and merchants tried to dispose of their stocks as quickly as possible, while manufacturers, pressed for funds, tried to unload their stocks on the retail trade. The depression continued for almost a year. In 1921 conditions were much improved. The demand for seasonal goods was brisk in the spring; later, the short-lived boom in general business stimulated the retail market. At the close of the year sales became inactive, and prices fell. The fluctuations in retail prices may be treated under the following four periods:

The period of weakness, between November, 1918, and March, 1919.

The period of prosperity, between April, 1919, and March, 1920.

The period of collapse, between April, 1920, and February, 1921.

The period of fluctuation, between March, 1921, and December, 1921.

b. Fluctuations in the Various Classes of Commodities.

As mentioned before, the Bank of Japan's index number takes account of five classes of commodities: (1) Food Products, (2) Fuels, (3) Building Materials, (4) Articles of Clothing, and (5) Miscellaneous—tobacco, paper, matches, candles, electric bulbs, soap.

Food Products.

Fluctuations in the retail price of food products closely paralleled the general average of all the commodities indexed. The rate of increase in food prices was not, however, so marked as was that of the general average. They reached their maximum in March, 1920, and approximately maintained it until April, 1921. Then the price of rice fell. That of other cereals, as also that of soy, miso, and sake, fell with it. But the fall was not so sharp as was that of other commodity groups. From July to November, 1920, retail prices of food products showed some degree of strength, but weakened in December, as a result of a collapse of the price of sugar and sake and the depression in rice. January and February, 1921, were dull, while the period from March to June showed much activity because of an increase in seasonal demands. July and August were weak; September, October, and November active, the cause being the high price of vegetables and of grains and grain products. In December the dullness of the cereal market affected the price of food products.

Fuels.

The demand for fuel is seasonal; consequently its price always fluctuates widely. The retail price, which fell somewhat in December, 1918, rose in the following months, due to increasing consumption. The price declined in April and May. Contrary to expectation, the price began again to rise in June. This was due to the fact that the production of charcoal was cut down by a labor shortage, and shipments of coal were badly interfered with by high freight rates. Prices advanced gradually from September, 1919, to January, 1920. In February, prices remained stationary; in March, when they might have been expected to fall, they rose, owing to obstacles in the shipment of firewood and charcoal. From May the market was dull and prices low. Prices remained practically stationary from August, 1920, to January, 1921. From February, 1921, large stocks and

the diminishing requirements of the season combined to force the market down. There was little change in July and August. A rise began in September and in October and November a shortage of firewood and charcoal resulted in a marked advance in price.

Building Materials.

As a rule the demand for building materials varies greatly with general business conditions. Retail prices for this class of goods, which had shown no sign of activity from the Armistice to March, 1919, tended upward for the year between April, 1919, and March, 1920, but declined with the general business depression. The demand for building materials recovered to a certain extent in March and April, 1921, for building enterprises which had been postponed were being carried through; but the demand fell off again from May to July. Between August and November there was a brisk demand due to the erection of buildings and houses for the Peace Exhibition held at Uyeno Park in Tokyo and to a boom in tenement-house construction in the suburbs, and in places that had been swept by conflagrations. As the year closed, demands for lumber became lighter, and in December the market collapsed.

Articles of Clothing.

Like building material, articles of clothing are conspicuously affected by general economic conditions; and trade in them was depressed from December, 1918, to February, 1919. But from March, 1919, to March, 1920, it enjoyed a high degree of prosperity, owing to the generally favorable business conditions. The tone of the market in the twelvemonth commencing April, 1920, except November, was entirely different. May and June were exceptionally gloomy, due to a slump in various textile fabrics. Many bankruptcies among mill-owners and wholesale jobbers were reported. The firmness of the market in November was due to the curtailment of production, while purchases for seasonal needs were active. Between May and October, 1921, the tendency was upward. The last two months of the year were dull.

Miscellaneous.

The high prices of material and labor had the effect of gradually raising the retail price of the class of articles broadly designated

here as Miscellaneous, for the period between the Armistice and March, 1920. In April and May, 1920, prices were stationary; they began to fall in June, as a result of the collapse in the demand for paper and matches. There was no important change in the outlook until October. From November until April, 1921, the weakness of matches and candles—the former was affected by stagnation of exports and congestion of stocks, and the latter by the decline in the price of materials—produced a sympathetic weakness in many other commodities. From May to the end of the year there was no noteworthy change.

iv. The Relation between Wholesale and Retail Prices.

A study of general averages for wholesale and retail prices shows that their fluctuations were closely related up to the time of the post-bellum depression. After that they varied more widely. Wholesale prices fell continuously from March, 1920, to April, 1921; they showed activity from May to October, due to the short-lived boom; then they fell again. Because of the strength of the clothing industry the retail market grew firm in November, 1920. It was also strong from March to June, and from August to November, 1921, first because of the rise of food products, clothing and building materials and later because of an increased demand for all commodities. (See table on p. 202.)

The comparison of wholesale and retail prices, on the basis of the statistics of the Bank of Japan, is made somewhat confusing by the fact that the wholesale index numbers are based on October, 1900, and the retail numbers on January, 1904. It would be desirable to work out retail and wholesale prices on the latter basis. (See tables on pp. 202 and 203.) Calculations on this basis show that after the Armistice the retail index was always higher than the wholesale. Taking for our basis the prices at the time of the Armistice, it will be noted that, though the two indices did not show many discrepancies until March, 1920, the effect of the depressions was to force down the wholesale market more rapidly than the retail. In April, 1921, the wholesale market was 10 per cent lower than at the conclusion of the Armistice, while the retail market showed an advance of 11 per cent. Again the wholesale price was always weaker than at the time of the Armistice, during the year beginning December, 1920, except in October and November, 1921, while the retail mar-

ket remained strong. The wholesale price was 1 per cent lower in December, 1921, than at the signing of the Armistice, while the retail price was 18 per cent higher. Of the classes of commodities chosen for the calculation of wholesale index numbers, four were higher in December, 1921, than at the time of the Armistice; another four were lower; and one remained stationary. All the commodities involved in the calculation of the retail index numbers were on higher levels in December, 1921, than in the Armistice period.

Index Numbers of Wholesale Prices in Tokyo.⁴

(October, 1900 = 100)

	1918	1918	1914	1915	1916	1917	1918	1919	1920	1921
March	180	184	129	128	151	168	285	274	418	259
June	182	182	126	127	150	182	244	280	362	258
September	182	181	128	126	151	214	265	326	311	266
December	188	188	128	184	166	215	278	368	288	288

Index Numbers of Wholesale Prices in Tokyo.⁵

(October, 1900 = 100)

	<i>Cereals</i>	<i>Other foodstuffs</i>	<i>Textiles</i>	<i>Metals</i>	<i>Fuel</i>
1914 July	156	151	114	80	126
1918 March	288	218	215	301	257
June	284	227	227	321	257
September	309	244	251	373	292
December	328	274	257	(324)	334
1919 March	332	(241) [†]	(252)	(244)	346
June	335	252	278	(222)	(344)
September	391	318	326	250	362
December	426	360	394	(246)	375
1920 March	465 ⁶	376	425	290	400
June	(397)	(340)	(304)	(245)	(335)
September	(325)	(327)	(288)	(212)	(348)
December	(251)	(323)	(284)	(187)	(341)
1921 March	(226)	(288)	(215)	(160)	(321)
June	228	(288)	(215)	(157)	(313)
September	246	297	232	(158)	(307)
December	238	318	238	157	343

⁴ As reported by the Bank of Japan. ⁵ As reported by the Bank of Japan.

⁶ The highest index numbers are in italics.

[†] The figures in parentheses denote the decline from the previous month.

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	<i>Building materials</i>	<i>Special manufactures</i>	<i>Fertilizers</i>	<i>Miscellaneous goods</i>	<i>General average</i>
1914 July	102	129	114	120	126
1918 March	192	305	182	198	233
June	194	340	196	231	244
September	(187)	374	201	245	265
December	200	389	208	270	278
1919 March	200	(379)	233	(258)	(274)
June	(195)	388	233	254	280
September	229	423	258	293	326
December	271	444	313	354	368
1920 March	373	511	336	413	412
June	393	(510)	(325)	(411)	(361)
September	(355)	(468)	(235)	(334)	(311)
December	(334)	(434)	(200)	(285)	(238)
1921 March	(313)	(372)	(171)	(254)	(259)
June	(289)	(332)	173	264	(252)
September	311	(323)	187	333	265
December	(290)	(320)	213	330	233

Index Numbers of Retail Prices in Tokyo.^a

(January, 1904 = 100)

	<i>Food and drink</i>	<i>Fuel</i>	<i>Building materials</i>	<i>Articles of clothing</i>	<i>Miscellaneous goods</i>	<i>General average</i>
1918 June	221	261	234	265	217	243
September	240	279	321	234	226	263
December	264	341	(306)	293	247	281
1919 March	(253) ⁹	390	(265)	(233)	266	(275)
June	266	(353)	272	312	(265)	233
September	303	373	312	353	276	319
December	333	420	356	432	295	364
1920 March	362 ¹⁰	459	439	470	333	402
June	(349)	(454)	(404)	(369)	347	(376)
September	(339)	(425)	(325)	(323)	(334)	(337)
December	(336)	(425)	(302)	(302)	(322)	(327)
1921 March	329	411	(269)	(277)	292	309
June	353	376	279	273	(276)	319
September	339	375	239	292	(275)	(317)
December	353	451	320	309	(272)	336

^a As reported by the Bank of Japan.⁹ The figures in parentheses denote the decline from the previous month.¹⁰ The highest index numbers are in italics.

*Index Numbers of Prices in Tokyo and Osaka, and General Average for the Principal Cities of Japan.*¹¹

(1912 = 100)

	<i>General average</i>	<i>Tokyo</i>	<i>Osaka</i>
1918	101	100	102
1914	96	97	97
1915	94	91	98
1916	109	107	109
1917	145	146	148
1918	200	208	218
1919	238	237	240
1920 1st half	292	292	308
2nd half	245	218	249
1921 1st half	199	184	226
2nd half	224	202	230

3. Relation of Prices to Currency and Wages.

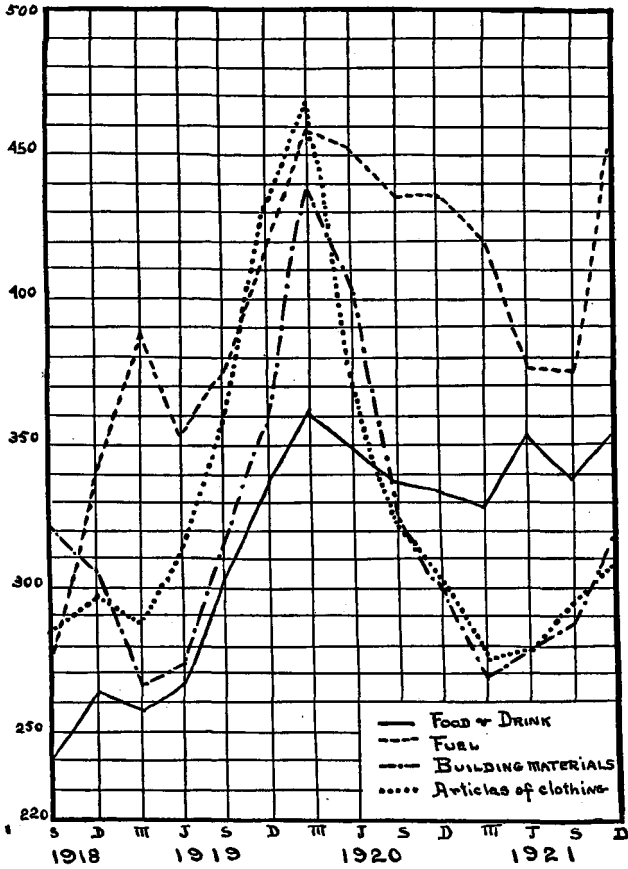
i. Prices and Currency.

In view of the fact that Japan's commodity prices rose more rapidly than those of London and New York in prosperous periods and did not drop so fast in periods of depression, those economists who lay special stress on the part played by currency in the movement of prices, jumped to the hasty conclusion that the determining influence was inflation of the currency. To discover whether this view is correct we should carefully examine the monthly records of notes issued by the Bank of Japan, which give an indication of currency conditions, and compare them with the fluctuation of wholesale and retail prices in Tokyo.

It must be remembered that the volume of notes issued by the Bank of Japan varies according to the season, that for May usually being the lowest and that for December the highest. This rule holds for the period under review, except for the year 1920. (See tables on pp. 207 and 208.)

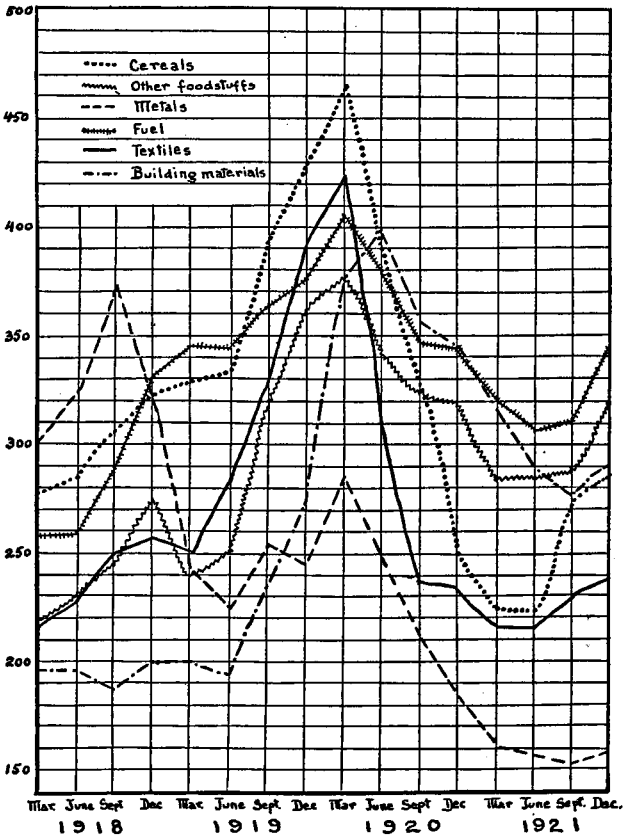
In comparing the index numbers of wholesale and retail prices in Tokyo (based on November, 1916), and the volume of notes issued, it will be observed that while both wholesale and retail prices declined in December, 1918, note issues showed some increase. They

¹¹ As reported by the Department of Agriculture and Commerce.



*Index Numbers of Retail Prices in Tokyo, 1918-1921,
as reported by the Bank of Japan.*

(January, 1904 = 100)



*Index Numbers of Wholesale Prices in Tokyo, 1918-1921,
as reported by the Bank of Japan.*

(October, 1900 = 100)

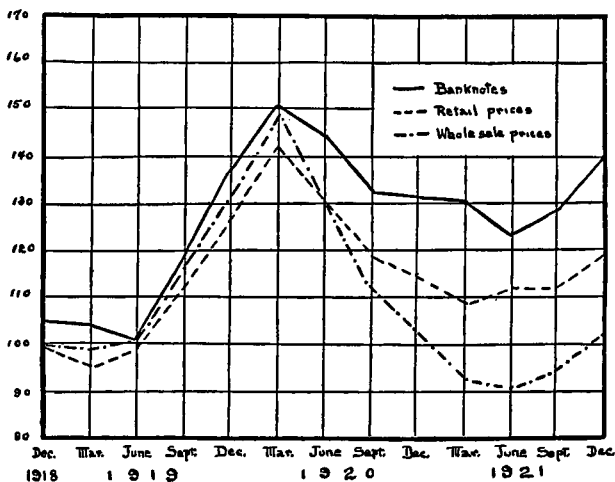
Index Numbers of Wholesale and Retail Prices in Tokyo and of the Amount of Currency issued by the Bank of Japan after the War.

(Columns 1, 3, and 5: January, 1904 = 100;
columns 2, 4, and 6: November, 1918 = 100)

		<i>Wholesale prices</i>		<i>Retail prices</i>		<i>Bank-notes issued by the Bank of Japan: Quarterly average</i>	<i>Index- number</i>
						(in ¥1,000)	
1918	June	282	..	248	..	720,264	...
	September	250	..	268	..	765,601	...
	December	268	99	281	99	844,614	105
1919	March	258	98	274	96	880,872	104
	June	265	101	288	99	861,120	101
	September	307	117	319	112	1,002,229	118
	December	347	182	364	128	1,170,852	137
1920	March	390	148	398	142	1,284,452	150
	June	341	180	372	182	1,288,000	145
	September	298	112	337	119	1,122,259	132
	December	271	108	327	115	1,124,875	132
1921	March	244	98	309	109	1,118,760	131
	June	288	91	314	112	1,055,971	124
	September	251	95	317	112	1,102,270	129
	December	267	102	336	118	1,197,810	141

fell off to a certain extent in April, and became stationary in May, while wholesale prices advanced in May, and retail prices in April. In January, 1920, note issues attained a maximum, and gradually declined in February and March. Prices moved upward during these three months. Later, on several occasions when note issues increased, prices weakened; again, at times when prices strengthened the volume of notes in circulation was growing less. From these facts it appears that changes in the volume of currency could not have been the dominant factor in price changes.

The currency factor, however, may have exerted a certain influence, along with speculation, increase in general purchasing power, and various factors affecting production.



Comparison of Index Numbers of Wholesale and Retail Prices in Tokyo with the Quarterly Index Numbers of Currency Issued by the Bank of Japan, 1918-1921.

(November, 1918 = 100)

ii. Prices and Wages.

A comprehensive study of the relation between prices and wages for the post-war period would require data for the whole of Japan. There is, however, no index of prices for the country as a whole nor has any attempt been made to collect information on wages from all parts of the country. Under the circumstances, all we can do is to present the facts for Tokyo, which may be assumed roughly to typify conditions throughout the country.

Surveys of wages paid in Tokyo are conducted most efficiently by the Chamber of Commerce of Tokyo. These surveys are confined to the city proper, and are chiefly concerned with manual labor. They are made at quarterly intervals, in March, June, September, and December,—so that we feel keenly the lack of details as to wages paid in November, 1918. (See table on p. 209.)

In March, 1919, there was a decline in wages—a result of seasonal changes in the demand for labor—for the demand is usually very large at the end of the year, and falls off in the succeeding months. From June, 1919, the general boom in business raised wages, so that the average in December was 52 per cent higher than that in the corresponding month of the preceding year. The depression of 1920 did not check the upward tendency of wages until well toward the end of the year. During the first half of 1921, wages remained stationary; in the second half, by degrees seasonal needs forced them upward. At the end of the year, they were 74 per cent higher than in December of the preceding year.

To determine the relation between wages and retail prices it is necessary to fix the relative weight of the different items of working-class consumption. As told in the first part of this volume, in May, 1916, Professor Takano, of the Tokyo Imperial University, made a survey of the average workingman's budget. He studied the monthly accounts of twenty families regarded as representative; and, according to his investigation, the cost of living could be classified and the various items weighted, as on page 98.

Changes in house rent and miscellaneous expenses are difficult to follow, and we shall disregard them and study the changes in the

Index Numbers of the Cost of Living¹³ and of Wages¹⁴ in Tokyo.

(December, 1918 = 100)

	<i>Food and drink</i>	<i>Fuel</i>	<i>Articles of clothing</i>	<i>Total cost of living</i>	<i>Wages</i>
1919 March	92	115	98	95	95
June	105	98	114	105	108
September	115	114	129	116	128
December	130	128	154	132	152
1920 March	138	140	167	142	156
June	126	131	120	124	157
September	127	121	108	122	160
December	122	121	102	119	159
1921 March	125	118	92	119	159
June	133	105	96	124	159
September	128	109	108	122	163
December	131	133	104	127	174

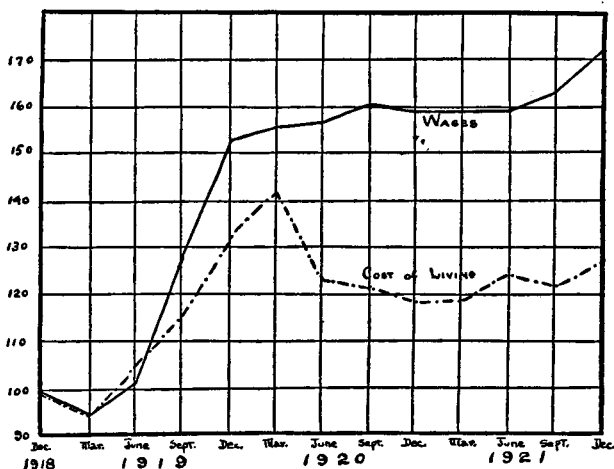
¹³ According to the investigation made by the Bank of Japan.

¹⁴ Calculated from figures collected by the Tokyo Chamber of Commerce.

other items. We shall use the retail index numbers of the Bank of Japan for food products, fuels, and articles of clothing, on the basis of December, 1918. Multiplying the index numbers by the respective weights of these commodities, we obtain the results given in the table on p. 209.

The cost of living, after showing a slight decrease in March, 1919, due to a fall in retail prices, advanced after June as a consequence of the general business prosperity. In March, 1920, the increase over the end of 1918 was 42 per cent. In the period of depression which began in March, 1920, the cost of living declined until March, 1921. After March it remained stationary. At the end of the year, it was 27 per cent above the figures for the end of 1918.

One point worth noting is that while the cost of living reached its peak in March, 1920, wages continued to increase steadily, and the rate of wage increase was greater than that of the cost of living from September, 1919. (See graph below.)



Comparison of Cost of Living and Wages in Tokyo, 1918-1921.

(December, 1918 = 100)

CONCLUSION

THE commerce and trade of Japan, though suffering some reverses after the close of the War, enjoyed better conditions in the post-war period than in the war years. This was due to the world-wide commercial activity which followed the War.

The following summary will bring out the principal points in the situation:

Foreign trade characterized by

(1) Decrease in volume and value.

Trade, which had been gradually growing during the War, began to decline in 1920, after showing a slight increase in 1919. The decline from 1921 was marked.

(2) Excess of imports.

The excess of exports which had prevailed ever since 1915 was succeeded by excess of imports, as in the pre-war period.

(3) Loss of markets.

While the War was in progress, Japanese manufactures had markets throughout the world. But owing to the reappearance of European and American merchandise and the high price of Japanese goods, Japan's market again was forced back into narrower limits.

Exports continued to increase until 1919 and imports until 1920. In these three years the excess of imports was more than ¥800,000,000. Receipts other than those from trade were dropping, too, as a result of which the specie reserve held at home, though it had shown some increase due to the actual shipment of gold accumulated abroad, began to diminish after January, 1921.

Domestic business, which had experienced a temporary depression after the close of the War, became extraordinarily active, much more so than at any period during hostilities, and culminated in the first half of 1919 in a wildly speculative movement. The most remarkable feature of this movement was the excessive rise in commodity prices. The result of this speculative movement was a reaction beginning with the collapse of March, 1920, which caused widespread distress and led to many abortive schemes for relief. In the second half of 1921 the stocks of merchandise which had been a burden upon the market were absorbed; money became easier, and a brief boom followed. But it merely retarded the radical readjustments which were really necessary.

II

**THE EFFECT OF THE WORLD WAR UPON
THE INDUSTRY OF JAPAN**

BY GOTARO OGAWA, M.P.

AUTHOR'S PREFACE

IN this study of the effects of the World War on the manufacturing industries of Japan, the center of attention is production. Internal consumption and foreign trade, factories and motive power, factory-workers and materials, investment of capital, profits, etc., are introduced as subsidiary topics and only when necessary. The policies and measures adopted by the Government with respect to industry, such as financing and the labor question, are treated by other writers in this series.

After a brief review of the war-time commercial and industrial activities of Japan a detailed study is made of those branches of industry that were markedly influenced by the War. Especial attention has been given to such industries as those of iron and steel and ship-building, which have their significance in the establishment of national prestige.

The survey is confined to the Japanese home land, except in the case of sugar, which is one of the important manufactures of Japan proper, and the principal manufacture of Formosa. Government enterprises are excluded from the study. Although some government enterprises, like the Yawata Iron Foundry, are open to the public for investigation, this is an exception, and the general rule is that, for strategical or other reasons, the operations of government industries are treated as official secrets.

Statistics of production are far from perfect in Japan. Frequently figures for values are given without the corresponding figures for quantity, or crude production figures are given without any indications as to quality. Such statistics are obviously worthless.

The tables giving statistics of foreign trade are taken from the Monthly Return of Foreign Trade of the Department of Finance, unless definitely credited to some other source. The tables for domestic trade and production are from the Statistical Reports of the Department of Agriculture and Commerce. Even the Imperial Government is without a complete file of the business reports of the various manufacturing companies for the pre-war and war-time periods.

G. O.

INTRODUCTORY

INDUSTRIAL CHANGES

1. *Capital.*

THE changes which the Great War brought about in the manufacturing industries of Japan may be examined from many different points of view. The maintenance of any industry involves the harmonious working together of many elements; and it is therefore difficult to reach a clear-cut conclusion as to an industry without giving due consideration to each element concerned. We can properly begin with a study of industrial capital, and the manner in which it illustrates the effect of the War upon the industries of Japan.

*Nominal Capital Invested in Various Branches of Business, 1913-1918.*¹
(in ¥1,000)

	1913	1914	1915	1916	1917	1918
Trading	72,529	44,675	81,611	70,275	198,849	779,800
Shipping and forwarding	44,571	41,129	40,518	48,671	148,027	276,645
Fisheries	1,972	5,665	1,689	2,892	8,066	10,066
Manufactures	117,026	92,960	51,480	280,847	705,051	989,968
Mining	22,886	22,208	5,110	48,048	145,442	862,122
Harbor improvements	.....	.....	.....	8,000	4,800	.....
Agriculture	2,688	2,862	1,188	762	2,252	84,951
Forestry	1,124	1,200	110	2,981	3,782	9,282
Railways	4,660	.....	8,600	.....	.....	7,560
Banking	88,684	52,665	28,898	41,834	172,024	187,274
Total	855,589	262,859	164,099	488,810	1,888,242	2,607,161

The total amount of nominal capital fell from ¥350,000,000 in 1913 to ¥260,000,000 and ¥160,000,000 respectively, in 1914 and 1915. In 1916 the total rose to ¥480,000,000; in 1917 to ¥1,380,000,000, and in 1918 to ¥2,600,000,000. The figures for 1918 rep-

¹ This table is based on investigations by the Bank of Japan.

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resent a seven-fold increase over 1913. All branches of business were affected by the commercial and industrial depression during the first and second war years, and by the activity of the following period. The increase in the nominal capital of manufacturing was eight-fold; that of trade was tenfold; shipping and forwarding, sixfold; mining, about sixteen-fold; while banking capital doubled.

*Paid-up Capital Invested in Various Branches of Business, 1913-1918.**

(in ¥1,000)

	1913	1914	1915	1916	1917	1918
Trading	80,214	18,914	17,156	84,954	87,175	416,99
Shipping and forwarding	88,890	28,824	24,285	28,864	88,880	184,08
Fisheries	1,741	8,290	1,186	2,062	4,975	4,82
Manufactures	94,772	85,852	48,780	182,640	832,986	454,62
Mining	11,182	26,191	7,206	24,611	104,892	207,40
Harbor improvements	.....	.....	.....	750	1,200	.....
Agriculture	828	1,447	446	651	1,462	11,01
Forestry	1,106	1,451	888	1,017	1,184	8,89
Railways	8,940	4,840	7,708	1,277	12,866	75
Banking	47,781	86,497	16,808	84,828	97,060	180,16
Total	284,908	201,805	128,857	261,154	727,080	1,418,25

The increase in aggregate paid-up capital from 1913 to 1918 was about seven-fold. Manufacturing capital increased fivefold; trading capital fourteen-fold; shipping and forwarding, sixfold; mining, twenty-fold; banking, threefold.

*Reductions in Nominal Capital and Dissolutions of Industrial Companies, 1915-1918.**

	Reductions in Capital		Companies Dissolved		Total Reductions in Nominal Capital
	Number of Companies	Amount	Number of Companies	Nominal Amount of Capital	
1915	82	¥4,948,840	85	¥6,498,860	¥11,447,200
1916	44	5,791,800	157	86,485,950	44,277,250
1917	21	8,109,000	188	52,547,220	55,655,220
1918	5	1,225,800	85	16,602,000	17,827,800

* This table is based on investigations by the Bank of Japan.

* This table is based on investigations made by the Loan and Mortgage Bank. The year 1918 covers only till November.

The table for reductions in capital covers the period between 1915 and 1918, while the table for investment covers the period 1913-1918. The data are therefore not strictly comparable. But it is worth noting that in 1915, while the amount of nominal capital increased by ¥50,000,000, reductions in capital, due to curtailment or dissolutions of business, amounted to ¥10,000,000. In 1916 the increase was ¥230,000,000, while the reduction was ¥44,000,000. The corresponding figures for 1917 were ¥700,000,000 and ¥55,000,000; those for 1918 were ¥930,000,000 and ¥17,000,000.

Comparative Investments of Capital in Manufacturing, and in Other Branches of Business.

The table below shows the relation of the capital of manufacturing industries to those of other branches of business.

*Investment of Capital, 1913-1918.**

	<i>Number of companies</i>	<i>Nominal capital</i>	<i>Paid-up capital</i>
		<i>(in thousands of yen)</i>	
<i>Agriculture:</i>			
1913	496	.....	27,651
1914	491	.....	27,235
1915	492	46,096	81,786
1916	485	48,907	81,746
1917	587	76,171	29,486
1918	624	77,728	81,275
<i>Trading:</i>			
1913	8,813	.....	98,122
1914	9,928	.....	974,021
1915	9,948	1,476,056	1,010,940
1916	10,551	1,552,994	1,071,424
1917	10,714	1,918,170	1,085,085
1918	12,182	2,984,145	1,545,590
<i>Manufactures:</i>			
1913	4,788	.....	756,567
1914	5,069	.....	668,024
1915	5,489	1,189,898	870,540
1916	5,708	1,476,792	849,120
1917	6,877	1,826,960	1,071,414
1918	8,221	2,757,184	1,595,802

* This table is based on investigations made by the Loan and Mortgage Bank. The year 1918 covers only till November.

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	<i>Number of companies</i>	<i>Nominal capital</i> (in thousands of yen)	<i>Paid-up capital</i>
<i>Mining:</i>			
1913	173	.....	157,787
1914	197	.....	165,546
1915	...	.....	.....
1916	284	.....	207,989
1917	288	445,810	271,888
1918	857	755,467	428,108
<i>Shipping and forwarding:</i>			
1913	1,136	.....	210,061
1914	1,178	.....	233,961
1915	1,225	842,094	245,508
1916	1,241	879,149	273,795
1917	1,430	511,262	856,066
1918	1,694	858,122	542,358
<i>Total:</i>			
1913	15,406	.....	1,983,232
1914	16,858	.....	2,068,786
1915	17,149	3,054,140	2,167,724
1916	18,219	3,452,841	2,434,074
1917	19,696	4,778,874	2,763,834
1918	28,028	7,881,641	4,143,129

The paid-up capital of all industries, ¥1,900,000,000 for 1913, increased very slowly through 1914 and 1915. The upward turn, hardly noticeable in 1916, became marked in 1917 and 1918. In 1918 the aggregate increased to ¥4,100,000,000, rather more than a 100 per cent increase over 1914. Capital invested in manufacturing industries, which declined from ¥750,000,000 in 1913 to ¥660,000,000 in 1914, rose steadily and reached ¥1,000,000,000 in 1917 and ¥1,500,000,000 in 1918. Trading reached ¥1,540,000,000 in 1918; agriculture ¥30,000,000, having had a paltry growth of ¥4,000,000; mining trebled; shipping and forwarding increased 250 per cent.

2. *Factories.*

With the exception of 1915 every year showed an increase in the number of factories. Little importance, however, can be attached to mere numbers, without reference to their size. A better indication of true producing capacity is motive power. In 1913 the aggregate

horsepower was 1,100,000, while in 1918 it was 2,000,000, having almost doubled. Another indication of productive power is the number of workers employed. We may disregard the outside worker, as he had no part in the operation of the plant, and therefore did not directly contribute toward production. In 1913 the number of inside workers was 900,000, and in 1918 it was 1,400,000, an increase of about 50 per cent.

The Development of Manufacturing Capacity, 1913-1918.^a

	Number of factories	Power-producing machines		Number of factory workers	Number of outside workers
		Number	Horsepower		
1913	15,811	19,084	1,122,597	916,252	184,928
1914	17,062	18,845	916,828	858,964	57,489
1915	16,809	19,991	1,065,724	910,799	50,871
1916	19,299	25,646	1,186,218	1,095,801	62,289
1917	20,966	32,608	2,095,588	1,280,964	75,551
1918	22,891	41,559	2,001,768	1,409,196	95,565
Average for 1914-1918	19,805	27,729	1,458,224	1,110,045	68,848

Mills operated without mechanical power remained practically stationary in number through the period. Those operated with mechanical power increased by nearly 50 per cent. Ordinary types of steam engines dropped from 510,000 h.p. to 260,000 h.p., while turbine engines increased from 160,000 h.p. to 280,000 h.p., or by 70 per cent. Gas engines remained almost stationary at 40,000 h.p.; oil engines rose from 6,000 h.p. to 13,000 h.p.; water turbines from 180,000 h.p. to 300,000 h.p. (slightly less than 70 per cent); Pelton wheels from 90,000 h.p. to 120,000 h.p. (over 30 per cent); Japanese water wheels from 2,000 h.p. to 35,000 h.p. Electric motors increased from 290,000 h.p. to 910,000. As for factory workers, male workers increased from 370,000 to 640,000, about 80 per cent, and female workers from 540,000 to 760,000, about 40 per cent. The number of workers of both sexes under fifteen showed a decrease.

^a The table deals only with those factories employing more than ten workers.

MANUFACTURING INDUSTRIES DURING THE WAR

CHAPTER I

MANUFACTURES OF METALS

I. Iron.

Before the War.

IRON-FOUNDING has long been practiced in Japan. The present study will, however, disregard its earlier phases, and take for its starting point the close of the war with China, when a government foundry was set up at Yawata in Northern Kyushiu. For the five years between 1896 and 1900 the production of pig iron ranged from 20,000 to 26,000 tons a year, the average being 23,000 tons. In 1901, when the Yawata works were put in operation, the tonnage made a rapid advance to 56,000 tons. For the five years ending 1905 production ranged between 30,000 and 79,000 tons, averaging 54,000 tons a year, an increase of 136 per cent over the average for 1896-1900. In the period 1906-1910 production ranged from 144,000 to 189,000 tons, with a yearly average of 158,000 tons, an increase of 191 per cent over the average for the preceding five-year period. For the three years 1911-1913 the average production was 228,000 tons, an increase of 44 per cent over the average for 1906-1910.

The increased production of pig iron fell far short of supplying the demand. Imports steadily increased, from an average of 39,000 tons in 1896-1900, to an average of 233,000 tons for 1911-1913.

The demand for pig iron may be classified under two main heads: (1) as raw material for manufactures of steel, and (2) for castings, iron pipe, ship fittings, etc.¹ Prior to 1905 the available data do not distinguish between the two sources of demand. We may safely estimate the average annual consumption for manufactures of steel at 59,000 tons for the five years ending 1905. The average for 1906-1910 was 130,000 tons, an increase of 130 per cent, and the average for 1911-1913 was 230,000 tons, an increase of 70 per cent. The con-

¹ For the influence of the shipbuilding program on the policy of steel and iron importation. See below under Shipping.

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sumption of pig iron for castings, etc., increased from an estimated average of 59,000 tons for 1900-1905 to 120,000 tons for 1906-1910, and 220,000 tons for 1911-1913.

In the period 1896-1900 the steel production of Japan ranged between 900 and 1,100 tons annually. In 1901, when the Imperial Government began to operate its foundry at Yawata, Kyushiu, the quantity rose to 6,000 tons. Production increased to 31,000 tons in 1902, and to 71,000 tons in 1905, with an average for the entire period of 41,000 tons. Between 1906 and 1910 production ranged from 69,000 tons to 167,000 tons, and averaged 106,000 tons. Between 1911 and 1913 production ranged from 191,000 to 254,000 tons, with an average of 222,000 tons. The ratio between home-produced steel and the total consumption (production plus imports) showed a steady improvement in favor of production. The average production for 1896-1900 represented 0.5 per cent; for 1901-1905, 14.3 per cent; for 1906-1910, 21.8 per cent; and for 1911-1913, 28.4 per cent. The imports for 1896-1900 averaged 233,000 tons; for 1901-1905, 248,000 tons; for 1906-1910, 279,000 tons; for 1911-1913, 557,000 tons. The consumption of steel was 234,000 tons for the period 1896-1900; 289,000 tons for 1901-1905; 485,000 tons for 1906-1910; and 780,000 tons for 1911-1912.

During the War.
General Survey.
Pig Iron, 1914-1918.²
(in metric tons)

	<i>Production</i>	<i>Imports and ship- ments from colonies</i>	<i>Total</i>	<i>Consumed by steel manu- facture</i>	<i>Exports and ship- ments to colonies</i>	<i>Consumed by manufactures of castings, iron pipes, ship fittings, etc.</i>
Average for						
1911-1918	228,822	288,654	462,476	287,596	570	224,809
1914	301,726	172,184	478,860	297,280	187	174,760
1915	320,627	172,685	498,812	388,488	...	154,829
1916,	391,892	232,048	623,940	.....	6	.....
1917	501,402	232,252	733,654	.....	888	.....
1918	694,888	225,100	895,100	.....	210	.....
Average	442,097	206,848	648,940	.....	157	.....
Percentage of increase over, or decrease (—) below, the average for 1911-1918	98.2	-18.0	40.8	.....	-268.0	.....

² The figures up to 1915 are based on the investigations of the Commission on the Iron and Steel Industry, and those for the years following on the investigations of the Bureau of Mines of the Department of Agriculture and Commerce, which investigations were made, however, in conformity with the methods of investigation prescribed by the Commission.

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Steel, 1914-1918.

(in metric tons)

	<i>Production</i>	<i>Imports and ship- ments from colonies</i>	<i>Total (a)</i>	<i>Exports and ship- ments to colonies (b)</i>	<i>Differences between (a) and (b) or actual tonnage of supplies</i>
Average for					
1911-1918	222,182	557,929	780,061	82,005	748,065
1914	282,516	408,467	690,988	29,622	661,861
1915	885,509	248,882	578,891	25,000	558,891
1916	884,025	424,651	808,676	19,025	789,651
1917	529,614	675,670	1,205,284	22,266	1,188,018
1918	550,000	666,854	1,216,854	28,688	1,188,216
Average	416,882	483,804	900,186	24,910	875,227
Percentage of increase over, or decrease (-) below, the average for 1911-1918	87.4	-15.8	16.4	-28.5	17.0

It has been indicated above that for each five-year period following 1896 the production of pig iron showed a gain of 120 to 190 per cent, the exception being the last three years, when the rate of increase fell to 40 per cent. The industry developed rapidly after the outbreak of the War. The increase for the years 1914-1918 was about 93 per cent over the figures for 1911-1913.

Imports of pig iron were to a large extent displaced by the home production. Whereas the period 1911-1913 showed average imports of 230,000 tons the average for the war period was only 200,000 tons. The sum of home production and imports (inclusive of shipments from the colonies), or the total consumption—the term is taken in its widest significance—averaged 640,000 tons, the low and high points being 470,000 and 890,000 tons. The increase over pre-war years was 40 per cent. The ratio of home production to total consumption during the War was as follows:

1911-1918 (average)	49.4 per cent
1914	68.5 per cent
1915	64.9 per cent
1916	62.8 per cent

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1917	68.8 per cent
1918	74.8 per cent
1914-1918 (average)	67.8 per cent

Steel production during the War averaged 416,000 tons a year, or 87 per cent more than the average tonnage of the three pre-war years. The output of 1914, 280,000 tons, was 30,000 tons greater than that of 1913; 1915, with 330,000 tons, represented an increase of 50,000 over 1914; 1916, with 380,000 tons, showed a 50,000 increase over 1915. The year 1917 reached a tonnage of 529,000, or 149,000 tons over that of 1916; and 1918, with a record of 550,000, was 21,000 tons in excess of 1917. Imports of steel, which had stood at 640,000 tons in 1912, and 540,000 tons in 1913, dropped to 410,000 tons in 1914, and to 240,000 tons in 1915; but the tonnage rose to 670,000 in 1917 and to 660,000 tons in 1918, the average for the war period standing at 480,000 tons as compared with an average of 550,000 tons for the three pre-war years, a decline of 15 per cent.

The total consumption, or home production plus imports, ranged for the war years between 570,000 and 1,200,000 tons, the average being 900,000 tons. The ratio of home production to total consumption was as follows:^a

1911-1913 (average)	28.4 per cent
1914	40.8 per cent
1915	57.9 per cent
1916	47.4 per cent
1917	48.9 per cent
1918	45.8 per cent
1914-1918 (average)	46.2 per cent

Promotion of New Enterprises.

Before the War there were 22 plants with an aggregate paid-up capital of ¥112,319,000. Of these, 8 were able to produce upward of 5,000 tons a year each and had a combined capital of ¥110,519,000, while the remaining 14 produced less than 5,000 tons each, and had a total combined capital of ¥1,800,000. During the War the capital of the 8 mills was increased to ¥142,753,000, while 3 of the other 14 mills so developed as to rank with the 8.

The aggregate paid-up capital of the 14 minor mills increased

^a No allowance is made here for exports, since these were insignificant.

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from ¥1,800,000 to ¥4,715,000. The aggregate paid-up capital of all mills (excepting 3 for which the capital cannot be determined) reached ¥147,468,000.

No new mill was opened in the first war year, due to the prevailing economic depression. In 1915, 6 plants were incorporated with a paid-up capital of ¥22,000,000, and, in 1916, 7 more with ¥15,000,000. In 1917 the iron industry of Japan was at the height of prosperity. Thirteen new mills with a total capital of ¥42,000,000 were established. In 1918, 6 capitalized at ¥4,000,000 were launched. The decline in the rate of development may be explained partly by the fact that the industry was approaching a condition of full employment in view of the needs of the nation and the supply of materials, and partly by the fact that the return of peace was anticipated.

During the War, 3 mills, each with a capacity of over 5,000 tons a year, were opened in the colonies, with a capital of ¥42,000,000.

The War-time Development of the Iron and Steel Industry of Japan.

	1913		1918	
	Number of companies	Paid-up capital	Number of companies	Paid-up capital
Owned by Government	1	¥ 67,219,000	1	¥ 77,108,000
Private companies	21	90,701,000	208	214,848,000 ^a
Total	22	¥157,920,000	209	¥291,451,000
I. Mills with a capacity of 5,000 tons or more	7	¥ 48,800,000 ^b	42	¥151,872,000 ^b
(1) Existing before the War	..	.....	10	66,400,000 ^b
a. Producing 5,000 tons or more a year, before the War	..	.....	7	65,650,000 ^b
b. Increased production to 5,000 tons or more during the War	..	.....	3	750,000 ^b
(2) Opened during the War	..	.....	32	84,972,000 ^b
a. In 1915	..	.....	6	22,727,000
b. In 1916	..	.....	7	15,287,000 ^b

^a Nominal capital ¥448,000,000.

^b Exclusive of the capital of the Hyogo Works of the Kawasaki Shipbuilding & Dockyard Co.

^c Excluding capital not ascertainable.

MANUFACTURERS OF METAL

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	1913		1918	
	Number of companies	Paid-up capital	Number of companies	Paid-up capital
c. In 1917	..	.....	18	42,788,000 ⁶
d. In 1918	..	.....	6	4,225,000 ⁶
II. Mills producing less than 5,000 tons	14	47,401,000 ⁷	166	62,975,000
(1) Existing before the War	..	.....	11	8,965,000
(2) Newly-established mills rated as most important	..	.....	9	10,289,000
(3) Others	..	.....	146	48,772,000 ⁸
Total number of mills capable of producing 5,000 tons or more, established in the Colonies.				
(1) In Korea	..	.....	1	¥ 15,000,000
(2) In Manchuria	..	.....	2	27,297,000
Total			3	¥ 42,297,000

The war-time development of the physical plant of the iron and steel industry is indicated by the comparative increases in the number and capacity of smelting furnaces of all kinds. Before the War, there were in all 17 blast furnaces, 46 open hearth furnaces, 3 converters, 4 crucible furnaces, and 4 electric furnaces. The converters and open hearth furnaces had, respectively, aggregate tonnage-producing capacities per diem of 20, 50, and 1,043. At the end of the War there were 50 blast furnaces, 93 open hearth furnaces, 17 converters, 47 crucible furnaces, and 201 electric furnaces. And the converters, blast furnaces, and open hearth furnaces could, respectively, produce tonnages of 4,159, 2,433, and 2,066 a day. Before the War only 4 blast furnaces had capacities running from 210 to 250 tons, while 10 ranged between 10 and 80, and 3 below 10 tons. By the end of 1918 there were 9 with capacities ranging from 100 to 270. In Korea and Manchuria there were two 50-ton "hira-ro" (flat furnaces), and three of the same sort of 60 tons; two 130-ton blast furnaces and one of 250 tons.

⁷ Including the capital of the Hyogo Works of the Kawasaki Shipbuilding & Dockyard Co.

⁸ In the Colonies.

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Prices of Iron and Manufacturers' Profits.

The force making for the rapid expansion of the Japanese iron and steel industry was the extraordinary profit derived, resulting in part from the lowering in the cost of production brought about by the Law for the Encouragement of the Iron and Steel Industry, and in part by the great rise in the price of iron and its products. The facts as to the rise in prices are shown in the following table:

*Prices of Iron and Steel, 1912-1919.**

	1912	1913	1914	1915	1916	1917	1918	1919
	(in yen)							
	<i>Pig Iron</i>							
January	44.	49.	46.	49.	68.	95.	330.	330.
February	44.	50.	46.	45.	72.	100.	346.	250.
March	44.	51.	46.	48.	81.	121.	351.	204.
April	44.	51.	46.	46.	92.	170.	359.	155.
May	42.	51.	46.	46.	103.	188.	365.	145.
June	46.	51.	46.	46.	103.	188.	394.	125.
July	46.	51.	46.	46.	103.	210.	440.	...
August	46.	49.	45.	46.	100.	275.	470.	...
September	48.	49.	55.	46.	100.	317.	500.	...
October	48.	48.	55.	46.	95.	327.	480.	...
November	48.	47.	51.	47.	95.	327.	450.	...
December	48.	46.	47.	51.	95.	315.	420.	...
	<i>Sheet steel (4' x 8' x 1")</i>							
January	3.75	3.55	3.02	3.40	13.00	12.00	25.20	13.20
February	3.67	3.57	3.00	3.50	11.50	13.20	23.00	11.20
March	3.53	3.52	2.97	4.03	10.50	13.70	22.50	11.20
April	3.45	3.50	2.90	4.20	10.42	16.17	29.00	11.00
May	3.40	3.50	2.90	4.00	10.65	16.93	30.00	11.20
June	3.40	3.45	2.87	3.90	9.50	17.33	36.70	10.90
July	3.35	3.35	2.80	4.05	7.33	26.33	46.00	....
August	3.30	3.25	3.57	4.50	9.43	33.30	48.30	....
September	3.37	3.20	3.77	5.03	10.27	35.20	42.00	....
October	3.55	3.13	3.50	5.93	10.50	26.70	35.00	....
November	3.55	3.25	3.40	9.00	10.70	20.20	25.03	....
December	3.50	3.10	3.43	16.17	11.50	20.20	13.20	....

* The figures for pig iron are based on the reports of the Murakami Shoten, and those for steel products on the reports of the Morioka Shoten. The brand of pig iron quoted is Kamaishi coke No. 3, in tons of 2,240 lbs. Prices for steel are quoted by the ten kwan unit (the kwan being 8.267 lbs.).

Kamaishi coke No. 3, the representative brand of Japanese pig iron, rose from the pre-war level of ¥46 or ¥47 to ¥55 in September, 1914. Uneasiness as to the future course of the War held the market back somewhat throughout the rest of the year. In 1916 a shortage of supply gradually appeared and the price rose to ¥70 in February, ¥80 in March, ¥90 in April, and ¥103 in May. A steel embargo was announced by the British Government in April, 1916, but exports from India were not restricted and made the market much easier. The price declined and hung about ¥95 till the beginning of 1917. At that time the Indian Government suddenly put a steel embargo into effect. The price of pig iron in Japan rose from ¥121 in March to ¥183 in June. In July the Washington Government gave notice of an embargo, and all the channels of import were finally closed. The price, quoted at ¥210 for July, advanced to ¥317 for September, and kept on rising until it reached ¥500, or ten times the pre-war price, in September, 1918. When the Armistice was signed, the price dropped to ¥480; in the same month the news of the removal of the steel embargo in America brought about a further reduction to ¥450. The year ended with the market utterly demoralized.

In the steel market the train of events was somewhat different. Taking the 0.4" round bar for an example, during 1913 and the first half of 1914, the market ranged from ¥2.40 to ¥2.50 per ten kwan, occasionally rising above three yen. When the War broke out the steel market was affected by the struggle of consumers to obtain it, and the price reached ¥3.37 in August and ¥3.50 in September. Subsequently it fell to about ¥3.30, and remained at about that figure until the close of the year. Early in 1915 stocks that had been accumulated by dealers were exhausted; and since shipments from Germany and Belgium were shut off, the Japanese market fell under the complete domination of the British and American exporters. With the rise in prices in those countries Japanese prices rose rapidly, reaching ¥5.43 in May. Later a reactionary movement set in, bringing the price down to ¥4.40. In October it rose to ¥5.10; in November to ¥7.67, and in December to ¥13. This was due to a shortage of stocks resulting from the obstruction of shipping in the Panama Canal, and the discontinuation of sales by the American steel manufacturers. An entirely new situation developed in 1916. The carrying out of large engineering schemes, requiring

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enormous amounts of steel, came to an end; steel consumption in the provinces fell off; dealers who had made purchases in anticipation of a future rise in price disposed of their holdings; orders which importers had placed with the mills in the manufacturing countries in the preceding year, when the market was still much lower, began to be filled; some of the increases of plant which mill-owners had had under way were opened for business. America had taken the place of Germany and Belgium in supplying the Japanese market, thus counteracting the effects of the restrictions upon British exports. The price of steel dropped to ¥5.67 in July, 1916. Soon the market began to improve, through the firmness of American steel, the decrease in the volume of imports, and curtailment of production by the home mills. In July, 1917, when the Washington Government put into effect its steel embargo, all access to foreign sources of supply was severed, and the price rose to ¥14.93, and to ¥21 in August. In September prices weakened and in December they fell to ¥12.20. After a period of quiet they rose again, reaching ¥17 in September, 1919. In November came the armistice; also the removal of the steel embargo by the American Government; and in December steel was quoted at ¥8.70.

A comparison of the profits of the industry for the war period and for periods preceding the War would be illuminating. Unfortunately pre-war information is limited and fragmentary. Such figures as are obtainable are for only two large companies. One, the Kabushiki Kaisha Niigata Seiko-jyo, capitalized at ¥2,000,000, paid dividends as follows: 1910, second half year, 5 per cent; 1911, first half year, 3 per cent, second half year, 6.2 per cent; 1912, first half, 5.2, second half, 7.2; 1913, first half, 8, second half, 10. The other company, the Kabushiki Kaisha Kobe Seiko-jyo, capitalized at ¥1,400,000, in the second half year of 1912 paid a dividend of 9 per cent. It paid 9 per cent in the first half of 1913, and 8 per cent in the second half of 1913.

II. Profits of the Iron and Steel Industry, July-December, 1918.

<i>Manufacturer</i>	<i>Capital</i>	<i>Paid-up capital</i>	<i>Reserve</i>	<i>Carried forward</i>	<i>Rate of dividend</i>
Hokkaido Seitetsu					
Kabushiki Kaisha	¥15,000,000	¥ 9,000,000	¥ 628,000	¥ 79,057	10%
Kobe Seiko-jyo	10,000,000	6,250,000	998,000	101,621	50%
Kabushiki Kaisha					
Nihon Juko-jyo	500,000	487,500	810,000	61,695	60%
Tanaka Mining					
Company	20,000,000	20,000,000	1,400,000	718,878	4%
Kabushiki Kaisha					
Oshima Seiko-jyo	6,000,000	2,400,000	100,000	118,580	25%
Tokyo Kozai					
Kabushiki Kaisha	8,000,000	2,000,000	915,664	81,186	15%
Nitto Seiko					
Kabushiki Kaisha	5,000,000	8,000,000	81,180	51,788	20%
Kabushiki Kaisha					
Nihon-jyo	15,000,000	15,000,000	1,480,000	625,909	15%
Fuji Seiko					
Kabushiki Kaisha	6,000,000	5,888,500	181,970	118,785	80%
Nihon Kokan					
Kabushiki Kaisha	16,000,000	9,400,000	1,540,000	1,675,860	50%
Kabushiki Kaisha					
Sumitomo Juko-jyo	6,000,000	6,000,000	1,510,000	780,199	5%
Osaka Seitetsu					
Kabushiki Kaisha	5,000,000	2,027,810	1,176,868	89,912	20%
Fujita Mining					
Company	80,000,000	15,000,000	224,000	889,542	5%
Kuwahara Tetsuko					
Kabushiki Kaisha	500,000	500,000	88,000	5,889	40%
Nihon Kosokudo-ko					
Kabushiki Kaisha	8,000,000	750,000	5,544	14,582	10%
Takata Mining					
Company	10,000,000	4,500,000	80,000	120,296	7%
Sanyo Seitetsu					
Kabushiki Kaisha	800,000	800,000	21,000	18,841	20%
Nihon Tokushu-ko					
Goshi Gaisha	800,000	800,000	509,500	49,817	5%
Tobata I-mono					
Kabushiki Kaisha	1,000,000	1,000,000	270,500	808,161	15%
Kabushiki Kaisha					
Yasugi Seiko-jyo	1,500,000	750,000	227,500	28,418	16%
Kuri-no-ki Tetsan					
Kabushiki Kaisha	200,000	200,000	146,880	48,890	100%
Sennin Seitetsu-jyo	2,000,000	2,000,000	41,860	81,984	60%

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<i>Manufacturer</i>	<i>Capital</i>	<i>Paid-up capital</i>	<i>Reserve</i>	<i>Carried forward</i>	<i>Rate of dividend</i>
Chugoku Seitetsu Kabushiki Kaisha	500,000	500,000	88,150	8,952	50%
Tojyo Seitetsu Kabushiki Kaisha	100,000	100,000	8,000	5,678	80%
Tokai Kogyo Kabushiki Kaisha	8,000,000	2,289,875	50,000	61,158	14%
Osaka Teppan Seizo Kabushiki Kaisha	4,000,000	2,500,000	226,550	22,704	20%
Teikoku I-mono Kabushiki Kaisha	2,000,000	1,000,000	40,000	48,412	20%
Kabushiki Kaisha					
Denki Seiko-jyo	2,500,000	1,500,000	69,070	46,879	80%
Yonago Seiko-jyo	1,250,000	687,500	80,000	28,822	10%
Toyo Seiko-jyo	1,000,000	400,000	11,400	6,888	10%
Nihon Kotetsu Kabushiki Kaisha	1,000,000	250,000	8,000	2,899	16%
Okura Mining Company	20,000,000	6,500,000	170,000	67,998	10%
Tokyo Sen-tetsu Kabushiki Kaisha	750,000	750,000	180,764	8,865	20%
Teikoku Seibyō Kabushiki Kaisha	2,000,000	900,000	24,000	12,884	20%

2. Zinc.

Before the War.

Zinc is one of the very young industries of Japan. Prior to 1895, zinc ore was regarded as worthless, and in the smelting of other metals (if it happened to occur), it was thrown away. Subsequently the ore attracted the attention of some foreign merchants in Yokohama, who undertook to secure a market for it abroad. By 1905, it began to come into its own; and before the outbreak of the War, it occupied a prominent position in the export list.

The first attempt at the smelting and refining of zinc was undertaken at Kosaka, Akita, in 1899, when a mining company there tried to treat ores by the wet process. The business did not prove profitable, and was soon given up. In 1905, the company at Kosaka made a renewed effort, carrying on experiments with both the dry and the wet processes. They were successful with the wet process, and a smelter with a capacity of 10,000 kin¹⁰ of manufactured zinc a

¹⁰ The kin equals 1.82 lbs.

month was established. Almost simultaneously, the Ayen Denkai Kogyo Kabushiki Kaisha established a plant at Yasoshima, Higashi Kambara, Echigo, the process adopted being likewise the wet one. In the following year the Government Steel Foundry at Yawata, Kyushiu, which had been conducting successful experiments in the evaporation of the ore, entered the business, using the dry process. In 1907, the Osaka Ayen Kogyo Kabushiki Kaisha constructed works at Amagasaki, near Osaka; in 1913 the Mitsui family installed a dry-process plant at O-o-muda, Fukuoka, for the reduction of the ore from the Kamioka Mines. In June, 1913, refined zinc was first exported by Messrs. Takata, one of the foremost Japanese firms in foreign trade, acting as agent for the Ayen Denkai Kogyo. The following table shows the growth of the industry.

Production, Imports, and Exports of Zinc Ore and Manufactures of Zinc before the War.

	<i>Ore</i>			<i>Metal</i>		
	<i>Production Tons</i>	<i>Exports Tons</i>	<i>Imports Tons</i>	<i>Production Kin</i>	<i>Exports Kin</i>	<i>Imports Kin</i>
1905	Unknown	12,688	....	.....	....	26,884,696
1906	14,259	19,275	....	.....	....	18,784,600
1907	19,641	19,768	....	.....	....	18,726,746
1908	18,277	14,891	....	.....	....	14,881,599
1909	19,178	18,825	....	.....	....	14,268,860
1910	21,917	22,297	....	.....	....	17,872,872
1911	28,554	22,917	....	.....	....	19,164,788
1912	85,742	80,780	....	.....	....	22,510,612
1913	84,676	27,452	....	2,515,778	....	22,552,420

The output of ore gradually increased, but the refining of zinc remained in the experimental stage down to 1913.

During the War.

The development of the refining industry was rapid during the War. The following table deals with the output of, and the trade in the ore and metal.

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Production, Imports, and Exports of Zinc Ore and Metallic Zinc during the War.

	<i>Ore</i>			<i>Production</i> Kin	<i>Metal</i>	
	<i>Production</i> Tons	<i>Exports</i> Tons	<i>Imports</i> Tons		<i>Exports</i> Kin	<i>Imports</i> Kin
1914	86,878	14,155	.....	9,801,491	9,669,180	18,669,261
1915	88,780	6,121	28,648	85,218,951	8,992,860	14,118,758
1916	52,452	2,187	79,669	64,989,177	38,689,840	9,618,698
1917	62,000	163	98,851	91,197,827	61,889,759	10,757,491
1918	69,281	....	59,889	66,525,805	28,804,589	7,715,586

The pre-war industry was carried on by five companies, maintaining one smelter each, and their aggregate output was limited. Not a single firm was launched in 1914. The Osaka Ayen, the zinc refinery of Takata Shokai and Suzuki Shoten were established in 1915, and operated six mills. In 1916, the refineries of the Kuhara Mining Company, the Ayen Denkai, Nihon, Ayen, Mogi, Iwabuchi, and the Tsuboi were established, each maintaining one mill. In 1917, the Ayen Kogyo, the Takachiho Seiren, Kwanto Sanso, and Denki Ayen, organized four more mills. According to an investigation made in October, 1916, these manufacturers consumed 165,000 tons of ores and turned out 82,000,000 kin of metal per year, as compared with 2,500,000 kin in 1912. The peak of the industry's prosperity was reached in 1917. A considerable decline in production characterized the following years.

The Ore Supply.

The output of ore was estimated at 36,000 tons in 1913, 88,000 tons in 1914, 52,000 tons in 1915, 62,000 tons in 1917, and 69,000 tons in 1918. But ore consumption mounted to 165,000 tons in the year ending October, 1916. Japan had, indeed, become a heavy importer of zinc ores. They rose from 28,000 tons in 1915, to 79,000 tons in 1916, and to 98,000 tons in 1917, but declined to 59,000 tons for 1918. The following table gives the imports during the War.

Zinc Ore Imports Classified by Countries.

<i>Imported from</i>	<i>Mined at</i>	<i>1915</i> Tons	<i>1916</i> Tons	<i>1917</i> Tons	<i>1918</i> Tons
Australia	Broken Hill and vicinity	2,472	47,077	68,654	44,885
Indo-China	Haifeng	6,542	17,825	17,401	18,416
Siberia	Titvhe	10,623	9,863	4,112	1,846
China	Suikow, Hunan	7,448	5,404	1,752	178
Kwantung Peninsula		....	....	....	80
Philippine Islands		....	....	1,480	....
India		1,555	....	....	....
Straits Settlements		....	....	2	....
In warehouses ¹¹		....	....	....	89
Other sources		8	....	....	89
Total		28,648	79,669	98,851	59,889

Australia provided Japan with 2,000 tons of ore in 1915, 47,000 tons in 1916, 68,000 tons in 1917, and 44,000 tons in 1918. The output of Australian zinc ores is said to have reached over half a million tons in 1911, 1912, 1913, and 360,000 tons in 1914. Before the War the greater part of the Australian ore production, save for some 15,000 tons for local use, had always been sent to Germany, Belgium, and England. When the War broke out, exports to Germany and Belgium ceased, and the place of those countries was taken by Japan. The activities of the Japanese industry aroused the concern of Great Britain. In July, 1916, England and Australia ratified a pact to the following effect:

1. The British Government guarantees annually to purchase 100,000 tons of Australian ore, not only during the War, but for a period of ten years after the end of it.

2. A refinery will be opened in Tasmania, and the British Government will annually purchase 45,000 tons of the output of the afore-said refinery, for a period of ten years.

3. The British Government will grant a loan of £500,000 for the establishment of the said refinery.

4. As regards other nations who seek ore supplies from Australia, France and Belgium shall have prior rights over Japan.

¹¹ Held for re-export.

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The demand for ore on the part of England and Australia will, it is estimated, amount to something like 235,000 tons a year. If the Australian output amounts to 300,000 tons, for France, Belgium, and Japan there will be only 65,000 tons; if the output rises to 400,000 tons there will be 165,000 tons. There is, accordingly, not much to be said for Japan's chance of getting ore supplies from Australia. Although the agreement was made in 1916, there were various obstacles in the way of its being put into effect; and in 1917 Japanese imports increased to 68,000 tons. But the effects of the Anglo-Australian pact became evident in 1918, when Japanese imports dropped to 44,000 tons.

Next to Australia as a source of ore supplies is Indo-China. This country exported to Japan 6,000 tons in 1915, 17,000 tons in 1916, 17,000 tons in 1917, and 13,000 tons in 1918. The Indo-Chinese output was estimated at 30,000 tons in 1916. France, the mother country, was urgently in need of zinc ore, and soon after the ratification of the Anglo-Australian pact proclaimed an embargo on ore exports from Indo-China. Japan had, therefore lost its two largest sources of supply; the quality of home-produced ore was anything but satisfactory; and the prospect of getting supplies from such countries as Siberia and China was poor.

The Market for Zinc.

The zinc manufactures of Japan were partly exported and partly retained for home consumption. Details are given below:

Production and Disposal of Zinc.

(in kin of 1.32 lbs.)

	1915	1916	1917	1918
Production	85,218,951	64,989,177	91,197,827	66,529,805
Exports ¹²	8,992,860	88,689,840	61,889,759	28,804,689
Retained in Japan	26,226,091	26,299,837	29,809,568	88,221,116

¹² Because export figures for 1915 are taken from the reports of the customs at Yokohama, Osaka, Kobe, Moji, Nagasaki, and Hakodate only (that is, other ports are excepted), their sum does not coincide with the total volume of exports for the year.

Countries Importing Japanese Zinc, 1915-1918.
(in kin of 1.32 lbs.)

	1915	1916	1917	1918
England	2,858,794	18,480,491	31,889,527	6,998,188
Russia	3,298,323	20,210,463	12,278,053	.....
France	1,047,592	4,334,955	9,958,415	11,852,182
India	880,882	674,198	3,371,747	5,888,508
China	557,186	22,168	2,150,785	627,545
Egypt	.....	.....	846,522	1,146,928
Australia	.....	.....	656,958	201,694
Kwantung Peninsula	.....	19,586	58,870	128,794
Hongkong	.....	2,854	18,488	78,172
Italy	.....	.....	127,006	915,981
United States	.....	80	16,800	253,950
Siam	.....	858	33,808	32,823
Philippine Islands	.....	.....	9,180	15,499
Dutch East Indies	.....	1,666	21,956	152,955
Straits Settlements	.....	3,026	1,744	2,520
Other countries	.....	.....	.....	8,956
Total	8,142,776	38,689,840	61,889,759	28,804,689

While production and exports showed a marked increase, the tonnage retained at home remained almost stationary at 26,000,000 kin down to 1918, when there was an increase to 38,000,000 kin. The Japanese market for zinc is acutely responsive to conditions affecting demand and supply. Consequently while Japan exported considerable quantities of zinc she also appeared in the market as an importer. In 1915, 1916, 1917, and 1918, when the industry was booming, Japan consumed respectively 14,000,000, 9,000,000, 10,000,000, and 7,000,000 kin of zinc of foreign origin. These imports, together with the quantities of the domestic product retained at home, made totals of 40,000,000, 35,000,000, 39,000,000, and 45,000,000 kin for the four years. These figures cannot, however, be taken as an accurate measure of domestic consumption. In all probability a considerable part of the 1918 supply was held over to the following year, since the falling away of the Russian demand for arms and ammunition must have curtailed consumption, and the new development of the galvanizing of sheet iron and wire cannot have been sufficient to absorb the remainder. A fair estimate of domestic consumption would place it at about 38,000,000 kin.

The volume of exports totalled 8,000,000 kin in 1915, 38,000,000 in 1916, 61,000,000 in 1917, and 28,000,000 in 1918. The principal consumers were England, Russia, France, and India. Among these markets, England was the most important, her demand amounting to 2,000,000 kin in 1915, 13,000,000 in 1916, 31,000,000 in 1917, and 6,000,000 in 1918. The arrangements made by the British Government for securing 100,000 tons of Australian ore every year, and 45,000 tons of refined metal, weakened the position of Japanese zinc in the British market. Moreover, the British authorities set their buying prices for zinc at levels considerably lower than the prices ruling in the trade, and decided not to purchase zinc at prices exceeding their quotations. This accounts for the fact that England's consumption of Japanese zinc fell off so abruptly in 1918.

Russia imported 3,000,000 kin in 1915, 20,000,000 in 1916, and 12,000,000 in 1917, but none in 1918.

Other important markets for Japanese zinc during the War were France and India. Exports to France rose from 1,000,000 kin in 1915 to nearly 12,000,000 in 1918; exports to India rose from 880,000 kin to 5,880,000. Both countries are reported since the War to have made up their minds to strive for independence in the matter of zinc supplies. Accordingly there has been grave reason for doubting that the industry can maintain the position it attained during the War.

Market Prices of Zinc.

The price advances on the zinc market in the early part of the War were tremendous. At the time of the declaration of war, the London quotations hung about £21 per long ton, from which they advanced to £30 by January, and to £100 by June, 1915. In December, the market dropped to £89, but soon recovered, and the price advanced to £99 in April, 1916. A threefold cause was responsible for this state of affairs. In the first place, Silesia, the Rhineland, and Liege in Belgium, the centers of the industry, had become theaters of war. Consequently exports from these places completely ceased, bringing a shortage of stocks to the world market. Then there was the cornering of the market by speculators. A turning point was reached in July, 1916, with the making of the zinc agreement between England and Australia, which resulted in the establishment of a large mill in Tasmania. On the news of this agreement the

market fell, bringing quotations to the level of £50. In February, 1917, a further fall to £47 was reported. On March 23, the British Government fixed the standard price at £54.

The Japanese market as a rule followed the quotations of the chief foreign markets. An exception to this rule appears in the prices for 1918. The rise from ¥24 in April to ¥38 in August was due to the establishment of a price conference by the Mitsui, Osaka Ayen, and Suzuki companies. The fall of the market toward the end of the year resulted from the armistice, which made it impossible for the three manufacturers to maintain their conference agreements.

CHAPTER II

SHIPBUILDING

1. Before the War.

MODERN shipbuilding was late in attaining a significant place in Japanese industry. In 1893, 26 ships were built, but these amounted to only 3,967 gross tons. In 1895, 47 ships were built with a gross tonnage of 9,977. The development of the industry was retarded by (1) lack of skill and experience on the part of engineers and mechanics; (2) imperfect equipment of yards for the work; and (3) the necessity of importing all material and parts or fittings. To relieve the disabilities under which the industry labored "a Law Pertaining to the Encouragement of Shipbuilding" was promulgated, to take effect on October 1, 1895, and to remain in effect for a period of fifteen years. At the same time a measure was adopted for the benefit of steamship operators. Under the Law Pertaining to the Encouragement of Shipbuilding subsidies were granted to yards capable of building iron or steel ships of 700 tons or upward, provided such yards were incorporated by Japanese subjects only. The rates of subsidy were as follows:

(1) Ten yen per ton for the total tonnage of hulls of vessels between 700 and 1,000 tons gross; (2) ¥20 per ton for those over 1,000 tons gross; and (3) an additional subsidy of ¥5 per h.p. for steamships whose engines were built at the same yard as the hulls, or supplied by iron works which operated in Japan. Extraordinary favors were granted to shipowners of home-built vessels not more than 15 years old, and shipowners began to buy their vessels in Japan in spite of the increased cost. The result was noteworthy. The year 1901 saw the building of 71 ships with a tonnage of 31,000, including two 6,000-ton craft, launched at the Mitsubishi yards in Nagasaki. And in that year only 12 steamers, totalling 19,000 tons, were bought in foreign markets. This represented a great decline as compared with 1897, when 32 ships of 67,000 tons were imported. In 1902, 67 ships with a tonnage of 16,000 were built; in 1903, 65 with a tonnage of 33,000. In 1904 the total was 114 vessels, amounting to 27,000 tons, and 103 vessels totalling 30,000 tons were built in 1905. But at the same time foreign-built ships were imported to

the number of 72, with a tonnage of 177,000 in 1894, and 100 with a tonnage of 138,000 in 1905. Thus domestic shipbuilding was failing to keep pace with the importation of bottoms. This was due to two causes; first, the failure of the laws for the promotion of shipbuilding to work effectively, and second, the urgent demand for shipping growing out of the Sino-Japanese War. This increased demand for ships resulted in two important developments after the war; an extension of deep-sea shipping; and an increased activity among shipyards. This activity did not show itself immediately after the war. In 1906, 90 vessels with an aggregate tonnage of 35,000 were built, and in 1907, 79 vessels with a tonnage of 29,000. But in 1908, 77 vessels were completed, with a tonnage of 68,000. The Nippon Yusen Kaisha launched six 8,000-ton liners for its European service, and the Toyo Kisen Kaisha launched the 9,200-ton Kiyō Maru. Imported ships dropped to 22 totalling 30,000 tons in 1906, to 34, or 32,000 tons, in 1907, and to 21, or 19,000 tons, in 1908.

For the further encouragement of shipbuilding an ordinance was issued in December, 1906, allowing rebates on imports of ship materials. Sailing ships which were intended for the inland seas, depot ships, ships permanently tied up, craft solely or mainly propelled by oar, and ships of less than twenty tons burden were, however, excluded from its benefits.

In March, 1909, the Government revised the Law Pertaining to the Encouragement of Shipbuilding, and the Law for the Subsidizing of Deep-sea Navigation. The following is a summary of the former law, as revised.

1. The status of shipbuilders was to remain unaltered.
2. Vessels eligible for the rulings of the revised law were restricted to steel craft of more than 1,000 tons gross.
3. The amount of the subsidy ranged between ¥11 and ¥22 per ton.
4. To enjoy Government subsidies the hull, machinery, and equipment of a ship must conform to the specifications laid down by the Minister of Communications. If using imported materials, the builder, owner, or operator must also conform to the rules laid down by the above Minister.

The Law for the Subsidizing of Deep-sea Navigation was to the following effect:

1. Subsidies, as defined in this law, were to be granted for a period

of 5 years, to Japanese subjects only, or corporations organized by Japanese subjects, for the purpose of maintaining regular services to Europe, North America, South America, and Australia.

2. Subsidies were to be granted for ships developing 12 knots an hour, at a rate not exceeding 50 sen¹ per ton gross for every 1,000 miles sailed. The above rate would be increased by one-tenth of the above sum for every extra knot a ship could make, consideration being given to the conditions prevailing on the route in question. For steamships over five years old the amount of subsidy was to be reduced by 5 per cent annually.

3. Ships to be entitled to the benefits of the subsidy law must have a tonnage of upwards of 3,000, and a speed of at least 12 knots an hour. Furthermore, they must be of steel, constructed according to the specifications laid down by the Minister of Communications, not more than 15 years old, and entered in the Imperial Ship Register.

4. The operation of foreign-built vessels was in general prohibited, except in such cases as the Minister of Communications admitted to be expedient or unavoidable. Such ships must be less than 5 years old when their names were entered upon the official rolls. They were to receive subsidies of half the ordinary amount.

The duty on imported ships was revised in 1911. For ships propelled by mechanical power or sail, and less than 10 years old, the new rate was ¥15 per ton gross or 15 per cent ad valorem, instead of 10 per cent under the old duty. Other ships paid rates of ¥10 per gross ton or 15 per cent ad valorem, as compared with 10 per cent under the old duty.

Under these laws builders of steam vessels received huge bonuses for the construction of all steel craft of 1,000 tons and more. And they also profited indirectly by these provisions: In the services to Europe, Australia, and to North and South America, subsidies were granted to home-built ships only. Tariff rebates were made where imported materials were used in shipbuilding, under Article 1 of the Imperial order of December, 1906. And the very considerable duty of 15 per cent was imposed on all ships built abroad. Lines plying to distant countries were not given the benefits of the rebate system, and were also limited to home-built vessels; but subsidies for

¹ The sen = $\frac{1}{100}$ of a yen, or nominally about half a cent.

the deep-sea service were solely for their assistance. The interests of cargo carriers not belonging to the fleets of the Nippon Yusen Kaisha, Osaka Shosen Kaisha, and Toyo Kisen Kaisha were amply protected by the article giving rebates on imported ship materials. But since steamships built in Japan cost a great deal more than those built abroad, operators of merchantmen almost invariably chose to buy foreign vessels and pay the duty.

To sum up, official protection was more adequate for shipbuilders and operators of deep-sea shipping than for owners and operators of merchantmen or tramp steamers.

Yet little was achieved by these laws. In 1909, 68 ships totalling 50,000 tons were built; in 1910, 71 ships of 35,000 tons; in 1911, 137 ships of 43,000 tons; in 1912, 170 ships of 43,000 tons; and in 1913, 112 ships of 54,000 tons. As compared with the average of 30,000 tons for the period before the Russo-Japanese War, progress was made, but not a single year reached the 1908 record of 68,000 tons. As regards the importation of vessels, 1909 showed 8 ships and 8,000 tons; 1910, 20 ships and 40,000 tons; 1911, 49 ships and 129,000 tons; 1912, 24 ships and 49,000 tons; and 1913, 27 ships and 55,000 tons. Thus the import trade, though less than in 1904 and 1905, was larger than that of the years immediately preceding.

On the whole; the policy of encouragement failed to accomplish what was expected of it. When the demand for steamships increased with the increase in trade, the shipyards prospered; but the promotion of shipbuilding failed to encourage the development of shipping. On the other hand the development of shipping during the Russo-Japanese War, when the importation of foreign vessels was extraordinarily active, produced the activity of the shipyards in 1908. But, from then on the industry failed to derive much value from the various laws passed for its encouragement.

2. During the War.

General Remarks.

It has been shown that during the Russo-Japanese War demands for an increased tonnage of merchantmen were met by the importation of vessels, and that the shipbuilding industry was active not during hostilities, but after their cessation. In the case of the World War, the prosperity of the shipyards reached its zenith during the

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War. Japan turned out 112 ships (54,000 tons) in 1913, 85 ships (58,000 tons) in 1914; 74 ships (78,000 tons) in 1915; 94 ships (143,000 tons) in 1916; 214 ships (337,000 tons) in 1917; and 531 ships (688,000 tons) in 1918. In 1911, 6 ships displacing 1,000 tons or more, with a tonnage of 25,000 were built; in 1912, 6 ships with a tonnage of 22,000; in 1913, 6 ships with a tonnage of 40,000.

The Promotion of Shipbuilding during the War.²

Year	<i>Steamships.</i>					
	<i>Over 1,000 tons</i>		<i>Under 1,000 tons</i>		<i>Total</i>	
	<i>Number</i>	<i>Tonnage</i>	<i>Number</i>	<i>Tonnage</i>	<i>Number</i>	<i>Tonnage</i>
1914	12	49,918	78	8,938	85	58,846
1915	12	67,657	62	11,887	74	78,994
1916	87	128,118	57	15,762	94	148,880
1917	70	290,879	144	46,887	214	337,716
1918	180	518,588	351	170,071	531	688,659

Year	<i>Sailing Ships.</i>					
	<i>Number</i>	<i>Tonnage</i>	<i>Number</i>	<i>Tonnage</i>	<i>Number</i>	<i>Tonnage</i>
1914	557	84,528	511	84,528
1915	411	26,024	411	26,024
1916	519	45,831	519	45,831
1917	1	1,025	1,859	126,748	1,854	126,773
1918	2,048	186,580	2,048	186,580

Total Steamships and Sailing Ships.

	<i>Number</i>	<i>Tonnage</i>
1914	642	98,874
1915	485	105,018
1916	618	189,711
1917	1,568	464,489
1918	2,574	875,239

A remarkable phenomenon was the development of wooden vessels. Wooden vessels, especially those of larger size, are fragile and therefore inferior to steel ships, so that only small craft engaged in coastwise navigation remained when the Great War broke out. Between 1912 and 1915 the construction of wooden ships of over 100 tons never exceeded 2,000 tons, except in 1913. In 1916, when the need for bottoms was very great and steel was hard to secure, wooden

² Because of the fact that some ships were not registered with the Government, or were sold to parties abroad before registration, the number of ships built does not coincide with that of those launched.

construction suddenly rose to 8,000 tons (some individual ships being of more than 1,000 tons). In 1917 the figure rose to 26,000 tons, 4,500 tons being represented by 4 vessels of more than 1,000 tons apiece; and in 1918, 126,000 tons, including 15 ships which aggregated 17,000 tons.

Before the War, save in so far as materials of foreign origin were used, hulls, machinery, and equipment of ships were, as a rule, produced in the same yard. During the War the demand for the rapid completion of ships brought about a division of labor. The yards which devoted themselves to hulls were the Asano Zosen-jyo, the Osaka Iron Works, the Osaka Iron Works at In-no-shima, Tochigi Zosen-jyo and others located in Osaka. The machinery was produced by the Kobe Seiko-jyo, Hatsu-doki Seizo Kabushiki Kaisha, Kubota Tekko-jyo, Okamoto Ko-saki-jyo, Mihara Tekko-jyo, and Tanaka Kikai Seisaku-jyo, and also, later on, by a group of small concerns. As regards the ship's equipment, the Law Pertaining to the Encouragement of Shipbuilding prohibited the use of several kinds of imported materials; but, apart from these, imported materials almost monopolized the market; home manufactures never proved to be their equal in quality and price. When the War cut off foreign supplies an opportunity arrived for home manufactures to develop. Consequently, with the exception of some types of boiler and chronometer such equipment came to be produced in Japan.

Before the War, Japanese-built steamers were for the most part confined to a mixed type of passenger and freight boat. During the War the freighter was given the shipbuilder's exclusive attention. Most of the ships then built were of standard styles and sizes, something unknown before the War.

Of the standard-sized craft, the most popular was the 5,860-ton ship of the Kawasaki Zosen-jyo, of Kobe, and the 3,200-ton ship of the Osaka Iron Works. The Committee on Standard Types of Steamships, of the Department of Communications, worked out several patterns when the supply of steel was limited, toward the close of the War; but it was then too late for their ideas to be realized.

Before the War the building of a 5,000-ton vessel (deadweight) required three months. Owing to the introduction of division of labor and the construction of standard-sized craft, as well as to the general increase in skill of the men employed, the time was greatly reduced. Thus the Kawasaki Zosen-jyo of Kobe started on the 5,800-ton Rai-

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fuku Maru in October, 1918, and finished the job in 23 days, requiring only another 7 days to equip the ship for operation. It is to be doubted if this record has been surpassed either in Japan or in any other country.

The subsidy for the encouragement of the shipbuilding industry was abolished in July, 1917; but this did not affect the development of shipbuilding. At the end of 1913, there were 5 firms qualified to build steam vessels of more than 1,000 tons. They operated 6 yards with 17 building berths, and employed 26,000 men. In October, 1916, the industry was carried on by 53 firms (12 being builders of wooden ships), they maintained 57 yards (12 being for wooden ships) with 157 building berths (22 for wooden ships), and employed 97,000 men. Their paid-up capital rose from ¥23,000,000 to ¥110,000,000. Further particulars are given in the following tables:

Shipbuilding, 1913 and 1918.

	1913	October, 1918
Shipbuilding firms	5	53 ^a
Shipyards	6	57 ^a
Building berths for ships of more than 1,000 tons	17	157 ^a
Number of employees	26,189	97,855
Nominal capital	¥25,550,000 ^a	¥168,050,000 ^a
Paid-up capital	¥23,150,000	¥109,554,000
Debenture bonds (exclusive of borrow- ings)	8,600,000	22,050,000

Source of Shipbuilding Supplies.

As mentioned in a previous chapter, the steel production of Japan amounted to 280,000 tons in 1914, to 330,000 in 1915, and to 380,000 tons in 1916. Imports and shipments from the Colonies fell off, the volume being 560,000 tons in 1913, 410,000 tons in 1914, 240,000 tons in 1915, and 420,000 tons in 1916. Production increased too slowly to make up for the decline in imports; consequently the nation was confronted by a serious shortage of steel. The requirements of the shipbuilding industry rose from 58,000 tons in 1914 to 78,000 and 143,000 tons respectively in 1915 and 1916. Many other industries, stimulated by the extraordinary war-time conditions, had a greater need for iron and steel than in times of peace. Every effort

^a Including 12 firms building wooden ships.

^a Including 22 berths for wooden ships.

^a Approximately.

was made to induce the supplying nations which had cut down exports to Japan to relax their restrictions. Japan turned out 337,000 tons of ships in 1917 and 688,000 tons in 1918, and might, it was believed, have been able to make a still greater showing, had there only been an adequate supply of steel. The British Government had prohibited the export of steel in April, 1917. Its example was subsequently followed by the Indian Government, and finally by the United States. At one time the whole community of manufacturers, especially the shipbuilders, were at their wit's end. But finally a solution was found by concluding with America a pact to exchange finished vessels for raw materials.

In 1913 England had the lead among nations exporting to Japan, with 260,000 tons; then came 210,000 from Germany, and 97,000 tons from the United States. In 1915 England, pressed by her own needs, could not provide more than 120,000 tons, while Germany was blockaded from the sea and reduced to 6,000 tons. Imports from the United States advanced to 130,000 tons, giving that country first place. In 1916, the United States advanced further to 290,000 tons, while imports from England were 155,000 tons.

When the steel embargo was proclaimed by England and India, Japan recognized the possibility that America would follow suit. England had begun to send out calls for bottoms; and Japan asked

Imports of Iron and Steel, 1912-1918.
(in metric tons)

<i>Imported from</i>	<i>1912</i>	<i>1913</i>	<i>1914</i>	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>
England	388,098	267,465	179,102	126,428	155,801	88,017	15,689
Germany	188,453	212,826	168,958	6,454	4,179	37	815
U.S.	197,871	97,548	68,608	188,884	291,968	680,875	677,840
Belgium	61,994	59,471	50,026	984	281	.....	.....
Sweden	10,569	22,728	20,859	18,848	17,218	9,481	6,517
France	1,090	1,281	588	1,415	195	86	2
Austria-Hungary	1,411	8,026	1,648	.....	.....	.....	.....
China	11,061	60,289	55,514	84,492	110,287	126,486	220,781
India	50,090	82,242	81,512	88,041	72,241	67,611	7,715
Other Countries	5,975	6,611	1,850	8,584	46,981	62,557	69,518
Total	866,589	812,115	578,115	418,075	698,546	979,600	1,006,827

for supplies of steel, in order that she might respond. It was discovered, however, that England was really powerless to furnish them, and that the matter might better be taken up with the United States. At that moment the United States declared its embargo. But it was believed that America might be prevailed upon to make concessions in the matter of steel supplies. The shipbuilders, who had given orders for more than 400,000 tons of iron and steel to American manufacturers in 1917, requested the authorities concerned to make efforts to induce the American Government to make an exception in the case of these orders. Those efforts were not successful. Therefore, many organizations, such as the Beikoku Tetsu-zai Kaikin Domei-Kai (the League to Induce America to Lift the Embargo), chambers of commerce, the Shipowners' Association, the Mechanical Engineers' Association, the Electrical Association, and the Shipbuilders' Association, brought their influence to bear on the American Government, while the Foreign Minister made known the attitude of Tokyo. These efforts proved unavailing. The demands of the American Government were too exacting to be met. They involved the delivery of too many ships in a comparatively short time, and too many ships of superior build. As the steel shortage in Japan became acute and the shortage of bottoms in America became serious, the matter came up again between the Mitsui, Mitsubishi, Suzuki, Asano, and the Government of Japan on the one side and the American Ambassador in Tokyo on the other. In April, 1918, the First Agreement was signed by the representatives of the parties concerned. The terms were as follows:

The First Agreement.

1. The seller (Japanese) is to receive one long ton of ship material for every ton deadweight of ships furnished to the buyer (American).
2. The seller is to deliver to the buyer twelve ships aggregating about 100,800 tons deadweight.
3. Delivery is to be effected at a port on the Atlantic or Pacific seaboard of the United States.
4. The date of delivery may vary with different vessels, but must be some time between May and September, 1918. Ships under construction at the time of the signing of the Agreement are held to be eligible.

5. The price of ships may vary according to the dates of delivery, the minimum and maximum limits being \$225 and \$265 per deadweight ton.

6. All ships must meet the qualifications of Lloyd's inspectors and be rated as of 100 A1 Class.

7. An American inspector, who is to supervise the construction of the ships, may, for the purpose of performing his duties, come into any part of the yard or plant, where a ship is being built, excepting such places as have been closed by order.

8. The speed of the ships must be over 10 knots an hour, running, fully loaded, between marks set one mile apart. Furthermore they must be able to develop such speed uniformly for a continuous run of four hours.

9. In case delay of delivery results from a serious fault or negligence on the part of the seller, the buyer is entitled to receive an indemnity calculated at \$15 per deadweight ton per month, for the number of days delayed.

10. In case the seller has disposed of a ship contrary to the terms of the Agreement, or refused to make delivery of her without sufficient reason, the buyer is at liberty to cancel the Agreement, and, further, is entitled to receive an indemnity calculated at the rate of \$160 per deadweight ton. In addition, there shall be refunded to the buyer all such sums as he has already advanced to the seller, together with interest at 6 per cent per annum.

11. The seller is to accept delivery of steel materials at a port in the United States, before delivering the ships to the buyer.

12. The seller has entire liberty to determine what kinds of steel materials he will need.

13. Upon receipt of the report of the signing of the Agreement the United States Shipping Board shall advance to the seller not less than 20 per cent of the price of the ship to be delivered, and the remainder upon the delivery of the ship.

Despite initial complications, the Agreement was satisfactorily carried out and prepared the way for subsequent negotiations for the exchange of steel materials for finished ships. The Second Agreement may be discussed with reference to two points: (1) An arrangement involving three vessels then under construction in exchange for materials already contracted for; (2) furnishing the

United States with thirty vessels built with the materials taken over under the same contract:

I. Terms Relating to the Three Ships then under Construction.

1. The seller shall obtain a long ton of steel for every deadweight ton of shipping tendered.
2. The ships tendered shall be three having an aggregate deadweight tonnage of 27,000.
3. The seller is to make delivery of one of the ships in November, 1918, and the remaining two in December of the same year.
4. The price shall amount to \$212.50 per deadweight ton.
5. With reference to other terms, the First Agreement shall apply.

II. Terms Relating to the New Agreements.

1. The seller shall obtain a long ton of steel for every deadweight ton of shipping tendered.
2. Ships tendered shall be thirty in number and 246,000 tons deadweight.
3. The date of delivery shall differ for different ships, the term extending from the sixth to the eleventh month after the seller has secured the materials for his work.
4. The price of such ships shall be \$175 per gross ton.
5. The seller is to take delivery of material f.o.b. car at a port on either the Atlantic or the Pacific coast of the United States.
6. The price of steel plate shall be \$72.80 per long ton; that of assorted shapes \$67.20; that of bar and rod \$64.96.
7. The seller shall exercise complete liberty in deciding what classes of material he requires for the construction of said ships; but he is required to present to the United States Government within forty days after the date of the Agreement, his specifications for the aforesaid materials.
8. Upon receipt of information that the Agreement has been signed by the representatives of the parties concerned, the United States Government shall advance 20 per cent of the price of the ship; 10 per cent, when the seller has laid her keel; 20 per cent when her ribs and frames for the bow and stern have been fitted in; 20 per cent upon the launching of the vessel; 10 per cent when the speed test has been performed; and the remainder on delivery.

9. In case any of the parts, fixtures, accessories, or raw materials used in shipbuilding, including pig iron, cannot be manufactured in Japan, the buyer will issue, on behalf of the seller, certificates establishing prior right to the manufacture in the United States of the said ship material and authorizing the export of such materials from the United States.

10. As regards the other terms of the Agreement, the First Agreement shall hold good.

Forty-five ships were furnished, with an estimated gross tonnage of \$73,000. The total tonnage of the various materials Japan secured by the Agreements was 250,000, of which 127,000 tons was obtained under the First Agreement, and the remaining 123,000 under the Second Agreement.

Under the Second Agreement there were obtained: Approximately 23,800 tons of pig iron; 186 anchors; 10,650 fathoms of anchor chains; 423 boilers; 37 chronometers; 44 sextants; and approximately 2,100 tons of pipe and tubes.

Under both Agreements: Approximately 10,236 tons of pig iron; 52 anchors; 25 sets or 3,540 fathoms of anchor chains; 638 boilers; approximately 1,887 tons of pipes and tubes; 8 chronometers; and 23 compasses.

Demand for and Cost of Ships: Profits Made by Manufacturers.

The activity of the steel industry in war time came primarily from the increased home demand for vessels. This increase in demand was closely related to an alarming scarcity of bottoms the world over. The following table presents the salient facts:

<i>Built in Japan.</i>					
	1914	1915	1916	1917	1918
<i>Steam vessels:</i>					
Number	85	74	94	214	531
Tonnage	58,846	78,994	148,880	337,716	688,659
<i>Sailing ships:</i>					
Number	557	411	519	1,854	2,048
Tonnage	84,528	26,024	45,881	126,778	186,580
<i>Imports:</i>					
Number	8	18	22	16	16
Tonnage	19,378	37,884	51,146	10,981	3,184

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	1914	1915	1916	1917	1918
<i>Exports:</i>					
Number	17	64	74	81
Tonnage	7,486	49,092	182,200	165,096

Because of the world-wide scarcity of bottoms the freight market and the price of steamships kept constantly rising. The greatest demand during the War was for medium-sized and larger cargo boats between fifteen and thirty years old. In May and June, 1915, such vessels were sold, on an average, for ¥53 or ¥54 per gross ton; but in November, 1915, this rose to ¥105, and in December to ¥126. In January, 1916, it increased to ¥174; in May to ¥257. There was a decline after May; the August price was about ¥190, and the September price about ¥189; but in October, the market picked up, resulting in a price of ¥270; in November, it went to ¥268; in January, 1917, to ¥301; in June, to ¥503; in July to ¥540; in August, to ¥737; in September, to ¥750. This was the peak of the market. The advance was checked by the enactment of the Law Pertaining to the Control of Mercantile Marine. Thereafter the market had a downward tendency, dropping to ¥600 in November, and to ¥595 in January, 1918. In March, quotations advanced to ¥690; in April, they were ¥675; in July, ¥690; and in September, ¥650.

The market for new ships was far more active, as the following table shows:

Average Prices of Newly Built Cargo Vessels during the War.

		<i>Per ton gross</i>	<i>Per ton deadweight</i>
1914		¥ 160	¥110
1915		180	120
1916	First half	260	170
	Second half	360	240
1917	First half	600	400
	Second half		
	{ Small ships	1,050	700
	{ Large ships	1,110	740
1918	First half	Small ships	700
		Large ships	800
	Second half	Small ships	700
		Large ships	810

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Percentage of Dividends Paid by the Principal Shipyards.
(Table II)

Shipyard	1916		1917		1918	
	1st half	2nd half	1st half	2nd half	1st half	2nd half
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Hakodate Senkyo	10.4	15.0	20.0	20.0	79.6	40.0
Tokyo Ishikawajima	12.0	15.0	28.0	85.0	40.0	40.0
Asano Zosen	...	...	...	50.0	80.0	80.0
Yokohama Senkyo	18.0	15.0	18.0	80.0	85.0	80.0
Uchida Zosen	...	...	...	...	10.0	8.0
Uraga Senkyo	15.0	20.0	60.0	40.0	40.0	40.0
Toba Zosen	...	...	...	20.0	20.0	...
Harima Zosen	...	...	...	48.0	50.0	...
Osaka Iron Works	12.0	15.0	18.0	25.0	85.0	85.0
Osaka Zosen-jyo	...	...	...	25.0	90.0	80.0
Hara Zosen	...	...	...	...	20.0	20.0
Toyo Kogyo Zosen-bu	...	...	...	...	50.0	...
Asahi Zosen	...	...	...	...	...	60.0
Harada Zosen	...	...	...	...	80.0	110.0
Matsuda Kisen	...	...	...	...	...	...
Mitsubishi Zosen-jyo	...	...	...	...	25.0	25.0
Kawasaki Zosen-jyo	18.0	20.0	80.0	40.0	40.0	40.0
Bingo Senkyo	...	20.0	20.0	60.0	100.0	100.0
Yoshi-ura Zosen	...	...	...	...	...	...
Kibi Zosen	...	...	...	...	...	...
Ye-ura Zosen	...	...	...	15.0	80.0	...
Tochigi Zosen	10.0	10.0	10.0	10.0	10.0	80.0
Fukagawa Zosen	8.0	10.0	15.0	15.0	20.0	...

The Withdrawal of the Subsidy.

The price of ships rose constantly during the War, and reached an average of ¥600 per gross ton and ¥400 per deadweight ton in the first half of 1917. In the following six months smaller vessels reached ¥1,050 per gross ton and ¥700 per deadweight ton, and larger vessels ¥1,110 and ¥740 respectively. The profits of the industry had become so large that there was no need to continue giving subsidies. The system had already proved a serious drain on the national treasury. In 1913, five ships were qualified to receive the subsidy, and the amount granted was ¥990,000. In 1914 there were 16 ships, receiving ¥1,630,000; in 1915, 15 receiving ¥1,550,000; in 1916, 37 receiving ¥3,070,000. According to an investigation

made in the early summer of 1917, the Government might have to give subsidies to 190 ships, aggregating 950,000 tons. This was too grave a menace to the finances of the nation. The authorities concerned, therefore, after obtaining the approval of the Imperial Diet, put into effect a law repealing the subsidy, on July 24, 1917. The effect of the law was to restrict the grant of money to those ships which had been recognized as eligible to subsidy prior to that date, and which would be afloat by September 30, 1918.

The Armistice and the Industry.

Even when the shipbuilding boom was at its height it was generally assumed that, once hostilities came to an end, the situation might undergo a complete change. This assumption proved correct. News of the armistice meant to the industry the reappearance of foreign shipping and the withering of Japan's foreign trade. In addition, there was a precipitate drop in the prices of iron and steel.

Because the seller of ships was burdened with high-priced material, while the buyer knew too well that the price of ships would in due course come down, not a single transaction could be made in ships for some time after the announcement of the armistice. Consequently no order was placed for new vessels. Those who had already given orders tried hard to cancel them, claiming delay of delivery or imperfect construction. The heaviest blow known to any industry fell on the greater part of the shipyards, numbering about three hundred and fifty, including those plants which, though capable of building ships of over 1,000 tons, did not happen to be building ships for the United States Government.

CHAPTER III

THE MACHINERY INDUSTRY

Introduction.

FOR the purpose of the present work the author proposes to include under the machinery industry, first, (a) power machinery, pumps, cranes, and the like; (b) dynamos, electric motors, devices for communication (*i.e.*, telephone and telegraph instruments), and other electrical appliances; (c) machine tools and parts thereof; (d) spinning, weaving, and allied machines and parts thereof; (e) mining and other machinery and parts. Second, all manufactures of tools and instruments which include (a) instruments of precision, and (b) physical, chemical, and other scientific devices. Third, manufactures of arms and munitions.

Before the War.

It need not be reiterated that the machinery industry is the backbone of the industrial system of a nation. So long as this industry remains undeveloped, a country's industrial life cannot thrive satisfactorily. Japan's case was no exception to this rule. Even in the period between the Russo-Japanese War and the outbreak of the European War, when manufacturing in Japan advanced at a rapid pace, the construction of machinery was regarded as a hazardous undertaking, due to the Japanese manufacturer's inability to make and sell standardized machines and the necessity, therefore, of resorting to specialized types; while the limited supply of capital, together with the fact that material entering into the construction of machines had to be imported, was another serious difficulty.

Still it should be remembered that importation is really the first step toward the home manufacture of machinery; for once imported machinery has enabled an industry to get a good start, the next step will be an attempt to manufacture as much of such machinery at home as is possible.

In the period of prosperity following the war with Russia, the value of imports of machinery rose considerably above ¥30,000,000; but the amount fell to ¥23,000,000 in 1909 and to ¥19,000,000 in 1910. This decline is explained by the fact that the boom in the

promotion of industrial enterprises, which was no doubt a consequence of the Russo-Japanese War, came to a close. In 1911 such imports rose to ¥31,000,000, partly because of heavy purchases in anticipation of a new tariff, and partly because of an industrial revival. In 1912 imports of machinery increased to ¥34,000,000, and in 1913 to ¥39,000,000. Exports of machinery hovered about ¥3,000,000 a year for some time after the close of the Russo-Japanese War; in 1912 they were ¥3,600,000; in 1913 slightly over ¥4,000,000.

During the War.

Before the outbreak of the World War no statistics for the machinery industry of Japan were compiled, except for export and import figures, and a few bearing upon certain minor manufactures. The Government began to publish statistical reports of this kind during the War. Although careful investigation would doubtless reveal inaccuracies, nevertheless they were studied reports, and therefore valuable. They include facts as to the mills and factories which employed upward of thirty men on August 1, 1914, when the War broke out; on July 1, 1917; and on December 1, 1918, when the War was practically at an end. Comparing the figures for the first and the last dates, it will be noted that the number of mills and factories increased from 217 to 264. The nominal capital rose from ¥40,000,000 to ¥130,000,000, a threefold increase; the paid-up capital showed a rise from ¥20,000,000 to ¥90,000,000; the number of officers, engineers, and members of clerical staffs rose from 2,000 to 7,000; the number of factory workers rose from 22,000 to 62,000; the capacity of power-producing machines installed in plants increased from 5,000 to 37,000 h.p. and the value of manufactures rose from ¥30,000,000 to ¥210,000,000. Because of the fall in the buying power of money after the outbreak of the War it cannot be said that increases in the amount of nominal capital or paid-up capital gives any true indication of the development of the industry; nor is it justifiable to estimate the amount of production in terms of money alone. However, the increase in the number of officers, engineers, clerks, and hand workers, as well as the growth in the capacity of the power plants, is satisfactory proof that the machinery industry of Japan made wonderful progress during the War.

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Mills Employing more than Thirty Men before and during the War.

	<i>August 1, 1914</i>	<i>July 1, 1917</i>	<i>December 1, 1918</i>
Number of manufacturing plants	217	247	264
Nominal capital	¥48,850,000	¥71,800,000	¥184,240,000
Paid-up capital	¥21,570,000	¥88,460,000	¥ 97,860,000
Officers, engineers, and staff	2,975	5,153	7,728
Factory workers	22,217	52,807	62,226
Horsepower	5,808	11,266	87,521
Value of Production for year ending August 1	¥34,700,000	¥85,100,000	¥215,800,000

In 1914 imports of machinery fell to ¥27,000,000, and in 1915 to ¥10,000,000, the lowest on record. In 1912 they had been ¥34,000,000, and in 1913, ¥39,000,000. The year 1916 made a better showing, with ¥19,000,000. In 1917 the figures were ¥34,000,000; and in 1918, ¥63,000,000. But when the extraordinary rise in the price of commodities is considered it may be doubted whether this great increase in values was supported by a corresponding increase in the volume of goods. The decline in the import trade in 1914 and 1915 was no doubt due in part to the decline in the volume of production in the exporting nations, although some sorts of machinery remained unaffected. Still it would not be difficult to show that the development of the home industry bore a certain relation to the decline in imports. Another thing which throws light on the development of the industry is the increase in exports. The value of exports for 1913 was ¥4,000,000, for 1914, ¥3,000,000, and for 1916, ¥4,900,000. The figures for 1916 rose to ¥11,000,000, while those for 1917 and 1918 were ¥13,000,000 and ¥23,000,000, respectively.

1. Manufactures of Machinery, in Detail.

Power Machinery, Pumps, Hoisting Cranes, and the Like.

Quantity and Variety Produced.

Manufactures of machinery of the types enumerated above totalled ¥7,500,000 for the year ending August 1, 1914. In the year ending July 1, 1917, the amount rose to ¥14,300,000, and to ¥62,500,000 in the year ending December, 1918. A study of manu-

factures will moreover show that not only large, but rather unusual types came to be undertaken. For instance, success was attained in the production of gas engines with a capacity of over 500 h.p. (in some cases over 3,000 h.p.). Before the War the limit was 300 or 400 h.p. The oil engine of 400 h.p. or more became possible; as also the motor for driving a Diesel engine, automobile, or flying machine. Before the War the building of steam engines had been limited to those under 1,000 h.p. But during the War turbines of 15,000 or 16,000 h.p., intended for installation in electrical stations, and ordinary engines between 1,000 and 10,000 h.p. used in iron smelting, were successfully produced. Hoisting cranes for heavy or special duty were also manufactured.

Factory Activity.

Before the War there were 37 factories for the production of these types of machinery. The number increased to 39 in July, 1917, and to 86 just after the close of hostilities.

The Manufacture of Power Machinery, Pumps, Cranes, and the like before and during the War as Carried on by Mills Employing more than Thirty Men.

	<i>August 1, 1914</i>	<i>July 1, 1917</i>	<i>December 1, 1918</i>
Production	¥7,500,000	¥14,800,000	¥62,500,000
Number of plants	87	89	86
Nominal capital	¥1,700,000	¥ 8,800,000	¥28,470,000
Paid-up capital	¥1,800,000	¥ 8,000,000	¥15,170,000
Officers, engineers, and staff	250	420	1,556
Factory workers	1,790	8,752	14,497
Horsepower ¹	600	960	8,260

Trade Conditions.

For the period from 1907 to 1913 the yearly average of exports was about ¥16,000,000. In 1913 the amount was ¥17,000,000. The average fell to ¥12,000,000 for 1914-1917. In 1918 there was an increase to ¥26,000,000. Although the figures for 1918 exceeded those for 1913 by about ¥10,000,000 this should be considered in

¹ Figures for horsepower covered 81 factories in 1914 and 1917, and 85 in 1918; and those for machine tools covered 80 factories in 1914 and 1917, and 88 factories in 1918.

connection with the fact that, while the value of the business was noticeably larger in 1918 (due to the extraordinary price of commodities), the actual volume of goods handled was not larger in proportion.

The value of imports, which diminished to ¥3,000,000 in 1915, rose to ¥8,000,000 in 1916 and to ¥26,000,000 in 1918; and at the same time there were still many sorts of machinery which could not be produced in Japan at all, or which could not successfully compete with those of foreign manufacture. The steam engine may serve as a case in point. Imports inclusive of parts and accessories, averaged ¥1,100,000 a year for 1907-1913. The last year stood at ¥1,100,000. Though the amount declined to ¥900,000 in 1914 and ¥600,000 in 1915, it rose to an average of ¥2,700,000 in 1914-1918. It was ¥7,600,000 in 1918 alone.

*Dynamos, Motors, Telephone and Telegraph Instruments,
and the Like.*

Quantity and Variety Produced.

The manufacture of these articles aggregated ¥8,500,000 in 1914, and grew to ¥57,600,000 in 1918. Of this sum, ¥40,870,000 was represented by electrical machinery; ¥440,000 by telegraph and telephone instruments; and ¥450,000 by electrical instruments and tools. While the largest dynamo which it was possible to produce in Japan before the War ranged between two and three thousand kilo-volt-amperes in power, the voltage increased to 6,000 or 7,000 by July, 1917, and to 20,000 by the end of 1918. The capacity of electric motors, which rarely rose beyond several hundred horsepower before the War, reached 1,000 by July, 1917, and 1,500 at the end of 1918. In a few instances, the record of 10,000 h.p. was attained. Similarly, transformer manufactures made very rapid progress. The possible voltage rose from several thousand to 20,000 or 30,000, the largest ever produced being well above 60,000. Furthermore, the Japanese manufacturer was able to supply in marketable quantities such special motors as are required for iron-making and cotton-spinning, as also direct-current generators for chemical manufactures, and motors for electric cars. Producers were equally successful in the making of electric fans, batteries, and telephone and telegraph instruments.

Factory Activity.

The number of electrical works, which stood at 26 before the Great War, reached 34 by July, 1917, and 41 at the end of 1918. Of the total of 41, 25—mostly of large size—were located in Tokyo, with 7 in Osaka and 4 in Kyoto.

The Manufacture of Dynamos, Motors, Telephone and Telegraph Apparatus, and the like, as Carried on in Mills Employing more than Thirty Men.

	August 1, 1914	July 1, 1917	December 1, 1918
Production	¥ 8,500,000	¥28,000,000	¥57,600,000
Number of plants	26	34	41
Nominal capital	¥14,500,000	¥26,850,000	¥84,000,000
Paid-up capital	¥ 9,960,000	¥16,700,000	¥26,850,000
Officers, engineers, and staff	1,185	2,208	2,767
Factory workers	5,258	12,880	13,486
Horsepower ²	1,500	2,800	7,650

Trade Conditions.

The import trade in electrical machinery reached a yearly average of ¥4,200,000 between 1907 and 1913; it was ¥4,360,000 for 1913. In 1914 the amount dropped to ¥3,000,000; in 1915 it was ¥830,000; in 1916 it was ¥900,000. In 1917 it rose to ¥1,800,000, and to ¥3,600,000 in 1918. But these figures, in view of the high prices of 1917 and 1918, give an exaggerated measure of the volume of the goods imported.

Before the War most of the imports were dynamos and motors, and the decline of the import trade meant a decline in these two items, whose total was ¥2,800,000 in 1914, ¥740,000 in 1915, ¥830,000 in 1916, ¥1,700,000 in 1917, and ¥3,540,000 in 1918.

The average exports for the period 1907-1913 were ¥400,000 yearly. In 1913 they were slightly over ¥500,000. The destination of the exported goods was, for the most part, the Japanese-leased territory in Kwantung Peninsula, but some part of the exports was taken by India, Russia, the Philippines, and the islands of the East Indies. Although this trade was, in 1914, only ¥460,000, the value of shipments grew rapidly, and reached ¥630,000 in 1915, ¥2,300,000 in 1916, ¥2,900,000 in 1917, and ¥4,400,000 in 1918. While tele-

² Surveys of horsepower covered 22 factories in 1914, 30 in 1919, and 40 in 1918.

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phones were the principal article of export, business in other lines was so active that its aggregate value easily exceeded that of the export of telephones.

Machine Tools and Parts Thereof.

Quantity and Variety Produced.

The manufacture of goods of the above description increased approximately from ¥2,500,000 in 1914 to ¥7,000,000 in 1917, and to ¥16,200,000 in 1918. The last-named total was made up of ¥9,400,000 of machine tools and ¥7,100,000 of parts. As regards the variety of articles produced before the War, Japan was able to produce only such simple machines as lathes, planers, and shaping and drilling machines. While lathes amounted to 80 per cent of the total production, they dropped to 50 cent after the outbreak of the War. During the War the industry began to undertake such special types of machinery as milling machines, gear-cutting machines, exceptionally large or complicated lathes—*e.g.*, 80-foot lathes required for the making of guns, and 20- to 40-ton punching machines required in shipbuilding.

Factory Activity.

The number of lathe manufacturers was 27 before the War, and 29 in December, 1918. Besides the 29 concerns making lathes there were in 1918 more than 20 that manufactured lathes along with other machinery. Eleven mills, all of notable size, were established during the War.

Manufactures of Lathes and Parts, before and during the War, as Carried on by Mills Employing more than Thirty Men.

	<i>Year ending August 1, 1914</i>	<i>Year ending July 1, 1917</i>	<i>Year ending December 1, 1918</i>
Production	¥2,500,000	¥7,000,000	¥16,500,000
Number of mills	27	.....	29
Nominal capital	¥1,450,000	¥5,590,000	¥18,020,000
Paid-up capital	¥1,480,000	¥4,880,000	¥ 7,750,000
Officers, engineers, and staff	240	415	502
Factory workers	1,909	4,285	8,524
Horsepower ^a	752	1,870	1,550

^a Surveys of horsepower covered 25 factories in 1914, 31 in 1917, and 29 in 1918.

Trade Conditions.

The importation of parts of machine tools amounted to a yearly average of ¥3,100,000 for 1907 to 1913 (¥3,600,000 for 1913). Apart from the figures, ¥7,800,000, for 1918, which were almost twice those of 1913, no marked increase took place in the value of the trade between 1914 and 1918, the average remaining at about ¥3,500,000. Metal-working and wood-working machines, which stood at ¥3,200,000 in 1913, increased to 6,600,000 in 1918, while the various kinds of saws rose from ¥260,000 in 1913 to ¥1,200,000 in 1918. These increases are accounted for by the fact that the Japanese people still found the manufacture of these articles difficult.

As to exports, the only considerable item is the lathe, which first appeared in trade returns in 1917, when the figures for it reached ¥640,000. They were ¥1,000,000 in 1918. Being among the most prominent machine products of Japan, lathes are now exported to China, India, the South Sea Islands, and South America.

*Spinning and Weaving Machinery and Parts; Sugar, Paper, Printing, and Other Machines.**Quantity and Variety Produced.*

These manufactures totalled ¥2,500,000 before the War, ¥6,000,000 in 1917, and more than ¥24,000,000 in 1918. The last figure covers ¥13,300,000 of textile machinery, ¥2,300,000 of machinery for the making of foodstuffs, including equipment for sugar mills, ¥1,800,000 of paper-making machinery, ¥230,000 of printing presses, ¥1,100,000 of kiln machinery and ¥6,000,000 of miscellaneous goods. The manufacture of looms (especially those for weaving cotton fabrics) underwent rapid evolution. Machines of 42-inch reed space, and sometimes of 50 inches and even 65 inches, were produced in large quantities. Looms for woollens, combing machines, ramie spinning machines, ring spindles, rollers, throwing machines, finishing machines, etc., were also produced in commercial quantities. It must be said, however, that Japanese spinning machinery is still much behind imported machinery in quality.

Factory Activity.

The number of factories devoted to the making of machinery of these types grew from 39 in 1914 to 41 in July, 1917, and reached 56 in December, 1918. Such factories fall into the following classes:

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	<i>August 1, 1914</i>	<i>July 1, 1917</i>	<i>December 1, 1918</i>
Total number of factories employing more than thirty men	89	41	56
Textile machinery	..	25	29
Printing machinery	..	5	4
Paper machinery	..	8	7
Kiln machinery	..	8	8
Foodstuff-making machinery	..	5	4

The Manufacture of Spinning and Weaving Machinery, Printing Presses, Paper Machinery, etc., before and during the War, as Carried on by Mills Employing more than Thirty Men.

	<i>Year ending August 1, 1914</i>	<i>Year ending July 1, 1917^a</i>	<i>Year ending December 1, 1918</i>
Production	¥2,500,000	¥60,000,000	¥24,800,000
Number of mills	89	41	56
Nominal capital	¥2,800,000	¥ 5,700,000	¥17,550,000
Paid-up capital	¥2,480,000	¥ 4,050,000	¥ 9,610,000
Officers, engineers, and staff	270	890	710
Factory workers	2,340	4,240	7,461
Horsepower	600 ^a	1,200 ^a	2,980 ^a

Trade Conditions.

The average yearly imports of the kinds of machinery in question were ¥7,400,000 between 1907 and 1913 (¥8,800,000 in 1913), and ¥8,500,000 between 1914 and 1918 (¥18,200,000 in 1918). Spinning machinery was the most important item in this import trade. While it dropped from ¥5,000,000 in 1913 to ¥1,300,000 in 1915 and ¥2,400,000 in 1916, it grew to ¥8,500,000 in 1918. Sewing machines stood at ¥1,200,000 in 1912 and ¥800,000 in 1913; they rose to ¥1,000,000 in 1917 and to ¥3,000,000 in 1918. Paper machinery reached ¥180,000 in 1913, ¥400,000 in 1917, and ¥1,100,000 in 1918.

The export trade increased from an annual average of ¥660,000 for the period 1907-1913, to ¥1,800,000 for 1914-1918, the figures for 1913 and 1918 standing at ¥780,000 and ¥3,800,000 respectively. The class of machinery enjoying the largest demand abroad

^a Approximately.

^b The figures for horsepower for July, 1917, were for 89 factories, and those for 1918 for 51 factories.

was that for spinning and weaving, which grew from ¥350,000 to ¥3,590,000 during the period. Printing machinery was stationary at about ¥200,000. Cotton-gin and tobacco-working machines, which were never prominent in pre-war statistics, finally disappeared from the trade returns.

Ship, Mining, Chemical, and other Machinery, and Parts Thereof.

Production and Variety of Products.

The value of machinery of these types reached ¥7,000,000 in 1914, ¥20,000,000 in 1917, and ¥32,000,000 in 1918. The principal items here are mining machinery, pulping machinery (used in paper-making), machines for the chemical industry, marine engines, boilers, etc., and air compressors—all of which showed wonderful progress during the War.

Factory Activity.

The number of factories was 58 in August, 1914, 62 in July, 1917, and 90 in December, 1918.

Manufactures of Ship, Mining, Chemical, and Some Other Machinery before and during the War, as Carried on by Mills Employing more than Thirty Men.

	<i>Year ending August 1, 1914</i>	<i>Year ending July 1, 1917</i>	<i>Year ending December 1, 1918</i>
Production	¥7,000,000	¥20,000,000	¥32,000,000
Number of mills	58	62	90
Nominal capital	¥5,860,000	¥ 9,000,000	¥15,700,000
Paid-up capital	¥4,600,000	¥ 6,800,000	¥11,800,000
Officers, engineers, and staff	540	1,000	1,180
Factory workers	5,200	10,800	10,680
Horsepower ^a	1,766	2,262	4,880

Trade Conditions.

The yearly average value of imports was ¥810,000 for the period 1907-1913, and ¥550,000 for 1914-1918, the figures for 1913 and 1918 being respectively ¥850,000 and ¥740,000. Imports of mining machinery disappeared completely by 1912. Iron chain and cable stood at ¥350,000 before the War, ¥490,000 in 1913, ¥170,000 for

^a Figures for horsepower covered 49 factories during 1914 and 1917.

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the war period, and ¥40,000 in 1918; rollers, which remained at ¥220,000 for 1912, rose to ¥360,000 in 1913 and to ¥700,000 for 1918. As regards the export trade, it increased from ¥1,000,000 for the pre-war period, and ¥1,180,000 in 1913, to an average of ¥3,200,000 for the war period, and to ¥6,500,000 in 1918.

2. Instruments of Precision.

Quantity and Variety Produced.

The present section, which is rather vaguely entitled, covers watches and clocks, measuring devices, and scientific apparatus. Their production aggregated ¥3,200,000 for the year ending in August, 1914, ¥6,300,000 for the year ending July, 1917, and ¥9,100,000 for the year ending in December, 1919.

Factory Activity.

In August, 1914, there were 24 manufacturers of this class. The number was 28 by July, 1917, and 34 by December, 1918.

The Manufacture of Instruments of Precision before and during the War, as Carried on by Factories Employing more than Thirty Men.

	Year ending August 1, 1914	Year ending July 1, 1917	Year ending December 1, 1918
Production	¥8,200,000	¥6,300,000	¥ 9,100,000
Number of factories	24	28	34
Nominal capital	¥2,340,000	¥6,290,000	¥11,100,000
Paid-up capital	¥2,220,000	¥4,780,000	¥ 8,430,000
Officers, engineers, and staff	220	470	470
Factory workers	2,940	6,200	6,180
Horsepower [†]	1,766	2,262	4,330

Trade Conditions.

The import trade averaged ¥4,700,000 annually for the period between 1907 and 1913; ¥4,200,000 in 1913, ¥3,900,000 for 1914-1918, and ¥6,500,000 in 1918. The export trade averaged ¥1,200,000 for 1907-1913, ¥1,600,000 in 1913, ¥3,900,000 for 1914-1918, and ¥7,900,000 in 1918.

[†] Figures for horsepower covered 49 mills in 1914 and 1917.

*Watches and Clocks.**Factories and Factory Workers.*

The manufacture of watches and clocks, although not a very large industry, is one of those regarding which the Department of Agriculture and Commerce possessed comprehensive and accurate data. Manufacturing establishments numbered 19 in 1913 and 22 in 1918. A marked growth was made in the number of factory workers, who averaged 2,000 in 1913, 1914, and 1915, 2,200 in 1916, 2,800 in 1917 and 3,600 in 1918.

Quantity and Variety Produced.

The number of watches produced, which reached 88,000 in 1913, steadily advanced during the War, 1914 showing 100,000; 1915, 120,000; 1916, 130,000; 1917, 160,000; and 1918, 210,000. Wall clocks, which reached the figure of 490,000 in 1913, dropped to 390,000 in 1914, 330,000 in 1915, and 190,000 in 1916; but they showed a rise to 240,000 in 1917 and 270,000 in 1918. The decline of the industry was due to the fact that the wall clock had gone out of fashion, while the manufacturers were too busy executing orders for alarm clocks to give any time to them. The production of alarm clocks was 340,000 in 1913. The figure fell to 320,000 in 1914, but rose to 550,000 in 1915, 680,000 in 1916, 740,000 in 1917, and 720,000 in 1918.

The Manufacture of Watches and Clocks before and during the War, as Carried on by Factories Employing more than Thirty Men.

	Number of establishments	Factory workers			Total	Production
		Male	Female			
1912	20	1,550	161	1,711	£1,791,882	
1913	19	1,835	165	2,000	1,866,579	
1914	17	1,888	111	1,999	1,649,285	
1915	16	1,848	224	2,067	1,759,831	
1916	18	2,086	212	2,248	1,982,822	
1917	19	2,565	284	2,849	2,499,087	
1918	22	3,182	449	3,631	3,950,468	

In 1913, imports of watches comprised 4,400 gold and platinum watches, 111,800 silver and silver-plated watches, and 48,400 of

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other kinds, the total being 164,600. By 1918 the volume of the trade had fallen to 118,900, of which 4,700 were gold and platinum watches, 60,500 silver and silver-plated watches, and 53,700 were other kinds. The importation of cases continued to decline, 83,000 being imported in 1913, 20,000 in 1914, and 7,000 in 1918. The importation of movements increased from 57,000 in 1913 to 81,000 in 1918. Wall and standing clocks imported numbered 25,000 in 1913, and other sorts of timepieces and parts thereof, 47,000. The figures for 1915 and 1918 were 1,800 and 12,000, and 10,000 and 48,000 respectively. Exports amounted to 470,000 in 1913, 700,000 in 1916, and 450,000 in 1918, and showed that manufactures of clocks were largely intended for foreign consumption.

Meters, Devices for Weighing and Measuring, Medical and Scientific Apparatus, Musical Instruments, etc.

Quantity and Variety Produced.

Before the War the manufacture of gas meters meant the manufacture of meters for lights ranging between two and ten candle power, required for household purposes. Nothing more could be made at home, and the demand had to be met with imported articles. Water meters were attempted by some enterprising persons, whose efforts, however, resulted in flat failure. As regards pressure gauges, vacuum gauges, and hydraulic gauges, only such special types as are required by the navy and the railroads were taken in hand. No attempts were made to manufacture watt meters, as they were believed to require a special training and equipment of the most exacting sort. Galvanometers and voltmeters, though the quality was far from perfect, cost about 30 per cent less than imported goods, and were put on the market. With the changes brought by the World War, those devices which had long been regarded as impossible of manufacture in Japan became possible. The various electric and pressure meters, for instance, could be produced, provided the material could be had. As to the technique of manufacture, the Japanese began to feel equal to the makers of other countries. As regards physical, chemical, and medical instruments and apparatus, Japan had been able to make such ordinary or somewhat complicated goods as are required for school and laboratory uses. Those of delicate make or of very new design were imported. Only simple types

of surveyors' instruments and microscopes could be manufactured. Binoculars were not attempted. Japanese manufacturers had gone fairly far in the case of such musical instruments as pianos, organs, and violins, which—while they imported the raw materials and certain parts—they made satisfactorily, some being sold abroad.

Factory Activity.

It is difficult to ascertain the number of factories in existence before the War; but in July, 1917, the number was 28, of which 9 also manufactured instruments for weighing and measuring, and 5 also produced various kinds of meters and gauges. In December, 1918, those making instruments for weighing and measuring had increased to 11.

Trade Conditions.

Exports of surgical instruments showed an annual average of ¥110,000 for the pre-war period, and of ¥750,000 during the war, the figures for 1913 and 1918 being ¥130,000 and ¥1,370,000 respectively. Exports of surveyors' instruments, which had amounted to ¥20,000 before the War, finally disappeared from the trade returns. Figures for chemical and physical apparatus, averaging ¥490,000 for 1913 and 1915, diminished in volume. Those for musical instruments grew from ¥40,000 in 1913 to ¥1,000,000 in 1918, and school apparatus from ¥270,000 to ¥1,000,000.

3. Arms and Munitions.

Standard Products.

Policy Regarding Manufacture of Arms; Quantity and Variety Produced.

In the matter of the manufacture of arms and munitions of war, the Japanese Government has pursued the policy of drawing on private enterprise to supplement governmental production. Information regarding government arsenals is usually considered a military secret; therefore, the author is forced to confine his study to private plants, although they are regarded as merely supplementary, and never reached a flourishing condition.

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The production of arms and ammunition by private concerns totalled ¥3,500,000 for the year ending August, 1914; ¥13,500,000 for the year ending July, 1917; and ¥13,300,000 for 1918. The variety of manufactures covered rifles and cannon, torpedoes, shells, including shrapnel, fuses, and parts thereof.

Factory Activity.

There were in the country 6 factories in August, 1914, 12 in July, 1917, and 9 in December, 1918. The number fell in 1918 because fuses were no longer manufactured.

The Manufacture of Arms and Munitions before and during the War, as Carried on by Factories Employing more than Thirty Men.

	<i>August 1, 1914</i>	<i>July 1, 1917</i>	<i>December 1, 1918</i>
Production	¥ 8,500,000	¥13,500,000	¥13,800,000
Number of factories	6	12	9
Nominal capital	¥15,200,000	¥23,270,000	¥19,400,000
Paid-up capital	....	¥18,700,000	¥18,250,000
Officers, engineers, and staff	270	650	588
Factory workers	2,600	11,050	6,448
Horsepower	....	1,700	11,461

Trade Conditions.

The export and import of arms and ammunition is regarded as a state secret; hence no figures can be given here. We can only state that, owing to the inability of the—hitherto—exporting countries to continue to supply the needs of Japan, the latter became an exporting country, especially as regarded Russia.

Fuses.

The makers of fuses may be divided into those who dealt directly with Russia, and those whose business was carried on through the medium of the army and navy.

Manufacturers Who Dealt Directly with Russia.

(1) Nihon Heiki Seizo Kabushiki Kaisha, of Osaka. The largest works of the sort, with a nominal capital of ¥5,000,000, and a paid-up capital of ¥2,875,000. At the height of the prosperity of

the business, this company employed about 5,500 men, and manufactured 2,300,000 pieces between the autumn of 1915 and July, 1917.

(2) Nihon Kikai Seizo Kabushiki Kaisha, of Tokyo. Like the foregoing firm it was established exclusively to produce for the Russian army. At one time it had 900 men in its employ, and it made 800,000 fuses.

(3) In addition to the above-mentioned, the Suzaki Tekko-jyo, of Tokyo, manufactured 275,000 fuses; the Toyo Yasuri Goshi Gaisha, of Osaka, 250,000; the Takaoka Tekko-jyo, of Toyama, 250,000; the Tokyo plant of the Nihon Heiki Kabushiki Kaisha, 200,000; and the Matsuo Tekko-jyo, of Tokyo, 175,000. All these manufacturers had been making valve cocks, and similar machine parts; but they turned to this business at the request of the Russian Government. It is stated that their aggregate production reached 4,250,000 fuses, valued at ¥17,400,000.

Manufacturers Who Undertook the Work through the Medium of the Army and Navy.

None of the foregoing concerns undertook the manufacture of parts; they produced finished goods. Of the firms not dealt with here, some made finished goods only, and others parts. They were located either in Tokyo or Aichi (Nagoya).

Firms in Tokyo.

(1) Seiko-sha. This well-known firm of watch- and clockmakers was engaged in the business in 1916 and 1917, with material supplied by the Osaka Military Arsenal. The manufactures were as follows:

<i>Description</i>	<i>Quantities</i>
"R" Cap screws	1,200,000
"R" Inner base plugs	980,000
Inner base plugs	580,000
Cap screws	825,000
Set screws	8,480,000
Time rings	808,000

(2) Kabushiki Kaisha Tokyo Keiki Seisaku-jyo. A manufacturer of manometers and speedometers, and various other measuring in-

struments, supplying the Imperial navy. In October, 1915, and December, 1916, this company produced 200,000 pieces of an average value of ¥5.10 each. Further, they supplied time rings and detonators to the Osaka Arsenal.

(3) Tokyo Gas Denki Kogyo Kabushiki Kaisha. A firm manufacturing large quantities of gas and electrical appliances. Given supplies of material in January, 1916, the company turned out three million fuse parts of various sorts.

(4) Kyoritsu Densen Kabushiki Kaisha. This company's principal products were telephone and telegraph instruments, wire and cable, and some instruments of precision, in which it met the needs of the army and navy, and the Department of Communications. It made 185,000 fuse parts, with the help of the navy, in the period between 1915 and 1917. In 1917, it further produced 40,000, at the request of the army.

(5) Nihon Seiko Kabushiki Kaisha. At the request of the army, this company manufactured 350,000 brass cap screws, with the materials supplied.

Firms in Aichi.

In spite of the fact that the foregoing Tokyo manufacturers were all rated among the better class of the industrial community, they were invariably small (except the Aichi Tokei Denki Kabushiki Kaisha) and therefore showed a greater degree of adaptability, being able thus to switch from one branch of industry to another.

(1) Aichi Tokei Denki Kabushiki Kaisha. In September, 1916, this firm received orders from the Tokyo Arsenal, and, toward the end of the year, undertook the manufacture of parts of fuses, at the request of the Osaka Military Arsenal, which supplied the material. What quantity was ordered is unknown. The firm is a manufacturer of clocks, and provides the navy with many delicate appliances and navigating instruments.

(2) Kawai Kikai Seisaku-jyo. Manufacturers of suction gas engines and pumps, with a capital of ¥100,000. In November, 1915, at the request of the Osaka Arsenal, they entered upon the manufacture of various fuse parts, for which they were paid ¥200,000.

(3) Takano Tokei Seizo-jyo. In September, 1915, this firm began to make fuses on order of the Osaka Arsenal, which furnished them the material. They were paid ¥15,000.

(4) Takano Kinzokuhin Seisaku-jyo. At the request of the Osaka Arsenal, this firm began to make fuse parts from materials furnished. They were paid over ¥80,000.

But the fuse business, after enjoying tremendous prosperity, dropped to nothing on the outbreak of the Russian Revolution. The manufacturers were forced to turn to what they could. Details follow:

After the Russian Revolution.

(1) Nihon Heiki Seizo Kabushiki Kaisha. Because this was the largest mill of the sort, and had been specially equipped for filling the orders of the Russian army, the cessation of orders was a fatal blow. It had to discharge the greater part of its factory workers, and dispose of such part of its plant as was not needed for the making of pumps, fuse parts, accessories of guns, parts of naval mines, etc.

(2) Nihon Kikai Seizo Kabushiki Kaisha. Like the foregoing, this company was established solely for the purpose of furnishing materials to the Russian army. Consequently it suffered most severely. It discharged the greater part of its men, and turned to the manufacture of parts of oil engines and tobacco-making machinery.

(3) Suzaki Tekko-jyo. This concern turned to shipbuilding.

(4) Toyo Yasuri Goshi Gaisha. Having in the past been a manufacturer of tools which were in great popular esteem, it now returned to its former business.

(5) Takaoka Tekko-jyo. No information obtainable.

(6) Matsuo Tekko-jyo. Returned to its former business.

All the Tokyo firms returned to their former businesses; but the case was quite different with the Nagoya firms. With the exception of the Aichi Tokei Denki Kabushiki Kaisha, which had a special arrangement with the Imperial navy, these concerns had engaged in the gas-engine business (although at a very late date) or in the manufacture of watches and clocks, the materials for which were difficult to secure during the War. Consequently they suffered much from the discontinuance of fuse-making.

After the War.

With the exception of the fuse business, which was already falling off, all manufactures of machinery enjoyed the greatest pros-

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perity throughout the War. The news of the armistice was a staggering blow to the industry. The demand for machinery experienced a precipitate drop, while foreign manufactures were waiting to appear on the market. Furthermore, all manufacturers had on hand huge stocks of high-priced materials, bought during the War, the price of which (especially that of iron and steel) fell tremendously.

CHAPTER IV

CHEMICAL PRODUCTS

1. Dyestuffs.

Before the War.

History.

THE manufacture of dyestuffs, which had been carried on in Japan for centuries, was limited to the production of natural dyes, scarcely any effort having been made to make them artificially. A few firms did indeed produce artificial dyes, but their capital was small and their output inconsiderable.

The backwardness of the industry was due to a variety of causes. First, the manufacture of artificial dyestuffs requires the highest attainments in chemical science; secondly, German products enjoyed free access to the Japanese market; thirdly, a very large capital is required to make these products economically.

Imports of Dyestuffs, 1911-1914.

(Quantities in 1,000 kin; values in ¥1,000)

	1911		1912		1913		1914	
	Quantity		Quantity		Quantity		Quantity	
Natural indigo	15	¥ 80	48	¥ 146	112	¥ 544	18	¥ 26
Logwood extract	685	117	1,621	807	802	849	582	98
Anilins	8,028	8,479	1,429	2,828	527	8,888	4,851	2,741
Artificial indigo	1,710	8,724	7	49	...	...	1,229	2,255
Anilin salt	179	50	519	148	490	144	855	112
Alizarins	191	255	149	220	159	269	98	195
Carbolic acid	606	189	781	270	740	251	864	218
Total	11,469	¥7,791	10,270	¥6,627	11,149	¥8,824	7,989	¥5,621

During the War.

Disappearance of Imports.

The needs of the country had been met almost entirely by imports from Germany, but Japan was now cut off by the War. The following table gives the imports during the War.

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Imports of Dyestuffs, 1915-1918.

(Quantities in 1,000 kin; values in ¥1,000)

	1915		1916		1917		1918	
	Quantity		Quantity		Quantity		Quantity	
Natural indigo	48	¥ 146	211	¥ 544	65	¥ 282	1,092	¥ 8,926
Logwood extract	1,621	807	802	849	1,247	1,108	2,718	1,999
Anilins	1,429	2,828	527	8,382	680	4,504	1,919	11,090
Artificial indigo	7	49	...	....	1	2	....	....
Anilin salt	89	82	...	....	...	....	188	182
Alizarins	4	14	...	8	...	....	....	....
Carbolic acid	219	215	1,880	8,722	8,577	4,749	2,281	8,106
Total	3,864	¥4,141	2,272	¥8,002	5,519	¥10,649	8,099	¥20,254

The decline in imports of artificial indigo resulted in a proportionate increase in the demand for the natural product. In anilin salt, Japan soon proved herself able to take care of her own requirements, owing to the simpleness of its manufacture; so with those anilin dyes which can be made cheaply and without complicated methods of manufacture and which are very much in demand. Alizarin dyes did not attract much attention, because the demand for them was not so very pressing. With logwood extract and carbolic acid, the case was entirely different, the reason being that the former is a natural product, while the latter is the foundation of the dyestuffs industry.

Classes, Quantity, and Quality of Products.

When the disappearance of articles of foreign origin resulted in an extraordinary rise of prices, the dyestuffs industry began to attract the serious attention of business promoters. It should be said, too, that in this branch of industry, which requires a profound knowledge of chemistry, Japan had never proved herself equal to the Germans. The dyestuffs which interested Japanese manufacturers were such as were simple to make and in good demand. Thus, at the end of 1915, a year and a half after the outbreak of the War, there appeared in the market red mordants and anilin dyes from the coke plant of the Miike Colliery, in Kyushiu; "yamato" black (a sulphur black) from the Yoda-gin Senryo Seizo-jyo, of Okayama; indulin and orange II from the Tokyo Gas Company; and anilin

salt from the Yura Seiko Goshi Gaisha, the Tokyo Gas Company, and other sources. In 1916, sulphur black began to be produced in Hiroshima and Okayama; yellow, orange, red, and green acid dyes, and direct dyes (yellow and red), and basic dyes (green, blue, and brown) in Tokyo, Osaka, and Wakayama. In 1917 and 1918, along with the application of fuming sulphuric acid, direct blue, green and black, acid yellow and brown, and many mordants commenced to appear in the market.

Pre-war imports amounted to 10,000,000 or 11,000,000 kin a year. Japan has exported to China sulphur blacks, acid blacks, and basic violets.

Raw Materials.

The basic materials of the dyestuff industry comprise such coal-tar products as benzol, toluol, xyrol, carbolic acid, naphthalene, and anthracene, and the benzol and toluol which are obtained by washing the coke-oven gases. The production of coal tar was a monopoly of the Tokyo Gas Company since 1897, when the Yawata Iron Foundry, Miike Colliery, and Osaka Gas Company entered the field. In those days coal-tar products were used only as fuel, germicides, deodorizers, cleanser solvents, disinfectants, and paints; and the production of coal tar was limited. When the War broke out, it showed a tremendous development, the reason being that coal tar was raw material both for the dye industry and the manufacture of explosives. The making of benzol and toluol was not attempted in Japan till 1916.

The Production of Coal-tar Manufactures in 1918.

<i>Manufactures</i>	<i>Quantity</i>
Pure benzol	8,100 tons
Pure toluol	590 tons
Pure xyrol	40 tons
Crystallized carbolic acid	125 tons
Refined naphthalene	1,400 tons
Crude anthracene	160 tons
Total	5,415 tons

Compared with the production of dyestuffs in 1918, which amounted to 5,300 tons, the above coal-tar total, 5,400 tons, is a

good illustration of the technical principle that one ton of material is required to make one ton of dyestuff.

Acids.

Although sulphuric acid, nitric acid, hydrochloric acid, and acetic acid had been produced before the War, it was not till after its outbreak that Japan succeeded in making fuming sulphuric acid. In this product, she is now self-sufficient.

Alkalis.

Caustic soda and soda ash were not commercially undertaken till after the outbreak of war. When peace was restored, the market experienced a precipitate fall and much doubt came to be felt as to the future demand for these two chemicals.

Oxidising Agents.

Bleaching powder had been manufactured in large quantities. Although Japan had been entirely dependent on other nations for the supply of potassium bichromate, arsenious acid, potassium ferrocyanide, potassium permanganate, lead peroxide, and potassium chlorate, it became possible to produce these articles during the War.

Reducers.

The manufacture of iron powder and acid sodium sulphate was actively carried on before the War; but not till after its beginning were zinc powder, sodium sulphide, hydrosulphite, etc., put on the market.

Other Chemicals.

Table salt, sulphur, ethyl alcohol, formaldehyde, chlorine, bromide, zinc chloride, barium carbonate, calcium carbonate, copper powder, cuprous chloride and copper sulphate were also produced in commercial quantities.

Factory Activity.

The year 1915 saw the incorporation of four firms with a capital of more than ¥10,000 each and three with less than that; 1916, 13

in the former category and 15 in the latter; 1917, 18 and 11; and 1918, 19 and 5 (the total being 88). Five had capitals of over ¥1,000,000; two of over ¥500,000 and less than ¥1,000,000; 17 between ¥100,000 and ¥500,000. Among the five with over ¥1,000,000 the largest was the Nihon Senryo Kabushiki Kaisha, which, organized under the particular auspices of the Government, had a capital of ¥8,000,000. The total paid-up capital of the industry in 1918 was ¥13,284,000.

After the War.

Upon the news of the armistice the dyestuffs market collapsed. Like many others, it was an industry which had developed in response to war demands, and there had not been sufficient time for it to strike root into the industrial soil of Japan. Various efforts were made to secure relief from the Government through import duties and export subsidies, etc. But these efforts were unsuccessful.

2. Sodas.

History.

The soda industry of Japan was established in 1879, when, at its own plant, the Printing Bureau of the Department of Finance began to manufacture soda ash, caustic soda, and bleaching powder for paper-making. The plant was removed to Oji, a suburb of Tokyo, six years later, and sulphuric acid was added to the list of manufactures. In December, 1895, following the Sino-Japanese War, the business (except for the making of sulphuric acid, which was turned over to the army) was put in the hands of a private firm, the predecessor of the present Kanto Sanso Kabushiki Kaisha. In July, 1890, the Nihon Shami Seiza Kabushiki Kaisha was established at Onoda, Yamaguchi, where it began to make hydrochloric acid, bleaching powder, caustic soda, and soda ash; and the industry then became altogether free from government control. Although both companies succeeded in gradually extending their business, the high cost of salt, a necessary raw material, and the crudeness of their manufacturing process made it very difficult for them to compete with imported products. There was a flourishing business in sul-

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phuric acid, but the soda industry showed no sign of development and no new firm was organized until hostilities broke out in Europe.

The soda industry, though it never attained anything that might be called a great development, began to advance about 1909. The aggregate quantity of the various compounds of soda reached 6,600,000 pounds in 1907, 13,600,000 pounds in 1909, and 17,400,000 pounds in 1913. The backwardness of the industry will at once become evident, when imports are contrasted with the quantities produced at home. Thus in 1909 home-produced caustic soda amounted to 35.2 per cent of the total consumption. In 1913 the home product had increased only to 35.5 per cent. Looking at the total production and total imports, the proportion amounted to 19.5 per cent in 1909 (13,692,000 and 70,203,000 pounds respectively) and 16.6 per cent in 1913 (17,431,000 and 105,242,000 pounds respectively). The absolute quantity of soda products, while increasing during the period under review, was becoming smaller in proportion to the sum of imports and home production, that is, to the total consumption. The product which the Japanese manufactured most successfully was caustic soda, a relatively simple process.

The total production of Japanese sodas increased from 17,430,000

Production and Trade in Soda.

(Quantities in 1,000 lbs. Values in ¥1,000)

Caustic Soda.

	<i>Production</i>		<i>Imports</i>		<i>Total</i>	
	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>
1914	11,473	550	40,488	1,416	51,961	1,966
1915	16,088	1,000	24,925	1,256	41,013	2,256
1916	14,853	1,654	21,040	2,989	35,893	4,593
1917	19,980	2,667	47,877	6,409	57,857	9,076
1918	23,264	5,276	16,351	3,257	39,615	8,533

Soda Ash.

1914	3,727	64	72,667	1,557	76,394	1,621
1915	3,927	88	67,555	1,463	71,482	1,551
1916	5,719	311	84,675	3,698	90,394	3,909
1917	7,598	337	98,061	6,964	105,659	7,351
1918	6,766	357	124,159	2,405	130,925	11,762

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	<i>Sodium sulphate</i> <i>Production</i>		<i>Sodium bicarbonate</i> <i>Imports</i>			
	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>		
1914	8,414	86	9,617	298		
1915	2,840	56	10,118	815		
1916	11,779	157	10,017	894		
1917	18,658	491	6,881	807		
1918	20,108	1,888	7,882	690		
	<i>Total Soda Production</i>		<i>Total Soda Imports</i>		<i>Grand total</i> <i>(i.e. total consumption)</i>	
	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>
1914	18,614	650	122,782	8,266	141,886	8,916
1915	22,855	1,144	102,598	8,084	124,948	4,178
1916	82,851	2,022	115,782	7,081	148,088	9,058
1917	46,486	8,545	152,819	18,680	199,055	17,225
1918	50,188	6,965	147,842	15,852	197,980	22,817

pounds in 1913 to 18,610,000 in 1914 and to 50,130,000 in 1918, that is, almost by threefold. The production of caustic soda, which amounted to 35.5 per cent of the imports in 1913, exceeded the imports by almost one-third in 1918. Home production of soda ash amounted to 6.9 per cent of the imports in 1913 and to 5.4 per cent in 1918.

If we leave sodium sulphate and sodium bicarbonate out of account, the aggregate manufacture of the various soda products, 17,431,000 pounds in 1913, amounted to 16.6 per cent of the imports of 105,242,000 pounds; 18,614,000 pounds in 1914, or 15.1 per cent of the imports of 122,772,000 pounds; and to 50,138,000 pounds in 1918, or 33.9 per cent of the imports of 147,842,000 pounds. The rapid development of the soda industry was due to the activity of those manufacturers who required soda for raw material, and to the high prices resulting from the difficulty of importing it.

Promotion of Companies.

The great prosperity of the industry meant a like activity in the promotion of new companies. In addition to the two companies, with a nominal capital of ₹10,000,000, operating before the War, 19 companies, with an aggregate nominal capital of ₹13,410,000 were established during the War. Of these 19 companies one was established in 1915 with a capital of ₹800,000; 2 in 1916 with an aggre-

gate capital of ¥2,030,000; 7 in 1917 with an aggregate capital of ¥4,480,000; and 9 in 1918 with an aggregate capital of ¥6,100,000.

Raw Materials.

The raw material of the soda industry is salt, and Japan supplies all her needs from the extensive salt fields of Kwantung Peninsula, Manchuria, and Tsingtao, China. Since salt from these sources ranges between 80 and 85 per cent in purity, the manufacture of 100 pounds of caustic soda requires a supply of 134 to 145 pounds of crude salt (allowing for a loss of 10 per cent during manufacture).

Skill of Manufacturers and Quality of Goods.

The Leblanc process has a long history in Japan and involves only simple operations. In the application of this process the Japanese soda industry is not inferior to the European and American; but in the electric analysis process, introduced in Japan only after the outbreak of the War, the industry is still considerably behind. With inferior technique and raw materials, the quality of the product is naturally inferior, although it is improving.

Prices.

In spite of the poor quality of the raw material and the backwardness of technique, the industry expanded rapidly during the War. This was due to the rise in prices.

Market Prices of Soda Compounds during the War.¹

		1914	1915	1916	1917	1918
Caustic soda	Highest	¥11.00	¥9.70	¥26.90	¥29.00	¥35.00
	Lowest	4.70	5.10	11.80	13.50	19.00
	Average	6.27	8.48	17.14	18.10	29.85
Soda ash	Highest	7.50	4.80	17.00	16.50	17.40
	Lowest	3.40	3.75	8.90	12.50	8.60
	Average	4.40	4.20	12.89	14.07	14.78
Sodium bicarbonate	Highest	14.90	8.50	15.00	11.20	34.80
	Lowest	4.85	5.45	7.20	9.35	9.60
	Average	6.24	6.17	10.89	10.28	22.99

¹ The table deals with the wholesale quotations ruling in the Tokyo market. Both caustic soda and soda ash (the Moon brand of Messrs. Brunner and Mond) are quoted by the hundredweight, and sodium bicarbonate by the barrel. The average was worked out for the entire year.

Upon the receipt of the news of the armistice, the soda market took a headlong fall. Caustic soda, which reached ¥35 in 1918, dropped to ¥19 toward the end of the year; soda ash fell from ¥17.40 to ¥8.60; and sodium bicarbonate from ¥34.80 to ¥8.60. It is to be remembered, too, that those remarkable figures were mere market quotations which never resulted in actual business.

3. Potassium.

The potassic compounds which are of interest in Japan are potassium cyanide, potassium nitrate, potassium chlorate, potassium bichromate, potassium borate, potassium iodid, and potassium chlorid. While still importing potassium cyanid, potassium nitrate, and potassium borate, Japan has long been able to meet all her requirements in potassium iodid. This study will therefore be confined mainly to potassium chlorate, potassium bichromate, and potassium chlorite.

(1) Before the War, potassium chlorite was obtained as a by-product, by manufacturers of iodine from ashes of seaweed. Both in quantity and quality it was quite unequal to commercial requirements; it served only as raw material for the making of potassium sulphate and potassium nitrate. All the potassic salts needed in this country had been brought from abroad.

(2) The Japanese match industry was a very large consumer of potassium chlorate, but almost the whole amount required had been imported. It may be mentioned, however, that the Nihon Kagaku Kogyo Kabushiki Kaisha, which began to experiment in the production of potassium chlorate in 1910, succeeded in placing its products on the market although they were too poor in quality to compete with imported goods.

(3) Japan had been making potassium bichromate for more than a decade before the outbreak of the War; but the industry was on a small scale, and profits were by no means satisfactory. The national requirements were met by imports.

*Potassium Chlorite.**Quantity and Methods of Production.*

The production of potassium chlorite, which amounted to a little more than 1,500,000 kin yearly between 1910 and 1912, and to 3,300,000 and 3,200,000 in 1913 and 1914 respectively, rose to 5,600,000 kin in 1918. The causes of this development were the following: First, the extraordinary rise in the price of imported potassic compounds and the accompanying shortage of stocks attracted manufacturers and convinced them that if they could secure the chlorite the compounds could be manufactured here. Second, due to helpful researches by the Industrial Laboratory, they learned how to extract higher percentages from the ashes of seaweeds—the process they had been using—and to distil bittern,² the ashes of tobacco leaf stems and of certain weeds. Today bittern and ashes of *lamanaria* and other seaweeds are regarded as a more important source of potassium chlorite than anything else.

*Seaweed Chlorite.**Production and Quality.*

Although it had been thought that potassium chlorite could be obtained only from seaweed, in 1915 the provinces bordering on the Inland Sea began to make use of the bittern in their salt fields. Consequently, in order to ascertain the total production of seaweed chlorite, that of bittern chlorite must be subtracted from the aggregate quantity of chlorites produced.

Production of Potassium Chlorite, 1914-1918.

(in kin of 1.32 lbs.)

	1914	1915	1916	1917	1918	
Bittern	Inland Sea					
	Provinces	802,517	907,747	1,990,481	2,588,426	
Seaweed	Hokkaido	1,574,648	3,598,651	4,964,688	6,772,888	5,679,494
	Elsewhere	1,668,089	1,781,876	6,885,961	5,962,892	6,626,412
	Total	3,242,679	5,325,527	11,850,599	12,734,725	12,305,904
	Grand Total	3,242,679	5,628,044	12,758,845	14,725,156	14,889,832

² See page 287.

The quality of the seaweed chlorite, which had had a purity of only 50 to 60 per cent before the War, reached 80 to 90 per cent, so that it took rank with chlorites of foreign origin.

Factory Activity.

In 1918, according to the Rinji Sangyo Chosa-kyoku (the war-time Industrial Bureau) the aggregate number of factories making this class of chemical products was 141. There were 7 firms, each with a capacity of 900,000 kin a year, and in all they operated 18 plants: their aggregate output amounted to 60 per cent of that of the entire country. The remaining factories were all small. It is to be noted, however, that the 7 firms did not devote themselves to chlorite exclusively, and that it is impossible to know how much of their capital should be assigned to the manufacture of chlorites.

Raw Materials.

Although every section of the coast line of Japan abounds in seaweeds, the richest supplies are in Hokkaido. The best known points in Hokkaido for the collection of seaweed are Hanasaki and Nemuro, in the province of Nemuro; Akkeshi, Kushiro; Masuke, Teshio; Soya, Kitami; Hiyama, Toshima; Usu, Iburi; also Etorofu in the Kurile Islands. The iodine and potassic industry is quite promising in Saghalien, where laminaris, kelp, and other seaweeds are abundant.

Bittern Chlorite.

Production and Quality.

In 1915 the new industry of extracting potassium chlorite from bittern was established in Hyogo, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, and Ehime. The substance called bittern, which, in this country, was required for making "tofu" (bean-curd) and magnesium compounds, and as a fertilizer, commands a certain price in cities and in localities where it is not produced in large quantities; but in the Inland Sea Provinces it is virtually a waste product. When, on the outbreak of war, the price of chlorite became very high, the experts of the Industrial Experimental Laboratory began experiments with processes for its manufacture and were finally successful. From a production of 800,000 kin in 1915, bittern chlorites rose to 2,500,000 kin in 1918, or within 700,-

000 kin of the seaweed chlorite production in 1913. As to quality, the bittern chlorite grades up to 80 per cent, or on a par with the seaweed product.

Factory Activity.

According to the Rinji Sangyo Chosa-kyoku (the war-time Industrial Bureau), the manufacturers of bittern chlorite numbered 25 in September, 1918, of whom 5 were in Hyogo, 5 in Okayama, 3 in Hiroshima, 2 in Yamaguchi, 4 in Tokushima, and 6 in Kagawa.

Raw Materials.

Statistics are lacking for the production of bittern in the provinces named. The price of bittern, though it had averaged about 15 sen a koku before the War, rose to more than one yen in 1918. Of the 25 factories mentioned above, 17 worked upon bromin as a by-product, and the remaining 8 upon chlorite exclusively. This situation is abnormal, since bromin, not chlorite, is the chief product of the bittern industry, just as iodid, and not chlorite, is the chief product of the seaweed industry.

Prices and the Relation of Demand to Supply.

The market price of potassium chlorite, which had oscillated between ¥80 and ¥100 per 1,693 kin before the War advanced rapidly during the War and by 1916 reached ¥1,200 for the home product, and ¥1,250 for the imported. With the progress of manufacture, the situation changed completely. In 1916 the home product dropped to the level of ¥500 to ¥600 (by this time imports had completely disappeared), and after the armistice, to ¥130. The production of potassium chlorite may be roughly estimated at 14,000,000 kin for 1917 and 1918, the material being required for making potassium chlorate, potassium bichromate, and potassium nitrate. It is stated that the production of potassium chlorate totalled 3,100,000 kin in 1915, 5,500,000 kin in 1916, 10,000,000 kin in 1917, 5,000,000 kin in 1916, 10,000,000 kin in 1917, 5,000,000 kin in 1918, and that the quantity of potassium bichromate was 1,500,000 kin in 1917. Although authentic figures could not be obtained for potassium nitrate, the war-time Industrial Bureau believed that the quantity produced was approaching 3,500,000 kin a year.

*Potassium Chlorate.**Production and Trade.*

Potassium chlorate had never been given much attention by Japanese industry until the War put obstacles in the way of imports and caused an increase of prices. The volume of imports, estimated at 6,000,000 kin a year for the pre-war period, fell to 4,400,000 kin in 1914, to 4,100,000 in 1915, to 1,700,000 in 1916, to 170,000 in 1917, and to 50,000 in 1918. This decline was due to the difficulties encountered in the import trade and to the development of the home industry. Home production stood at 3,100,000 kin in 1915, 5,500,000 in 1916, 10,000,000 in 1917, and 5,200,000 in 1918. Not only did the home product take the place of imports, but Japan was able to enter the export trade with 2,500,000 kin in 1917, and with 3,600,000 in 1918.

Quality.

The product marketed during the War was above 95 per cent in quality, and compared favorably with the imported product. There were, admittedly, some brands which did not rise much above 90 per cent; but these were exceptions, being generally made in small plants.

Factory Activity.

The manufacture of potassium chlorate does not call for large factories, but it presupposes a cheap and abundant supply of electric power. According to the war-time Industrial Bureau the factories were distributed, in July, 1918, as follows:

<i>Locality</i>	<i>Number of plants</i>	<i>Monthly production</i>
Fukushima	8	4,290 barrels
Fukuoka	5	2,490 barrels
Kanagawa	2	1,650 barrels
Kyoto	6	1,860 barrels
Other provinces	81	1,528 barrels
Total	47	11,818 barrels

There were three factories with a monthly production of above 1,000 barrels a month, and an aggregate production of 6,750 bar-

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rels, about 60 per cent of the entire production. Seven factories had a capacity of between 300 and 1,000 barrels.

Demand and Supply.

Beyond the trifling demands of the medical profession and those of fireworks makers, potassium chlorate was required only for the match industry. As mentioned above, imports before the War amounted to 6,000,000 kin a year, and home manufactures amounted to nothing. Consequently, figures for imports and those for consumption may be taken as the same, and the consumption may be practically all assigned to the match industry.

Production of Matches, 1910-1913.

	<i>Production</i>
1910	590,000,000,000 dozen
1911	520,000,000,000 dozen
1912	630,000,000,000 dozen
1913	620,000,000,000 dozen

For the production of, roughly, 600,000,000,000 dozen, 6,000,000 kin of potassium chlorate was used. During the War, the production of the match industry was as follows:

	<i>Production</i>
1914	580,000,000,000 dozen
1915	590,000,000,000 dozen
1916	600,000,000,000 dozen
1917	630,000,000,000 dozen
1918	580,000,000,000 dozen

With the exception of 1917, in the years during the War the match industry fell short of the production of the last two years before the War, and therefore could not have exceeded those years in its demand for potassium chlorate; that is, 6,000,000 kin. Yet home production of potassium chlorate rose to 10,000,000 kin in 1917 and 5,200,000 kin in 1918, with consequent overproduction and the necessity of exportation.

Raw Materials.

Here the chief components are potassium chlorite and electricity. It has been stated already that potassium chlorite rose from a 3,300,-

000 kin pre-war production to a production about five times as large in 1917 and 1918. Since the sole use of chlorite is as a base for the manufacture of potassium chlorate, the increased production of the chlorite may be taken as indicating the increase in the output of the chlorate. With respect to the cost of the electricity consumed, it is said that the lowest charge was ¥0.005 per kilowatt hour, and that about 14 factories paid something less than ¥0.008. In most cases, the cost of electricity was ¥0.01 to ¥0.013, and sometimes as much as ¥0.03—the payment of such a price being held to render the business impossible. Efficiency in the use of electric power depends almost entirely upon the nature of the plant equipment and the skill of the factory staff. A case is on record where the manufacture of one barrel of chlorates required the expenditure of 600 kilowatt hours, but it was, in another case, as little as 430 kilowatt hours, with the average above 500. Seeing that the world's record is 400 kilowatt hours, in this field Japan still has much to learn.

Prices.

During the War the chemical market quoted potassium chlorate as follows:

	Lowest Quotation ^a (in yen)	Highest Quotation (in yen)
1914	17	105
1915	45	130
1916	95	186.50
1917	58	105
1918	40	76.90

In 1914 the difference between the highest and the lowest quotation was ¥88. A study of the monthly quotations for the year shows that between January and July the price stood at ¥17.85, except in May when it was ¥17.00. As soon as the War broke out, it rose to ¥31.50, and later to ¥67.00 in September and to ¥105 in October. Apart from occasional flurries, it continued strong till the development of the home industry forced the prices downward. In 1908, it advanced to ¥76.90 in February, with ¥53.50 in September, ¥63.00 in October, ¥48.00 in November, and ¥40.00 in December.

^a Wholesale quotations for 112 pounds of potassium chlorate.

*Potassium Bichromate.**Production and Trade.*

It has been stated above that Japan manufactured but little bichromate before the War, and that, with the exception of 1912, when imports reached 1,400,000 kin, the volume of the trade ranged from 440,000 to 700,000 kin for the years following 1910. With the War, bichromate was affected quite as seriously as chlorate, resulting in efforts toward the promotion of the industry at home. According to the war-time Industrial Bureau, although accurate figures are obtainable only for 1917, when the record of 2,084,800 pounds (1,577,045 kin) was reached, there is reason to believe that 1918 was quite as prosperous for this industry as 1917. Imports were constantly falling off. They were 1,000,000 kin in 1914, 810,000 kin in 1915, 520,000 kin in 1916, 440,000 kin in 1917, and 160,000 kin in 1918.

Factory Activity.

Potassium bichromate was manufactured by eight concerns, of which the oldest and largest was the Nihon Seiren Kabushiki Kaisha, which, along with bichromate, now (1920) produces sodium silicate, sodium peroxide, potassium permanganate, and certain other products. Its manufacturing capacity was enlarged in 1915, and it puts on the market more than 80 per cent of the total production of the country.

Demand and Supply.

While the potassium bichromate is used by dyers, tanners, and makers of electric batteries, its chief use in Japan is as raw material for the match industry. Since all demands were satisfied before the War by imports, the figures for imports may be taken as at the same time the figures for consumption, though there were some years which were exceptions. The average yearly importation was about 800,000 kin for the period between 1911 and 1913. But though the production of matches diminished during the War, potassium bichromate was turned out in increasing quantities; and consequently, it may be inferred that, even granting that the demands of dyers, tanners, and makers of electric batteries became much larger, Japan

had at last reached a stage where she was self-supplying as regards this chemical. The fact that imports fell to 160,000 kin in 1918 supports this inference.

Raw Material.

(1) Chromite. The territory of Japan is rather inadequately provided with chrome ore; moreover, the available ore is poor in quality. When the War broke out, potassium bichromate, ferro-chrome, and chromic bricks, appreciated considerably in price. Consequently, frequent searches were made for the mineral, and its output made the following increases:

	<i>Quantity</i> (in tons)
1918	1,814
1914	2,090
1915	2,952
1916	3,175
1917	3,870
1918	7,150

It is believed that the requirements of Japan for chromite may not rise very much above 3,000 tons a year, provided the quality of the ore is above 50 per cent. However, Japanese ores are all of inferior grade, varying between 30 and 40 per cent and are located in serpentine pockets, so that their output may fall off at any moment. Added to this is the fact that a considerable quantity of the ore is to be reserved for the making of ferro-chrome, chromic brick, and chrome alloys. Therefore, the importation of better ores, from Rhodesia and New Caledonia, has been proposed.

Prices.

At the outbreak of the War, potassium chlorate was quoted at ¥17 to ¥20 per hundred pounds. The price was ¥37 to ¥45 in 1915, ¥150 the highest quotation during the war-period, in 1916, ¥120 to ¥140 in 1917, and ¥130 in 1918. Home-produced potassium bichromate began to appear on the market in 1916.

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Production and Imports of Potassic Compounds, 1914-1918.

(Quantities in kin of 1.32 lbs.; values in yen.)

	<i>Potassium cyanid</i>		<i>Potassium nitrate</i>	
	<i>Imports</i>		<i>Imports</i>	
	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>
1914	210,602	584,068	98,449	752,627
1915	868,286	668,286	68	161
1916	649,156	1,025,947	79,270	248,149
1917	870,674	498,080	62,258	181,868
1918	412,588	459,497	804,166	888,010

	<i>Potassium chlorate</i>		<i>Potassium chlorate</i>	
	<i>Imports</i>		<i>Production</i>	
	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>
1914	870,094	4,444,456	.....	.....
1915	2,880,877	4,128,242	2,551,080	8,149,228
1916	1,761,960	1,788,781	5,901,980	5,594,557
1917	154,948	177,842	8,158,187	10,056,521
1918	64,226	50,808	6,695,650	5,228,585

	<i>Potassium bichromate</i>		<i>Potassium borate</i>	
	<i>Imports</i>		<i>Imports</i>	
	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>
1914	168,255	1,000,685	146,582	150,780
1915	815,956	812,685	124,419	66,917
1916	784,284	522,057	16,080	2,547
1917	499,725	442,018	15,394	2,578
1918	222,972	167,588	521	258

	<i>Potassium iodid</i>		<i>Potassium chlorite</i>	
	<i>Production</i>		<i>Production</i>	
	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>
1914	857,562	184,614	116,755	8,242,679
1915	1,407,905	167,428	678,889	5,628,045
1916	1,684,940	288,466	2,808,860	12,765,154
1917	955,687	168,411	8,261,175	14,725,156
1918	1,841,108	192,627	8,024,864	14,889,256

4. *Phosphorus.*

In spite of the fact that matches are one of the principal manufactures of Japan, the chemicals which enter into the making of them had been little produced. Toward the end of 1912 efforts were first directed toward the production of these chemicals, when the Fuji Denkwa Kabushiki Kaisha was incorporated with a capital of

¥100,000 and began experimenting with phosphorus, at Ejiri, Shidzuoka. Closely following this, at Shibatomi, Shidzuoka, another factory was established, the Denro Kogyo Kabushiki Kaisha, with a capital of ¥35,000; and it followed the guidance of the Industrial Experimental Laboratory as to its manufacturing process. The aggregate quantity produced, however, was only 70 or 80 cases a month, the case containing 100 pounds or 75 kin, while the output was limited to yellow phosphorus.

Production of Matches and Imports of Phosphorus, 1910-1918.

	<i>Production of red phosphorus matches (in 100,000 dozens)</i>	<i>Imports of red phos- phorus (kin)</i>	<i>Production of lucifer matches (in 100,000 dozens)⁴</i>	<i>Imports of yellow phosphorus (kin)</i>
1910	8,955	294,495	2,088	227,785
1911	8,915	318,205	1,858	228,888
1912	4,288	328,688	2,052	305,176
1918	4,556	344,451	1,651	285,528

During the War.

Production and Trade.

The phosphorus industry effected a remarkable development after the outbreak of the War. Grouping yellow and amorphous phosphorus together, the production recorded in 1915 was 140,000 kin, in 1916, 720,000 kin, in 1917, 930,000 kin, and in 1918, 1,240,000 kin, almost a ninefold increase in the four years. Imports fell off steadily, the amorphous standing at 350,000 kin in 1914, and 98,000 kin in 1918. Yellow phosphorus imports declined from 163,000 kin in 1914 to 35,000 in 1917, and disappeared from the import figures in 1918. Manufacturers of red phosphorus matches slightly more than held their own, increasing their output from 4,326,000 dozens in 1914 to 4,702,000,000 dozens in 1918. Lucifer matches declined irregularly from 1,559,000,000 dozens in 1914 to 1,101,000,000 dozens in 1918, with a maximum, however, in 1916 of 1,622,000,000 dozens.

⁴ In the statistics of the Department of Agriculture and Commerce, three classes of matches are listed, viz., safety, lucifer, and others. But the kinds designated as "others" in the statistics require the use of yellow phosphorus, so that, in this table, they, too, are included in the "lucifer" column.

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Production of Matches and Phosphorus, and Imports of Phosphorus, 1914-1918.

(phosphorus in kin of 1.32 lbs.)

	<i>Red phosphorus matches</i> (in 100,000 dozens)	<i>Amorphous phosphorus imported</i>	<i>Lucifer matches</i> (in 100,000 dozens)	<i>Yellow phosphorus imported</i>	<i>Home production of phosphorus</i>
1914	4,326	856,877	1,559	163,788	.....
1915	4,525	266,289	1,883	145,281	142,692
1916	4,451	180,645	1,622	140,714	729,791
1917	5,084	197,044	1,219	85,977	981,872
1918	4,702	98,157	1,101	.....	1,248,928

Prices.

Owing to the fact that the English, German, and French exporters maintained an understanding as to the Japanese market, amorphous phosphorus remained steady at ¥87 and yellow phosphorus at ¥65 per 100 pounds for the period between 1912 and the outbreak of the War. Prices began to rise by the end of 1914 and reached the following levels:

	<i>Amorphous phosphorus</i>		<i>Yellow phosphorus</i>	
	<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>
July-December, 1916	¥190	¥100	¥110	¥90
January-June, 1917	165	88	150	70
July-December, 1917	150	85	185	70
January-June, 1918	120	89	185	85
July-December, 1918	110	85	127	94

The market was at its height by the second half of 1916, when the amorphous hovered between ¥100 and ¥190 and the yellow between ¥90 and ¥110. Later, with the appearance of the home product, prices tended downward, and ranged between ¥85 and ¥110 for the amorphous and between ¥94 and ¥127 for the yellow.

Raw Materials.

The production of Japanese phosphate ore, an important raw material in the phosphorus industry, was as follows:

Production of Phosphate Ore, 1912-1918.

(in metric tons)

	<i>Raza Island</i>	<i>Other deposits</i>	<i>Total</i>
1912	4,818	3,088	7,851
1913	16,286	2,807	19,048
1914	35,947	2,812	88,259
1915	51,622	6,094	57,716
1916	107,890	6,920	114,810
1917	112,011	9,617	121,628
1918	185,840	6,981	192,271

*5. Sugar.**Before the War.**History.*

The cane sugar industry of Japan had been carried on long before the coming of Western civilization. But the climate was unfavorable for the cane, and when foreign sugar began to arrive the Japanese product was quickly driven out of the market. When, however, the island of Formosa was ceded to Japan at the close of the Sino-Japanese War, the attention of the Imperial Government was turned to the development of the cane sugar industry there and in the Liuchiu Islands, an archipelago of Japan proper which had long been held to offer the plant a congenial home. The authorities promulgated a number of laws for the improvement of Formosan sugar manufacturing, and delegated all the necessary executive powers to the newly created Sugar Bureau—a temporary department—in 1903. For the Liuchiu Islands, they granted subsidies, advanced capital, opened a model mill, and, in 1906, established the Sugar Improving Bureau in Okinawa. These various efforts turned out successfully and the sugar industry of Japan was greatly benefited.

*Japan Proper.**Raw Sugar.*

Raw cane sugar in Japan proper was, for the most part produced in Okinawa, Oshima, and the Bonin Islands.

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*Production of Raw Sugar in Japan Proper, 1906-1913.**

	Quantity (in kin)		Quantity (in kin)
1906	84,787,497	1910	108,868,282
1907	88,284,808	1911	112,855,820
1908	89,990,528	1912	102,442,410
1909	98,024,518	1913	109,786,274

Refined Sugar.

The refining of raw sugar is a comparatively new industry in Japan, having taken its rise in 1896, when the Nihon Seito Kaishiki Kaisha, the Japanese Sugar Company, opened a refinery in Suna-mura, near Tokyo, and another in Mikyako-jima, near Osaka. Because of the rapid progress of Japan, the consumption of white sugar showed a tremendous increase; and the supply having grown too small for the demand, the refiners were forced to secure their raw sugar from Java and Formosa.

*Refined Sugar Production, 1906-1913.**

	Quantities (in kin of 1.82 lbs.)
1906	827,970,972
1907	822,884,482
1908	207,858,906
1909	267,921,869
1910	207,882,858 (207,026,685)
1911	298,526,077 (291,780,656)
1912	221,907,872 (220,850,791)
1913	847,918,044 (847,180,616)

* The figures for the years prior to and including 1909 are based on the Statistical Reports of the Department of Agriculture and Commerce, and those from 1910 onward on the Annual Statistical Reports of the Taxation Bureau of the Department of Finance. In the latter case, the fiscal year extended from October 1 to September 30. For the years preceding 1909, the figures covered the sugars of Class I, Class II, Class III, Class IV, and for the following period, they included black sugar, muscovado, brown sugar, white sugar, and molasses.

* The figures for the period before 1908 are based on investigations by the Sugar Improving Bureau, and those for the years following on the Annual Statistical Reports of the Taxation Bureau of the Department of Finance. The figures in parentheses give the quantities of refined sugar made from raw sugar produced elsewhere than in Japan proper.

At the end of 1913 there were four firms, maintaining five mills, whose output of refined sugar was as follows:

<i>Manufacturer</i>	<i>Location of Refinery</i>	<i>Quantity</i> (in kin of 1.82 lbs.)	<i>Value</i>
Tokyo Seito Kabushiki Kaisha	Tokyo	92,802,850	¥18,865,871
Tokyo Seito Kabushiki Kaisha	Osaka	58,854,000	10,880,850
Meiji Seito Kabushiki Kaisha	Kawasaki	50,550,000	10,120,000
Taiwan Seito Kabushiki Kaisha	Kobe	84,004,024	4,954,790
Dai Nihon Seito Kabushiki Kaisha	Dairi	102,868,474	19,919,211

Formosa.

Raw Sugar.

The production of raw sugar in Formosa, although, before 1905, an industry less thriving than that of Japan proper, after that year developed phenomenally.

Production of Raw Sugar in Formosa, 1906-1913.¹

	<i>Quantity</i> (in kin of 1.82 lbs.)
1906	128,661,528
1907	107,973,785
1908	111,147,696
1909	216,008,849
1910	377,918,237
1911	485,887,660
1912	327,788,948
1913	162,100,632

Refined Sugar.

While the production of raw sugar rapidly increased, that of refined sugar fell off. The explanation has been offered that the refined sugar, though cheaper, is not so good in quality as that made in Japan proper, and that importers have to face the handicap of insurance, warehouse fees, and loss of weight in transit. Consequently this sugar can never compete successfully on the Japanese market with the home product.

¹ The table and that on p. 801 are based on the Statistical Reports of the Governor General of Formosa, and cover both molasses and sugar. The year extends from November 1 to October 31.

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Production of Refined Sugar in Formosa, 1906-1913.

	<i>Quantity</i> (in kin of 1.32 lbs.)
1906	6,945,654
1907	8,427,989
1908	2,746,281
1909	3,400,771
1910	1,861,518
1911	825,882
1912	27,160
1913	881,861

During the War.

Raw Sugar.

Not only did the Government pass measures to protect the cane sugar industry, but the economic prosperity due to the Great War also had a favorable influence on the manufacture of sugar. In Japan proper, the aggregate area under sugar was about 21,700 cho⁶ in 1913, and 29,300 cho in 1918. The increase in Formosa was from 67,300 ko in 1913 to 121,600 ko in 1918.

Japan Proper.

Production of Raw Sugar in Japan Proper, 1914-1918.

	<i>Quantity</i> (in kin of 1.32 lbs.)
1914	187,097,409
1915	125,911,968
1916	152,890,642
1917	226,288,665
1918	158,585,107

The raw sugar industry centers in the Prefecture of Okinawa, which is preëminently Japan's sugar district. Among the sugars produced, black sugar surpasses all others; then comes muscovado. The manufacture of centrifugals is now (in 1920) possible, owing to the establishment of a modern mill a few years ago.

⁶ The cho = 2.45 acres.

*Formosa.**Production of Raw Sugar in Formosa, 1914-1917.⁹*
(in kin of 1.32 lbs.)

	<i>Sugars containing molasses</i>	<i>Centrifugals</i>	<i>Molasses</i>	<i>Total</i>
1914	28,915,206	222,864,018	87,284,126	288,518,345
1915	85,696,810	811,750,088	78,862,647	421,809,045
1916	50,855,858	495,788,952	140,500,861	687,095,671
1917	86,522,820	676,853,588	161,423,274	924,799,682

Raw sugar suffered a decided setback in 1913. It began to recover in the following year. Production was active in 1915, and in 1917 reached 924,790,000 kin. The average for 1910-1913, was 338,297,000 kin, and that for 1914-1918, 580,429,000, an increase of 71.6 per cent.

*Refined Sugar.**Japan Proper.**Production of Refined Sugar in Japan Proper, 1914-1918.¹⁰*
(in kin of 1.32 lbs.)

	<i>Quantities</i>
1914	849,411,380 (848,724,988)
1915	260,987,952 (259,050,726)
1916	819,162,817 (818,096,106)
1917	448,148,959 (439,299,942)
1918	482,162,278 (480,350,814)

Sugar production, though varying from year to year, was increasing gradually. Thus the years 1917 and 1918, with a production considerably over 400,000,000 kin, exceeded the figures for 1913, or 347,900,000 kin, long regarded as a record. For the five years ending 1913, the yearly production averaged 282,818,000 kin, and for an equal period after 1913, inclusive, 360,974,000 kin,

⁹ The table is based on the Statistical Reports of the Governor General of Formosa. The year extends from November 1 to October 31.

¹⁰ The table is based on the Statistical Reports of the Governor General of Formosa. The figures in parentheses indicate refined sugar produced from raw sugar obtained from cane grown elsewhere than in Japan proper.

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an increase of 27.6 per cent. As regards the supply of raw material, almost the whole of the country's requirements had to be met by imports from abroad or from Formosa. This was the case in the pre-war period, and in 1913 imports reached 90 per cent of the entire consumption. In consequence of the rapid development of production in Formosa during the War imports from abroad fell behind imports from Formosa in 1915, and were less than one-third of such imports in 1917, although foreign imports recovered first place in 1918. The following table, prepared from the Statistical Reports of the Department of Agriculture and Commerce, deals with the consumption of raw sugar by the refining industry since 1914:

Consumption of Raw Sugar by the Refining Industry in Japan Proper, 1914-1918.

(in kin)

	<i>Formosan raw sugar</i>	<i>Imported</i>	<i>Total</i>
1914	64,828,876	188,404,716	253,233,592
1915	188,072,786	181,488,865	269,561,651
1916	181,780,787	99,454,109	281,234,896
1917	811,474,059	101,094,069	912,568,128
1918	165,426,189	284,654,821	450,081,010

Formosa.

It has been said that for some time the sugar refining industry of Formosa not only failed to show any signs of growth, but actually declined. The decline continued until 1916. In 1917 the industry suddenly became active again. The production, however, was only 10 per cent of that of Japan proper.

Production of Refined Sugar in Formosa, 1914-1917.¹¹

(in kin)

	<i>Quantity</i>
1914	264,871
1915	196,861
1916	804,894
1917	80,845,501

¹¹ The table is based on the Statistical Reports of the Governor General of Formosa; it comprises the figures for centrifugals. The year is from November 1 to October 31.

*Mills.**Japan Proper.*

Owing to the fact that, generally speaking, raw sugar is produced by farmers who operate their machinery with cattle power or water wheels, the industry has remained backward. But conditions have considerably improved during the past few years. As stated above, in the Prefecture of Okinawa, a modern mill was opened, which was equipped for making centrifugals. The Dainan Sugar Manufacturing Company now possesses several modern plants; and two or three other firms have either entered upon, or are contemplating the construction of mills.

Formosa.

Till recent times in Formosa sugar was made in a thatched house called the *tombo*, and it was a very primitive business, but it may well be called a modern industry now. At the end of 1917 there were 35 mills with an aggregate capital of ¥124,000,000, a paid-up capital of ¥85,000,000, and a production of 680,000,000 kin.

Consumption of Sugar in Japan Proper, 1914-1918.¹³

	1914	1915	1916	1917	1918
	(in kin of 1.82 lbs.)				
<i>Production in Japan proper</i>	187,097,409	125,911,968	152,890,642	226,288,665	158,585,107
<i>Imports</i>	844,419,600	209,551,000	162,900,700	183,509,000	872,694,600
<i>Exports</i>	181,828,048	117,895,868	149,280,578	224,665,518	195,972,484
<i>Shipments from the colonies</i>	227,850,547	848,611,505	424,857,128	557,886,774	458,564,869
<i>Shipments to the colonies</i>	8,684,174	4,897,165	2,868,982	2,287,584	1,087,709
<i>Total consumption</i>	578,910,884	562,281,940	588,498,910	689,281,287	787,784,888
<i>Average for the five years</i>					640,841,870

¹³ The figures for exports and imports were taken from *The Yearly Returns of the Foreign Trade of the Japanese Empire*. The import figures cover raw sugar, rock sugar, cube sugar, and loaf sugar; the export figures cover refined sugar and rock sugar. Colonial shipments are based on *The Annual Returns of the Foreign Trade of Formosa*. Shipments to the Colonies include centrifugals, sugars containing molasses, and rock sugar, and shipments from the Colonies include lump and loaf sugar also.

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Consumption of Sugar in Japan Proper.

With due allowance for annual variations, in Japan proper the consumption of sugar has steadily risen. It averaged 515,000,000 kin annually for 1909-1913, and 640,000,000 kin for the following five years (1914-1918), an increase of 24.3 per cent. The per capita consumption was 10.2 kin for the first period and 11.6 for the second.

Market Prices.

The sugar market, though subjected to constant fluctuations, showed a continuous growth. The average market price, from 1909 to 1918, in yen, for 100 kin (the kin being equal to 1.32 lbs.) was as follows:

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Raw (black) sugar	10.50	10.11	9.71	11.12	11.88	10.52	10.55	11.22	11.91	14.80
Brown sugar	18.08	12.12	12.78	18.94	18.70	18.67	18.54	14.59	16.01	17.50
White sugar	17.97	17.97	19.29	20.74	20.49	20.86	21.56	22.59	28.86	27.00
Muscovado	11.79	11.64	11.06	12.41	12.84	11.96	11.97	12.70	12.98	16.70
Rock sugar	28.60	22.99	25.80	26.65	26.64	26.81	26.46	28.81	30.75	35.60

6. Miscellaneous Industries.

The branches of industry dealt with above fall into two categories, as regards the consequences of the World War: those which were immediately and keenly affected, and those which maintained a fair degree of stability. The influence of the War, however, is only a matter of degree, and it is hard in the present section to distinguish clearly between the two categories.

Matches.

Although match sticks are produced in large quantity in Japan, her complete dependence on imported phosphorus, potassium chlorate and potassium dichromate seemed to have checked the development of this industry. This accounts for the position which matches hold among the commodities for export today. It is, however, surprising that their manufacture failed to make a very remarkable growth during the War. Safety matches totalled 450,000,000,000

dozens in 1913, 500,000,000,000 in 1917 (the record year), and 470,000,000,000 in 1918; lucifer matches, 150,000,000,000 in 1913, 140,000,000,000 in 1916 (the record year), and 90,000,000,000 in 1918; other varieties, 6,000,000,000 in 1913, 19,000,000,000 in 1915 (the record year), and 14,000,000,000 in 1918. The total manufacture reached 620,000,000,000 dozens in 1913, 630,000,000,000 dozens in 1917 (the record year), and 580,000,000,000 dozens in 1918. The value of the product increased remarkably—to ¥14,000,000 in 1913 and to ¥39,000,000 in 1918. But this should not be allowed to overshadow the fact that production was falling, as has been noted. Exports totalled 290,000,000,000 dozens, for safety matches, in 1913; 370,000,000,000 in 1917 (the record year), and 350,000,000,000 in 1918; 230,000,000,000 for lucifer and sulphur matches in 1913, 190,000,000,000 in 1917, and 110,000,000,000 in 1918, giving grand totals of 520,000,000,000 in 1913; 560,000,000,000 in 1917, and 460,000,000,000 in 1918. The value of exports increased conspicuously, the figures for 1913 being ¥11,000,000 and those for 1918, ¥27,000,000.

The largest market for Japanese matches is China, followed by British India, Hongkong, the Straits Settlements, Kwantung Peninsula, the Dutch East Indies, and the Philippine Islands. In the Chinese market, the competitor of Japanese matches is not the European or American match, but the match of China herself, which, because of inferior quality, is often given second place. Elsewhere, the imports from Japan are pitted against the superior brands of Germany, Sweden, and Austria-Hungary, and are barely able to hold their ground by virtue of their low price. Authentic information is to the effect that they are quoted at 20 to 30 per cent less than their competitors. The War, it would seem, should have given a very favorable opportunity for Japanese manufacturers to extend their markets, but the high cost of phosphorus, potassium chlorate, and potassium bichromate, made this quite impossible. The following table shows the position of the match market during the War:

Market Prices of Matches, 1914-1918.¹⁸

	<i>Lowest</i>	<i>Highest</i>
1914	¥18.50	¥18.50
1915	17.70	21.70
1916	24.85	85.70
1917	24.00	29.00
1918	28.80	55.00

Paper.

It is customary in Japan to distinguish between the true Japanese and the foreign-style papers, because of the differences of raw material and manufacture. Japanese paper, which is made from the strong fibers of the bark of such plants as the "gampi," "kazo-o," or "mitsumata," without sizing, includes many different varieties. The manufacture of foreign-style paper, such as printing paper, straw board, match paper, etc., is an art adopted from Europe and America. The foregoing distinction, however, is coming to be less marked, for both raw materials and manufacturing processes have been growing more and more alike. Not but what such Japanese papers as the "tengu," "toyo," "nishino-uchi," "hocho," and a few others are exceptions. In 1913, 153,459 employees were engaged in making Japanese paper, and produced it to a value of ¥20,935,000. In 1918, with 149,381 employees, the figures were ¥53,932,000. Of foreign-style paper there was an output, in 1913, of 374,755,000 lbs., having a value of ¥23,003,000; and, in 1918, of 875,748,000 lbs., of a value of ¥103,087,000. That is, while the output of Japanese paper showed a slight increase, the number of workers fell off. But the manufacture of foreign-style paper showed an all-round development. In 1913 it gave employment to 7,622 workers, and had a paid-up capital of ¥23,748,000. In 1918 the number of employees had increased to 13,212, and paid-up capital to ¥38,804,000.

The important fact about the paper trade was that imports suddenly dropped while exports hugely increased. Countries which had supplied Japan with paper had to get it from her. Paper stocks therefore became alarmingly short; and in September, 1917, the Government was forced to proclaim an embargo on exports. This

¹⁸ The prices quoted are for matches of superior quality in 100-kin lots. The kin = 1.32 lbs.

explains why, in some kinds of paper, 1917 made a better showing than the year following.

Two reasons may be given for the backwardness of Japanese papers: they are for home demand only, and the progress of civilization does not call for an increased production of this kind. The foreign-style papers, on the other hand, enjoy a large demand at home and abroad, and have an important bearing on the future of the nation's economic life.

In the matter of the pulp industry, 1914 saw a production of 123,558 tons, and 1918 of 223,457 tons. Imports, for the same years, dropped from 47,447 to 24,861 tons, while home-produced pulp increased from 76,081 to 198,696 tons. The latter increase was due in part to high prices. But a more far-reaching cause of the development of the industry is found in the unanimous agreement of experts that the pulp woods of Hokkaido and Kabafuto, if properly exploited, are extensive enough to meet the requirements of an industry several times larger than the present one. Therefore the conviction is growing that no matter how depressed the market may become in the future, the Japanese pulp will be able to hold its ground against imports. Paper prices during the War were as follows:

	<i>Japanese paper</i> ¹⁴		<i>Foreign-style paper</i> ¹⁴	
	<i>Lowest price</i>	<i>Highest price</i>	<i>Lowest price</i>	<i>Highest price</i>
1914	¥18.80	¥19.50	¥0.15	¥0.165
1915	19.00	20.50	0.165	0.19
1916	21.50	25.00	0.27	0.36
1917	22.00	24.00	0.80	0.45
1918	28.00	48.00	0.45	0.85

Glass.

The value of the glass produced in Japan reached ¥5,800,000 in 1913, ¥7,800,000 in 1914, and ¥41,900,000 in 1918. This increase in the value, of course, affords no evidence for determining the amount produced, but there are other data for estimating the growth of the industry. The number of factory workers increased from 8,000 in 1913, to 9,000 in 1914 and to 20,000 in 1918.

Japan's chief glass products are sheet glass and bottles (inclu-

¹⁴ The Japanese paper quoted is the medium-sized "toss," "hanshi," packed in bales of nine kwan, and the foreign-style quotation is for writing paper, per pound.

sive of flasks, vials, jars, etc.) ; and next come table utensils, lamps, and beads. The manufacture of sheet glass was formerly impossible, and the country depended on imports almost exclusively; but in November, 1908, the Asahi Glass Company (the pioneer in Japan) was incorporated. Although production totalled a paltry ¥600,000 in 1913, its value rose to ¥10,000,000 in 1917 and to ¥14,900,000 in 1918, the consequence being that sheet glass ranked first among glass manufactures in 1917, and second in 1918. Bottles were valued at ¥3,000,000 in 1913, ¥8,000,000 in 1917, and ¥16,000,000 in 1918.

Exports of glass wares approximated ¥10,000,000 in 1913, ¥14,000,000 in 1917, and ¥16,000,000 in 1918, the principal articles being window glass and bottles.

In spite of the extraordinary market conditions during the War, glass imports fell from ¥2,900,000 in 1913 to ¥2,300,000 in 1917 and to ¥2,100,000 in 1918. This was a noteworthy fact. Although the Japanese glass industry made wonderful progress, the making of such special articles as plate glass and sensitized plates for photography is still untouched. The raw materials which enter into the manufacture are abundant in Inaba, Awa, Sagami, Mino, Kii, Awago, and Kawachi; their quality, though somewhat poorer than those of America and Europe, is good enough for home consumption.

Porcelain.

The value of the china and pottery produced in Japan rose from ¥17,000,000 in 1913 to ¥29,000,000 in 1917, and to ¥44,000,000 in 1918. The factory workers numbered 35,000 in 1913, 44,000 in 1917, and 49,000 in 1918. The chief center of this industry is the Prefecture of Aichi, of which Nagoya is the metropolis; then come Gifu, Kyoto, and Saga. China and crockery are produced almost everywhere in the country, and Japanese earthenware had long been regarded as lacking any distinctive character; but when, as a result of the War, potteries came to be operated with machinery, conditions underwent a change. The kinds of manufactures produced are for the most part table and kitchen wares, household ornaments, industrial pottery, and toys. It was hardly possible to produce industrial pottery before the War; nevertheless its value amounted to ¥1,600,000 in 1915, ¥2,500,000 in 1916, ¥3,100,000 in 1917, and

¥2,800,000 in 1918. It is to be noted however that anti-acid and fireproof wares, which are highly necessary for some industries, cannot yet be satisfactorily made in this country. Porcelain imports totalled ¥150,000 in 1913 and ¥81,000 in 1918; and exports ¥6,600,000 in 1913, ¥14,000,000 in 1917, and ¥19,900,000 in 1918.

Enamelled Wares.

The manufacture of enamelled wares had been quite small in this country, and the demand had been met by imported articles. When prices rose after the outbreak of war, efforts were made to promote the industry at home. No statistics were compiled before 1915, when the factory workers engaged numbered 1,700, and the value reached ¥2,600,000. In 1918, 2,000 workers produced an output valued at ¥8,400,000. Imports had a value of ¥25,000 in 1914, ¥21,000 in 1915, and ¥26,000 in 1917. Exports amounted to ¥2,300,000 in 1916, ¥2,700,000 in 1917, and ¥3,700,000 in 1918. That production rose from ¥2,600,000 to ¥8,400,000 should not be taken merely as indicating an increase in prices. It meant a great increase in production; otherwise an importing nation could not have been turned into an exporting one. In point of quality Japanese enamelled ware was inferior to the goods of other countries. The only thing in its favor seemed to be its cheapness. The great handicap confronting its manufacturers is the necessity of importing sheet iron, boracic acid for glazing, and cryolite.

Portland Cement.

Because good limestone and clay are abundant in Japan, the cement industry is destined to make progress. In 1913, the production aggregated 4,500,000 barrels, and in 1918, 6,100,000 barrels; while exports reached 44,000,000 kin in 1913 and 258,000,000 kin in 1918. The import trade is negligible.

Oils.

In the supply of such food oils as rapeseed oil, sesame oil, olive oil, beef fat, peanut oil, and of such industrial oils as cocoanut, cottonseed, "yeno-abura," "to-o-yu," fish oil, and whale oil—(bean oil belongs in both categories)—Japan is quite self-sufficing; she is even

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an exporter of certain oils. Of rapeseed oil, she produced 20,000 koku in 1913, 240,000 koku in 1916 (the largest war year), and 180,000 koku in 1918. The export of this commodity to England, America, and France amounts to several million yen yearly. The production of bean oil was 30,000 koku in 1913 and 140,000 in 1918. It stood next to rapeseed oil in the export list. Coconut oil, a raw material for the soap industry, which has been steadily increasing in demand, had been almost entirely imported from abroad; its manufacture was conducted on so small a scale that it found no place in official statistics before the War. But the figures rose to 29,000 koku¹⁵ by 1915 and to 140,000 koku by 1918, with the result that Japan became an exporting instead of an importing nation. Copra, from which the oil is extracted, is imported from the tropical regions; therefore some doubt is being entertained as regards the future of the industry. Herring oil was produced to the extent of 1,200,000 kwan¹⁶ in 1913 and 780,000 kwan in 1916. Whale oil increased from 420,000 kwan in 1913 to 730,000 kwan in 1916.

Soap.

No authentic information is obtainable about the soap industry except the value of the product. Factory workers numbered 1,900 in 1913, and increased to 2,900 in 1918. The value of toilet soaps, which totalled ¥4,900,000 in 1913, rose to ¥10,400,000 in 1918, and industrial soaps, which stood at ¥300,000 reached ¥2,000,000 in 1918. Exports of toilet soaps amounted to 2,300,000 kin in 1913 and to 4,700,000 kin in 1918, and those of washing soaps to 190,000 kin and 1,400,000 kin respectively in the same years. Imports of toilet soaps dropped from 280,000 kin to 90,000 kin during the same period, and 1,000,000 kin of other sorts dropped to 50,000.

Wood Wax.

This commodity has been known to the Japanese people for a long time, and bleached wax was exported to the estimated amount of ¥1,000,000 in 1868. But there was no rapid development, because of foreign competition. The War raised the production of crude wax from 1,500,000 kwan in 1913 to 2,000,000 kwan in 1918, and

¹⁵ The koku = 4.96 bushels, or almost 40 gallons.

¹⁶ The kwan = 8.27 lbs.

that of bleached wax from 1,200,000 kwan to 1,900,000. The number of factory workers dropped from 3,300 to 3,000 during the same years.

Peppermint.

The peppermint plant thrives in Japan, and the various products obtained from it are among her staple exports. Japanese peppermint contains a remarkably high percentage of menthol, which can be had so cheaply that the Japanese product practically rules the world market. In 1913, crude menthol production totalled 600,000 kin, and in 1918, 210,000 kin; peppermint oil, 200,000 kin and 310,000 kin; menthol, 190,000 kin and 330,000 kin. It will be noted that crude menthol showed a marked decline in production. The number of factory workers, 16,000 in 1913, fell off to 7,000 in 1918. Exports of peppermint oil were 280,000 kin in 1913 and 210,000 kin in 1918; menthol, 230,000 kin in 1913 and 230,000 kin in 1918; and menthol in balls, 100,000 kin and 260,000 kin.

Lacquer Ware.

The manufactures of lacquer wares, which might almost be called a specialty of the Japanese people, were valued at ¥9,000,000 in 1913, and at ¥16,000,000 in 1918. Factory workers numbered 2,000 in 1913, and 2,200 in 1918. Exports, which amounted to ¥1,100,000 in 1913, dropped to ¥800,000 in 1914, and to ¥500,000 in 1915; they rose to ¥1,100,000 in 1916, declined in 1917 to ¥1,000,000, and in 1918 to ¥900,000. The slackness of the trade was due to the extraordinary rise in the price of both lacquer and wood, and to the widespread use of porcelain, glassware, and enamelled ware, which are fast replacing lacquered goods.

Saké.

The brewing of saké is a very large industry in Japan, both in the matter of the capital invested and of the value and quantity of the product. During the War the quantity produced and consumed increased—from 4,579,261 koku in 1913 to 5,459,227 in 1918—but it was not a great increase.

CHAPTER V

SPINNING AND WEAVING

1. Cotton.

Yarn.

Before the War.

IN Japan cotton-spinning is an old industry, but it showed little sign of development till about 1887, when the aggregate number of spindles was 129,000. The industry was held back by the competition of Indian products, which retained their hold on the market until after the outbreak of the Chinese War. It inaugurated an epoch in the industry, raising the number of spindles to 1,300,000. The industry was depressed at the time of the currency reforms of 1897 and the Boxer uprising of 1900; but in spite of depression the manufacturers experimented successfully in the production of the finer yarns. Prosperity returned in 1902 and 1903. After this, the history of the industry was a story of sudden alternations of prosperity and depression, with a continuance of moderate prosperity, from the middle of 1912 to the outbreak of the World War.

The production of yarn, which stood at 470,000 bales in 1906 grew to 850,000 in 1914; the volume of imports dropped from 1,100 bales to 280. Exports and shipments to the Colonies rose from 120,000 to 300,000 bales. During the same years, the paid-up capital of spinning mills increased from ¥35,000,000 to ¥85,000,000, while spindles increased from 1,450,000 to 2,570,000.

During the War.

The outbreak of the World War threw the Three Commodities Exchange, the exchange for cotton yarn, into confusion, and halted business for a time. All the mills in the country were closed for four days. In October, they agreed among themselves to cut down working hours. On December 1 a second agreement which provided for reducing production by 10 per cent in every mill in the country, was

adopted. Some signs of improvement appeared in 1915, resulting in a resolution by mill owners to work only a portion of their plants. In November, 1915, all restrictions on the operation of spinning works were lifted. From 1916 onward, the industry was prosperous. There were, of course, difficulties in the importation of raw cotton and spinning machinery, the exchanges with India were dislocated, and tariff revision in China exerted a certain influence; but on the whole conditions were favorable. Prices were high, but greater importance should be attached to the increase in production, and to the new markets Japan succeeded in capturing.

Production, Demand, and Exports of Yarn.

The production of yarn No. 16, right-twisted, amounted to 200,000 bales in the first half of 1914. This yarn did not show great activity in the war period. Some 200,000 bales were produced in the second half of 1915, and 210,000 bales in the first half of 1916. In the last six months of 1918, the figure fell to 84,000 bales. No. 20, left-twisted, with 220,000 bales for the first half of 1914, declined to 204,000 in the first half of 1915 and then began to increase, reaching 270,000 bales in the second half of 1917, and 240,000 bales in the second half of 1918. Other yarns registering 420,000 for the first half of 1914 and 540,000 bales for 1918, had a slow but steady increase. The aggregate production of yarns was 850,000 bales in the first half of 1914. It fell below this figure in the early part of the War, with the exception of the second half of 1915. The highest point was reached between the second half of 1916 and the first half of 1917, with 980,000 bales.

The increase in production of yarns during the War appears less significant when a comparison is made with the years preceding it. For the second half of 1909 production was estimated at 520,000 bales. By the first half of 1912 it had increased to 640,000 bales, and it amounted to 850,000 bales by the first half of 1914. More than that, the lower grade No. 16, was gradually being supplanted by the higher grade No. 20.

The consumption of cotton yarns reached its peak, 740,000 bales, in the latter half of 1917. It fell to 670,000 bales in the second half of 1918. Exports and shipments to the Colonies totalled 300,000 bales during the first half of 1914; but this figure was never reached

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again, with the exception of the latter six months of 1915, which recorded 310,000 bales. In the second half of 1917 the figure stood at 200,000 bales, in the first half of 1918 at 210,000, and in the latter half of 1918 at 200,000 bales. Thus, contrary to the popular impression, Japanese cotton exports, measured in actual quantity, declined after the outbreak of the War.

It is true that the value of exports increased very much. From ¥46,000,000 in the first half of 1914, it rose to ¥52,000,000 in the first half of 1917, to ¥61,000,000 in the second half; to ¥76,000,000 in the first half of 1918, and to ¥86,000,000 in the second half.

Mills.

The number of mills increased from 154 in the first half of 1914 to 177 in the second half of 1918. During the same period the number of companies increased from 33 to 35; the number of rings from 2,050,000 to 3,100,000; twisting spindles, from 330,000 to 380,000. Male operatives averaged 44,000 in 1914 and 53,000 in 1918, and female operatives 193,000 and 190,000, respectively. That the industry had a larger proportion of male workers in 1918 than in 1914 has been explained by the rise of wages.

The failure of the industry to expand more rapidly under the stimulus of high prices was due to the fact that Japan depended on imported machinery; and the disturbance of trade by the War very seriously affected such imports, especially from England, the main source of spinning machinery for Japan.

Number of Mills and Spindles.

	<i>Mills</i>	<i>Spindles</i>		
		<i>Ring</i>	<i>Mule</i>	<i>Twisting spindles</i>
June 30, 1914	154	2,526,172	51,170	330,384
December 31, 1914	157	2,606,004	51,170	343,766
June 30, 1915	159	2,724,452	48,580	348,789
December 31, 1915	161	2,754,124	53,390	355,318
June 30, 1916	160	2,764,588	51,450	365,566
December 31, 1916	161	2,825,944	49,960	370,681
June 30, 1917	163	2,890,760	51,170	375,806
December 31, 1917	170	3,008,568	51,910	383,458
June 30, 1918	170	3,064,922	51,910	383,074
December 31, 1918	177	3,175,768	51,910	384,372

Average Number of Mill Workers.

<i>Mill workers</i>	<i>1914</i>	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>
Male	44,826	45,848	47,689	51,086	58,579
Female	198,502	184,999	194,557	195,296	190,187

Prices.

The early part of the War was characterized by a decline in the prices of cotton yarns. Not until the second half of 1916 did prices range higher than in the first half of 1914. Then the rise was rapid. There was a decline at the time of the armistice; but the market soon recovered and rose to higher levels, the trade believing that the foreign spinning industries would not soon recover from the effects of the War.

Quotations on Cotton Yarns.

(in yen)

		<i>January to June</i>		<i>July to December</i>	
		<i>Highest</i>	<i>Lowest</i>	<i>Highest</i>	<i>Lowest</i>
1914	No. 16 (right-twisted)	¥188.44	¥110.48	¥122.01	¥ 86.60
	No. 20 (left-twisted)	142.91	122.56	129.11	91.06
1915	No. 16	104.58	88.15	122.71	104.15
	No. 20	116.19	92.64	115.50	98.80
1916	No. 16	127.80	109.95	156.48	117.77
	No. 20	184.60	117.78	172.89	182.04
1917	No. 16	221.69	184.88	808.44	178.44
	No. 20	248.48	152.61	841.80	188.18
1918	No. 16	865.89	172.89	887.28	288.88
	No. 20	896.58	260.89	411.18	882.44

Profits.

In spite of the high price of spinning machinery, profits were large. The following table indicates conditions in the cotton-spinning industry.

The Japanese Cotton-Spinning Industry, 1914-1918.

	1914		1915		1916		1917		1918	
	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half
No. of companies	88	81	88	88	88	82	82	88	88	85
Mills	154	157	159	161	160	161	168	170	170	177
	(in millions of yen)									
Nominal capital	112.4	107.95	107.95	107.95	106.8	182.19	150.65	156.55	178.05	189.97
Paid-up capital	85.86	82.29	88.75	88.78	88.96	96.77	106.21	111.6	124.86	185.59
Reserves	84.85	85.78	86.68	87.81	87.95	41.04	49.18	62.18	67.7	80.23
Loans and debentures	26.58	26.27	24.29	22.89	28.68	22.91	25.72	27.58	29.25	27.47
Fixed capital	118.45	118.11	121.87	122.21	116.41	110.77	109.17	108.48	118.07	128.08
Redemption of fixed capital	2.81	1.51	8.2	2.72	8.96	11.06	9.88	7.92	9.48	8.98
Carried over	7.9	8.18	6.98	7.87	8.4	10.5	12.86	16.9	28.24	28.4
Net profits	8.68	5.68	8.05	9.57	18.25	22.64	31.45	41.82	45.2	58.82
Dividends	6.97	5.68	6.22	6.48	8.81	11.88	17.77	22.91	82.8	88.78
Set aside as reserve	1.28	.86	1.8	1.78	2.7	8.9	9.11	12.02	12.2	17.37
Carried forward	8.88	7.18	7.52	8.69	10.68	12.84	17.48	28.8	28.44	26.12
	(percentage)									
Percentage of profit	20.1	18.5	19.2	22.8	81.6	46.8	59.2	74	72.9	79.4
Rate of dividend	16.2	18.5	14.9	15.5	19.8	28.5	88.4	41.1	52.7	49.7

Importation of Raw Cotton.

Raw cotton consumed by the Japanese spinning industry during the first half of 1914 totalled 48,000,000 kwan, and for the latter half of 1918, 49,000,000 kwan, the largest figure for any half year of the war period being 54,000,000 kwan. For the first half of 1914, 32,000,000 kwan was Indian cotton and 11,000,000 American. About half of the remaining 5,000,000 kwan was Chinese and the other half came from Egyptian, Annamese, and Saigon sources. In the latter half of 1918, Indian cotton imports amounted to 24,000,000 kwan, and American cotton to 18,000,000 kwan. Of the remaining 7,000,000 kwan, 5,000,000 came from China, with Egyptian cotton standing next. Then came Korea, with 720,000 kwan.

The replacement of Indian cottons by American resulted in part from difficulties in arranging exchanges with India, and in part from the fact that Japan was producing more yarns of finer counts than before.

The production of cotton in Japan is insignificant, and hardly holding its own. In 1914 the production was 821,691 kwan, and in 1918, 680,021 kwan. Efforts have long been made to develop cotton growing in Formosa, but the industry is still in the stage of experiment. The industry is more promising in Korea, where the production is as follows:

Production of Raw Cotton in Korea.

	<i>Native</i>		<i>Upland</i>	
	<i>Area planted cho</i>	<i>Production, including seed cotton kwan</i>	<i>Area planted cho</i>	<i>Production, including seed cotton kwan</i>
1914	40,457.8	2,984,882	21,050.9	2,815,482
1915	84,997.5	2,678,454	80,828.9	4,585,989
1916	29,260.7	2,240,654	47,947.5	5,018,026
1917	28,691.8	2,427,270	68,805.5	8,728,586

It seems safe to say that the production of upland cottons, which showed exceptional development under official encouragement, has been carried to the limit, and that there is no hope of harvesting a greater crop. Even if all land under native cotton were turned to the raising of the upland, if additional acreage were secured, and if methods of cultivation were improved, the output could hardly be

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doubled. Of 8,000,000 kwan produced in 1917, only about 700,000 kwan was set aside for the consumption of the spinning industry. It appears certain that the Japanese spinning industry must remain dependent on India and the United States for its raw material. The following table deals with the volume of business from each of the countries of export:

Imports of Raw Cotton.
in kwan (8.27 lbs.)

	<i>India</i>	<i>United States</i>	<i>China</i>	<i>Egypt</i>	<i>Annam and Saigon</i>	<i>Korea</i>	<i>Other countries</i>	<i>Total</i>
1st half of 1914	82,111,822	11,604,888	2,750,461	986,087	235,882	.....	588,812	48,272,802
2nd half of 1914	88,872,417	8,848,414	1,682,984	888,841	888,285	.....	275,249	45,790,590
1st half of 1915	82,497,478	12,017,728	841,829	778,702	189,288	.....	266,880	46,541,245
2nd half of 1915	84,620,990	18,066,586	1,865,864	888,650	177,692	.....	882,960	50,897,201
1st half of 1916	85,696,850	14,218,111	2,302,828	944,969	488,796	581,888	294,904	54,478,291
2nd half of 1916	85,580,518	14,060,794	1,287,906	1,025,616	599,504	277,507	215,287	52,997,189
1st half of 1917	85,608,092	14,829,715	2,576,601	882,274	182,966	479,695	298,166	54,852,509
2nd half of 1917	85,259,488	14,727,676	2,500,096	888,777	262,942	508,652	228,151	54,860,782
1st half of 1918	80,066,878	15,485,462	4,798,476	889,778	229,685	689,777	556,471	52,711,022
2nd half of 1918	24,802,889	18,159,585	5,177,489	882,548	152,795	725,116	276,587	49,676,859

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*Fabrics.**Résumé.*

Because cotton cloth is the material for ordinary clothing among the Japanese people, it is produced everywhere and in great variety. It is woven in quantities, both in large modern plants and in small establishments and household shops. Consequently it is difficult to determine how large the production is. Without attempting to analyze the statistics according to the various kinds of cotton fabrics, the total value of the production from 1914 to 1918, year by year, was as follows:

	<i>Quantity</i> (in yards)	<i>Value</i> (in yen)
1914	454,901,674	150,885,654
1915	502,076,621	182,884,228
1916	560,181,108	804,490,265
1917	594,659,419	896,188,858
1918	656,985,420	624,216,447

The foregoing figures cover the entire production of cotton fabrics in Japan. A careful study of the tables supplied by the Department of Agriculture and Commerce will enable one to understand the character of the textile industry. The production of plain white cotton cloth of the narrower widths grew from 72,000,000 rolls in 1915 to 80,000,000 rolls in 1918, and that of greater widths from 520,000,000 yards to 850,000,000. During the same period, striped fabrics rose from 21,000,000 rolls to 36,000,000; the "kasuri" from 6,000,000 to 8,000,000; crêpe goods from 4,000,000 to 8,000,000; dyed goods from 6,000,000 rolls to 7,000,000; cotton flannel from 150,000,000 yards to 200,000,000; towels and towelling from 4,000,000 dozen to 5,000,000; and mosquito nettings from 2,000,000 rolls to 3,000,000. In 1914 the total production of cotton fabrics amounted to 454,901,674 yards. In 1915 this rose to 502,076,621 yards; in 1916, to 560,181,108; in 1917, to 594,649,419; and in 1918, to 656,985,420.

Trade.

The volume of unbleached shirtings and sheetings exported totalled 114,000,000 yards in 1914, and 359,000,000 yards in 1918.

Bleached tissues increased from 3,600,000 to 59,500,000 yards; cotton fabrics from 8,000,000 to 30,000,000; cotton flannel, from 10,000,000 yards to 41,000,000. With respect to Japanese style goods which are mostly manufactured in small mills and household workshops, trade returns showed that striped fabrics increased from 300,000 to 2,700,000 yards. This will make it plain that manufactures produced by large, modern mills were most favorably influenced by the War.

As indicated above, the production of yarns increased from 880,000 bales for the first six months of 1914 to 980,000 bales for the corresponding period of 1917, and stood at 950,000 bales for the latter half of 1918. It will be seen that the activity of the export trade in cotton fabrics was a consequence of the increased production of yarns on the one hand and of the decline in the exportation of yarns on the other. China was the largest consumer of Japanese fabrics.

Cotton imports never attained a noticeable figure, even before the War. The lines whose value was more than ¥2,000,000 in 1914 were cotton Italians and satins (9,200,000 yards); and bleached shirting and sheetings (5,300,000 yards). This was in 1914. The figures for 1918 were very much smaller; 3,900,000 yards for cotton Italians and satins, and 1,600,000 for bleached shirtings and sheetings.

2. *Silk.*

Production.

Japan is the world's largest producer of raw silk. There is almost no place in the country where it is not woven. It is a staple commodity in general use. The condition of the industry is one of prime national importance. In fact it might be called the backbone of Japan's industrial life.

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Raw Silk and Silk Yarns, Production and Exports.

(in kwan of 8.27 lbs.)

		1914	1916	1918	1917	1918	
Production	Raw silk	3,755,886	4,045,841	4,518,850	5,817,568	5,795,541	
	Silk ¹ yarns	Silk	297,997	294,607	266,454	862,129	437,201
		Pongee	181,273	185,469	225,442	290,254	869,871
	Total	4,235,156	4,525,917	5,011,746	5,969,951	6,602,111	
Exports	Raw silk	2,748,800	2,850,268	3,478,716	4,232,638	3,895,101	
	Silk yarns	90,769	92,384	70,660	288,984	328,021	
	Total	2,839,569	2,942,652	3,549,376	4,521,622	4,223,122	
Held in the country	Raw silk	1,012,086	1,195,573	1,041,134	1,084,930	1,900,440	
	Silk yarns	888,501	887,742	421,286	418,449	480,551	
	Total	1,400,587	1,583,315	1,462,420	1,498,879	2,880,991	

In value, exports of silk yarns rose from ¥2,338,791 in 1914 to ¥6,722,930 in 1918. This was due, after 1917, to an increased demand for Japanese yarns in England, France, and America.

Mills.

There are three manufacturers of silk yarns, the Fuji Gas Spinning Company, the Koriyama Kenshi Boseki Kabushiki Kaisha, and the Kanegafuchi Spinning Company. In 1913 these companies had 8 mills in operation, and 21 in 1918. And, an index of the modernization of the industry, in these years the use of electricity as motive power almost doubled. As for mill workers, their total number rose from 9,387 to 9,770, in spite of the fact that the number of women employed fell from 7,272 to 3,806. The daily average of spindles in operation was 106,544 in 1913 and 138,860 in 1914.

The great production of raw silk in Japan means a corresponding amount of waste silk. On a rough estimate it must have been more than 2,400,000 kwan (of 8.27 lbs.) in 1912, and 3,900,000 in 1918.

Silk Fabrics.

The production of silk fabrics amounted, in 1913, to ¥120,326,546; in 1914 it was ¥102,482,128; in 1915, ¥121,686,745; in 1916,

¹ The figures for silk yarns are based on the statistical reports of the Department of Agriculture and Commerce.

Exports of Habutae^a Silks, 1913-1918.
(quantities in kin of 1.32 lbs., and values in yen)

<i>Exported to</i>		<i>1913</i>	<i>1914</i>	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>
England	Quantity	599,640	788,110	892,155	712,709	614,925	1,088,518
	Value	7,505,298	8,646,686	10,704,248	10,888,891	10,845,558	22,045,015
France	Quantity	765,128	442,445	545,248	870,708	825,828	859,752
	Value	9,712,287	5,812,800	6,550,706	5,578,778	5,671,182	7,612,654
U.S.	Quantity	876,867	492,028	678,877	792,789	879,644	750,581
	Value	5,007,408	6,795,888	8,871,971	12,798,982	16,089,788	16,782,068
India	Quantity	566,674	278,427	464,541	811,156	242,160	229,754
	Value	6,812,529	8,274,295	5,405,876	4,182,548	8,955,279	4,774,601
Australia	Quantity	148,868	278,597	854,119	286,907	275,681	279,166
	Value	1,958,897	8,652,971	4,450,497	8,889,999	4,407,110	5,542,058
Other countries	Quantity	810,705	117,482	251,989	806,628	864,885	606,495
	Value	8,885,868	2,708,248	8,074,102	4,607,578	6,518,488	18,421,694

^a Silk piece goods.

¥60,083,888; in 1917, ¥219,722,996; and in 1918, ¥397,898,661. The prosperity of the industry was due in part to the war-time business boom, to an increased demand for silks on the part of the Japanese themselves, and above all to the export trade.

The disappearance from the market, after the outbreak of the War, of French and other silks is a part explanation of the growing English demand for habutae. But it was also due to the increased need of silk for airplane wings, for dirigibles, poison gas protectors, bullet cases and waterproof clothes. In March, 1916, the British Government placed an import prohibition on habutae fabrics, giving the trade a severe blow. The ban was subsequently lifted, when it was discovered that these fabrics were used for the most part in war supplies. The activity of habutae exports to the United States resulted from two things, the increased buying power of the people, many of whom amassed immense fortunes through supplying goods to the belligerents, and the development of American manufactures of printed goods. It is further believed that the activity of the American trade, in a measure, reflected the decline of silk imports from Europe to that country. And the effects of the decline of European manufactures were by no means confined to the United States, for the increased volume of shipments by Japan to Canada and South American countries was due to the same cause. The lowered import of habutae to France was the combined result of an extraordinary rise in insurance rates between Marseilles and Japan, the deterioration of French silk-printing, due to the shortage of manpower, and the promulgation of a law placing silk goods under official control. The Indian trade was affected most largely by obstacles in the exchanges.

Mills Producing Silk Fabrics.

In 1913 the number of such mills without mechanical power was greater than those that had it. This was reversed in 1918. Also the number of adult male workers had more than doubled. But that was due in part to the larger number of men required to run the power plant, etc.

No authentic figures are available for mills and workshops with less than ten employees. But they would be very much greater than those for the regular mills. For the former are found everywhere; indeed, most of them are mere household industries.

SPINNING AND WEAVING

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Silk Mills Employing Ten or More Workers.

	1911	1912	1913	1914	1915	1916	1917	1918
Mills:								
Total	1,567	1,511	1,510	1,428	1,410	1,542	1,701	2,165
Without mechanical power	478	567	619	724	756	845	978	1,196
With mechanical power	1,089	944	891	699	654	697	728	969
Mill workers:								
Over 14 years of age								
male	4,881	5,592	4,612	4,826	4,906	5,989	7,041	10,929
female	82,276	81,400	81,988	80,401	29,404	88,928	87,748	48,159
Under 14 years of age								
male	424	468	876	111	412	816	876	657
female	3,302	3,268	2,986	1,824	3,228	2,859	2,888	4,882
Adults								
male	5,805	6,060	4,988	4,987	5,818	6,805	7,417	11,586
female	85,578	84,668	84,969	81,725	82,627	86,782	40,581	52,541
Total workers	40,888	40,728	89,957	86,662	87,945	48,087	47,998	64,127

Prices.

A few figures will indicate price variations during the War. From a level of ¥9 for the three months before its outbreak Fukui habutae of 6.5 momme³ dropped to ¥7.40, and did not get back to the pre-war level until February, 1916. In September, 1918, it had risen to ¥17.10, and later it rose to ¥17.20. Crêpe, at ¥9.50 in April, 1914, fell slightly at the declaration of war, had passed its pre-war level in November, 1915, and reached its highest point, ¥20.50 in October, 1918.

Fabrics of Silk and Cotton Mixed.

Differing methods of compiling figures make it difficult to quote them satisfactorily. Those in the table below cover part of the period in question. Quantities are in rolls and values in yen.

* The momme = $\frac{1}{1000}$ of the kwan, that is, of 8.27 lbs.

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Production of Mixed Silk and Cotton Goods.

		1915	1916	1917	1918
Satin	Quantity	842,252	667,404	507,806	866,619
	Value	2,498,292	4,570,425	4,894,085	4,229,902
		154,248			6,474
Crêpe	Quantity	1,048,657	1,190,195	1,271,224	1,184,784
	Value	2,888,989	4,496,019	6,142,507	7,614,127
"Ito-iri-jima"	Quantity	4,957,018	4,656,890	4,988,475	5,077,486
	Value	8,962,456	9,885,287	18,257,668	18,284,508
Men's sashes	Quantity	169,798	265,857	272,724	231,751
	Value	227,422	378,988	728,809	818,416
Women's sashes	Quantity	2,944,607	2,708,854	3,288,628	3,480,588
	Value	6,922,669	10,164,652	11,862,400	17,787,071
Value of other goods		5,745,048	7,720,156	9,602,855	22,441,917
Total Value		27,407,420	46,660,527	45,982,274	71,187,410

*3. Hemp, Jute, Flax, Ramie, Wool, etc.**Hemp Cloths.**Production.*

The demand for hemp cloth in Japan had never been large. Its manufacture had been undertaken on a limited scale, as a home industry, to meet the requirements of the people for "katabira" and mosquito netting. In recent years, however, hemp fabrics produced by new processes appeared in increasing quantities. These included sailcloth, tentcloth, cloth for summer suits, sheetings, tablecloths, napkins, shirtings, etc. The latest novelty was cloth for airplane wings.

The first mill employing Western methods was opened in 1887; and thereafter the making of sailcloth and jute goods attained remarkable success. Still, production was never so large as to meet the demands of foreign markets. This may be accounted for by the imperfect organization of manufacturing and the tremendous increase in the demand for such textiles at home. The value of the product, ¥8,342,000 in 1912, declined in the following years, and did not rise above the level of 1912 until 1916 when it was ¥10,773,657. In 1917 it was ¥21,419,853; and in 1918 it was ¥28,896,743. But apparently there was no great increase in the actual amount produced.

Hemp Cloth: Number of Mills and Workers Employed, 1912-1918.

	1912	1913	1914	1915	1916	1917	1918	
Total number of mills	39	22	25	25	29	28	34	
Operated by motive power	17	15	17	18	19	18	28	
Not operated by motive power	22	7	8	7	10	10	10	
Workers	Male	666	499	714	746	1,290	1,289	864
	Female	3,118	1,536	2,442	2,499	3,858	3,815	2,806
	Total	3,784	2,035	3,156	3,245	4,648	5,104	3,170

Imports and Exports.

Japanese exports of hemp cloth were inconsiderable down to 1917, when goods to the value of ¥1,769,418 were exported. The value increased to ¥3,553,916 in 1917. These exports were mainly shipments to Russia, for war purposes. Imports, which had been increasing yearly before the War, were ¥1,160,000 in 1912. During the War their value dropped to somewhere between ¥300,000 and ¥500,000.

*Hemp Yarns.**Production.*

Before the advent of modern methods weavers of hemp cloth had made the yarns required for their business. With new methods weaving and spinning became two different processes, though undertaken by the same mills. The production of hemp yarns, which totalled 913,000 kwan⁴ in 1912, increased gradually until 1916; when it rose suddenly to 4,215,999 kwan in 1917 and to 4,381,078 kwan in 1918.

Amount of Raw Materials Consumed, Quantities of Yarns Produced, and Cost of Yarns.

(in kwan of 8.27 lbs.)

Raw Materials	1914	1915	1916	1917	1918
Flax	784,008	872,957	2,297,591	2,374,377	2,217,288
Ramie		20,176	86,591	178,945	708,024
Hemp	415,088	427,289	510,428	1,007,148	759,110
Jute	658,468	956,940		1,497,952	1,685,946
Total	1,857,509	2,277,812	2,894,605	5,048,917	5,365,868
Amount Produced	1,559,440	1,880,472	2,053,615	4,215,999	4,381,078
Cost per kwan	¥3.22	8.15	5.48	8.02	18.48

⁴ The kwan = 8.27 lbs.

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Mills.

Numbers of Mills, Working Spindles, and Mill Workers.

<i>Items</i>	<i>1914</i>	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>	
Total number of mills	8	11	10	24	85	
Operated by motive power	5	9	9	12	56	
Not operated by motive power	3	2	1	8	29	
Per day average of working spindles	26,416	29,882	86,004	42,320	51,848	
Mill workers	Male	534	884	1,155	1,246	4,188
	Female	1,666	1,852	2,968	2,901	7,089
	Total	2,200	2,736	4,123	4,147	11,272

Imports and Exports.

Exports of such yarns were negligible until 1917, when they amounted to ¥909,000 for flax yarn, jute, and hemp rope. They were ¥2,800,000 in 1918. Imports were gradually declining. No figures can be given for any year before 1917, when they amounted to ¥458,000.

Raw Materials and Imports of Same.

Of the raw materials of the industry—hemp, flax, ramie, and jute—the first two are produced abundantly in Japan. Hemp is most important and its fiber has great commercial value. In 1897 an area of more than 20,000 cho^s was set aside for its cultivation, from which a crop of about 3,300,000 kwan^s was obtained. The figures for 1912 were 12,000 cho and 2,370,000 kwan, the reason for the decline being that imports of China grass and other similar materials had become large. In 1918 the area under hemp was 12,000 cho and the crop 2,560,000 kwan.

Flax stood next in importance, its center of production being Hokkaido. The area under cultivation was over 4,800 cho in 1912, and the crop 3,750,000 kwan; in 1918, 34,800 cho and 17,300,000 kwan. Ramie or China grass can be raised in Japan proper as well as in Korea and Manchuria. Its production fell from 110,000 kwan in 1912 to 24,000 in 1918. Jute is grown in small quantities in Formosa.

* The cho = 2.45 acres.

* The kwan = 8.27 lbs.

Hemp, Flax, Ramie, and Jute Area under Cultivation and Amount and Value of Annual Crop.

(areas in cho, of 2.45 acres; production in kwan, of 8.27 lbs.; value in yen)

Hemp.

	<i>Cured</i>		<i>Area under Cultivation</i>	<i>Raw</i>	
	<i>Quantity</i>	<i>Value</i>		<i>Quantity</i>	<i>Value</i>
1912	.....	.....	12,149	2,877,112	.....
1918	.....	.....	12,195	2,672,782	.....
1914	.....	.....	11,016	2,525,184	.....
1915	1,110,005	2,418,052	11,608	2,478,871	1,867,888
1916	1,114,086	2,644,222	11,461	2,268,688	1,880,480
1917	1,246,240	3,516,412	11,786	2,865,720	2,822,787
1918	1,170,285	4,781,622	11,820	2,564,114	3,155,968

Flax.

	<i>Area under cultivation</i>	<i>Production</i>	<i>Value</i>
1912	4,888	3,759,161	.....
1918	7,592	5,498,640	.....
1914	11,805	7,705,104	.....
1915	18,664	8,686,497	950,997
1916	14,709	12,582,808	1,466,587
1917	19,676	12,269,414	3,525,865
1918	34,865	17,800,378	5,857,760

Jute.

1912	...	.....	.....
1918	...	.....	.....
1914	...	.....	.....
1915	570	825,944	112,605
1916	567	288,561	128,824
1917	670	882,136	186,982
1918	698	850,287	281,059

Ramie.

	<i>Production</i>	<i>Value</i>
1912	108,564	.....
1918	91,146	.....
1914	58,006	.....
1915	28,967	52,759
1916	25,782	80,180
1917	28,562	99,995
1918	24,189	180,581

The amount grown increased slowly as compared with the production of yarn. Shortages were made good by imports; and in 1918 the total imports of flax, ramie, jute, hemp, and manila hemp amounted to 11,370,000 kwan, valued at ¥22,700,000. Figures for other years are not obtainable.

Woolen Fabrics.

Production.

The manufacture of woolen fabrics took its rise in 1876, with the establishment of the Senju Woolen Mills. The nation's requirements in wool had multiplied enormously with the adoption of uniforms for soldiers and sailors. Since then the use of wool has spread to quarters which had never employed it before. But manufacturing has not yet attained to such efficiency that Japanese woolens can hope to hold their ground against the manufactures of Europe and America. Japan is behind in the quality of striped and patterned weaves, and in the quality and price of woolen cloth. In flannels, which have widespread use as material for kimonos, in blankets and in serges which, likewise, are made into kimonos, Japanese goods have rapidly been coming to the fore.

The total value of the woolen goods produced in 1912 was ¥28,348,603. In 1913 it was ¥32,364,986; in 1914, ¥40,526,875; in 1915, ¥40,283,919; in 1916, ¥51,401,504; in 1917, ¥44,022,300; and in 1918 it was ¥85,938,320. Quantity totals are not obtainable.

Imports and Exports.

Before the World War the tariff revision of 1910 and the need of the Chinese Government for woolen goods stimulated the industry of Japan. And the War, of course, gave it a further opportunity for development. Imports of woolen cloth, serges, muslins, and flannels diminished from ¥29,300,000 in 1910 to ¥20,000,000 in 1912, and to ¥14,120,000 in 1916. The figures for 1917 and 1918 are not obtainable. Exports rose from ¥1,700,000 in 1912 to ¥16,930,000 in 1918.

Mills.

There are two classes of mills: (1) The large factory, where Western methods are adopted and where every stage of manufacturing is performed. Such factories produce woolen cloth, flannel, blankets,

etc., which require carded wool. There are seven in this class. (2) The small establishment, producing combed stuffs for Japanese kimonos. In such establishments are found both hand and power looms. They require Western machines only when finishing work must be done. Some mills of this class have been making experiments in weaving a particular line of flannel which may be used for kimonos. The table below shows the growth of the industry. The most striking points are the increasing employment of mechanical power and the relatively more rapid increase in male workers.

Number of Mills and Mill Workers.

	1914	1916	1918	1917	1918
Total number of mills	70	65	92	89	278
Operated by mechanical power	41	38	44	48	112
Not operated by mechanical power	29	27	48	46	161
Mill workers, total	18,559	16,579	18,421	18,289	24,208

Woolen Yarn.

Production.

A very limited quantity of woolen yarn had been produced before the War. After the declaration of war the market price of yarn ran very high because of a shortage of stock. This gave an impetus to the establishment of mills; and in 1915 the nation turned out about 3,000,000 kin,¹ valued at over ¥7,000,000. Today Japan is the center of such production in the Far East.

Imports and Exports.

Before the War, the annual imports of woolen yarn totalled about ¥10,000,000. With the War, however, when Japan herself began to produce yarn, the volume of imports dropped to a fraction of the former quantity. The figures for 1912 were 4,960,000 kin, valued at ¥8,220,000; those for 1918 were 56,000 kin valued at ¥240,000. Exports were gradually rising. From ¥235,000 in 1914 they increased to ¥2,590,000 in 1918.

¹ The kin = 1.32 lbs.

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Raw Materials and Imports of Same.

Tops in only small quantities are produced in Japan, the industry relying chiefly on imports. The prohibition by Great Britain and Australia of the export of tops was a severe blow to the Japanese manufacturers, and efforts were made to have tops produced at home, the result being an output of about 14,250,000 kin a year. Imports continued to increase. The trade of 1912 was 16,770,000 kin valued at ¥16,330,000 and that of 1918 38,880,000 kin, valued at ¥60,010,000.

Mills.

As the following table indicates, wool-spinning in Japan is a new industry, whose development was insignificant before the War. It rose rapidly in 1914, only to fall back in 1915 and 1916; but it recovered its impetus in the latter part of the War.

Mills and Mill Workers.

	1912	1913	1914	1915	1916	1917	1918	
Total number of mills	2	3	4	8	9	16	246	
Mill workers	Male	18	84	615	495	607	1,009	2,062
	Female	16	55	3,927	1,698	1,661	3,639	7,545
	Total	34	89	4,542	2,193	2,268	4,648	9,607

4. Knitted Goods.

Production.

The manufacture of knitted goods is a new industry in Japan. Nevertheless, because its operation does not call for the installation of bulky, intricate machinery, it is well suited to the country, where the scale of any industry is limited. It had been prosperous, and the War further enhanced its position and secured it a large market abroad. In October, 1916, it was seriously affected by the prohibition placed by London on such imports from Japan, and the result was the discharge of some 10,000 operatives. The matter was, however, settled satisfactorily later on by the intervention of the Government. Japan manufactures hosiery goods of cotton, wool, cotton and wool mixed, etc.

The production of woollen and cotton-wool manufactures was small. The value of the output was about ¥762,000 in 1915 and

¥6,390,000 in 1918. Cotton hosiery was produced in very much larger quantity. Its value amounted to ¥23,930,000 in 1915 and to ¥59,880,000 in 1918.

The total value of knitted goods—underwear, gloves, hosiery, etc.—was, in 1914, ¥10,508,769; in 1915, ¥19,721,092; in 1916, ¥34,183,674; in 1917, ¥23,919,856; and in 1918, ¥28,926,646.

Raw Materials.

As wool supplies are always inadequate in Japan, the manufacture of woollen and cotton-wool goods is limited. But the raw material for cotton goods is ample. Japanese mills do not make yarns specially adapted for knitting, so the yarns used in textile fabrics are taken instead. No statistics are compiled dealing with the demand and supply of raw materials.

Imports.

Imports of knitted goods were confined to unmixed wool garments and to other goods of superior quality. Their value was ¥170,000 in 1912 and ¥340,000 in 1918.

The number of workers employed in the manufacture of knitted goods was, in 1914, 10,574. In 1918 it had grown to 24,638.

CHAPTER VI

MISCELLANEOUS INDUSTRY

1. *Electricity.*

Before the War.

History.

The year 1883 saw the first electrical enterprise in Japan, when the Tokyo Dento Kaisha was incorporated, with a capital of ¥200,000, for the purpose of providing lights for the capital. The advantages of the new form of illumination were quickly recognized, and within a decade it was used in many other places. At the end of 1892 the aggregate amount of capital invested in the business reached ¥2,477,250, and the number of lights furnished, 35,647. By the end of 1897, the number of power-supplying companies was 39.

When the price of coal began to advance, toward the end of 1899, mills and the like which had been generating their power by steam-driven machinery found great difficulty in carrying on their business. Prior to this—in 1892—the first attempt at the utilization of water power for generating current was successfully made in Kyoto, where a canal was dug to make use of the waters of Lake Biwa. Soon a number of companies were launched, and steam was superseded by water power. In 1905, there were 89 electrical companies of which 55 made use of water power. During the commercial and industrial boom after the Russo-Japanese War, the business grew unprecedentedly. In spite of the depression of 1908, the advance continued till no town with a population of more than ten thousand was without electric lighting. The nation's largest enterprises were promoted in 1909 and 1910, but by 1908 the new system had been installed in 293,207 private houses, and by 1913 in 2,344,735.

The adoption of electric power for the operation of industrial plants followed a few years after the beginning of electric illumination. At first, the high cost hindered this development, but when hydraulic power began to be used the rate became more moderate, and resulted in a widespread use of electricity in mills and factories.

In 1893, the number of motors provided was 563, using 4,107 horsepower; in 1908, 3,975 motors used 17,093 horsepower; and in 1913 the figures were 27,376 and 107,273 horsepower.

During the War.

Résumé.

Among the electrical works promoted after the close of the Russo-Japanese War, the largest one was the Inawashiro Suiryoku-denki Kabushiki Kaisha, opened for business at the end of 1914. Japan was then in a position to supply 411,017 kilowatts. When business became active after the period of depression which followed the outbreak of the European War, demands for power greatly increased, and led to the extension of plants and the formation of new companies.

Number of Electrical Enterprises, 1914-1917.

	<i>Companies selling light and power</i>	<i>Electric railways, etc.</i>	<i>Other government and private companies</i>	<i>Total</i>
1914	890	71	1,479	2,147
1915	488	72	1,780	2,408
1916	472	74	2,071	2,798
1917	497	76	2,818	3,108

In 1914 the total power generated by the above enterprises was 1,106,058 kilowatts; in 1915 it was 1,148,691; in 1916, 1,220,248; and in 1917, 1,562,488.

The electrical industry, though a new one in Japan, is coming to be one of its largest. In 1914 its nominal capital amounted to ¥578,160,475, for all enterprises. Its paid-up capital was ¥460,355,240. And its debentures and borrowings amounted to ¥98,697,414. In 1917 the figures were, respectively, ¥704,485,470, ¥578,946,516, and ¥114,380,223.

Its growth of capital during the War was second only to the growth of capital in manufacturing. Profits were not so great as in other branches of business; but they sufficed to guarantee interest on the money invested. From 1914 to 1917, inclusive, the average annual profits were 9 per cent, 10.2 per cent; 11.8 per cent; and 12.9 per cent. During the same years the industry paid dividends averaging 9 per cent. Of the total number of companies doing busi-

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ness—393—18 operated at a loss. In the case of the others, 29 made profits of more than 15 per cent; 77, of more than 12 per cent; 101, of more than 10 per cent; 67, of more than 8 per cent; 53, of more than 5 per cent. Six made less than 5 per cent, and 42 did not declare a dividend.

The extensive promotion of hydroelectric enterprises has also admitted of low rates; to that, indeed, is largely due the great increase in the consumption of electric power. It can be supplied at rates from 20 to 60 per cent lower than those for steam. A slight increase in cost, in 1918, was due solely to the general increase in the cost of production.

Increased Demand and Industrial Development.

(a) Light and Power. With the rise in the price of kerosene upon the outbreak of the War the demand for electric lighting increased at a remarkable rate, especially in the country. At the same time there was a rapid increase in the demand for power in industrial plants. So important has electric power become that its cost is now an important factor in determining the location of new industrial enterprises. This is not confined to large industries only, but is true of household manufactures and small manufacturing businesses as well. In fact, in weaving, silk filature, rice-milling, the iron industry, etc., it has become indispensable.

Consumption of Power for Illumination, 1914-1917.

	<i>Number of consumers</i>	<i>Number of lights furnished</i>	<i>Power furnished, k.w.</i>
1914	2,908,218	7,706,962	177,940
1915	3,274,049	8,420,857	190,896
1916	3,925,619	9,975,554	200,400
1917	4,886,785	11,818,058	190,488

Consumption of Power by Industrial Plants, 1914-1917.

	<i>Motors</i>		<i>Other mechanisms k.w.</i>	<i>Total k.w.</i>
	<i>Number</i>	<i>Power k.w.</i>		
1914	44,528	292,401	30,261	322,662
1915	55,056	364,969	48,460	408,429
1916	69,205	466,842	78,188	545,025
1917	85,858	597,546	102,786	700,332

(b) Industrial Operation. The adoption of electric power for the operating plant is of rather recent date; but it has become a permanent feature of Japanese manufacturing. In 1914 the horsepower in use totalled 391,959. In 1915 it was 489,235; in 1916, 625,286; and in 1917, 800,981.

2. Gas.

Before the War.

The gas industry was of negligible proportions until about 1909, when 8 companies were in operation, with an aggregate capital of ¥17,000,000. In 1913, the number of companies had risen to 75, with a total capital of ¥83,000,000. The competition was ruinous and led to mergers, following the example of the electrical companies. After numerous amalgamations the industry found itself on a sound basis, and, although after 1908 business in general was suffering from depression, paid dividends of from 6 to 12 per cent.

During the War.

The gas industry continued to expand until about 1913 when it began to be eclipsed by the tungsten light, tending to confine the use of gas to heating only. As to the utilization of by-products, little progress was made. The high price of coal after the outbreak of the War affected gas manufacturers very seriously, in contrast to the prosperity of all other businesses.

The Gas Industry, 1913-1916.

	1913	1914	1915	1916
Number of Companies	75	88	91	82
Paid-up Capital (in yen)	67,767,242	82,824,825	87,484,109	168,785,709
Annual Production (in cubic feet)	5,646,886,745	6,099,083,480	6,281,076,916	6,097,848,814

3. Other Industries.

Brushes.

The manufacture of brushes commenced to show signs of development in 1902. It is now a staple Japanese industry. In 1912 its output had a total value of ¥2,357,078; in 1914, of ¥3,213,570, and in 1918, of ¥9,394,189. Exports in 1914 amounted to ¥2,695,297, and in 1918 to ¥10,600,647.

Braided Goods.

This term is used to designate straw braids, wood-shaving braids, mixed braids of straw and wood shavings, and manila-hemp braids. The first two were on the market at the beginning of the Meiji Era, and they were an important article of export by the end of the last century. Manila-hemp braid is a manufacture of more recent origin in Japan; but it has a conspicuous place in the export list. The center of this industry is Yamaguchi, followed by Okayama, Kagawa, and Hiroshima. In 1918 braided goods of all sorts were produced to a value of ¥32,775,859 and exported to a value of ¥11,996,118. Imports amounted to ¥264,556.

Starch and Flour.

The manufacture of these staples made great progress during the War, as is shown below:

Production of Starches and Flours, 1912-1918.

	<i>Starches: Potato, sweet potato, etc.</i>			<i>Wheat Flour: Machine-milled</i>		
	<i>Number of manufacturers</i>	<i>Amount (in kwan of 8.27 lbs.)</i>	<i>Value</i>	<i>Number of manufacturers</i>	<i>Amount (in koku of 4.96 bushels)</i>	<i>Value</i>
1912	62,948	28,327,858	¥ 2,116,842	11,820	464,660,852	¥32,694,146
1913	68,597	32,736,854	2,444,022	12,532	498,939,429	35,820,830
1914	64,424	39,977,128	2,477,924	12,099	501,136,681	36,096,001
1915	79,291	72,339,856	4,709,618	15,208	480,511,617	33,492,973
1916	71,809	126,107,941	11,826,231	16,875	585,867,162	44,769,377
1917	70,533	180,958,653	21,597,569	17,879	658,335,316	65,901,499
1918	83,425	209,526,423	27,613,303	19,074	741,023,113	98,450,410

CHAPTER VII

CONCLUSION

1. General Effect of the War on Japanese Exports.

THE most noteworthy thing about the war-time industry of Japan was that the aggregate horsepower employed in industry doubled in the period between 1913 and 1918, together with a 50 per cent increase in the number of factory workers. It is sometimes said that whereas the Sino-Japanese and Russo-Japanese wars promoted those branches of industry which looked to supplying internal needs, the World War promoted the country's progress toward two other objectives—viz., the checking of imports of foreign manufacture, and the securing of markets abroad for home products. This view is that of the optimist who is dazzled by the remarkable growth of the export trade, as measured in values. The author recognizes that the World War was instrumental in raising the rank of Japan among exporting nations. But the best measure of the nation's industrial advance is the increase in horsepower and in the number of her factory workers.

Exactly what happened to Japan's export trade is shown in the following table, which differentiates among commodities showing export increases in both quantity and value, those showing increases in value and decreases in quantity, and those showing decreases in both quantity and value.

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Export Goods which Showed Increases in both Quantity and Value.

	Year	Quantity	Ratio based on 1 for 1913	Value	Ratio based on 1 for 1913	
		Kin				
Spinning machinery, textile machinery and parts thereof	1918	.....	..	¥ 851,815	1
	1918	.....	..	8,594,869	10
Bleaching powder	1918	1,690,088	1	185,641	1	
	1918	8,242,747	4.88	1,828,270	1.01	
Refined sugar	1918	168,766,922	1	15,881,880	1	
	1918	190,878,168	1.18	28,252,186	1.46	
		Bundles ¹				
Match sticks	1918	26,638,000	1	228,821	1	
	1918	181,289,000	4.93	1,902,628	8.82	
		Kin				
Papers	Printing paper	1918	4,944,877	1	499,177	1
		1918	18,886,792	8.72	5,052,780	10.12
	"Torinoko"	1918	469,110	1	848,260	1
		1918	8,184,268	6.79	1,645,954	4.78
	Straw board	1918	8,727,107	1	812,847	1
		1918	86,995,562	4.24	4,664,072	14.98
	Packing paper	1918	280,196	1	85,427	1
		1918	7,546,949	82.79	2,281,549	64.4
			To ²			
	"Renshi"	1918	1,266,571	1	469,678	1
1918		2,089,106	1.61	2,259,564	4.81	
		Dozens				
Glass goods	Bottles, flasks, etc.	1918	5,576,628	1	1,150,057	1
		1918	9,178,740	1.65	4,655,200	4.05
	Tumblers	1918	1,114,665	1	806,810	1
		1918	1,549,864	1.89	1,884,861	4.86
	Beads, balls, etc.	1918	490,099	1
		1918	1,828,439	2.70
	Mirrors	1918	10,068,009	1	706,618	1
	1918	15,211,284	1.51	2,019,058	2.86	
China and crockery	1918	.....	..	6,687,837	1
	1918	.....	..	19,957,782	8.01
		Kin				
Cement	1918	44,690,729	1	655,786	1	
	1918	258,741,599	5.79	6,010,161	9.16	
Bean oil	1918	1,421,020	1	196,655	1	
	1918	4,928,218	3.47	1,514,142	7.7	
Rapeseed oil	1918	8,818,835	1	1,348,099	1	
	1918	20,125,012	2.28	7,161,560	5.88	

¹ One bundle contains 2,000 pieces.

² One to contains 96 sheets.

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	Year	Quantity	Ratio based on 1 for 1913	Value	Ratio based on 1 for 1913	
		Kin				
Toilet soap	{ 1918	2,842,606	1	1,508,026	1	
	{ 1918	4,732,659	2.02	4,821,996	2.87	
Wood wax	{ 1918	756,958	1	1,028,188	1	
	{ 1918	1,427,847	1.89	8,108,516	8.02	
Sulphuric acid	{ 1918	2,546,548	1	106,014	1	
	{ 1918	5,862,009	2.8	408,450	3.85	
Cotton goods	{ Woven fabrics	{ 1918	88,605,684	1
		{ 1918	287,918,120	2.08
	{ Handkerchiefs	{ 1918	101,222	1	50,562	1
		{ 1918	1,210,419	11.96	1,265,508	25.08
	{ "Yutakaori"	{ 1918	845,447	1	482,092	1
		{ 1918	5,416,884	6.41	2,664,981	6.17
	{ Crêpe underwear	{ 1918	198,669	1	487,470	1
		{ 1918	1,158,074	5.98	8,945,564	8.09
		Kin				
Silk goods	{ Habutae	{ 1918	2,762,777	1	84,882,279	1
		{ 1918	8,259,216	1.18	70,178,085	2.01
	{ Satin	{ 1918	2,699,982	1	1,258,841	1
		{ 1918	5,825,286	1.97	5,799,148	4.61
	{ Crêpe	{ 1918	47,094	1	788,784	1
		{ 1918	14,787,022	25.9	22,275,681	28.42
	{ Handkerchiefs	{ 1918	1,704,488	1	5,001,389	1
		{ 1918	2,665,992	1.56	8,980,808	1.8
			Yards			
			Dozens			
Silk yarn	{ 1918	502,781	1	2,222,710	1	
	{ 1918	2,087,668	4.05	6,722,980	8.02	
Woolen yarn	{ 1918	115,359	1	158,410	1	
	{ 1918	529,829	4.59	2,598,811	16.41	
		Yards				
Knitted sheeting	{ 1918	486,928	1	96,994	1	
	{ 1918	4,566,801	10.45	1,856,608	18.96	
		Dozens				
Tooth brushes	{ 1918	1,611,527	1	817,923	1	
	{ 1918	8,151,108	5.06	7,640,086	9.84	
		Kin				
Starch	{ 1918	980,228	1	115,886	1	
	{ 1918	166,850,129	169.71	29,610,175	255.51	

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Export Goods which Showed Increases in Value, but Decreases in Quantity.

	Year	Quantity	Ratio based on 1 for 1913	Value	Ratio based on 1 for 1913
		in 1,000 dozens			
Matches (safety, sulphur, lucifer, etc.)	{ 1918	528,110,964	1	¥ 11,864,514	1
	{ 1918	478,609,041	0.89	27,742,668	2.38
		Bales			
Cotton yarn	{ 1918	468,787	1	78,089,677	1
	{ 1918	421,517	0.9	162,789,759	2.22
		Kin			
Cotton knitted underwear	{ 1918	5,475,128	1	8,847,418	1
	{ 1918	4,221,658	0.77	18,671,876	2.11

Export Goods which Showed Decreases in both Quantity and Value.

	Year	Quantity	Ratio based on 1 for 1913	Value	Ratio based on 1 for 1913
		Bundles			
Straw braid	{ 1918	18,081,435	1	¥ 4,198,918	1
	{ 1918	18,078,200	0.74	3,799,248	0.90
	{ 1918	9,779,095	1	1,221,869	1
Wood-shaving braid	{ 1918	8,881,299	0.84	468,459	0.88
	{ 1918	28,612,926	1	10,064,706	1
Hemp braid	{ 1918	20,721,719	0.88	7,718,854	0.77

2. The Foundations of Japan's Manufacturing Industry.

It may be said that, in technical skill, Japan undoubtedly made wonderful progress during the War. But, when her attainments are contrasted with those of the West, she is still far behind, especially in the manufacture of those goods which require an advanced knowledge of chemistry.

a. Iron manufactures: No matter how astonishing has been the progress of Japan's iron and steel manufactures, they are still unable to produce classes of tin plate below No. 26 and tubing over six inches in diameter. We have said that they can make many sorts of iron and steel products. This is quite true, but the trouble is that, because of lack of skill, the cost of production is very high, thereby forcing the price to unreasonable levels.

b. Zincs: As regards the extracting of this metal, the Japanese are

said to be as expert in the wet electrical method as are Americans or Europeans.

c. Division of labor has been adopted very effectively in shipbuilding, so that many yards construct hulls only, and many others engines and boilers exclusively. It is now possible to build ships of standard type. Japan does not require imported marine equipment with the exception of certain special types of boilers and chronometers.

d. Machinery: The making of machinery is another industry which is in its infancy, like the chemical business. Although the industry had a favorable opportunity to develop during the War, its product has not yet reached the highest point, and it would be impossible to expect it to hold its own in all cases against the products of countries more advanced. Nevertheless, in 1918 an export trade was carried on in electrical machinery, lathes, spinning and textile machinery, mining machinery, medical and surgical instruments, scientific apparatus and tools, musical instruments, watches and clocks, and a few other goods, the value of each being between ¥1,000,000 and ¥3,000,000; and they were able to compete in price against similar manufactures from Europe and America.

e. Chemical products: Japan is well advanced in the manufacture of sulphuric dyes, acid dyes, direct dyes, and basic dyes, but in mordants, acid and other, her chemical industry is still in a state of infancy, and in vat dyes she is an unknown quantity. As regards the soda industry, the method widely practiced is the Leblanc process; the electrolytic process has not as yet been made profitable.

f. Cotton goods: Japan's skill in the spinning industry is noteworthy. This was at once reflected in the fact that, even during hostilities, the consumption of imported American raw cotton was greater than before, although that of Indian raw cotton experienced a decline. Although this might have resulted from difficulties in the exchanges, that was by no means the only influence at work. It is unanimously agreed by the trade that Japan has succeeded in the making of yarns of fine counts. When, however, it comes to the finest, she is not regarded as the equal of Europe and America. Silk fabrics for home consumption have had a unique development. Those for export, it is generally conceded, still fall somewhat short of the quality of American and European manufacture.

g. Other textiles: One can hardly say that the Japanese have

gained all the experience required for the manufacture of hemp goods, woolen cloth, and knitted materials.

Raw Materials.

a. Iron ore: In 1918, the record year in the consumption of iron and steel, the country was unable to produce more than 397,800 tons of iron ore, thus making it necessary to import 598,700 tons from other lands. In addition to 220,000 tons of pig iron, 660,000 tons of steel and a heavy tonnage of manufactures of iron and steel had to be purchased abroad. It is estimated that the total iron deposits of Japan amount to no more than 70,000,000 tons; moreover, the ores are of low grade.

b. Raw cotton: The cotton plant does not thrive on the soil of Japan. Of the 49,000,000 kwan^a of raw cotton consumed by the spinning industry in the second half of 1918, India furnished 24,000,000, the United States 18,000,000 and China 5,000,000, while Korea contributed 720,000 kwan. As Korea's production was the result of long-continued effort on the part of the Government's experts in Seoul, the future of the raw cotton industry in Japan is not regarded with much optimism.

c. Wool, salt, etc.: It might almost be said that not a single pound of wool is produced in Japan. Nor is there any large production of the basic materials for the manufacture of sodas and potassiums.

d. Raw silk: If there is anything that Japan can supply in large quantities, it is raw silk. Still, it must be remembered that raw silk is not a daily necessity, but a luxury.

In conclusion, it may be stated that, though backwardness in technical skill and art may be made up in due course, the problems connected with the needed supplies of raw materials stand on an entirely different footing. Thus, to secure supplies of iron, Japan is obliged to pay high freight charges in times of peace. And if once war were declared, and the supplying nations proclaimed embargoes, what would become of the Japanese steel industry? All this is very disturbing to the Japanese people, who learned much during the recent War. As for raw cotton, the spinning trade is troubled by the possibility that a time may come when the expansion of American cotton manufactures will cut off supplies of such raw material from this

^a The kwan = 8.27 lbs.

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source, and that China will absorb what is produced by India. Nothing, therefore, is more serious than this matter of adequate supplies of raw materials. At present, the nation is as much concerned by the need of securing them cheaply as by the necessity of improving its technical skill. As to power, in view of the nation's meager coal supply it must make the most effective use of its hydroelectric resources. In them Japanese industry may secure a cheap and abundant source of motive power, to offset the disadvantage of expensive raw materials. But, even so, the prospects for Japanese industry are not too promising.