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THE SMALL INDUSTRIES
OF JAPAN

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THE SMALL INDUSTRIES OF JAPAN

Their Growth and Development

By

TEIJIRO UYEDA,

President, Tokyo University of Commerce

AND ASSOCIATES

*A Report in the International Research Series of the
Institute of Pacific Relations*



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PREFACE

This study of Japanese small-scale industries has been made on behalf of the Japanese Council of the Institute of Pacific Relations and forms part of a large international programme of inquiries which the International Research Committee of the Institute has inaugurated on the problems of industrial competition and standards of living in the countries of the Pacific Area. It is thus related, on the one hand, to the investigations of industrialization in China which have been carried out for the Institute in Shanghai and Tientsin and, on the other, to the more recent studies of the textile industries in the Pacific which are now being made in the United States, Great Britain, China, and Japan, for the various national councils of the Institute.

Small-scale industries play a great rôle in Japanese industrial life and the recent expansion of the export trade in their products has provoked a great deal of international controversy, resulting at times in rather serious measures of trade restriction. But owing to the lack of precise data concerning them, which is largely due to their industrial character itself, we have, even to-day, insufficient knowledge in this sphere. This fact obliged us in preparing this book to make minute study 'on the spot'. In this sense we venture to say that this volume is the first conclusive work of its kind, not only for the public abroad, but also for the Japanese themselves.

Small-scale industries can be divided into two or three branches at least, according to their products and market relations. However, to study all these is technically beyond the limit of this book. Those dealt with here are representative small-scale industries for export.

When we had nearly put the last touch to this work, the present situation in China commenced. As for the effects of this new situation upon the branches of industry in question, it is naturally impossible to treat them in the present study. The situation forms another subject, which will be worked out in the future.

It goes without saying that statistical data used in this book are of the most recent dates available. However, to our great regret, many important statistics are published, in Japan as well as in other countries, with a delay of two or three years, sometimes, even of five years, and this is why we cannot present all the data up to some uniform date, say, the end of 1936. The main sources of statistics utilized are in Japanese. They are as follows:

Factory Statistics (Kojo Tokei Hyo), published by the Ministry of Commerce and Industry every five years from 1911 to 1920, and annually since 1920. The latest issue, for 1935, was published in March, 1937.

Statistics of the Department of Commerce and Industry (Shokosho Tokei Hyo), published by the Ministry of Commerce and Industry annually since 1926. The latest issue, for 1935, was published in December, 1936.

Survey of the Business Conditions of Industry (Kogyo Keiei Jokyo Shirabe), published by the Ministry of Commerce and Industry.

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| Vols. 1 & 2. <i>Silk Pongee, Striped Drills and Enamelled Ironware</i> , 1933. | Vol. 4. <i>Rubber Shoes and Rubber Soled Shoes</i> , 1934. |
| Vol. 3. <i>Potteries</i> , 1933. | Vol. 5. <i>Electric Lamps</i> , 1934. |
| | Vol. 6. <i>Woollen Tissues</i> , 1934. |

Vol. 7. *Cast Ironware*, 1935.

Report of the Survey of Labour Statistics (Rodo Tokei Jitchi Chosa Hokokushu), published by the Cabinet Bureau of Statistics every three years since 1924. The latest issue, for 10th October, 1933, was published in March, 1937.

Report of Census (Kokusei Chosa Hokokushu), published by the Cabinet Bureau of Statistics. Held on 1st October, 1920 and 1930. The Report of 1930 was published in November, 1935.

Statistics of Factory and Mining Labour (Rodo Tokei), published by The Bank of Japan monthly since February, 1922.

Annual Report of Factory Inspectors (Kojo Kantoku Nempo), published by the Bureau of Social Affairs annually since 1916. The latest issue, 1935, was published in March, 1937.

Monthly Returns of Japan's Foreign Trade (Gaikokushu Boeki Geppo), published by the Ministry of Finance monthly since 1874.

Annual Statistics of Cotton and Silk Tissues (Men-orimono oyobi Kinu-orimono Nempo), published by the Ministry of Commerce and Industry annually since 1928. The latest issue, for 1936, was published in March, 1937.

Statistics of the Cotton Spinning Industry (Menshi Boseki Jijyo Sankosho), published by the Japan Cotton Spinners' Association (Dai Nippon Boseki Rengo Kai) semi-annually since 1903. The latest issue, for the second half of 1936, was published in April, 1937.

Annual Statistics of the Woollen Industry (Yomo Kogyo Tokei Nempyo), published annually by the Japan Woollen Industry Association (Nippon Yomo Kogyo Kai). The latest issue, for 1935, published in December, 1936.

Report on Family Budgets (Kakei Chosa Hokokushu), published by the Cabinet Bureau of Statistics in 1926-1927, and annually since 1931-1932.

The greater part of the present book consists of chapters which were submitted as separate papers to the Sixth Conference of the Institute of Pacific Relations, held at Yosemite National Park, California, in August, 1936. These have since been thoroughly revised and an introductory chapter has been added. Though the book is issued as a report in the International Research Series of the Institute and under the auspices of the Japanese Council, it should be clearly understood that neither the Council nor the Institute as a whole necessarily endorses or accepts responsibility for statements of fact or opinion in it. For these the authors alone are responsible.

TEIJIRO UYEDA

Tokyo,

20th November, 1937

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**THE SMALL INDUSTRIES
OF JAPAN**

CHAPTER I

THE PRESENT STATE OF THE SMALL INDUSTRIES OF JAPAN

I

WHEN the cry against the so-called 'social dumping' from Japan was raised in Europe in 1934-1935, Mr. Maurette, Assistant Director of the International Labour Office, was sent to Japan in order to investigate the real conditions of industry. In the report which he submitted to the Office shortly after his return to Geneva, he said that there did not exist what may be called 'social dumping' in Japan, so far as he could conclude from his inquiries into conditions in large-scale factories. He left the case of small industries for later studies and emphasized the importance of such studies in view of the numerical predominance of small industries in Japan, and also because industries of that category are more liable to the danger of 'sweating' in all countries. The questions he suggested for future investigations were as follows:

1. In Japan, small workshops which employ fewer than ten workers, and therefore are outside the regulation of the Japanese Factory Acts, are extremely numerous, probably about one-half of all industrial workers employed under such conditions.

2. The problem of small industries is important because labour conditions in them are certainly depressed in comparison with larger establishments. 'They can scarcely reduce cost of production except at the expense of working conditions, whereas large undertakings can achieve a reduction by means of technical improvements.' It may be said for Japan in recent years that, 'in proportion as production has been rationalized and technical improvements introduced, and in proportion as the sale of those products has increased, conditions of labour have been improved.' However, 'conditions of labour may perhaps have been temporarily depressed in certain small undertakings where they were already less advanced than in large undertakings, as the result of unbridled competition and desire to sell goods at any price.'

I

3. 'In Japan the importance of small industries is declining. The number of small industries will diminish and they will finally disappear and be replaced by large undertakings where satisfactory conditions of labour prevail as a natural consequence of centralization and mechanical progress.' In the meantime, it will be useful to investigate how they are developing, at what rate, and in what direction, how their production competes with that of the large undertakings or how, in some cases, the two are co-ordinated.

We believe that apart from current controversies on social dumping, the problem of small industries is very important for the development of Japanese national economy. Researches into this problem are not only necessary for explanation to foreign competitors, but also more so for the enlightenment of our people. We have quoted from Mr. Maurette's report because his formulation of questions seems to provide a suitable starting point for attacking the problem.

2

The problem of small industries is not new to Japanese social thinkers. It was made the agenda of a meeting in 1917 of the Society for Social Policies, at which the present author had an opportunity of reading a report on the subject. At that meeting, debates took place as to whether or not some protective action should be taken by the state. Opinions were divided between those who recognized the merit of small industries, as these stood for the preservation of the ancient family system of our people, and others who saw in them the evils of sweating. The members of the Society knew that the same controversies had been fought in some European countries during the latter part of the nineteenth century, and quotations from Western writers on both sides were freely made in the discussion. Mr. Sidney Webb's argument against the attitude of conservative social workers, presented in his famous book, *Industrial Democracy*, seems to have had a great influence on our scholars. As small undertakings have disadvantages over large ones in respect of mechanical and financial equipment, the masters must make up these shortcomings by lowering their own profit as well as the wages of assistants and apprentices, or by extending the length of working hours and worsening general working conditions. Small masters and home-workers have little chance of getting information about general economic conditions, and they are also

unable to organize trade unions, as they scarcely meet each other. Their employers are thus free to take advantage of these weaknesses by cutting down wages. The lower the level to which wages are depressed, the longer the people must work in order to increase output. Moreover, the family life which is so much valued by some social workers cannot be strengthened by preserving such industries. Although the relation between master and apprentice should, in theory, be like that of father and son or teacher and pupil, such a situation becomes impossible under severe competition, and apprentices simply become suppliers of cheap labour. Besides, as home-workers must live and sleep and work in the same dirty little room, their home life cannot be specially enjoyable. Thus, the disappearance of small industries, if they disappear at all, is not to be lamented, but rather welcomed, if their place is taken by large-scale factories. Such was the argument put forward by Webb's followers in Japan.

Arguments like this may have carried the whole of public opinion in countries like England, where the Industrial Revolution had run its whole course and small industries had become mere remnants of the past. Presumably, also, the extension of social legislation to small industries, including Factory Acts and the Trade Board Act, which provided for their special regulation, had the effect of hastening their natural decline. But the same arguments, which obtained general consent in the West, could not convince the rulers of Japan even at the present day. Besides the ancient family system which is so valuable to them, the widespread existence of small industries in Japan makes it impossible for them to leave the fortunes of a large number of people employed in these industries to the natural tendency of decline and disappearance. (As will be seen from the statistical analysis presented in later pages, what are commonly called small industries include 60-70 per cent of all Japanese industrial workers, so that Mr. Maurette's estimate is not mistaken.) Diverse branches of small industries, either on the master handicraft system or the domestic industry system, are widely spread throughout the whole national economy, these being the common industrial forms by which people's daily necessities are provided. In a country where Western capitalism was suddenly introduced into an old-fashioned feudal society, and where during several centuries of national life isolated from the outside world the people had

developed a peculiar mode of life very different from that of all other nations, even the powerful modern methods of production cannot change its traditional industrial system in a short time. It is really marvellous that in the Japan of to-day there are numberless small industries existing, and in some cases even thriving, side by side with huge companies owning large-scale factories, organized into influential cartels and 'concerns'. Certainly, as stated by Mr. Maurette, the numerical importance of small industries is gradually declining, but nobody can expect, under the present circumstances, that they will be quickly replaced by large establishments. Indeed, their rapid decline and disappearance may mean ruin to a considerable number of households in Japan.

Moreover, the problem must be considered against the background of the whole national economy, and not merely as a comparison between large and small industrial systems. The Japanese countryside being already thickly inhabited, a large proportion of the young men and women born and brought up in farmhouses must either go to find employment in cities or be employed at home in other than agricultural pursuits. A large number are, of course, absorbed in modern large-scale establishments, but a still larger number go to work in small retail businesses or small industries rather than remain at home, helping their families. (The standard of living in small industries is, in most cases, lower than in large ones, but workers think it more comfortable than at home.) On the other hand, there is an enormous variety of small industries, both long established and newly developing. Some of them, like those carried on by slum dwellers, are in a deplorable condition, but others are flourishing despite the competition of large-scale producers. In most rural districts where some domestic industry has taken root, general living conditions are better than in those devoted solely to farming.

The traditional policy of the Japanese Government has, therefore, been to encourage and promote small as well as large industries, and, naturally, small ones are in need of protection and guidance from above. In recent years, the Government's policy has been to encourage co-operative organizations among small industrialists. Hundreds of *Kogyo-Kumiai* or manufacturers' associations were formed in order to apply co-operative principles to buying and selling, transporting, finishing, etc. They proved successful in many

cases, although we have to see if these organizations can in future withstand the general economic crisis that must come some time.

Besides, it is not wholly true to say that small industries are not in a position to mechanize their manufacturing processes. They are now able, fortunately for Japan and its small industrialists, to make use of electricity as motive power. When steam was the only means of saving human labour, it would have been impossible for them to use modern mechanical appliances. But now a small weaving-shed with scarcely ten workers is able to operate a few efficient power-looms at small expense, or a master potter is able to drive some simple apparatus without moving his own arms. In fact, these people are making an interesting experiment to see what wonders electricity can make in the evolution of the industrial system of a country.

In cases where mass production of standardized goods is possible, large-scale factories are able to produce at less cost, but where goods of varied patterns are demanded in smaller quantities, small shops are better suited to adapt themselves to the actual requirements, and can therefore successfully compete with larger producers. In all textile industries, including cotton, silk, wool and rayon, there appears to exist a line of division of labour between the two categories of industrial units. While spinning or making yarns is carried on solely in large establishments, a considerable part of weaving has to be allotted to small industries. Those old seats of domestic manufactures, which had already become famous in the latter part of the Tokugawa Period (1603-1867), are now succeeding in the export business as well as in manufacture for home consumption. The organization of such industries was somewhat altered as power-looms were introduced, but they still remain in the category of small or medium-sized industry, financed to some extent by merchants' capital. Their working conditions are not so good as those prevailing in large modern mills, but are certainly not so bad as to be called 'sweating'. Small masters are making some profits, while operatives are living on a level at least a little higher than in their country homes.

However, after all that has been said, we cannot be blind to the fact that labour conditions in small industries are liable to become sweating, and there are everywhere, especially in slums of large cities, examples of such degradation. It is also true that too little

attention is paid to the problem of sweated industries in Japan. We believe it is necessary to make a distinction between small industries which are sweated and those which are not; and it ought to be made clear that people will not be allowed to work under conditions which fall below the national minimum of sanitation and education.

3

It may be useful to present some statistical data, before giving a general survey of the history and present state of small industries in Japan. According to the 1930 census, the total number of persons engaged in all occupations amounted to 29,299,000, of whom 18,739,000 were male and 10,560,000 female. Agriculture came first with no fewer than 14,081,000 or 48 per cent of the total number. Fishing, which may be counted as a rural occupation, employed 2 per cent; industry and mining employed 21 per cent between them; commerce and transportation 19 per cent; public services and liberal professions 7 per cent; and domestic services 3 per cent. Thus, it must be said that Japan is still a predominantly agricultural country, nearly half of the nation being supported by farming, but, as there is no room for extending the cultivation of land, a large proportion of the younger generation brought up on farms must find work in other occupations. During the ten years, 1920-1930, the number engaged in industry increased by about half-a-million or about 10 per cent, and those engaged in commerce by one million-and-a-half or 50 per cent, while there was a slight decrease in agriculture. Thus the farming population forms a reservoir from which workers in industry and commerce are recruited. When farming is in difficulties, owing either to low prices of rice or silk or a very bad crop of these important products, it must have an unfavourable reaction on the wages paid in urban occupations. In recent years we have seen that industrial wages were slow to respond to the export and armament boom, except in cases where skilled men were required, because the farming classes were in a depressed condition.

'Industry', as classified in the census, includes sixteen subdivisions, ranging from large-scale modern industries such as iron and steel making, shipbuilding and cotton-spinning to old-fashioned handicrafts of diverse kinds. (Spinning and weaving employ 25 per cent of all workers, building trades 16 per cent, food and drink 8 per

cent, wood and bamboo work 11 per cent, clothing 8 per cent, metal work 6 per cent, engineering 4 per cent, ships and vehicles 3 per cent, etc. Thus, the outstanding features of Japanese industry are the prominent part played by the textile group and the comparatively unimportant position of metal and engineering industries. A comparison of 1920 and 1930 shows a large proportional increase in heavy industries, and it is also certain that these have been making a still quicker advance since 1930, although the 1935 census did not count occupations.

The actual increase in the total number of industrial workers during the decade was 410,000, an increase of 544,000 male workers being partly offset by an absolute decrease of 134,000 female workers. In spinning and weaving, the number of females employed dropped by 1.8 per cent, notwithstanding that the production index for spinning jumped from 91 in 1920 to 162 in 1930, and that for weaving from 100 in 1920 to 150 in 1930. This change is due to technical improvements, including the change by small weaving shops from hand loom weaving to the electric power-loom.

With regard to the numerical position of small-scale industries in the national industrial structure, we have no census report, but it is not impossible to obtain a rough estimate. The Ministry of Commerce and Industry publishes annually¹ the statistics of factories and workshops employing five and more persons, and so, by deducting the number of persons mentioned there from the total of industrially occupied persons shown in the census, we can reach an approximate number of persons working in small-scale industries in establishments employing one to four persons inclusive of masters. The results obtained by this device are shown in Table 1.

(A) represents the total of industrially occupied persons, excluding those occupied in building industries (735,000 for 1920 and 875,000 for 1930). Those counted as unemployed in the 1930 census are also deducted. As the number engaged in factories, as mentioned in the report of the Ministry of Commerce and Industry, does not include owners of factories, their number is assumed to be the same as the number of factories and was added to the original figures.

Thus, we may say roughly that in 1930, 53 per cent of the total of those industrially occupied were working in small workshops of under five persons, 59 per cent in those of under ten persons, 70

¹ *Factory Statistics.*

per cent in those of under 50 persons. This result agrees with the assumption by some observers that more than half of the Japanese industrial population belongs to small industries. But we are of the opinion that this still somewhat underestimates the small industries.

TABLE I. ESTIMATED NUMBER OF PERSONS EMPLOYED IN SMALL-SCALE INDUSTRIAL ESTABLISHMENTS IN JAPAN EMPLOYING 1-49 PERSONS

Number engaged in factories and workshops employing under 5 persons

	1920	1930
Total of industrially occupied (A)	4,565,230	4,432,530
Those engaged in factories and workshops employing 5 and more persons (B)	2,025,192	2,087,169
A minus B	2,540,038	2,345,361
A minus B, expressed as a percentage of A	55.6	52.9

Number engaged in factories and workshops employing under 10 persons

	1920	1930
A minus B (C)	2,540,038	2,345,361
Those engaged in factories and workshops employing 5-9 persons (D)	320,223	270,751
C plus D	2,860,261	2,616,112
C plus D, expressed as a percentage of A	63	59

Number engaged in factories and workshops employing under 50 persons

	1920	1930
C plus D (E)	2,860,261	2,616,112
Those engaged in factories and workshops employing 10-49 persons (F)	342,908	486,544
E plus F	3,203,169	3,102,656
E plus F, expressed as a percentage of A	70	70

We have excluded building trades in making the above calculation, because there exists no material showing their scale, and a comparison is technically impossible for these particular industries. Building

TABLE 118. FAMILY BUDGETS OF INDUSTRIAL WORKERS WITH INCOMES UNDER 100 YEN, TOKYO (1926-1927)

	Under 60 yen (86 families)		60 & under 80 yen (361 families)		80 & under 100 yen (582 families)		Under 60 yen (86 families)		60 & under 80 yen (361 families)		80 & under 100 yen (582 families)	
	yen	per cent	yen	per cent	yen	per cent	yen	per cent	yen	per cent	yen	per cent
Food expenses												
Rice & wheat												
{ Rice	10.56	19.91	12.00	17.51	13.33	16.05						
{ Wheat	0.25	0.47	0.18	0.26	0.15	0.18						
{ Other cereals	0.37	0.70	0.34	0.50	0.34	0.41						
Total	11.18	21.08	12.52	18.27	13.82	16.64						
Fish	1.68	3.17	2.26	3.30	2.87	3.45						
Meat	0.43	0.81	0.66	0.96	0.89	1.07						
Eggs	0.24	0.45	0.33	0.48	0.47	0.57						
Milk	0.11	0.21	0.12	0.18	0.16	0.19						
Beans & other vegetables	1.79	3.38	2.08	3.03	2.44	2.94						
Dried vegetables & seaweed	0.22	0.41	0.29	0.42	0.37	0.44						
Bean-curd & pickles	1.15	2.17	1.56	2.28	1.91	2.30						
Flavouring materials	2.26	4.26	2.52	3.68	2.83	3.41						
Dishes delivered to house	0.34	0.64	0.49	0.71	0.62	0.75						
Lunches taken outside house	1.26	2.38	1.56	2.28	1.61	1.94						
Beverages & alcoholic liquors & luxuries												
{ Saké	1.31	2.47	1.59	2.32	2.11	2.54						
{ Tobacco	0.84	1.58	1.07	1.56	1.28	1.54						
{ Fruit & cakes	0.98	1.85	1.53	2.23	2.01	2.42						
{ Etc.	0.24	0.45	0.30	0.44	0.38	0.46						
Total	3.37	6.35	4.49	6.55	5.78	6.96						
Total	24.03	45.31	28.88	42.14	33.77	40.66						
Housing expenses												
Rent	7.49	14.12	8.93	13.03	11.27	13.57						
Repairs	0.17	0.32	0.41	0.60	0.63	0.76						
Water supply	0.13	0.25	0.16	0.23	0.21	0.25						
Furniture & utensils	1.20	2.26	1.76	2.57	2.01	2.42						
Total	8.99	16.95	11.26	16.43	14.12	17.00						
Lighting & heating	3.41	6.43	3.63	5.29	4.11	4.95						
Clothing												
Cloth & thread	3.56	6.71	5.65	8.24	7.12	8.57						
Wearing apparel	1.83	3.45	2.56	3.74	2.95	3.55						
Total	5.39	10.16	8.21	11.98	10.07	12.12						
Toilet & medical expenses	3.68	6.94	4.44	6.48	5.69	6.85						
Nursing expenses	1.45	2.73	1.38	2.01	1.54	1.85						
Education	0.11	0.21	0.39	0.57	0.58	0.70						
Tram fares	0.51	0.96	0.84	1.22	0.99	1.19						
Postal charges	0.10	0.19	0.15	0.22	0.17	0.21						
Stationery	0.05	0.09	0.10	0.15	0.11	0.13						
Taxes and subscriptions												
Taxes	0.17	0.32	0.17	0.25	0.18	0.22						
Subscriptions	0.13	0.25	0.17	0.25	0.20	0.24						
Total	0.30	0.57	0.34	0.50	0.38	0.46						
Social expenses												
Presents	2.05	3.86	3.43	5.00	4.10	4.94						
Entertaining	0.09	0.17	0.18	0.26	0.22	0.26						
Other items	0.47	0.89	0.78	1.14	0.99	1.19						
Total	2.61	4.92	4.39	6.40	5.31	6.39						
Culture & recreation	1.29	2.43	2.20	3.21	2.89	3.48						
Travelling expenses												
Outings	0.07	0.13	0.20	0.29	0.23	0.28						
Other travel	0.24	0.45	0.50	0.73	0.44	0.53						
Total	0.31	0.58	0.70	1.02	0.67	0.81						
Servants' pay	0.01	0.02	0.08	0.12	0.08	0.10						
Sundries	0.54	1.02	1.19	1.74	2.07	2.49						
Incompletely recorded	0.26	0.49	0.36	0.52	0.51	0.76						
TOTAL EXPENDITURES	53.04	100.00	68.54	100.00	83.06	100.00						

Based on the Cabinet Bureau of Statistics, *Report on Family Budgets, Tokyo*.

TABLE 119. ITEMS OF LIVING EXPENSES AND THEIR WEIGHTS, TOKYO (1914-1922). (A)

Items of Expense	Weight of individual commodities	Weight of sub-items	Total weight	Items of Expense	Weight of individual commodities	Weight of sub-items	Total weight	Items of Expense	Weight of individual commodities	Weight of sub-items	Total weight
I. Food & drink				II. Housing				V. Other expenses			
a. White Rice & Wheat		27.41		a. Rent		22.80		a. Toilet expenses		10.79	
b. meat (Beef)		1.04		b. Repairs		0.87		Bath-house charges	2		
c. Eggs		1.05		(Matting)				Hair-cutting	1		
d. Beans		5.56		Total weight			23.67	b. Education & stationery		0.71	
Soy	1			III. Lighting & heating				Textbooks	1		
'Azuki' (red) beans	1			Fuel	1			School fees	1		
e. Pickled Foods		3.82		Charcoal	6			c. Tram fares (Tokyo)		1.50	
'Pickled daikon'				Total weight			6.15	d. Recreation		0.82	
(giant radishes)				IV. Clothing				Cinemas			
f. Flavouring materials		6.37		Cottonwool, floss silk	7			Total weight		13.82	
Sugar	7			Cotton thread	1						
Soy sauce	12			Cotton cloth	2						
Bean-curd	6			Calico	1						
Salt	1			Silk crêpe	1						
g. Drink		1.02		Total weight			10.09				
Tea											
Total weight			46.27								

TABLE 119. ITEMS OF LIVING EXPENSES AND THEIR WEIGHTS, TOKYO (1922-1933). (B)

I. Food expenses				i. <i>Flavouring materials</i>				Cotton flannel	3			
a. <i>Rice & wheat</i>				Sugar (white & brown)	7			Kai silk tissues	1			
Japanese rice	85			Soy sauce	12			Common silk tissues	12			
Korean & Formosan rice	11			'Miso' (bean-paste)	6			Mousseline	13			
Ground barley	1			Salt	1			Serge	4			
Bread	2			Dried bonito	5		4.61	Cottonwool & floss silk	7			
Buckwheat	1		19.83					Thread (cotton & silk)	1			
				j. <i>Beverages, Alcoholic</i>				Wool yarn	1		6.57	
b. <i>Fish</i>				<i>Liquors, & Luxuries</i>								
Mackerel	1			Saké	10			b. <i>Other wearing apparel</i>				
Salted salmon	1			Beer & cider	2			Collars (Japanese-style)	1			
'Asari' (small clams)	1		3.71	Tea (green)	2			Shirts	9			
				Cake (Japanese and foreign)	6			Socks & stockings	3			
c. <i>Meat</i>				Fruit	3			<i>Tabi</i> (Japanese-style socks)	7			
Beef	6			Tobacco	7		9.00	Towels	1			
Pork	2							Hats	5			
Poultry	1			Total weight			46.27	Umbrellas	2			
			0.75	II. Housing expenses				Clogs	12			
d. <i>Eggs</i>		0.76		a. <i>Rent</i>		20.21		Shoes (foreign-style)	10			
e. <i>Milk</i>		0.28		b. <i>Repairs</i>				Total weight		3.52	10.09	
f. <i>Beans & other vegetables</i>				Matting	1			V. Other expenses				
Soy Beans	1			Window glass	1		0.77	a. <i>Toilet & medical expenses</i>				
'Azuki' Beans	1						0.38	Soap	7			
'Sai' Beans	1			c. <i>Water supply</i>				Medicine	3			
Onions	1			d. <i>Furniture & utensils</i>				Bath-house Charges	20			
Potatoes	3		4.02	Crockery	1			Hair-cutting	10		8.58	
				Enamelled ironware	1							
g. <i>Dried vegetables & seaweed</i>				Buckets	1		2.31	b. <i>Education & stationery</i>				
Dried 'daikon'	1							School fees	1			
(Giant radishes)				Total weight			23.67	Textbooks	1			
Dried Seaweed	5		0.55	III. Lighting & heating				Japanese paper	1			
				Gas	3			Ruled paper	1			
h. <i>Bean-curd & pickles</i>				Charcoal	12							
Bean-curd	5			Fuel	2							
'Tsukudani' (Vegetables & fish preserved in soy)	2			Lighting	5							
Pickled radishes	1			Total weight			6.15	c. <i>Tram fares</i> (Tokyo)		0.69		
Fish paste (hard)	1		2.76	IV. Clothing				d. <i>Newspapers & recreation</i>		1.19		
				a. <i>Cloth, threads & yarns</i>				Cinemas	2			
				White cotton	2			Newspapers	8		3.36	
				'Kurume Kasuri'	2			Total weight			13.82	
				Printed 'Kasuri'	2							
				'Enshu' pattern	1							

operations are generally very small, due to the well known smallness and simplicity of Japanese dwelling houses, and generally speaking, carpenters, plasterers, masons, tile-layers, etc., still keep their old traditions as handicraftsmen. Therefore, we believe the major part of this important group consists of small masters and their assistants.

It may be worth mentioning here incidentally that these figures have no connection with the number of persons coming under the regulation of the Factory Acts. The Japanese Factory Acts provide that the regulations should apply only to those establishments employing ten or more persons in general, but even those employing under ten persons shall be regulated, if they are operated by motive power. In practice, as there are now very few small workshops which do not use electrical power, nearly all of them are subjected to factory inspection. Therefore, (it is absurd to talk of Japanese small industries employing women and children cheaply for 12 or 14 hours a day. The statutory limit for women and young persons is ten hours a day, and in many cases actual working hours are shorter.

The vast extent of small industries will be better realized if we compare the results of our inquiry with those of other countries. The figures obtained in the German *Betriebsstatistik* given below show that the percentage of small industries in Japan is incomparably larger than in the Germany of to-day; there is greater resemblance to the German situation of half a century ago.

TABLE 2. FACTORIES IN GERMANY CLASSIFIED BY SIZE

	Small plants (1-5 persons)	Medium plants (6-50 persons)	Large plants (over 50 persons)
1882	55.1 per cent	18.6 per cent	26.3 per cent
1895	39.9 "	23.8 "	36.3 "
1907	29.4 "	25.0 "	45.6 "
1925	22.3 "	22.8 "	54.9 "

Another important aspect, revealed by this analysis, is that the difference between 1920 and 1930 is very small; i.e. small industries in Japan are not diminishing rapidly, although huge

undertakings are rising by their side. If we want to be accurate, a comparison between the two dates cannot be made, as the method of classification of occupations used in the two censuses was not the same. Some occupations classified as Industry in 1920 were removed to the Commerce group in 1930, and the changes thus brought about were not negligible. Crowding the cities and towns in Japan are vast numbers of shops which still bear the features of the old-fashioned handicraft system. Small masters, working at materials with or without the help of boy-apprentices, sell their products directly to consumers living in the vicinity. Small traders, who supply such common goods of everyday use as rice, cakes, *tofu* (bean curd), etc., are half industrial and half commercial, as they must apply some kind of processing to the materials before distributing them to customers. Thus, the alterations in method of classification cause some discrepancies in the results of a census, but, without being too fastidious about statistical exactness, we cannot believe that the proportion of small industrialists in the whole industrial population has diminished much during the decade. Our general conclusion is, therefore, that (the small industries in Japan employ more than half of the total industrial population and that their number is not yet on the decline.)

It would be very interesting if we could make an estimate of the position of small industries in our exports, but this seems almost impossible, and we fear that any attempt may lead to mistaken views. Some people estimate that 60 or 70 per cent of Japanese exports are the products of small industries, but it must be extremely difficult to say whether any particular commodity appearing in the foreign trade returns ever passed or did pass through the hands of small masters, and how much value was added to it by these people. In order to reach a reliable result we have to analyse each export into the value of raw materials, the value added by large-scale factories and that added by small-scale units. In the case of cotton exports there are on the one hand a large quantity of piece goods, such as drills, shirtings, sheetings, etc., which are exclusively the products of large-scale mills, and on the other hand piece goods which were woven by small manufacturers, to whom yarns are supplied by large mills. Our inquiry showed that the part played by small industries in the export cotton trade is much smaller than is usually supposed (for details see Chapter II).

4

The explanation of the wide range of small industries in Japan must be found in the history of her industrial development and the evolution of the economic life of the nation as a whole. The rapid reorganization of the national economic structure which has proceeded since the Meiji Restoration,¹ necessitated the concentration of large sums of capital and it produced powerful industrial and financial undertakings; but capitalism has not yet had enough time to revolutionize the whole traditional structure which had developed during the previous centuries and, therefore, is suited to the needs and requirements of the characteristic mode of life of the Japanese people. The crowds of men and women, mostly dressed in Western costume, coming out of Tokyo Station every morning and going to work at their offices in the huge ferro-concrete buildings of the Marunouchi district, give the appearance of a thoroughly modernized society. But, when they go home in the evening, they live in small wooden houses, each with a small garden, in a manner not much changed since the beginning of Meiji. They want to wear Japanese clothes and to eat and drink what their parents had been accustomed to consume. In order to cater for these requirements, which are so varied and so difficult to standardize, there must be a variety of trades and crafts which cannot be easily replaced by any large-scale organizations.

In the Tokugawa Period there were two kinds of industrial organization: handicraft industry in the cities and domestic or wholesale industry chiefly located in the country.

1. The origin of handicraft industry is found in the age when powerful feudal lords, as rulers of one or more provinces, built their castles. A part of the rice which constituted the income of these lords and samurai was sold in order to purchase clothes, furniture and armour. Consequently a big flock of traders and handicraftsmen gathered together in castle towns. Blacksmiths, casters, mat-makers, dyers, hoopers, lacquerers, carpenters, plasterers, furniture-makers, swordsmiths, saddlers and others, representing every kind of feudal artisanship, lived and worked there, so that each territory was made self-sufficient.

¹ 1868.

2. On the other hand, commercial activities began to extend across the territorial boundaries in spite of the primitive condition of roads and high cost of transportation. Merchants assembled local products, both agricultural and industrial, in one province and sent them to another to be sold. Thus, many localities began to be known throughout the country for certain products, e.g. cotton, indigo, oil, sugar, tea, cloth, mats, paper, etc. In the case of manufactured articles, local wholesalers, accepting orders from other provinces, divided work among a number of artisans or farmers to be done in their homes. By and by, the wholesalers advanced money, supplied raw materials, directed manufacture, and became small capitalists. In each noted weaving district near Kyoto, Osaka, Nagoya and Yedo and in other parts of the country hundreds or thousands of farmers' wives and daughters were engaged in weaving at home, supplied with yarn and paid wages by wholesale manufacturers, who became the central figures of the local industry.

After the Meiji Restoration, Western methods of production brought with them the factory system of industry into Japan, but even these advanced methods could not wipe out every kind of old industry. Modern spinning mills soon took the place of the old-fashioned hand-wheel; silk cocoons were taken to reeling mills instead of being reeled by individual farmers; shipbuilding and engineering were established as entirely new factory industries. But various kinds of age-old industries which are unique to Japan and the Japanese remained and thrived in their traditional forms of handicraft or wholesale system throughout the Meiji era and, in many cases, down to the present day.

Among the highly developed artisans of the Tokugawa Period, swordsmiths and saddlers have almost disappeared, hoopers lost their employment on account of modern waterworks, kitchen range-makers on account of the use of gas. But carpenters, plasterers, masons, paper-hangers, lantern-makers, etc., continue to exist to-day.

The dyeing industry of Kyoto is one of the prominent handicrafts of Japan. The clothes worn by women at weddings and on other ceremonial occasions are really works of art. Each piece of crêpe or other kind of fine silk must pass through the hands of fifteen or more different artisans before it is completed. Orders are taken

from consumers living in all parts of Japan by middlemen, called *shikkai-ya*, and detailed instructions are given by them to artisans who are small independent masters.

However, this is not to say that all of the old staple industries survived. A few examples of the remarkable transformation of native industries may be mentioned here.

1. Soy-brewing used to be done by a few workmen in small 'warehouses' owned by well-to-do farmers all over the country, but this industry has undergone a wonderful change in twenty years, since some of these farmers began to adapt to their work those modern methods which had long been in use in Western beer-brewing and flour-milling. New, large-scale breweries arose and hundreds of old establishments were forced to disappear.

2. *Tabi*, or Japanese socks, used to be made by large numbers of small shops scattered about in all the towns and sold to customers directly. Some ingenious persons succeeded in applying Western tailoring methods, and sewing and cutting are now done by minute division of labour in large factories employing in some cases thousands of girl operatives. It is interesting to note here that one of the successful *tabi*-manufacturers who originally made ordinary *tabi* with cotton soles, turned first to the manufacture of *tabi* with rubber soles, then to canvas shoes with rubber soles and then to rubber shoes and boots, which became an item in the export trade.

3. Various handicrafts connected with house-building still remain in their accustomed forms, as we have already described incidentally in the preceding section. But, as the construction of large modern buildings became a necessity of the time, there appeared a number of enterprising capitalist contractors who assumed entire responsibility for building operations and divided jobs among small men in sub-contracts.

Old weaving districts in various parts of the country have not only survived but are extending their business, in spite of the fact that power-looms have taken the place of hand looms. Raw silk- and cotton-spinning has gone to large factories, but the (weaving part is still largely done in small shops) crowding these districts. All sorts of subsidiary industries, transport facilities and marketing organizations are conveniently provided in the districts, so that they have the advantage of 'external economy'. Moreover, (except for standardized articles, small producers are decidedly better fitted for

attending to varied and changing fashions. The coming of new materials, wool and rayon, did not change the situation. Here, again, only yarns and mass products are taken up by large capitalists. When it comes to the weaving of fancy and fashion goods, and particularly those for which the Japanese have special tastes, they are handicapped in many ways and become losers in competition. Thus, the district to the north of Nagoya, which used to be noted for cotton and silk weaving, turned to woollens and worsteds, as the use of Western clothes extended more and more among the common people. Fukui prefecture had for long been noted as a seat of *habutae* (a kind of silk cloth) manufacture for export. As the *habutae* trade in the American market was destroyed by increasing import duties, the people found in rayon the opening of a new, expanding trade. Thus, there seems to be little probability of a decline in the near future. However, if we look into the industrial conditions of these districts more minutely, it is too much to say that there has been no change in the size of businesses. Whereas formerly each weaver, a woman belonging to a farmer's family, was able to stay at home to work at the loom, she must now go to her master's shed, because she cannot afford money to buy a power-loom and, even with electricity, it is not economical to operate only one loom in one place. In some cases girls go to live in the employer's house; in others they go to the shed every morning, walking or cycling from their homes. Theoretically this is already a factory system. And it is possible that people may gradually find it more convenient to organize their work on a little larger scale than they do now. But the important feature of these employers is that they and their families work together with the operatives, and for this reason they have advantages over large undertakings. Consequently, although the present system of the weaving industries has already gone beyond the stage of classical 'domestic industry', it is not likely that they will quickly grow into factories on capitalist lines. On the whole, we may conclude that small industries are still surviving in many fields with considerable vitality. They are supported not only by the old traditions but also by new forces. As for weaving industries, we have been watching the progress of events for the last twenty years, during which there was a time when a radical transformation owing to the use of power-loom was foreseen and feared by some people who had studied English social

history of the mid-nineteenth century. But history was not repeated in this case, the chief reason being the use of electricity in place of steam as motive power.

5

The next point we wish to consider in this brief survey of the small industries of Japan is the Government's policy toward them, especially in connection with the products of small industries which are exported abroad. In view of the wide extent of small industries in various branches of manufacture, it is only natural that the export of their products should amount to a considerable proportion of the total export trade. Throughout the Meiji Era it was limited, outside raw silk, to a small volume of silk goods, pottery, matches, straw plaited and fancy mats; but during the Great War the temporary stoppage of European exports to Eastern countries not only gave protection to the miscellaneous industries which were started in Japan to compete with foreign goods in the home market, but also enabled them to export their products to other countries. Besides cotton tissues, which were chiefly the products of large capitalist undertakings, many kinds of manufactures, such as hosiery, glassware, enamel hardware, celluloid articles, pencils, hats, umbrellas, tinned foods, electric bulbs, rubber goods, bicycles and brushes began to be exported. Hundreds of small and medium-sized manufacturers rose like mushrooms and rushed their goods to the export markets mainly in Asiatic countries. At that time, the attention of the Government was directed almost solely to the prevention of 'defective' articles. When a new market for certain goods was opened, it often happened that some unscrupulous people sent defective goods or even fraudulent imitations in order to get fabulous profits for a short time, but they destroyed the confidence of customers in Japanese goods in general. The Government therefore encouraged small producers to unite in trade associations, which should undertake inspection of the quality of exports. In some cases, such as fancy mats, the Government itself started official inspectors' offices and would not allow the export of goods without a 'Passed' label.

The end of the Great War and the resumption of the European export trade brought keen competition again in the foreign and domestic markets, and many manufacturers were driven to ruin,

But a large number survived and tried to rationalize the methods of production during the many years of after-war depression, which reached its worst point when the gold standard was recovered in January 1930. It was these people who were able to take advantage of the depreciated exchange after the re-imposition of the gold embargo at the end of 1931, and offered a very stiff fight against foreign goods in the world market. This was described by some foreign competitors as 'exchange dumping' and 'social dumping'. In fact, it was not exchange dumping, if any conscious policy on the part of the Government to bring down the exchange rate was meant by that term, because the Government could not stop the fall, which had been going on before the gold embargo. Neither was it social dumping, if that meant any measure on the part of employers to reduce wages. The cost of production, when reckoned in foreign currencies, grew cheaper at that time but wages in Japanese yen were not depressed; and so long as wages remained unaltered and the price of rice, house rent and other items in the cost of living were not increased, households felt no hardship at all. Therefore, the abnormally favourable situation of Japanese export industries was not due to any depreciation in the workers' standard of living, but to the fact that the level of prices of the items that constitute the main part of the cost of living did not rise in proportion to the fall of the yen on the foreign exchange market. Besides, the cheapness of Japanese exports was not solely dependent on the depreciation of currency; the programme of rationalization was being carried out in industry in general under the pressure of adverse business conditions in the preceding years. Those who visited Japanese factories at that time heard everywhere that improvements of some kind had lately been introduced and had resulted in lower costs, and such was the case not only in large industries but also in small ones. But whatever the cause of the favoured position of Japanese industries, the cheapness of their goods in the international market became a problem not only for foreign competitors but also for themselves, because, first, it caused unnecessary competition among Japanese producers, and, second, foreign countries promptly took measures to stem the flood of Japanese goods either by means of high duties or by import quotas. Here, again, the device of trade associations came to the rescue.

During the years when individual industrialists were busy rationalizing the manufacturing processes, the Government did not remain inactive. As has been pointed out before, the Government had long recognized the necessity of applying some scheme of control to small industries in order to prevent the export of 'defective' goods. It encouraged the formation of trade associations for this purpose and also established its own inspectors' offices. But, finding these measures insufficient for the purpose, especially under the conditions of reckless competition prevailing in the long drawn after-war depression, the Government went further than simply recommending or enforcing inspection of goods. A new law of trade associations, or *Kogyo Kumiai*, literally meaning manufacturers' associations, was passed in 1925, by which associations were enabled to serve as an organ for control of production and prices as well as that of qualities of products, and also to act as an organ for co-operative production. The law provided that small masters engaged in the same branch of industry in a locality should combine in an association with the consent of a majority, which should decide the quantities to be produced by the industry as a whole and also the quotas to be allotted to individual members, in the same way as is practised by large industrialists' cartels. In cases where the same industry is carried on in more than one locality manufacturers are to form a national federation of local associations in order to make the control effective. Outsiders, if they appear at all in the same market, are to conform to the decision reached by the associations. Thus, it was hoped, small industries would be rescued from over-production and cut-throat competition, from which they were suffering in those hard times. There were only a few associations formed at the beginning in spite of eager inducement by the Government, but the number increased enormously when the export boom opened after the country went off gold. Probably the people realized the foolishness of competing by cutting prices in markets abroad and being complained against for social dumping by foreign competitors. In some cases they had to put a control scheme into practice because an agreement was made with foreign authorities to limit the export of Japanese goods to a certain quantity, e.g. the export of cotton goods to India, of electric bulbs to England, of pencils to the United States, etc. The administration of the control of output is extremely difficult in the home market,

but in the export trade each local association distributes to the individual producer 'Approved' labels only to the limit allowed him, no goods without a label being exported.

The manufacturers' associations are also intended to function as co-operative organs. Some associations are functioning as such, others are inactive in this respect. But some of them succeeded in establishing an admirable system. As an example we may describe that of the small cotton manufacturers of the Sennan District, near Osaka. There are about seventy of them located in villages along a railway line. At one end of the district, they built a dye-works, where yarns bought by members from one of the Osaka mills are brought in trucks provided by the association. Yarns, after being dyed, are distributed to individual members and again collected by these vehicles when woven as striped stuffs. The stuffs are then taken to a finishing works, also built by the association, finished, inspected and packed and sent away to export houses in Osaka, association trucks again being used.

This example seems to show how far small-scale industries can be made effectively to compete with large-scale industries. Small factories can save expenses of production and transportation almost to the same extent as large factories, and at the same time they have the advantages of small units, as they can have thorough and attentive supervision of the making of varied goods, adapt to changes of fashion promptly and save most of the supervising expenses. Thus, there are many people in Japan who entertain hopes for the future development of small-scale industries and earnestly desire to spread this system of production in the country so that the abundant labour power in villages might be utilized to the full extent.

We may add a few words in connection with a movement for promotion of small-scale industries in villages, which is headed by Dr. Okochi, a well known scientist and the Director of the Institute of Scientific Researches. Based upon experiments that were conducted in the manufacture of piston rings, and also on the experiences of other people, this school of opinion acquired confidence in the efficiency of small units in industry, and they believe that the conditions of agricultural villages can be ameliorated to a large extent by the introduction of industries. According to their theory, any parts of complicated machinery can be made at the smallest cost in small establishments scattered among villages.

Because all modern machinery is standardized and its parts are made interchangeable, these need no longer be made in one large place. The necessary division of labour can take place among a number of small workshops, provided that the assembling is undertaken by some central organ. The bicycle industry of Japan, which is a great exporter to Eastern and South Sea countries, is put forward as a successful example. To our mind, there seems much truth in this argument. But, if we take into consideration the financial side of business, the question remains whether these small manufacturers will combine in co-operative organizations or come under control of more powerful capitalists. Also, it should be emphasized here that much will depend upon the price of electricity distributed in small quantities.

CHAPTER II

THE COTTON INDUSTRY

I. THE RISE OF THE JAPANESE COTTON INDUSTRY

RAW cotton, it is said, was first brought to Japan in 799 by some Chinese who were cast ashore near what is now Nagoya, but the stock had entirely disappeared before its culture was widely undertaken. It was re-introduced from India in the middle of the sixteenth century, and was raised quite extensively by the close of the century. During the next two hundred years its culture spread so widely that it was raised almost everywhere throughout the country. As the art of weaving had also advanced by the middle of the nineteenth century, Japan, being at that time a hermit nation, became self-sufficing as far as cotton goods were concerned by the end of the Tokugawa Period.

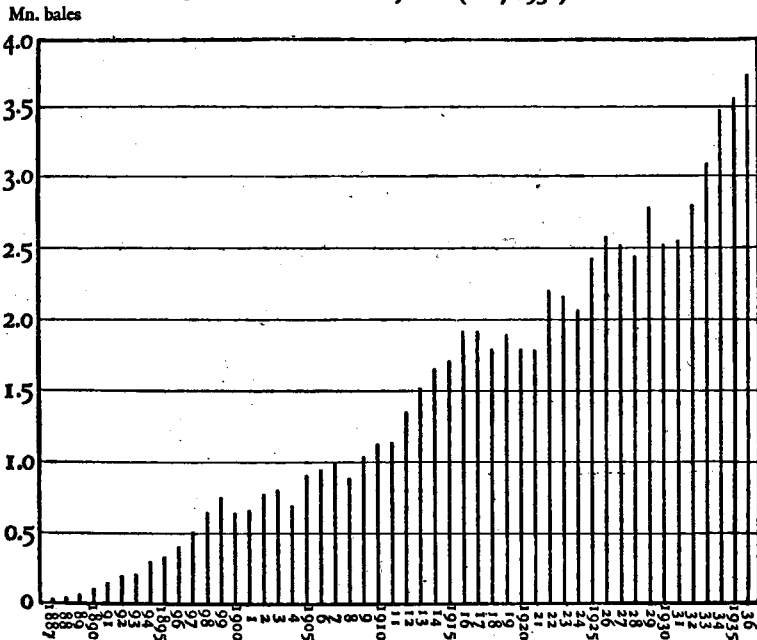
In those times Japanese peasant women were spinning cotton and weaving cloth for their own family consumption, using hand spinning wheels and hand looms, whereas in Europe more advanced methods of production by steam-driven machinery under the factory system had been in use for more than a hundred years. Naturally, European efficiency was higher and the goods which Europe produced far surpassed Japanese goods in quality and uniformity. When European cotton yarns were first brought to Japan, nobody, it was said, was able to identify the materials used because of their fineness, and people thought that the stuff was a mixture of silk and cotton. This fact shows the degree to which Western goods surpassed those of the Japanese.

It was quite natural, therefore, that after commercial treaties were concluded with the United States in 1858, and latter with many other countries like Holland, England, Russia and France, large quantities of both cotton yarn and fabrics should be imported. Especially was this true after the Meiji Restoration which had decisively changed Japan's foreign policy from one of seclusion to

one of pursuing friendly intercourse with foreign countries. In other words, whereas in 1868 the volume of cotton yarn imported was 12,000 bales, or ¥1,240,000 in value, it increased yearly so that by 1888 it had reached 158,000 bales, amounting to ¥13,600,000 in value. The importation of cotton cloth, valued at ¥2,500,000 in 1868, already exceeded ¥5,500,000 in 1871, and up to about 1890, the yearly import ranged between ¥4,000,000 and ¥5,000,000.

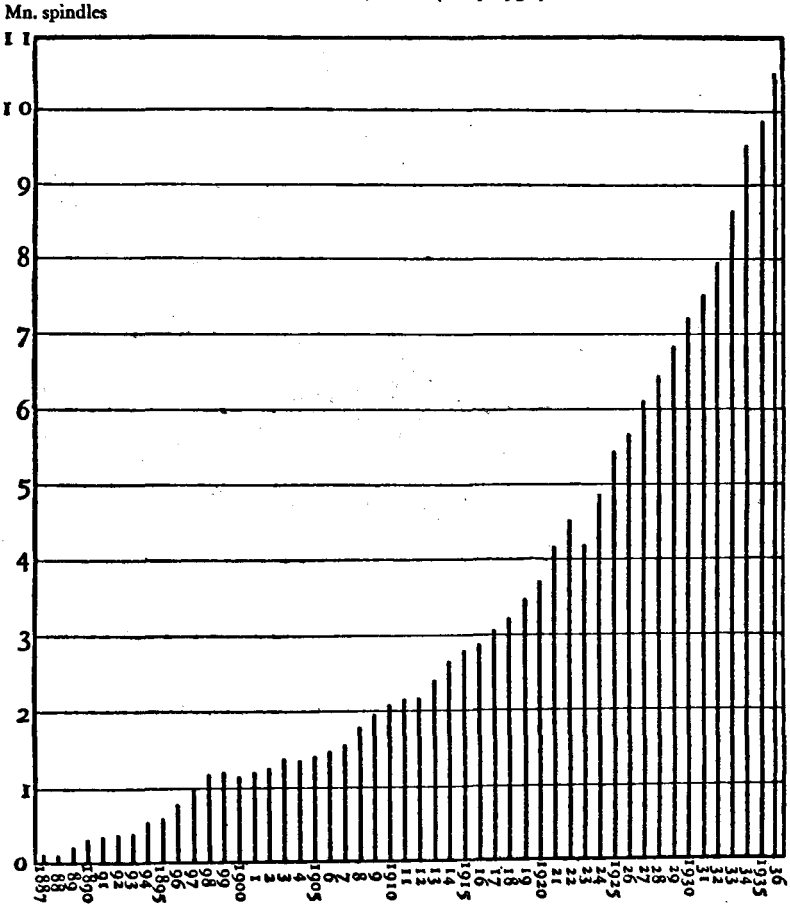
These large imports of foreign cotton yarn had not only deprived Japanese peasant women of their gainful occupation, but the spinning industry itself was seriously threatened. Private enterprise as well as the Government tried, therefore, to cope with the situation by establishing spinning mills like those in Europe. Prince Shimazu, lord of Satsuma, was the pioneer in this field of industry. He began building his spinning mill in Kagoshima, in

DIAGRAM I. GROWTH OF COTTON YARN PRODUCTION IN THE COTTON SPINNING INDUSTRY IN JAPAN (1887-1936)



the southern extremity of Japan, in 1865, and after having installed 3,600 spindles, which were bought from Platt and Co. of England, he started operations in 1867. He built another mill in Sakai near Osaka in 1870 with 2,000 spindles. In 1865, the same year in which Prince Shimazu had started his mill, Mampei Kashima, President of the Edo Cotton Goods Wholesalers' Guild, pursuant to an order of the Tokugawa Shogunate, also started to construct

DIAGRAM 2. NUMBER OF SPINDLES IN THE COTTON SPINNING INDUSTRY IN JAPAN (1887-1936)



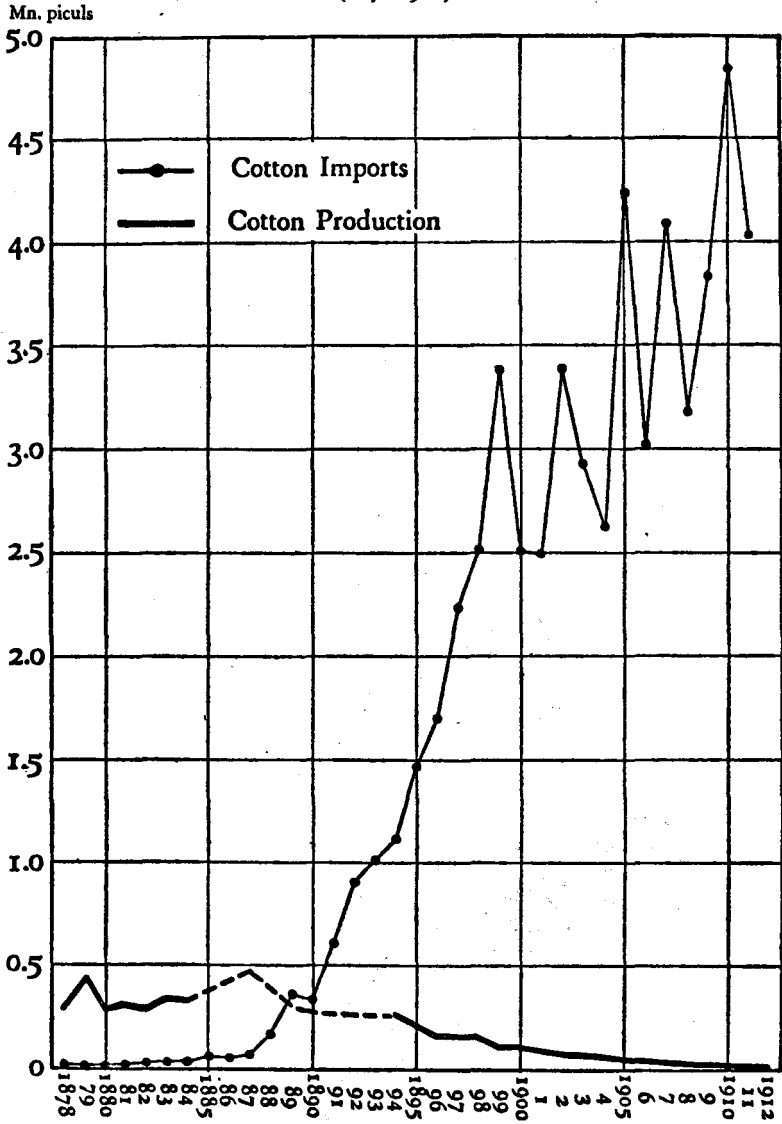
a mill at Takinogawa which began operating in 1872. In 1878 the Meiji Government itself established two mills in Aichi and Hiroshima Prefectures, each with 2,000 spindles imported from England. Furthermore, in 1879 it also purchased 20 machines of 2,000 spindles each, and sold them to private concerns on easy terms payable in ten years and bearing no interest. In 1880, the financial magnates, headed by the late Eiichi Shibusawa, founded the Osaka Spinning Mill Co. with a capital of ¥ 250,000. The mill began its operations in 1883 with 10,000 spindles that had been purchased from England.

The last mentioned mill was so successful from the outset that it gave a great impetus to the industry. Many more new mills were started, the important ones being the Mie Spinning Mill, reorganized in 1886, the Temma, Naniwa, Hirano, Tokyo and the Kanegafuchi mills established in 1887. The period from immediately after the Sino-Japanese War (1894-1895) down to 1899 was another period of expansion in the Japanese cotton industry. As shown in Diagrams 1 and 2, whereas in 1887 Japan's total output of cotton yarn was only 23,000 bales and her spindle capacity 76,600 spindles, 12 years later, in 1899, the output had increased to 760,000 bales, or more than 30 times as much as that of 1887, and the number of spindles had increased to 1,190,000, or more than 15 times.

So far as the import of yarn is concerned, 1888 marked the peak year. It not only began to decline from that year, but exportation was registered in 1890, though the amount was no more than 31 bales, then worth ¥ 2,000. The Korean market, which had previously been supplied exclusively by Chinese merchants, was taken over during the period of the war with China. Then came another opportunity for Japanese goods. In 1896, when an epidemic broke out in Bombay, China put a ban on Indian cotton goods and her needs had to be supplied by Japanese goods. From that year on Japan became an exporting nation, and in 1899 she exported 304,000 bales of yarn amounting to ¥ 23,500,000.

With this increase in the export trade there naturally arose a proportional demand for cotton that had to be imported. Until 1887 the country was almost self-supporting and what little cotton was imported came from China. In order to prevent money from going out of the country, the Japanese Government encouraged cotton raising, and in the 1870's and 1880's the annual amount of domestic

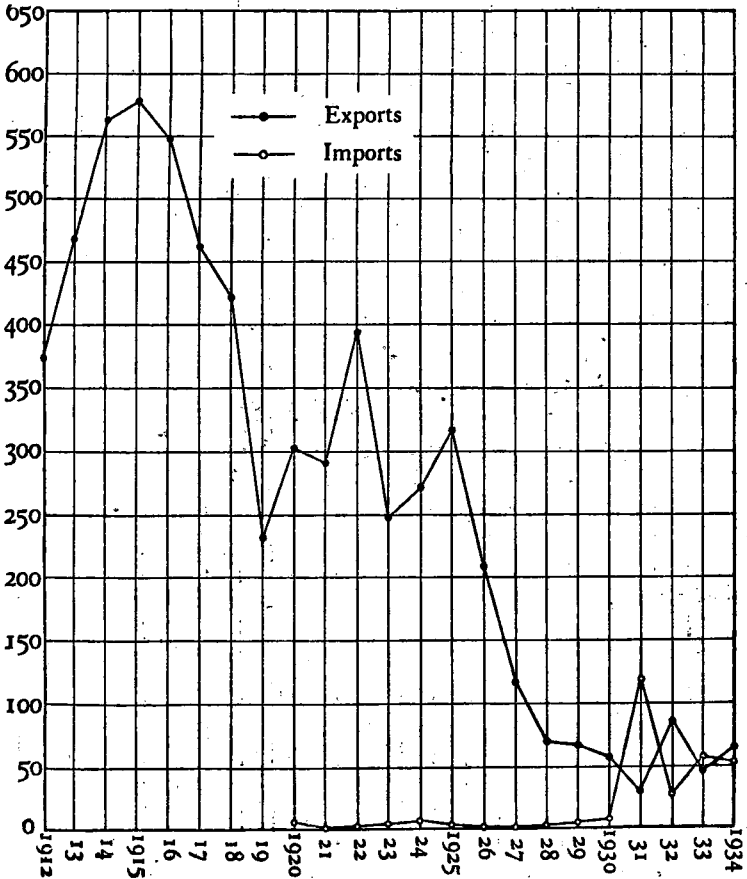
DIAGRAM 3. PRODUCTION AND IMPORTS OF RAW COTTON IN JAPAN
(1878-1912)



production had reached a considerable volume. In the '90's, however, Japanese cotton yarn had to compete with that of India in Chinese markets, and Japanese spinners were compelled to turn to a supply of Indian cotton which was of higher quality than the native grown product. This new import trade led the Nippon Yusen Kaisha to open up its Bombay route in 1893, and the Govern-

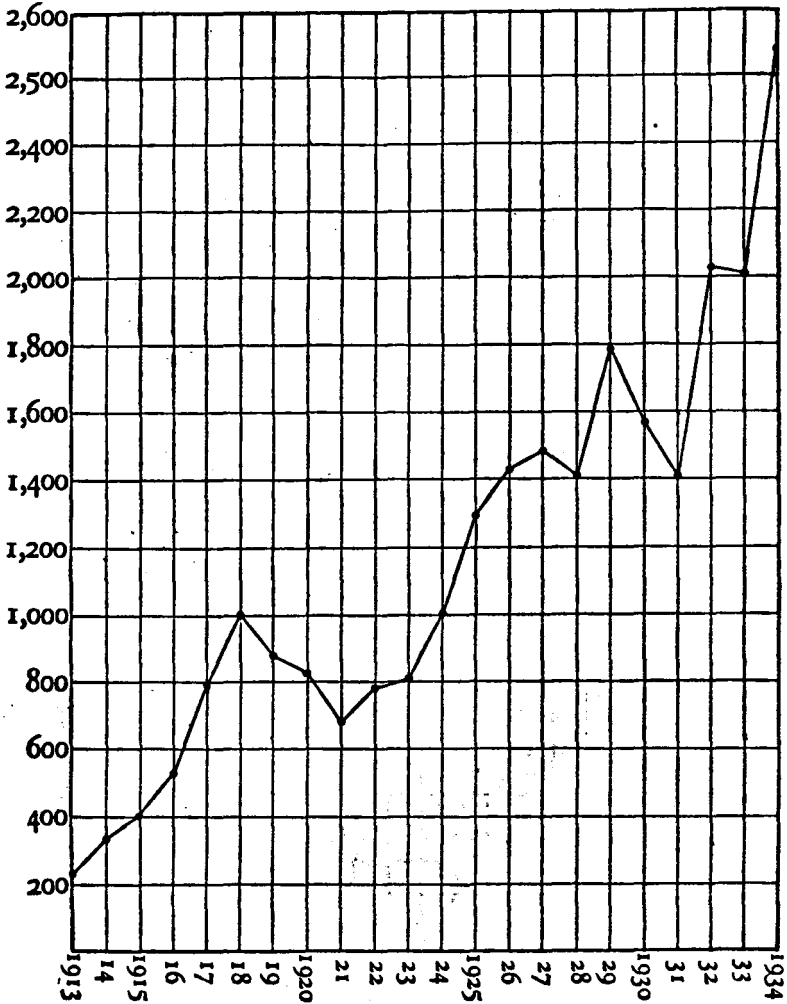
DIAGRAM 4. JAPAN'S EXPORTS AND IMPORTS OF COTTON YARN (1912-1934)

Thousand bales



ment to remove the tariff on imported cotton in 1896. This last measure of the Government proved to be a fatal blow to the growers at home, however, as under these new conditions they could not compete with the cheap and high grade cotton from India. From

DIAGRAM 5. EXPORTS OF COTTON TISSUES FROM JAPAN (1913-1934)
Mn sq. yds.



the dawn of the present century, therefore, Japanese spinners have been forced to depend almost entirely upon imported raw cotton (Diagram 3).

During the first decade of the present century the volume of exported yarn fluctuated, but in the period 1910-1915 it rose again owing to a rise in the price of silver. The significant feature of the export trade in recent decades has been, however, that exports of cotton textiles have become far more important than exports of yarn. The former have increased steadily since the 1890's, rising sharply after the tariff law was revised in 1908. This tendency increased still further during and after the World War. As Diagram 5 shows, whereas the volume of cotton textile exports for 1918 was over four times that of 1913, becoming six times as great in 1926, and over 8.5 times as great in 1932, the peak year for export of yarns (Diagram 4) had been reached in 1915 with 580,000 bales. Exports then fell to 230,000 bales in 1919, and to 71,000 bales in 1929, or one-eighth of the volume of the peak year. In fact the situation has so changed that since 1930 yarn imports have even increased in volume and have exceeded exports. The latest phase of the Japanese cotton industry, therefore, deals no longer with exports of cotton yarn, but with exports of textile goods.

2. THE LATEST TREND OF JAPANESE COTTON TEXTILES IN WORLD MARKETS

The rapid increase in the volume of Japanese exports of cotton textiles in recent years started within a few months after the gold embargo was put into force on 13th December, 1931. In 1930-1931, the period during which the embargo was in suspense, the volume of exports did not amount to much more than 1,500 million sq. yds., but in 1932 and 1933 it amounted to about 2,000 million sq. yds., in 1934 to 2,577 million sq. yds., and in 1935 to 2,729 million sq. yds. In other words, during those four years it increased by 1,315 million sq. yds. or 92 per cent of the volume for 1931. The exports for 1935 amounted to 48 per cent of the world's trade, which was about 5,700 million sq. yds. Japan, therefore, has become the leading nation in this respect, even surpassing England by over 780 million sq. yds.

It is easily understood that such a rapid expansion of Japanese exports of cotton textiles must have had a considerable effect upon

other exporting countries, especially England. But the effect on England could not have been quite so severe as is generally believed. For, as Table 3 or Diagram 6 shows, exports of British cotton textiles had already fallen sharply in the period 1928-1931, whereas the Japanese trade did not increase until 1932. In 1931 England exported 1,716 million sq. yds., or less than half the amount for 1928 which was 3,866 million sq. yds., whereas Japanese exports did not

TABLE 3. COMPARISON OF BRITISH AND JAPANESE COTTON TEXTILE EXPORTS IN THE WORLD MARKET (1928-1935)

	QUANTITY (in thousand sq. yds.)			INDEX (1928=100)	
	Japan ¹	Great Britain ²	Difference	Japan	Great Britain
1928	1,418,703	3,866,400	-2,447,697	100	100
1929	1,790,560	3,671,600	-1,881,040	126	95
1930	1,571,825	2,406,700	-834,875	111	62
1931	1,413,780	1,716,343	-302,563	100	44
1932	2,031,722	2,198,035	-166,313	143	57
1933	2,090,228	2,031,231	+58,997	147	53
1934	2,577,232	1,993,458	+583,774	183	51
1935	2,725,109	1,949,112	+775,997	192	50

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² British Board of Trade figures.

show signs of much progress at that time. Already in 1931 then, British exports had fallen by 2,100 million sq. yds., or over 56 per cent of the exports of 1928. It is to be further noted that in the years following 1932, notwithstanding a sharp rise in Japanese exports, those of England did not, on balance, fall. In 1932 British cotton exports rose to 2,198 million sq. yds. from 1,716 million sq. yds. in the previous year; in 1933-1935 they declined again to about 2,000 million sq. yds. In spite of these declines, in none of these recent years have they fallen below the 1931 mark. These figures clearly show, therefore, that the Japanese products did not drive the British products from the markets. We find a similar result when we compare movements by kinds. As Table 4 or Diagram 7 shows, exports of Japanese coarse cotton cloth for 1928-1935 have been moving back and forth between 600 million sq. yds. and 950 million sq. yds. per annum. British exports, however, fell sharply each year in the 1929-1931 period. During this period, having dropped over 730

million sq. yds., they fell to 302 million sq. yds., or to little more than half the Japanese exports. When it comes to dyed cotton cloth Table 5 or Diagram 8 shows that during 1929-1931 British exports fell by 567 million sq. yds. and became almost equal to the Japanese. In 1932-1935, British trade was practically at a standstill, while Japanese exports alone rose and surpassed those of the British. Also, in the case of bleached cotton cloth, British exports were not actually replaced by Japanese goods in the world market (Table 6 or Diagram 9). In 1928, exports of Japanese bleached cloth amounted

TABLE 4. EXPORTS OF COARSE COTTON CLOTH FROM JAPAN AND GREAT BRITAIN (1928-1935)

	QUANTITY (in thousand sq. yds.)			INDEX (1928=100)	
	Japan ¹	Great Britain ²	Difference	Japan	Great Britain
1928	607,755	1,084,100	- 476,345	100	100
1929	816,035	1,033,800	- 217,765	134	95
1930	672,435	580,600	+ 91,835	111	54
1931	561,317	301,927	+ 259,390	92	28
1932	749,342	366,570	+ 382,772	123	34
1933	611,304	375,571	+ 235,733	101	35
1934	772,492	359,352	+ 413,140	127	33
1935	945,254	329,689	+ 615,565	156	30

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² British Board of Trade figures.

TABLE 5. EXPORTS OF DYED COTTON CLOTH FROM JAPAN AND GREAT BRITAIN (1928-1935)

	QUANTITY (in thousand sq. yds.)			INDEX (1928=100)	
	Japan ¹	Great Britain ²	Difference	Japan	Great Britain
1928	696,138	1,433,600	- 737,462	100	100
1929	846,429	1,342,500	- 496,071	122	94
1930	736,499	949,500	- 213,001	106	66
1931	662,304	775,800	- 113,496	95	54
1932	922,461	1,048,845	- 126,384	133	73
1933	1,015,220	1,001,703	+ 13,517	146	70
1934	1,294,948	1,019,363	+ 275,585	186	71
1935	1,268,520	1,008,081	+ 260,439	182	70

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² British Board of Trade figures.

COMPETITION BETWEEN JAPAN AND GREAT BRITAIN IN WORLD COTTON TISSUE TRADE (1928-1935)

DIAGRAM 6. COTTON TISSUE (Total)
Mn. sq. yds.

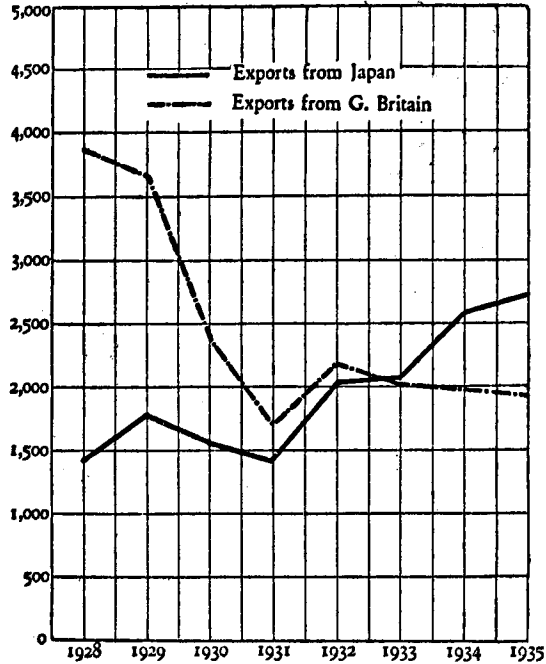


DIAGRAM 7. COARSE COTTON CLOTH
Mn. sq. yds.

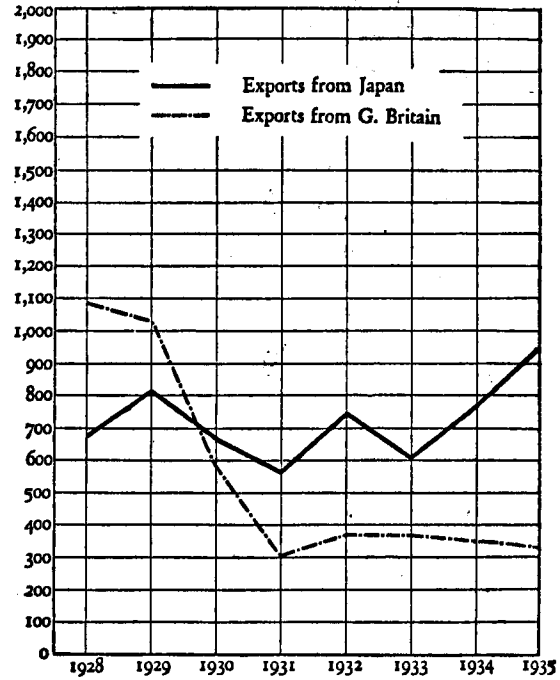


DIAGRAM 8. DYED COTTON CLOTH

Mn. sq. yds.

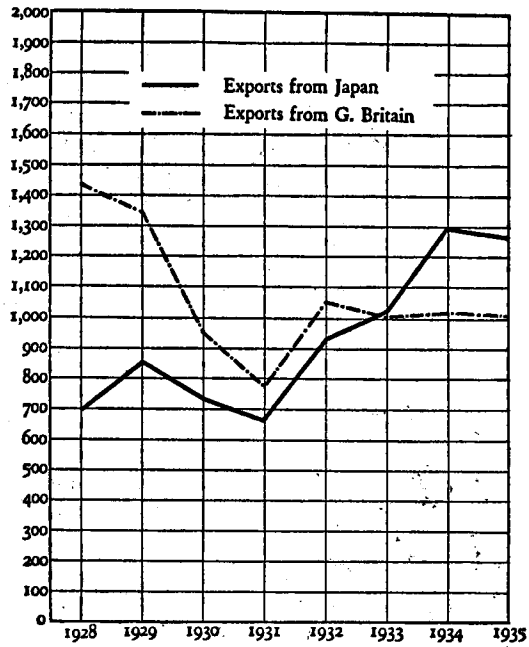
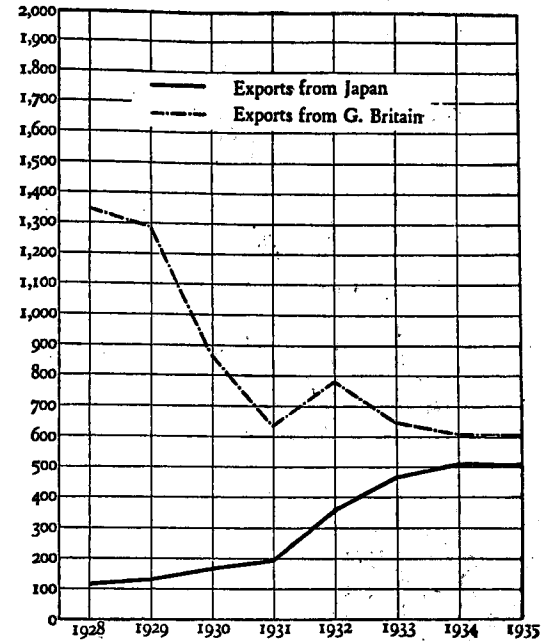


DIAGRAM 9. BLEACHED COTTON CLOTH

Mn. sq. yds.



to only one-thirteenth of the British exports, with a difference of 1,234 million sq. yds. in comparable volumes. But during the next three years, the British exports declined by 711 million sq. yds., while the Japanese exports gained only 75 million sq. yds. By 1935, the British had lost only 28 million sq. yds. while the Japanese had gained an additional 321 million sq. yds., so that eventually the difference in the comparable volumes was reduced to only 100 million sq. yds.

TABLE 6. EXPORTS OF BLEACHED COTTON CLOTH FROM JAPAN AND GREAT BRITAIN (1928-1935)

	QUANTITY (in thousand sq. yds.)			INDEX (1928=100)	
	Japan ¹	Great Britain ²	Difference	Japan	Great Britain
1928	114,810	1,348,700	— 1,233,890	100	100
1929	128,096	1,295,300	— 1,167,204	112	96
1930	162,891	876,600	— 713,709	142	65
1931	190,159	638,616	— 448,457	166	47
1932	359,919	782,620	— 422,701	313	58
1933	463,704	653,957	— 190,253	404	48
1934	509,793	614,743	— 104,950	444	46
1935	511,335	611,342	— 100,007	445	45

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² British Board of Trade figures.

The foregoing statements do not mean that the Japanese exports gained ground everywhere after 1932. As shown in Table 7 the important markets for Japanese textiles are British India, China, Manchoukuo, Netherlands East Indies, Egypt, and other British possessions in Africa. But the markets of China and Manchuria had been shrinking yearly from 1929. Yearly exports of 160 million sq. yds. to Manchuria in 1928 and 1929 fell off to 21 million sq. yds. or one-eighth in 1931, and then to 15 million sq. yds., or one-tenth in 1932. After the declaration of independence by Manchoukuo on 1st March, 1932, however, the figure began to rise again and in 1934 it had returned to the 1929 mark. As to the Chinese market, it shrank yearly from 370 million sq. yds. in 1928 and 1929 to less than 60 million sq. yds., or one-sixth in 1934. The sharp decline in this market is undoubtedly due to the Chinese boycott of Japanese goods which began in 1930, and also to the fact that the textile industry in China had made rapid progress since that year. During the

TABLE 7. JAPAN'S COTTON CLOTH EXPORTS TO PRINCIPAL MARKETS (1928-1936)
(In thousand sq. yds.)

Destination	1928	1929	1930	1931	1932	1933	1934	1935	1936
British India	357,046	580,614	403,835	403,936	644,458	451,098	410,553	556,206	479,676
China	371,022	375,652	322,804	218,559	187,282	112,544	59,262	56,046	37,329
Manchoukuo	161,066	156,020	113,594	21,062	15,135	91,701	170,430	161,283	223,775
Kwangtung									
Leased Territory	53,535	56,576	45,434	37,824	88,840	86,121	83,219	68,087	127,087
Netherlands East Indies	173,349	193,665	182,756	212,498	352,296	422,424	440,978	370,463	351,718
Egypt	77,597	105,906	108,750	103,123	195,349	210,250	233,686	163,738	106,147
Africa (British Possessions)	29,750	54,843	69,980	121,965	164,051	212,880	272,486	281,998	302,569
Hongkong	69,418	84,693	106,351	63,332	23,408	28,692	36,292	49,294	84,657
Philippines	30,955	26,735	35,064	33,556	21,409	34,910	75,747	87,481	44,314
Australia	12,392	13,868	14,162	21,367	37,101	57,284	74,598	86,634	70,059
Other Countries	82,305	141,203	168,671	174,849	303,390	380,479	719,982	843,879	882,553
Total	1,418,435	1,789,775	1,571,401	1,412,071	2,032,719	2,088,383	2,577,233	2,725,109	2,709,884

THE COTTON INDUSTRY

Based on the Japan Cotton Spinners' Association, *Statistics of the Cotton Spinning Industry*.

seven years 1929-1935, Japanese exports lost about 2,319 million sq. yds. and those of Great Britain lost about 141 million sq. yds. while Chinese textile production gained 479 million sq. yds. from 557 million sq. yds. to 1,036 million sq. yds. (Diagram 10). But almost three-quarters of this increase went to Japanese mills operated in China, and the other portion went to Chinese mills (Table 8).

TABLE 8. COMPETITION BETWEEN JAPAN, GREAT BRITAIN AND CHINA IN THE CHINESE COTTON TISSUE MARKET (1928-1935)
(In million sq. yds.)

	Imports from Japan ¹				Imports from Great Britain ²	Home Production ³			
	to China	to Manchou-kuo	to Kwantung L.T.	Total		by Chinese Mills	by Japanese Mills	by English Mills	Total
1928	371	161	54	586	153	290	290	—	580
1929	376	156	57	589	150	277	280	—	557
1930	323	114	45	482	42	287	339	—	626
1931	219	21	38	278	42	288	318	72	678
1932	187	15	89	291	73	346	428	76	850
1933	111	92	86	289	34	401	366	78	845
1934	59	170	84	313	15	371	562	67	1,000
1935	56	—	—	56	8	358	634	43	1,035

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² Based on the British Board of Trade Figures.

³ Based on the figures in Japan Cotton Spinners' Association in China, *Cotton Industry Year Book of Japan (in Japanese)*.

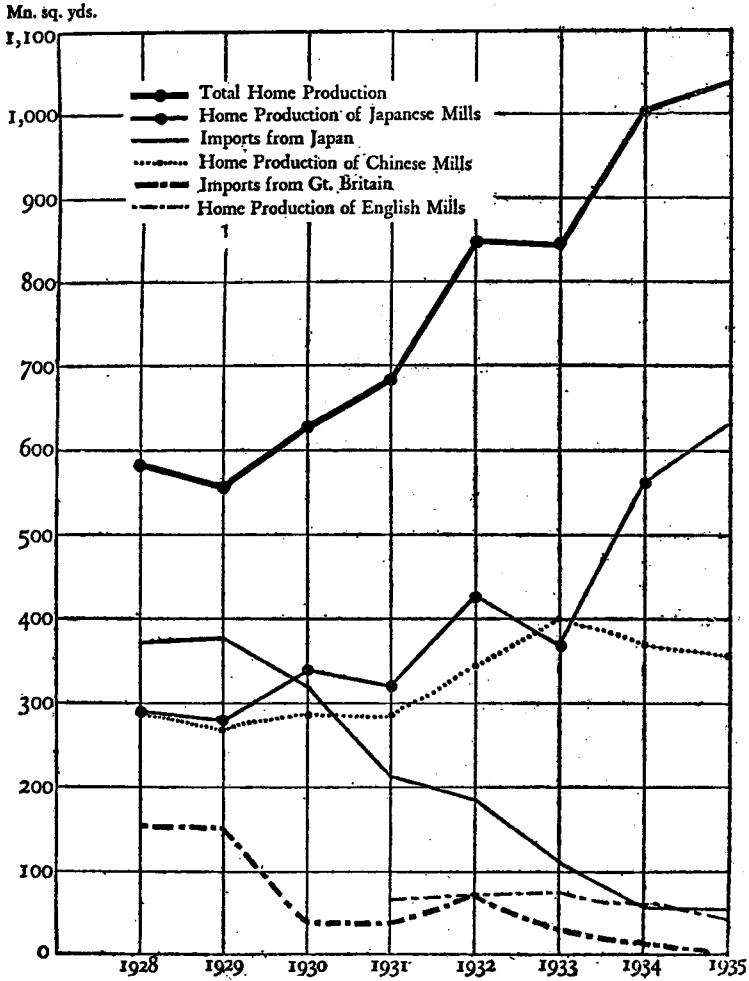
TABLE 9. COMPETITION BETWEEN JAPAN AND GREAT BRITAIN IN THE BRITISH INDIA (INCLUDING CEYLON) COTTON TISSUE MARKET (1928-1935)
(Exports in thousand sq. yds.)

	Coarse cloth		Bleached cloth		Dyed cloth		Total	
	Japan ¹	Great Britain ²	Japan ¹	Great Britain ²	Japan ¹	Great Britain ²	Japan ¹	Great Britain ²
1928	261,321	623,773	7,005	587,907	89,384	330,103	357,710	1,541,783
1929	434,973	596,640	16,356	511,114	129,869	266,425	581,198	1,374,175
1930	294,864	280,656	28,415	327,398	80,966	170,026	404,245	778,080
1931	246,755	65,640	67,504	229,480	90,372	94,803	404,631	389,923
1932	314,824	105,355	143,093	312,870	186,768	180,660	644,685	598,885
1933	194,830	108,779	107,435	235,760	149,340	141,197	451,605	485,733
1934	218,986	103,022	59,192	273,192	132,375	206,555	410,553	582,763
1935	313,520	108,420	69,687	266,331	172,999	168,339	556,206	543,090

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² Based on the British Board of Trade Figures.

DIAGRAM 10. COMPETITION BETWEEN JAPAN, GREAT BRITAIN AND CHINA IN THE CHINESE COTTON TISSUE MARKET (1928-1935)



COMPETITION BETWEEN JAPAN AND GREAT BRITAIN IN THE BRITISH INDIA (INCLUDING CEYLON)
COTTON TISSUE MARKET (1929-1936)

DIAGRAM 11. COTTON TISSUE (TOTAL)

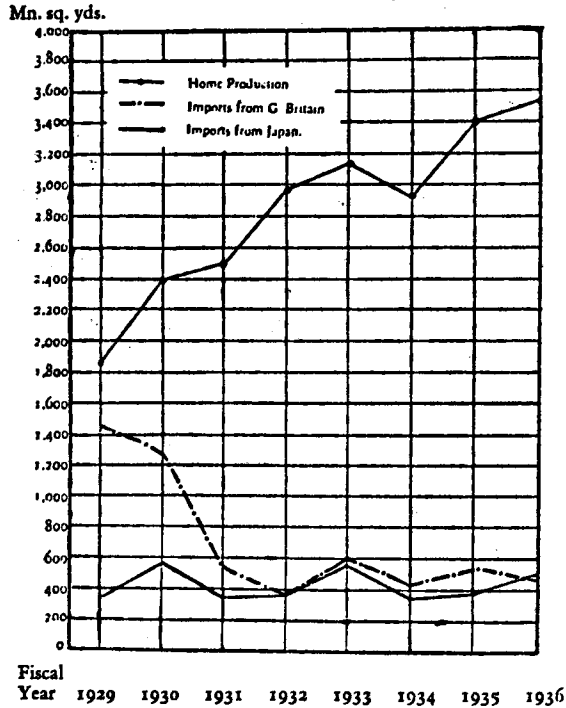


DIAGRAM 12. COARSE COTTON CLOTH

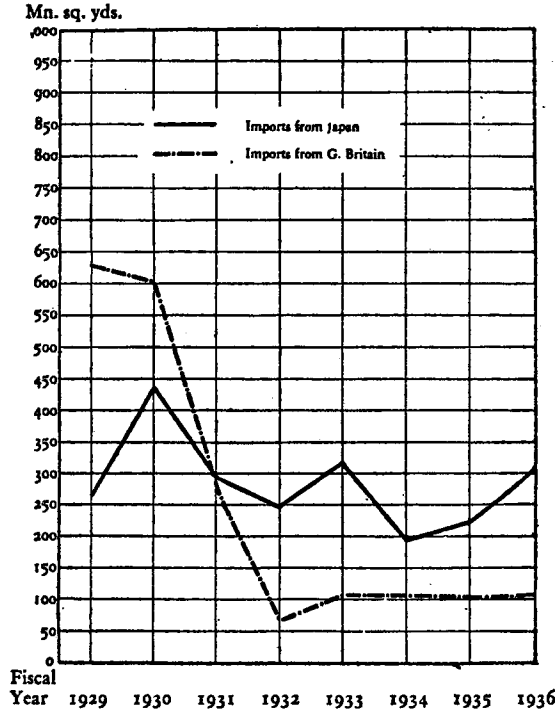


DIAGRAM 13. BLEACHED COTTON CLOTH

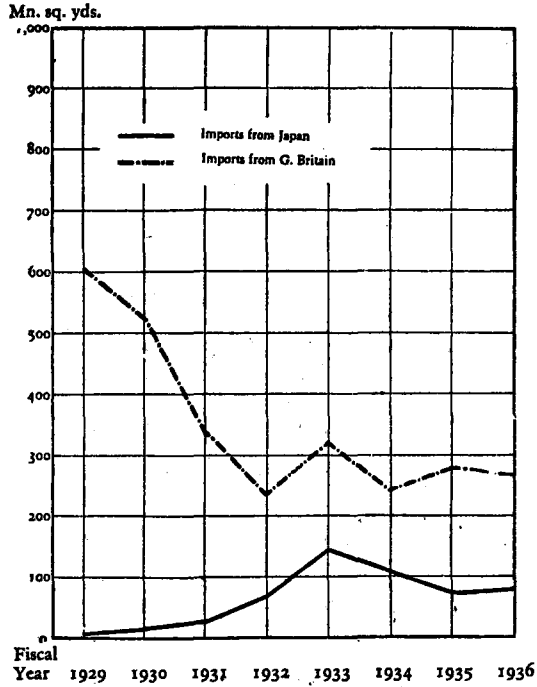
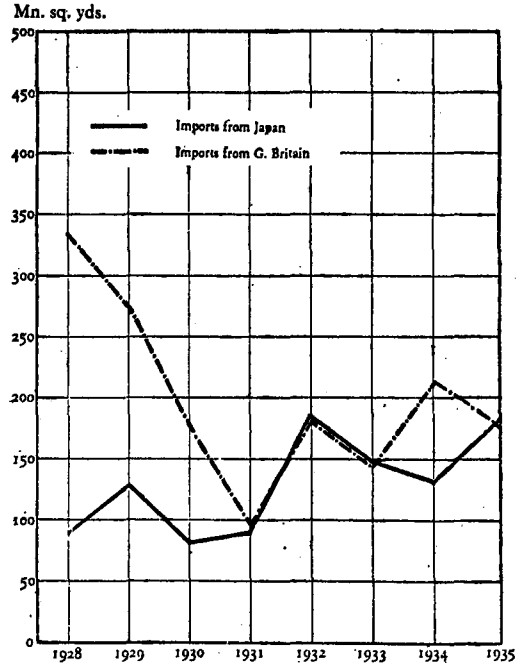


DIAGRAM 14. DYED COTTON CLOTH



Japanese weavers, having lost considerable ground in the Chinese market, sought new outlets in other parts of the world. Their exports to British India have been fluctuating between 355 million sq. yds. and 645 million sq. yds. during the period 1928-1935 without any material increase. On the other hand British cotton

TABLE 10. COMPETITION BETWEEN JAPAN, GREAT BRITAIN AND BRITISH INDIA IN THE INDIAN COTTON CLOTH MARKET (1928-1936)
(In million square yards)

	Imports			Total	Home Production		Total Imports and Home Production	Exports and re-exports	Amount of Home consumption
	from Great Britain	from Japan	from other countries		by spinning mills	by hand looms			
1928-29	1,454	357	126	1,937	1,893	1,080	4,910	396	4,514
1929-30	1,248	562	109	1,919	2,419	1,400	5,738	330	5,408
1930-31	523	321	46	890	2,561	1,390	4,841	269	4,572
1931-32	383	339	54	776	2,990	1,500	5,266	299	4,967
1932-33	597	580	48	1,225	3,170	1,700	6,095	250	5,845
1933-34	426	349	21	796	2,945	1,440	5,181	245	4,936
1934-35	552	373	19	944	3,397	1,460	5,801	221	5,580
1935-36	439	495	12	946	3,571	—	3,571	—	—

Based on the *Cotton Industry Year Book of Japan*.

exports to British India fell from 1,542 million sq. yds. and 1,374 million sq. yds. respectively in 1928 and 1929 to 390 million sq. yds., or a quarter of the 1929 level, in 1931, and they have been holding practically the same position as cotton exports from Japan since then, as is shown in Table 9. It is quite obvious therefore that the fall of British exports to India is due not so much to Japanese competition in that market as to the development of the Indian cotton industry. Table 10 or Diagram 11 shows that Indian textile production¹ for the fiscal year 1928-1929 was about 1,893 million yards; in the year 1931-1932, having increased 1,097 million yards, it had reached 2,990 million yards, and by the year 1934-1935 it had increased 1,504 million yards and it reached as high as 3,397 million yards. British exports of cotton textiles to India, on the other hand, fell by 1,071 million yards, from 1,454 million yards in 1928-1929 to 383 million yards in 1931-1932. They rose slightly, however, to 552 million yards in 1934-1935. When we examine exports by kinds we find that British

¹ i.e. production by spinning mills but not by hand looms.

TABLE 11. IMPORTS OF COTTON TISSUE INTO NETHERLANDS EAST INDIES (1929-1934)

	Imports (in thousand yds.)						Percentage share of each exporting country					Total
	from Japan	from Great Britain	from Holland	from Singapore	from other countries	Total	Japan	Great Britain	Holland	Singapore	other countries	
1929	229,993	143,241	160,414	30,244	68,056	631,948	36.4	22.7	25.4	4.8	10.7	100
1930	221,573	89,029	131,296	32,153	46,030	520,081	42.6	17.1	25.3	6.2	8.8	100
1931	228,433	46,333	108,585	31,119	33,134	477,604	54.1	9.7	22.7	6.5	7.0	100
1932	371,028	50,603	78,394	31,913	26,531	558,469	66.4	9.1	14.0	5.7	4.8	100
1933	476,663	23,322	25,322	35,983	14,486	575,776	82.8	4.1	4.4	6.2	2.5	100
1934	498,173	21,403	44,013	29,578	6,314	599,481	83.1	3.6	7.3	4.9	1.1	100

Based on the Japan Cotton Spinners' Association, *Statistics of the Cotton Spinning Industry*.

TABLE 12. IMPORTS OF COARSE COTTON CLOTH INTO NETHERLANDS EAST INDIES (1929-1934)

	Imports (in thousand yds.)						Percentage share of each exporting country					Total
	from Japan	from Great Britain	from Holland	from Singapore	from other countries	Total	Japan	Great Britain	Holland	Singapore	other countries	
1929	48,538	6,874	3,719	2,954	7,156	69,241	70.1	9.9	5.4	4.3	10.3	100.0
1930	42,815	3,262	1,905	1,938	4,799	54,719	78.2	6.0	3.5	3.5	8.8	100.0
1931	46,481	1,189	2,704	1,744	4,601	56,719	81.9	2.1	4.8	3.1	8.1	100.0
1932	58,362	1,478	914	1,659	3,000	65,413	89.2	2.3	1.4	2.5	4.6	100.0
1933	60,501	806	230	1,756	4,002	67,295	89.9	1.2	0.3	2.6	6.0	100.0
1934	71,700	491	217	2,299	3,739	78,446	91.4	0.6	0.3	2.9	4.8	100.0

Based on the Japan Cotton Spinners' Association, *Statistics of the Cotton Spinning Industry*.

exports of coarse cotton cloth for 1929 were 597 million sq. yds. but fell sharply to 66 million sq. yds. by 1931 (Diagram 12). Japanese exports also fell, from 435 million sq. yds. in 1929 to 195 million sq. yds. in 1933. These figures show that India as a cotton producer became a strong competitor with both countries. When it comes to bleached and dyed cloths, British exports fell off less sharply than in coarse cotton cloth. Even in 1931 when there was the greatest fall, the figure was not much less than half that for 1929. Since then British exports of bleached cloth have been stationary, while dyed goods have even increased from 95 million sq. yds. to 181 million sq. yds. in 1932 and 207 million sq. yds. in 1934 (Diagrams 13 and 14). But in so far as bleached cotton goods are concerned, British exports evidently have been affected by Japanese goods. In other words, while British bleached cotton goods fell from 588 million sq. yds. to 313 million sq. yds., thus losing 275 million sq. yds. during the period of 1928-1932, Japanese goods gained 136 million sq. yds. during the corresponding period.

Japanese cotton goods have sought new outlets since 1932, chiefly in the Netherlands East Indies, Egypt and other parts of Africa. As shown in Table 11 or Diagram 15, exports to the Netherlands Indies for 1930 were 222 million sq. yds. For 1931 they were 228 million sq. yds. They rose to 498 million sq. yds. in 1934, increasing by something like 276 million sq. yds. during these years, and thus recovering about 80 per cent of what they had lost in the Chinese market in the 1929-1934 period. The amount exported to Egypt in 1928 was 78 million sq. yds., and in 1931 was 104 million sq. yds. In 1934 it had reached 234 million sq. yds., representing a gain of approximately half of what was lost in China. Exports to British possessions in Africa have also increased gradually from 55 million sq. yds. in 1929 to 272 million sq. yds. in 1934, an increase of 217 million sq. yds., again equal to about a half of what was lost in China.

It is quite obvious from the above exposition that the appearance of Japanese goods in these markets was a blow to both the British and Dutch products. As Table 11 or Diagram 15 shows, in the Netherlands East Indies Japan's exports have doubled between 1931 and 1934 while since 1929 those of both England and Holland have been declining. By 1931, British exports had fallen to one-third of what they were in 1929 and to one-seventh in 1934, the latter amount not greatly exceeding 20 million sq. yds. In 1933 the Dutch goods

TABLE 13. IMPORTS OF DYED COTTON CLOTH INTO NETHERLANDS EAST INDIES (1929-1934)

	Imports (in thousand yds.)						Percentage share of each exporting country					
	from Japan	from Great Britain	from Holland	from Singapore	from other countries	Total	Japan	Great Britain.	Holland	Singapore	other countries	Total
1929	171,858	87,984	25,679	24,480	58,297	368,298	46.7	23.9	7.0	6.6	15.8	100.0
1930	165,660	55,757	12,452	28,328	38,910	301,107	55.0	18.5	4.1	9.4	13.0	100.0
1931	190,358	29,895	9,558	27,489	26,882	284,182	67.0	10.5	3.4	9.7	9.4	100.0
1932	259,008	35,866	7,979	26,046	22,232	351,131	73.8	10.2	2.3	7.4	6.3	100.0
1933	290,100	15,424	3,090	27,881	9,097	345,592	83.9	4.5	0.9	8.1	2.6	100.0
1934	332,645	16,218	1,988	25,269	1,059	377,179	88.2	4.3	0.5	6.7	0.3	100.0

Based on the Japan Cotton Spinners' Association, *Statistics of the Cotton Spinning Industry*.

TABLE 14. IMPORTS OF BLEACHED COTTON CLOTH INTO NETHERLANDS EAST INDIES (1929-1934)

	Imports (in thousand yds.)						Percentage share of each exporting country					
	from Japan	from Great Britain	from Holland	from Singapore	from other countries	Total	Japan	Great Britain	Holland	Singapore	other countries	Total
1929	9,597	48,383	131,016	2,810	2,603	194,409	4.9	24.9	67.5	1.4	1.3	100.0
1930	13,098	30,010	116,939	1,887	2,321	164,255	8.0	18.3	71.2	1.1	1.4	100.0
1931	21,594	15,249	96,323	1,886	5,651	140,703	15.8	11.2	70.5	1.4	1.1	100.0
1932	53,658	13,259	69,501	4,208	1,299	141,925	37.8	9.3	49.0	3.0	0.9	100.0
1933	126,062	7,092	22,002	6,346	1,387	162,889	77.4	4.4	13.5	3.9	0.8	100.0
1934	93,828	4,694	41,808	2,010	1,516	143,856	65.2	3.3	29.1	1.4	1.0	100.0

Based on the Japan Cotton Spinners' Association, *Statistics of the Cotton Spinning Industry*.

COMPETITION BETWEEN JAPAN AND OTHER COUNTRIES IN THE NETHERLANDS EAST INDIES
COTTON TISSUE MARKET (1929-1934)

DIAGRAM 15. COTTON TISSUE (TOTAL)

Mn. sq. yds.

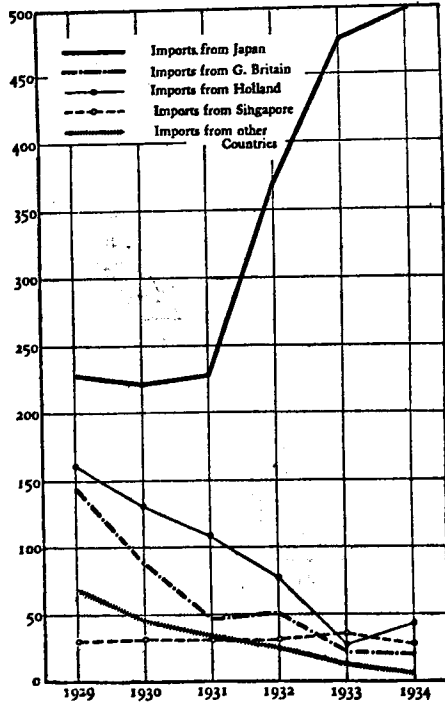


DIAGRAM 16. COARSE COTTON CLOTH

Mn. sq. yds.

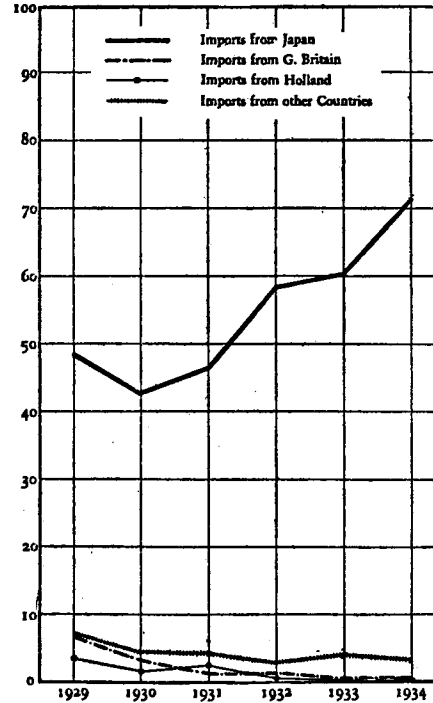


DIAGRAM 17. DYED COTTON CLOTH

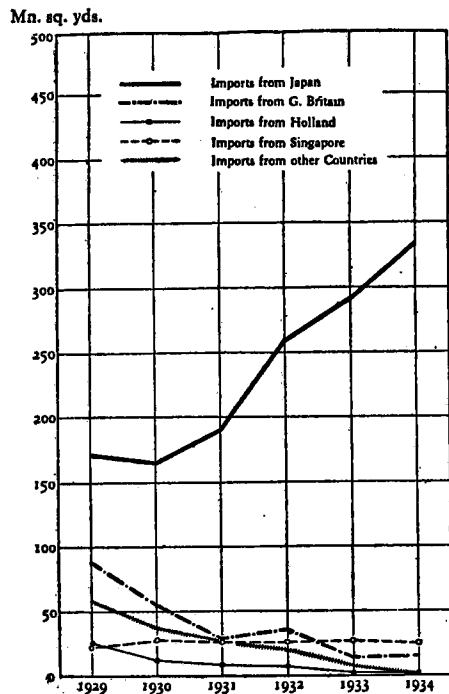
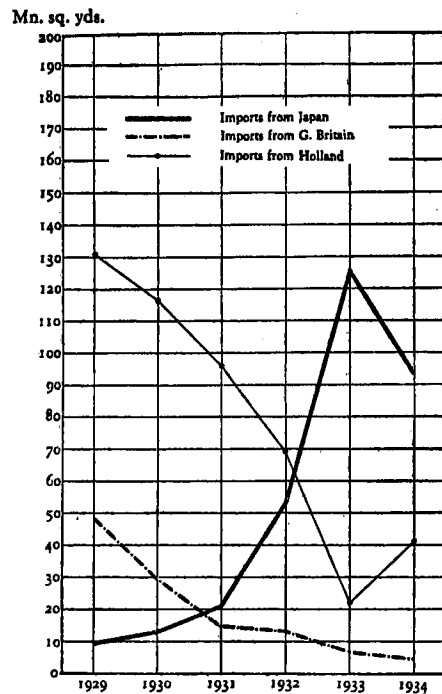


DIAGRAM 18. BLEACHED COTTON CLOTH



amounted to only 25 million sq. yds., which is only about one-sixth of the 1929 figure. When we examine them by kinds, we find (Table 12 or Diagram 16) that Japanese coarse cotton cloth, which in previous years controlled 70-80 per cent of the whole supply, increased to 91.4 per cent in 1934; in the case of dyed goods previously almost half of the total supply was Japanese, but in 1934 those of other countries practically disappeared from the market (Table 13 or Diagram 17). But competition was keenest in the field of bleached cotton goods (Table 14 or Diagram 18). Formerly the Dutch goods controlled between 65 per cent and 70 per cent and the British 20 per cent to 25 per cent; that is, both together

TABLE 15. COMPETITION BETWEEN JAPAN AND GREAT BRITAIN IN THE EGYPTIAN COTTON TISSUE MARKET (1928-1935)
(Exports in thousand sq. yds.)

	Coarse Cloth		Bleached Cloth		Dyed Cloth		Total	
	from Japan ¹	from Great Britain ²	from Japan ¹	from Great Britain ²	from Japan ¹	from Great Britain ²	from Japan ¹	from Great Britain ²
1928	49,263	31,867	475	50,645	27,857	46,158	77,595	128,678
1929	65,148	39,058	862	63,277	41,499	49,284	107,459	151,619
1930	57,224	26,280	2,195	52,035	49,588	39,346	109,007	117,661
1931	56,852	16,602	3,264	27,825	43,694	26,770	103,810	71,197
1932	88,051	23,563	20,606	28,129	86,877	30,221	195,534	81,913
1933	72,764	14,243	32,310	21,374	105,276	28,444	210,350	64,061
1934	61,813	8,534	39,164	17,733	132,709	17,307	233,686	43,574
1935	49,400	5,998	33,299	14,025	81,038	15,646	163,737	35,669

¹ Based on the Department of Finance, *Monthly Returns of Japan's Foreign Trade*.

² Based on the British Board of Trade Figures.

represented more than 90 per cent of the whole supply. The Japanese goods increased from less than 10 million sq. yds. in 1929 to 126 million sq. yds. in 1933, having taken 77.4 per cent of the market, thus securing the position formerly held by the Dutch. During the period 1929-1933 the Dutch supply fell to one-sixth and the British to one-seventh.

British exports to the Egyptian market fell from 152 million sq. yds. in 1929 to 71 million sq. yds. in 1931 (or to half of what they were in 1929) and to 36 million sq. yds., or one-quarter, in 1935 (Table 15 or Diagram 19). On the other hand, Japanese exports had increased 90 million sq. yds. in 1932 compared with what they

were a year before, and continued to grow till 1934. But when we examine them by kinds, we find that in the case of coarse cotton cloth (Table 15 or Diagram 20) Japanese exports cannot be regarded as having displaced British goods. Although the British exports of coarse cotton cloth decreased by about 31 million sq. yds. during six years, from 1929 to 1934, those of Japan did not increase permanently. Japanese exports were 65 million sq. yds. in 1929, and in 1934 they were 62 million sq. yds. Expansion of Japanese exports was a blow to British trade only in the cases of bleached and dyed cloth. But in these cases British exports had decreased sharply during the period 1929-1931, while most of the increase in the Japanese exports occurred from 1932 onwards (Table 15 or Diagrams 21 and 22).

3. THE DEPRECIATED YEN AS A FACTOR IN THE EXPANSION OF JAPANESE EXPORTS

One of the causes of the rapid expansion of Japanese textile exports since 1932 is the depreciated yen. The exchange rate of the yen fell sharply after the gold embargo was put into effect on 13th December, 1931, and continued to fall till the end of 1932. Just before the gold embargo was put into effect, the rate of the yen was slightly over 2 shillings on London and over \$49 on New York, but in December, 1932, it fell to 1s. 2d. and -20.50. The rate against the pound sterling remained near that point, but against the American dollar the yen recovered to nearly \$30 when the United States suspended the gold standard in April, 1933 (Diagram 23).

Japan has to rely upon imported raw cotton, but the depreciating yen had afforded some advantage, since although cotton has had to be bought at a high price, cotton products could be sold for more money. Of course, there is no advantage in buying with the depreciated yen and then selling again for the same depreciated yen. But there would be some advantage when money continues to depreciate, and in the case of the yen this condition lasted throughout 1932. During this period goods were manufactured with materials bought before the yen had depreciated. Sales of finished goods were, therefore, effected at considerable advantage. But this situation soon changed. Since 1933 the rate on London has been almost stable while the dollar has depreciated over 40 per cent. The rate on New York has fluctuated from \$20 to \$30. The significant thing to be noted here is that even under such unfavourable conditions the

COMPETITION BETWEEN JAPAN AND GREAT BRITAIN IN THE EGYPTIAN COTTON TISSUE MARKET (1928-1935).

DIAGRAM 19. COTTON TISSUE (TOTAL)

Mn. sq. yds.

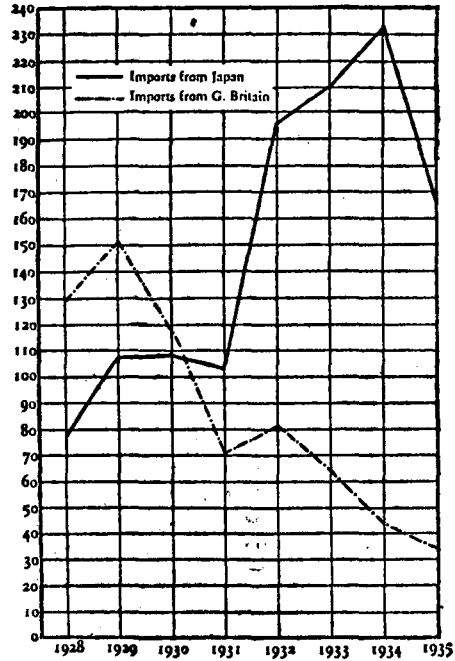


DIAGRAM 20. COARSE COTTON CLOTH

Mn. sq. yds.

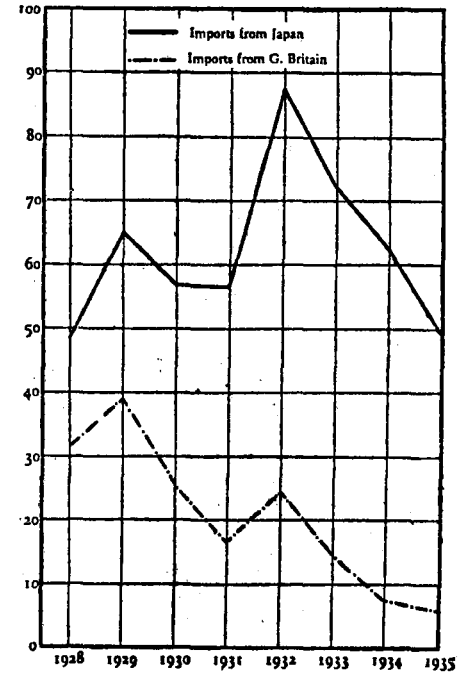


DIAGRAM 21. BLEACHED COTTON CLOTH

Mn. sq. yds.

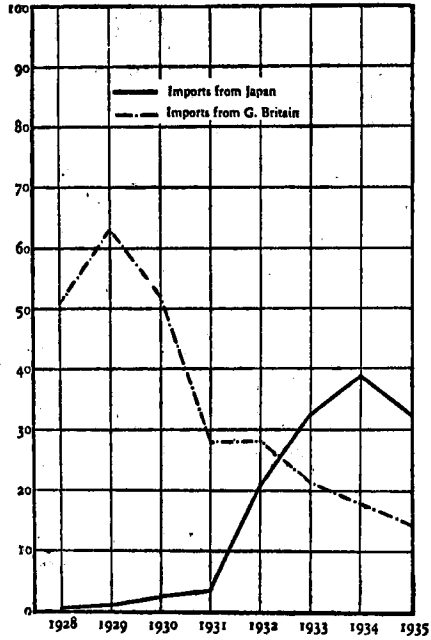
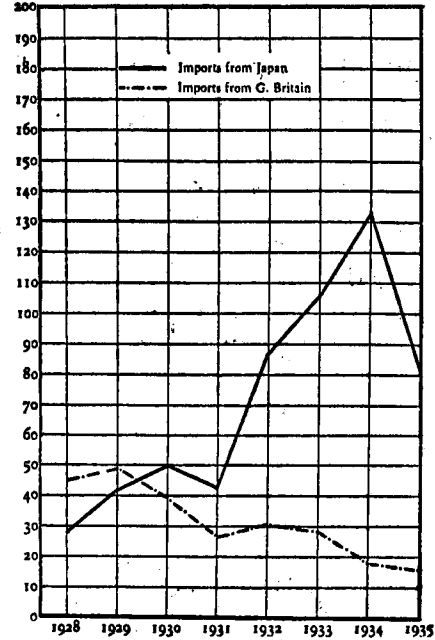


DIAGRAM 22. DYED COTTON CLOTH

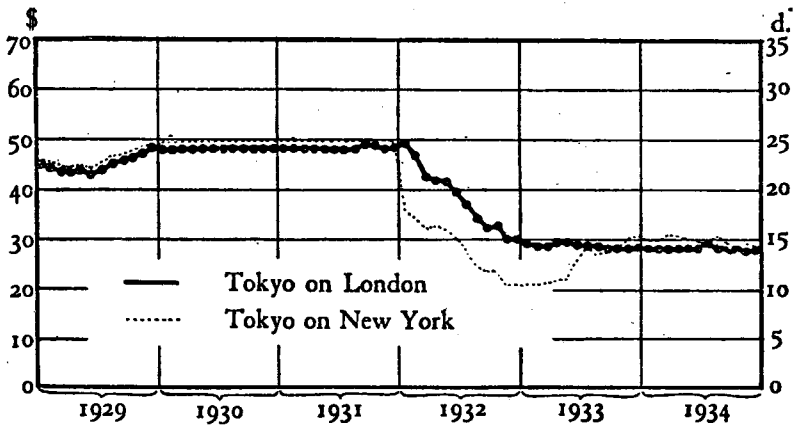
Mn. sq. yds.



export of Japanese cotton goods increased rapidly. Clearly, the depreciation of the yen does not fully explain the situation and more fundamental causes for this expansion must be sought elsewhere. However, one further possibility should be considered in connection with the currency depreciation.

If the cost of production minus that of materials had not risen in the same degree as the yen depreciated, there would have been some advantage. But here again the advantage was much less than is generally supposed. Of course, the ratio of cost of materials to sale price varies with the kind and quality of the products being turned out, but in Japan during the years before the gold embargo the cost

DIAGRAM 23. FOREIGN EXCHANGE RATES (1929-1934)



of raw cotton is generally estimated to have ranged from 60 to 85 per cent of the selling price. According to a survey of 18 spinning mills conducted in 1926 by the Industrial Research Department of Nagoya Commercial College, out of a total income of ¥ 22,240,000 in that same year for these 18 establishments, materials cost ¥ 15,473,000, or 69.57 per cent and labour ¥ 5,283,000 or 23.75 per cent, leaving a profit of ¥ 1,484,000, or 6.68 per cent. The value of the yen, however, fell in the middle of 1933 to three-fifths of what it was in 1930-1931 when Japan was on the gold standard. Under such circumstances, if we assume the total cost of production to be ¥ 100, of which ¥ 70 goes to cost of materials and ¥ 30 to other items, any benefit from the depreciated yen would disappear

completely as the total cost rises to ¥ 166. After 1933, the cost of raw cotton alone rose to over ¥ 116, so even if the other expenses had remained stationary, the total cost would have amounted to ¥ 146, leaving a margin of only ¥ 20 or 12 per cent of the selling price if such products were to be sold at ¥ 166.

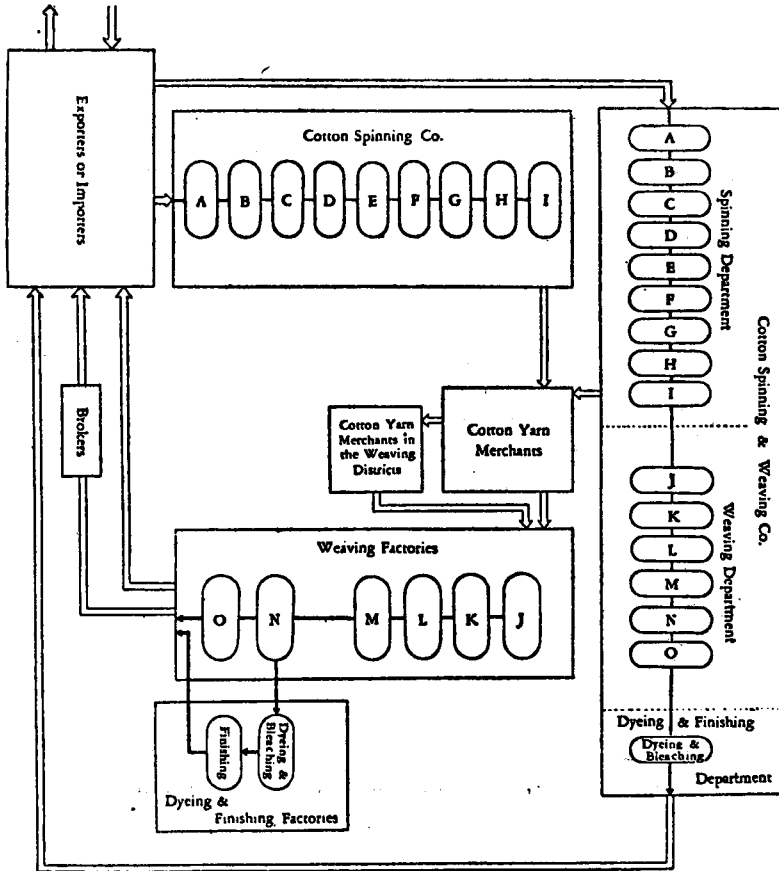
If manufacturing costs do not rise in the same ratio as the yen falls, then the higher the ratio of such costs to the total cost of production the greater will be the proportion of profit. Assuming, once again, that ¥ 100 is the total cost of production, and allowing ¥ 85 for materials and ¥ 15 for labour, etc., then if the cost of materials rises to ¥ 141, with ¥ 15 for manufacturing, the total cost will become ¥ 156, leaving a margin of ¥ 10, or about six per cent of the price. If on the other hand out of ¥ 100, ¥ 60 goes to materials and ¥ 40 to manufacturing, even when the cost of materials rises to ¥ 100 due to the depreciation of the yen, then, if manufacturing costs do not rise, the total cost would be ¥ 140, leaving a margin of ¥ 26, or about 16 per cent of the price.

The increase of Japan's exports after 1933, therefore, may be attributed to the fact that the manufacturing costs composed of labour, power, and interest, did not rise in the same ratio as the yen depreciated. The study of Nagoya Commercial College referred to above, shows that out of a total income of ¥ 22,240,000 for 18 establishments, labour costs amounted to ¥ 2,706,000 or 12.17 per cent; cost of power, interest, and other items to ¥ 2,576,000, or 11.58 per cent. The question therefore arises: why did not manufacturing costs rise with the depreciation of the currency? This question leads to further inquiries into the other aspects of the industry such as organization, capital involved, efficiency in production, wages and working conditions, and other pertinent questions.

4. ORGANIZATION OF THE JAPANESE COTTON INDUSTRY

As we have already seen elsewhere, since import duties on raw cotton were removed in 1896, cotton-growing in Japan declined very rapidly, and almost disappeared even before the outbreak of the World War. The supply of raw material is sought largely, therefore, from the United States and India with small amounts from Africa, China, and also Korea. Hence, as in England, the Japanese cotton industry is composed of four sections. There are merchants

DIAGRAM 24. PRODUCTION AND MARKETING SYSTEM OF JAPAN'S COTTON INDUSTRY



- | | | |
|---------------|-------------------|------------------------|
| A = Opening | F = Drawing | K = Warping |
| B = Mixing | G = Speeding | L = Sizing |
| C = Scutching | H = Ring Spinning | M = Drawing |
| D = Carding | I = Reeling | N = Weaving |
| E = Combing | J = Warp Winding | O = Folding and Baling |

engaged either in importing raw material or in exporting manufactured cotton goods, there are spinners, weavers, bleachers and dyers. But compared with the British, the Japanese cotton industry is organized on a much larger scale and the entire process of manufacturing from spinning to dyeing is carried on often under one and the same establishment (Diagram 24).

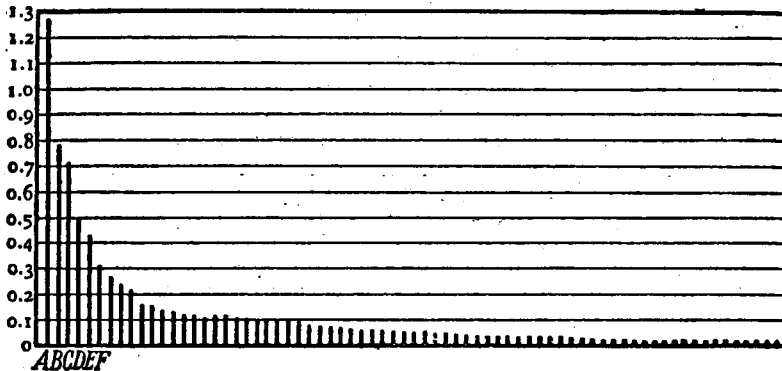
Among the merchants dealing with the importation of raw cotton and the exportation of textile goods, there are almost none engaged in spinning or weaving. At the same time, unlike the English industry, there is no extreme specialization among dealers. Not only do British exporters usually limit themselves to supplying one market exclusively, but in the case of a large market like India each firm specializes in just one kind of goods or, at the most, in a very few. In Japan, however, not only is there no such specialization, but sometimes there is even no sharp distinction or division of function between importing raw cotton and exporting yarn, or textile goods. Three large export-import concerns, Toyo Menka, Nippon Menka, and Goshō Kaisha together handle 70 to 80 per cent of the raw cotton imported and at the same time about 40 per cent of the exports, and the rest is handled by Hidaka Co., Showa Menka, Hibiya Co., Itochu Shoji, Toyoshima Co., Takemura Co., Tazuki Co., Yagi Co., Marunaga Co., Mataichi Co., and others. Thus, having ample capital available, the cotton merchants can buy raw cotton in large quantities at the most opportune times, and also enjoy many other advantages by importing raw cotton and exporting cotton goods through their own establishments.

In England imported cotton is handled through commission merchants, but in Japan it goes directly from the importers to the spinners or to the spinning-weaving concerns. When it goes to the latter the entire process of manufacture from spinning to dyeing or bleaching is completed by them and the goods are handed over direct to the export-import merchants who had sold the cotton to them, without any middleman transactions. Their surplus yarn is disposed of through the yarn merchants, like the products of the specialized spinners to the weavers, who may or may not dye or bleach, and who sell the products to the export-import merchants, either through a middleman or direct. Whether the mills are limited to spinning or are engaged in both spinning and weaving,

they are usually organized on a very large scale. At the end of 1935, out of 168,800 operatives employed in spinning, only 2,930, or less than two per cent, were working in small mills employing fewer than 200 workers. Out of the total workers, over 90.7 per cent or 153,127 were engaged in large mills having over 500 workers, and over 59.31 per cent or 100,287 were working in big mills employing over 1,000 workers. But these figures show only the scale of production. It must be remembered that some concerns are industrial establishments of immense size (Diagram 25).

DIAGRAM 25. NUMBER OF SPINDLES IN EACH COTTON SPINNING ESTABLISHMENT IN JAPAN, 1932 (71 COMPANIES)

Mn. spindles



A = Toyo

B = Dai Nippon

C = Kanegafuchi

D = Fuji Gasu

E = Nisshin

F = Kurashiki

The other 65 verticals represent, in order of magnitude, the remaining spinning mills not here named.

Based on the Japan Cotton Spinners' Association's *Statistics of the Cotton Spinning Industry*.

At the end of 1932 there were eight million spindles in Japan. Fewer than two million spindles were owned by 51 concerns, each having fewer than 100,000 spindles. Three-quarters of the total, or six million spindles, were owned by 20 other larger mills. Half of the total capacity or four million spindles were owned by six big concerns (the Toyo, Dai Nippon, Kanegafuchi, Fuji Gasu, Nisshin, and Kurashiki spinning mills) each having over 300,000 spindles. The Toyo Spinning Co., the biggest concern in the Japanese cotton industry, owns 1,270,000 spindles or approximately one-sixth of the total capacity of the entire industry in Japan.

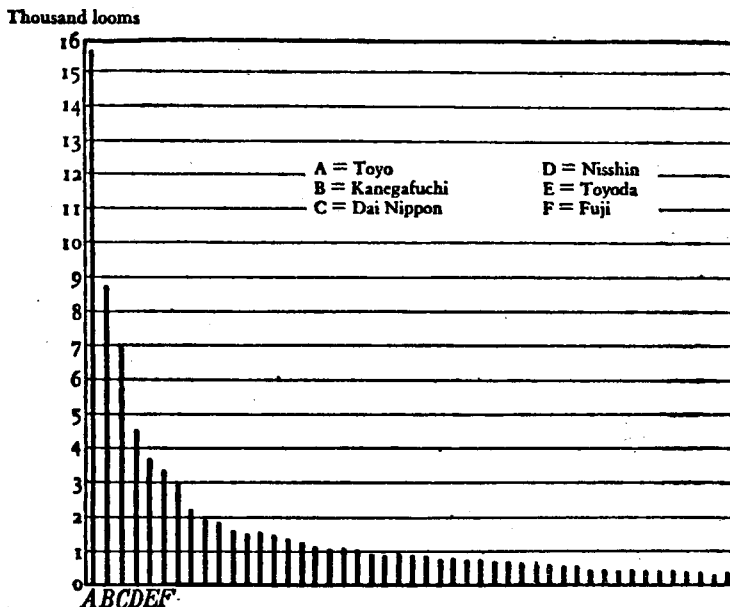
The only section in the Japanese cotton textile industry which is conducted on a small scale is that of weaving (Table 16). Out of 229,707 workers employed in this kind of work at the end of 1935, those employed in large mills having 200 workers and over numbered only 48,570 or 21.14 per cent of the total number of workers in the industry. Out of the remaining 181,137 workers, 149,038 or 64.88 per cent of the total were working in small mills employing fewer than 50 workers. And as most of the larger textile mills were spinning-weaving mills, among the specialized textile mills the importance of the smaller mills was considerable (Table 16). At the end of 1932, 80,000 looms or two-fifths of the total looms in Japan were owned by the 47 spinning-weaving mills and four-fifths of this number were owned by large mills having over 1,000 looms with 400 to 500 workers. The six largest concerns (the Toyo, Kanegafuchi, Dai Nippon, Nisshin, Fuji Gasu, and Toyoda Spinning Co.) together owned 42,000 looms or more than one-half the total capacity, each having over 3,000 looms and between 1,400 and 1,500 workers (Diagram 26). Those having fewer than 1,000 looms possessed between them altogether 150,000 looms and even the smallest concern

TABLE 16. NUMBER OF FACTORIES AND OPERATIVES IN THE JAPANESE COTTON SPINNING AND WEAVING INDUSTRIES ACCORDING TO NUMBER OF OPERATIVES PER FACTORY (END OF 1935)

Operatives per Factory	Cotton Spinning Industry				Cotton Weaving Industry			
	Number of Factories	Total Number of Operatives			Number of Factories	Number of Operatives		
		Males	Females	Total ¹		Males	Females	Total
1-4 ¹	—	—	—	—	43,394	8,210	82,369	90,579
5-9	227	313	785	1,098	2,258	1,916	12,425	14,341
10-14	17	44	144	188	847	1,435	7,431	8,866
15-29	16	113	197	310	1,089	3,209	18,436	21,645
30-49	7	96	183	279	369	2,364	11,243	13,607
50-99	6	96	311	407	224	2,802	12,629	15,431
100-199	4	76	572	648	119	3,378	13,290	16,668
200-499	33	1,883	10,860	12,743	59	3,461	13,639	17,100
500-999	72	6,674	46,166	52,840	14	1,402	8,092	9,494
1,000 & over	61	10,808	89,479	100,287	16	2,730	19,246	21,976
Total	443	20,103	148,697	168,800	48,389	30,907	198,800	229,707

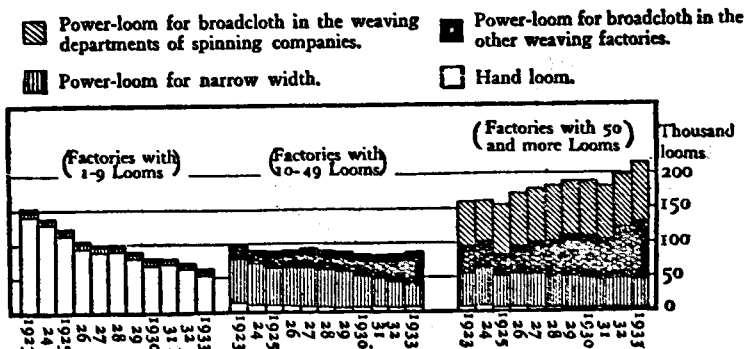
¹ Author's Estimate.
Factory Statistics.

DIAGRAM 26. NUMBER OF LOOMS IN EACH COTTON SPINNING-WEAVING ESTABLISHMENT IN JAPAN, 1932 (47 COMPANIES)



The other 41 verticals represent, in order of magnitude, the remaining spinning-weaving establishments not here named.
Statistics of the Cotton Spinning Industry.

DIAGRAM 27. DISTRIBUTION OF LOOMS AMONG COTTON WEAVING FACTORIES OF VARIOUS SIZES (1923-1933)



For 1934 and 1935, see Table 18.

TABLE 17. NUMBER OF SPINDLES AND SPINNING MILLS (END OF 1932)

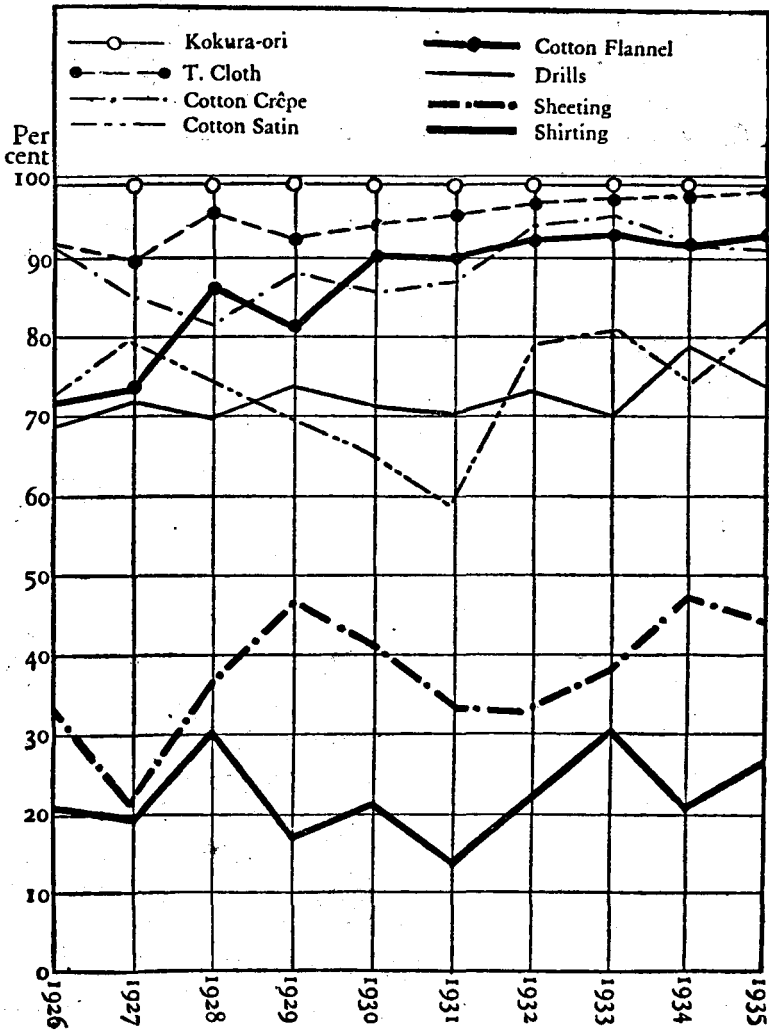
Number of Spindles (in thousands)	Number of Establishments	Spindles	
		Number	Percentage
1-9	3	23,460	0.3
10-19	16	234,046	2.9
20-29	7	180,612	2.3
30-39	7	238,367	3.1
40-49	4	185,936	2.4
50-59	4	211,252	2.6
60-69	4	263,140	3.3
70-79	1	73,560	0.9
80-89	2	176,016	2.2
90-99	3	293,824	3.6
Under 100	51	1,880,213	23.6
100-199	11	1,337,854	16.8
200-299	3	713,768	9.0
300-399	1	306,484	3.8
400-499	2	922,284	12.0
500-599	—	—	—
600-699	—	—	—
700-799	2	1,492,396	18.8
800-899	—	—	—
900-1000	—	—	—
Over 1000	1	1,269,064	16.0
100 & over	20	6,041,850	76.4
Total	71	7,922,063	100.0

Statistics of the Cotton Spinning Industry.

had over 300 looms and 140 to 150 workers. Hence we may dismiss those larger mills that carried on both spinning and weaving, with the understanding that they each had over 100 workers in their weaving sections; then, in the specialized textile mills employing over 50 workers each, there were some 33,000 workers or one-sixth of the total force of all the specialized weaving mills put together. The remaining 150,000 workers were employed in smaller mills with fewer than 50 workers each, and a quite astonishing fact is that five-ninths of that large force were in extremely small mills with fewer than five workers.

In Japan, however, these small textile mills are mostly engaged in weaving pattern goods for the home market, whereas the larger ones, even among the specialized textile mills, are producing goods for export. At the end of 1935, of some 58,274 looms installed in

DIAGRAM 28. PERCENTAGE OF TOTAL OUTPUT OF VARIOUS COTTON TISSUES PRODUCED BY JAPANESE SPECIALIZED WEAVING FACTORIES (1926-1935)



Author's Estimate.

small mills of fewer than 10 looms each, 81.1 per cent were hand looms used in producing pattern goods for home consumption, while only 7.3 per cent were power-looms of narrow width which were used in weaving narrow goods for the home market and only 11.6 per cent were wide power-looms for weaving wider cloths for export purposes.) But in somewhat larger mills, with 10 to 49 looms, the number of hand looms constituted 4.4 per cent of the total of 86,893 looms. The remaining 95.6 per cent were power-looms, among which 30,115 looms or 34.7 per cent were of narrow width and 52,915 or 60.9 per cent of broader width. In the mills of 50 looms and over, out of 240,803 looms only 1 per cent were hand looms. Power-looms for narrow cloth were 45,545 or 19 per cent and power-looms for broadcloth numbered 192,967 or 80 per cent (Table 18). Hence most of the export goods of wide measurement came from mills with 50 looms and over. Out of the total of 252,669 power-looms for broadcloth 192,967 or 76 per cent were owned by these larger mills. But in this figure were, of course, included the looms installed in large spinning-weaving mills. These larger mills had 95,982 looms or about 38 per cent; the specialized larger textile mills, each owning 50 looms and over, also had nearly 38 per cent and the smaller ones with 1-49 looms had the remaining 24 per cent.

A similar tendency can be noticed in the production of cloth. Calculated in bales of cotton yarn, 3,482,188 bales were consumed for the weaving of cotton piece goods in 1935. Out of this total, the large spinning-weaving mills consumed 981,601 bales or 28 per cent and the specialized textile mills 2,500,587 bales or 72 per cent. But of the cloth woven in Japan, that produced by the large-scale spinning-weaving mills is exported to a greater degree than the other kinds. In 1935, out of 981,601 bales consumed by the large spinning-weaving mills, 865,134 bales or 88.1 per cent were shipped abroad, while the specialized weaving mills exported 893,001 bales or 35.7 per cent of their total consumption (Table 19). (As a result of this fact, although the cotton weaving industry is conducted on a small scale in Japan, the exported cotton cloth was manufactured in larger textile mills. The large spinning-weaving mills exported 898 million sq. yds. or 63.5 per cent of the total Japanese exports in 1931 and 1,340 million sq. yds. or 49.2 per cent in 1935, while the larger specialized weaving mills shipped abroad 516 million

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TABLE 18. JAPANESE COTTON WEAVING INDUSTRIES: NUMBER OF LOOMS OF EACH KIND OPERATED IN FACTORIES OF DIFFERENT SIZES (1926-1936)

End of Year	Mills with fewer than 10 Looms				Mills with 10-49 Looms				Mills with 50 Looms and over						Total			
	Power-Looms for Broad-cloth	Power-Looms for Narrow Breadth	Hand Looms	Total	Power-Looms for Broad-cloth	Power-Looms for Narrow Breadth	Hand Looms	Total	Power-Looms for Broad-cloth	Power-Looms for Narrow Breadth	Hand Looms	Total	Power-Looms for Broad-cloth	Power-Looms for Narrow Breadth	Hand Looms	Grand Total		
1926	3,476	7,097	94,490	105,063	26,296	57,236	6,437	89,969	76,403	39,010	116,053	51,174	3,711	170,938	145,825	115,507	104,638	365,970
1927	3,280	7,208	89,173	99,661	28,000	57,114	6,463	91,577	76,403	39,010	116,053	51,174	3,711	170,938	145,825	115,507	104,638	365,970
1928	3,336	6,991	89,381	99,708	27,790	54,477	5,810	88,077	81,352	45,277	123,629	50,157	4,048	177,834	154,909	114,479	99,684	369,072
1929	3,505	6,186	79,156	88,847	30,025	51,918	4,403	86,346	77,209	49,498	130,707	48,126	3,329	182,162	161,833	109,594	98,520	369,947
1930	3,643	6,006	69,441	79,090	31,271	46,859	4,152	82,282	75,898	59,121	137,019	48,112	2,495	187,626	170,549	106,216	86,054	362,819
1931	4,068	4,672	70,556	79,296	33,102	44,039	3,612	80,753	77,466	58,693	138,159	47,426	1,946	187,531	173,073	100,291	75,539	348,903
1932	4,438	4,885	62,953	72,276	38,159	39,374	3,198	80,731	75,782	57,259	135,041	44,807	1,710	181,558	172,211	93,518	75,878	341,607
1933	4,939	3,949	53,686	62,574	46,239	35,109	3,704	85,052	86,277	74,784	154,061	43,984	1,245	199,290	196,658	88,243	67,396	352,297
1934	5,518	4,448	49,678	59,644	48,387	31,168	3,806	83,361	91,343	82,789	169,132	44,186	1,922	215,240	220,310	83,244	59,312	362,866
1935	6,787	4,225	47,262	58,274	52,915	30,115	3,863	86,893	95,146	96,189	187,335	44,379	1,985	233,699	241,240	79,995	55,469	376,704
1936	6,172	3,652	45,155	54,979	54,792	29,140	3,912	87,844	101,982	96,985	192,967	45,545	2,291	240,803	252,669	79,885	53,416	385,970
									101,543	104,203	204,746	43,408	1,964	250,118	265,710	76,200	51,031	392,941

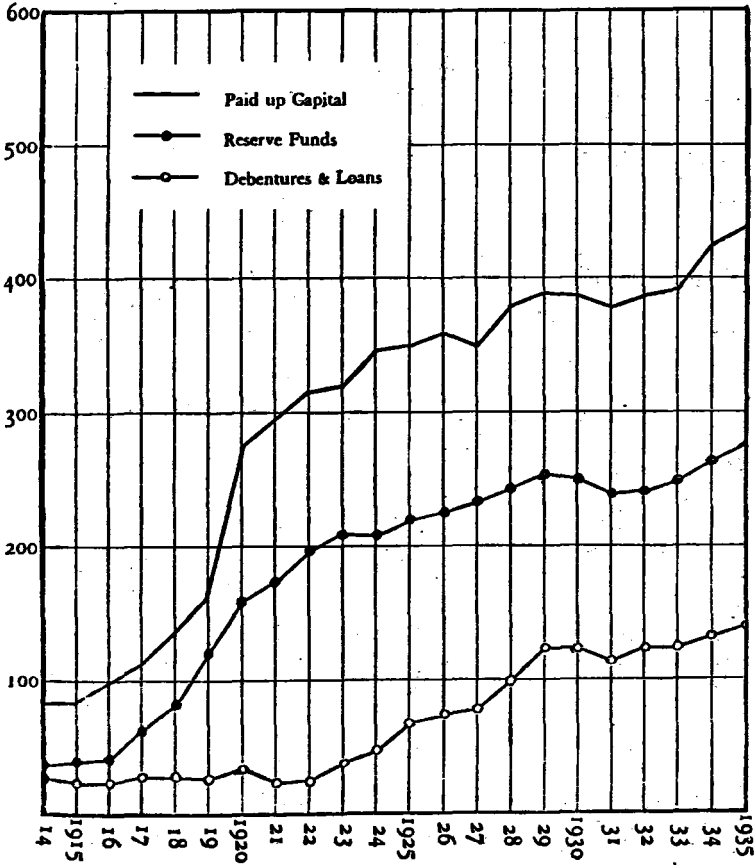
Statistics of the Department of Commerce and Industry.

sq. yds. or 36.5 per cent in 1931 and 1,384 million sq. yds. or 50.8 per cent, just half the total exports, in 1935.

It has already been pointed out that as a whole the textile industry of Japan is organized in comparatively small-scale units, but in so far as export textile goods are concerned, they are supplied by the large-scale producers, specialized and otherwise. It is interesting

DIAGRAM 29. CAPITAL COMPOSITION OF JAPANESE COTTON SPINNING-WEAVING COMPANIES IN JAPAN (1914-1935)

Million yen



to note that the large-scale spinning-weaving mills are engaged in producing simpler articles like shirtings and sheetings that can be produced in large quantities while the specialized weavers devote their efforts to producing articles like drills, jeans, satin, flannel, crêpes, and *kokuraori*, which cannot profitably be manufactured

TABLE 19. PRODUCTION AND EXPORTS OF COTTON CLOTH (IN TERMS OF BALES OF COTTON YARN) MANUFACTURED IN THE SPINNING-WEAVING MILLS AND SPECIALIZED WEAVING MILLS OF JAPAN (1928-1935)

	Spinning-Weaving Mills			Specialized Weaving Mills		
	Production (bales)	Exports (bales)	Exports Percentage of Production	Production (bales)	Exports (bales)	Exports Percentage of Production
1928	757,521	634,399	83.7	1,626,349	377,729	23.2
1929	840,690	705,690	83.9	1,889,734	449,510	23.8
1930	741,481	641,565	86.5	1,732,654	372,516	21.5
1931	753,081	579,335	76.9	1,897,861	332,135	17.5
1932	814,770	765,981	94.0	1,934,649	544,807	28.2
1933	905,752	741,899	81.9	2,204,763	606,635	27.5
1934	962,396	884,058	91.9	2,499,720	778,673	31.2
1935	981,601	865,134	88.1	2,500,587	893,001	35.7

Author's estimate.

TABLE 20. EXPORTS OF COTTON CLOTH MANUFACTURED IN SPECIALIZED WEAVING MILLS (1928-1935)

	Quantity			Value		
	Production of Specialized Weaving Mills		Total Exports	Export of Specialized Weaving Mills		Total Exports
	Thousand sq. yds.	Percentage of total exports	Thousand sq. yds.	Thousand yen	Percentage of total value	Thousand yen
1928	585,480	41.3	1,418,703	173,354	49.2	352,217
1929	696,741	38.9	1,790,560	179,684	43.5	412,707
1930	577,400	36.7	1,571,825	109,924	40.4	272,117
1931	515,810	36.5	1,413,780	82,730	41.6	198,731
1932	844,451	41.6	2,031,722	139,070	48.2	288,712
1933	940,285	45.0	2,090,228	193,325	50.4	383,216
1934	1,206,943	46.8	2,577,233	254,060	51.6	492,351
1935	1,384,152	50.8	2,725,109	288,653	58.2	496,097

Nippon Union of Cotton Textile Manufacturers' Associations: *Cotton Cloth Trade in 1935*.

by large-scale production (Table 21). In other words, the large spinning-weaving mills concentrate mostly on producing shirtings. They produce a few other kinds of cotton fabrics like sheetings, drills and jeans to some extent, but these do not represent more than one-quarter or one-fifth of their total textile production. Out of 1,674 million sq. yds. of broadcloth produced in these spinning-weaving mills in 1933, 962 million sq. yds. or 57.4 per cent

TABLE 21. NOS. i-viii: OUTPUT OF VARIOUS COTTON TISSUES PRODUCED BY THE SPINNING-WEAVING MILLS AND SPECIALIZED WEAVING MILLS OF JAPAN (1926-1935)
(Author's estimates)

i. Shirtings

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	483,379	79.1	127,668	20.9	611,047
1927	554,853	81.6	125,470	18.4	680,323
1928	709,549	69.4	313,325	30.6	1,022,874
1929	825,518	83.8	159,714	16.2	985,232
1930	724,987	78.5	198,881	21.5	923,868
1931	746,939	86.5	116,843	13.5	863,782
1932	849,819	78.8	228,547	21.2	1,078,366
1933	962,967	69.4	424,066	30.6	1,387,033
1934	1,083,616	78.6	294,484	21.4	1,378,100
1935	1,137,096	72.7	427,370	27.3	1,564,466

ii. Sheetings

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	217,726	67.4	105,379	32.6	323,105
1927	199,015	78.6	54,234	21.4	253,249
1928	128,242	64.4	70,941	35.6	199,183
1929	159,052	53.8	136,494	46.2	295,546
1930	162,847	58.0	117,864	42.0	280,711
1931	202,221	66.0	104,391	34.0	306,612
1932	230,159	66.7	114,881	33.3	345,040
1933	238,145	62.8	141,204	37.2	379,349
1934	213,972	52.5	193,356	47.5	407,328
1935	223,714	55.5	179,087	44.5	402,801

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iii. Drills

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	185,039	32.4	385,657	67.6	570,696
1927	168,315	27.4	446,558	72.6	614,873
1928	167,587	31.0	373,069	69.0	540,656
1929	168,934	26.0	481,959	74.0	650,893
1930	156,897	28.3	397,964	71.7	554,861
1931	139,387	29.1	339,399	70.9	478,786
1932	163,153	25.4	477,961	74.6	641,114
1933	190,493	29.1	463,046	70.9	653,539
1934	171,841	21.8	617,488	78.2	789,329
1935	168,903	26.5	469,583	73.5	638,546

iv. Cloth

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	24,912	9.3	242,999	90.7	267,911
1927	25,478	10.7	213,405	89.3	238,883
1928	10,193	4.7	204,727	95.3	214,920
1929	13,439	7.2	173,702	92.8	187,141
1930	12,051	5.3	217,133	94.7	229,184
1931	8,973	4.7	183,061	95.3	192,034
1932	5,614	2.1	259,061	97.9	264,675
1933	5,323	1.8	290,195	98.2	295,518
1934	2,422	0.7	332,964	99.3	335,386
1935	3,411	1.1	316,641	98.9	320,052

v. Cotton Flannel

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	51,496	28.5	129,474	71.5	180,970
1927	51,215	25.8	147,374	74.2	198,589
1928	43,010	14.7	249,630	85.3	292,640
1929	41,380	18.5	182,577	81.5	223,957
1930	21,910	9.9	200,216	90.1	222,126
1931	18,592	10.0	166,815	90.0	185,407
1932	14,355	7.7	173,114	92.3	187,469
1933	13,411	6.9	181,377	93.1	194,788
1934	14,338	8.7	150,131	91.3	164,469
1935	12,194	6.8	165,861	93.2	178,055

vi. Cotton Crêpe

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	8,946	8.9	99,572	91.1	99,518
1927	12,984	15.1	72,735	84.9	85,719
1928	18,098	18.5	79,915	81.5	98,013
1929	10,632	11.7	79,950	88.3	90,582
1930	10,842	14.4	64,226	85.6	75,068
1931	12,469	13.9	77,149	86.1	89,618
1932	4,786	5.7	79,684	94.3	84,470
1933	4,243	4.7	85,745	95.3	89,988
1934	8,162	8.4	89,169	91.6	97,331
1935	6,432	8.8	66,322	91.2	72,754

vii. Cotton Satin

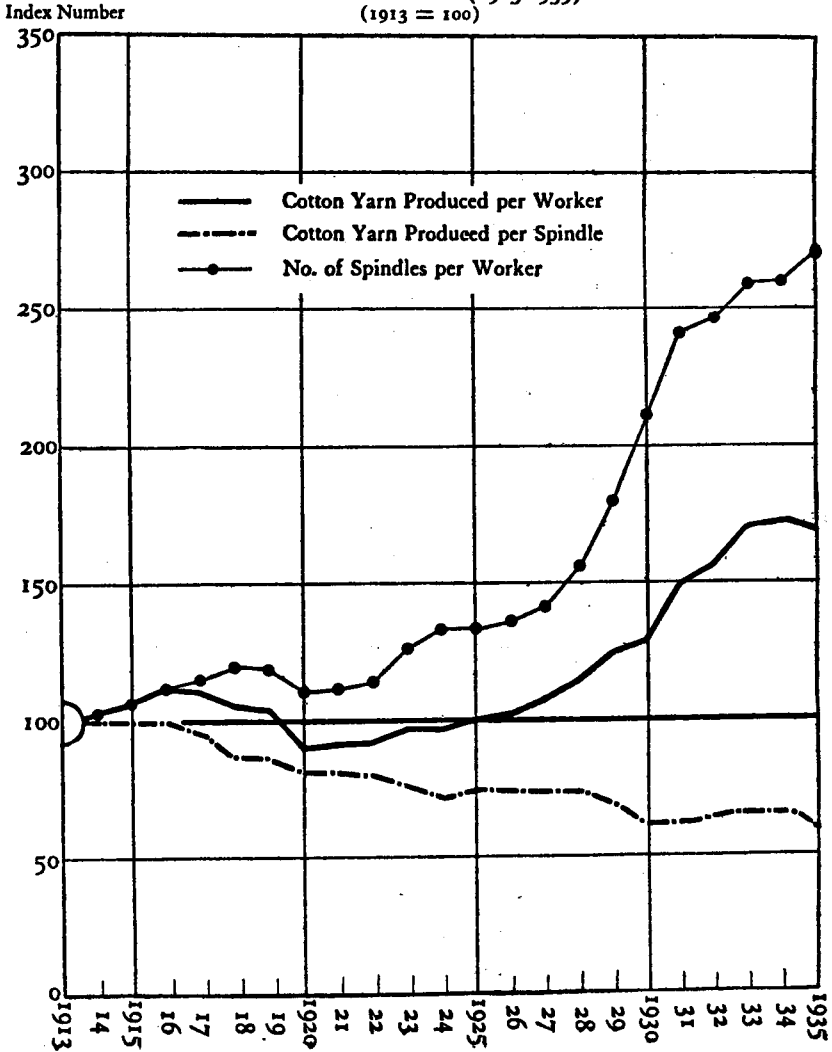
	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	45,493	28.1	116,173	71.9	161,666
1927	41,636	20.7	159,970	79.3	201,606
1928	67,265	25.7	194,469	74.3	261,734
1929	72,308	30.3	166,454	69.7	238,762
1930	52,521	34.4	100,202	65.6	152,723
1931	62,995	40.1	94,119	59.9	157,114
1932	38,780	21.4	142,168	78.6	180,948
1933	27,536	18.8	119,006	81.2	146,542
1934	36,241	25.5	106,060	74.5	142,301
1935	20,101	16.8	99,807	83.2	119,908

viii. *Kokuraori* (a kind of coarse cotton cloth)

	Spinning-Weaving Mills		Specialized Weaving Mills		Total Output Thousand sq. yds.
	Thousand sq. yds.	Percentage of total output	Thousand sq. yds.	Percentage of total output	
1926	85	0.2	50,670	99.8	50,755
1927	—	—	71,103	100.0	71,103
1928	513	1.0	51,959	99.0	52,472
1929	663	1.0	62,811	99.0	63,474
1930	520	0.8	67,549	99.2	68,069
1931	427	0.6	65,292	99.4	65,719
1932	412	0.6	68,903	99.4	69,315
1933	658	0.8	79,287	99.2	79,945
1934	563	0.6	99,501	99.4	100,064
1935	679	0.7	103,424	99.3	104,103

were shirtings and 238 million sq. yds. or 14.2 per cent were sheetings. These two items together constituted over 70 per cent of the total output. In the specialized textile mills, however, there was no such distinct tendency of concentrating on producing just one or two kinds

DIAGRAM 30. EFFICIENCY INDEX NUMBERS IN THE JAPANESE COTTON SPINNING INDUSTRY (1913-1935)
(1913 = 100)



of cotton cloth. The main items produced by these mills are drills and jeans, then come shirtings, T-cloths, cotton flannels, sheetings, cotton satin, imitation nankeens, cotton crêpes, and *kokuraori* in order of importance. But even the most important items, drills and jeans, did not amount to more than 20 per cent of their production in 1933, and the second most important item, shirtings, amounted to 10 per cent; the third, T-cloths to 13 per cent; the fourth, cotton flannel and imitation nankeens, each to 8 per cent; and even the least important article, *kokuraori*, amounted to 3.8 per cent or one-sixth of the drills and jeans output.

If we study the products of these two foregoing sets of mills by kinds (Table 21 and Diagram 28), *kokuraori*, T-cloths, crêpes, and flannels produced by the specialized weaving mills constitute over 90 per cent of the total output and cotton satin, drills and jeans produced by them 70-80 per cent. But in the case of shirtings and sheetings, the spinning-weaving mills produce 60-70 per cent and 70-80 per cent, respectively, of the total production (Table 21). The foregoing clearly indicates, therefore, that the scale of production in the weaving section of the manufacture of cotton textiles for export is made to vary according to the kinds of cloth woven, so that the advantages of both large- and small-scale production shall be secured as far as possible. This condition, together with the large-scale organization in the spinning section, adds much to the strength of the Japanese cotton industry in world competition.

5. THE LARGE SPINNING-WEAVING MILLS IN JAPAN AND THEIR BUSINESS CONDITIONS

It is necessary to study the spinning-weaving and the specialized textile mills separately in order to appreciate the real business conditions of the Japanese cotton industry, in view of the fact that the former class of mills are conducted on a tremendously large scale whereas the latter vary from fairly large factories down to very small shops, as we have already observed.

The first thing to be noted in connection with the business conditions of Japanese spinning-weaving mills is that their financial status is much better than in Lancashire. The British Balfour Committee pointed out that in England the mills had gone through

recapitalization and reconstruction, as the result of a great increase of loans and debentures, during the boom years immediately following the World War. These measures had two particular weaknesses, namely, the carrying of fixed interest payable irrespective of the business conditions of the industry, and the loans not being subject to reduction even when the industry was not prosperous. Hence they were a heavy drain on the industry, making the cost of production in England exceedingly high. But in Japan, as Table 22 and Diagram 29 show, debentures and loans of the spinning mills were somewhat increased during the War and immediately thereafter. Much greater increases were made in paid-up

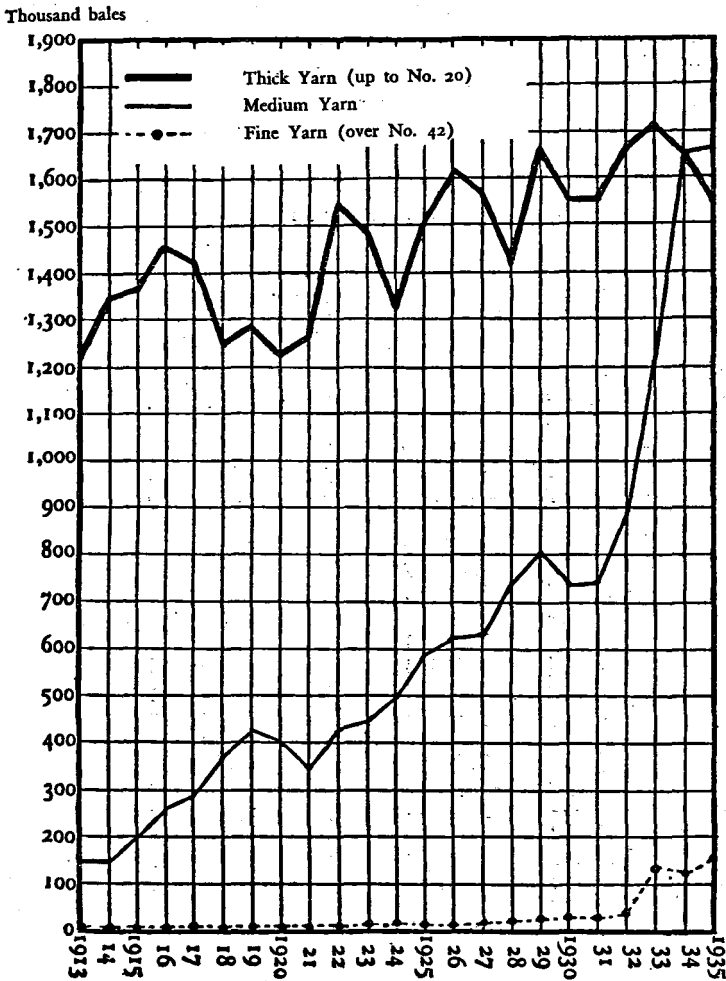
TABLE 22. CAPITAL COMPOSITION OF JAPANESE COTTON SPINNING-WEAVING COMPANIES (1914-1935)

	Paid-up Capital		Various Reserves Funds		Loans and Debentures		Total Capital
	Yen	Per-centage of total capital	Yen	Per-centage of total capital	Yen	Per-centage of total capital	Yen
1914	82,293,724	57.0	35,784,976	24.8	26,271,315	18.2	144,350,015
1915	83,784,177	58.0	37,808,350	26.2	22,891,830	15.8	144,484,357
1916	96,769,318	60.2	41,047,723	25.5	22,912,373	14.3	160,729,414
1917	111,595,520	55.4	62,180,127	30.9	27,529,412	13.7	201,305,059
1918	135,594,595	55.7	80,229,362	33.0	27,466,910	11.3	243,290,867
1919	162,358,695	52.7	119,998,660	39.0	25,716,055	8.3	308,073,410
1920	273,235,896	58.8	156,970,337	33.8	34,408,272	7.4	464,614,505
1921	294,848,358	60.0	173,673,536	35.4	22,663,210	4.6	491,185,104
1922	313,763,075	58.7	195,245,564	36.6	24,932,477	4.7	533,941,116
1923	319,087,485	56.6	207,892,489	37.0	35,894,399	6.4	562,874,373
1924	344,620,568	57.7	206,390,348	34.6	46,231,086	7.7	597,242,002
1925	349,104,817	54.9	218,827,179	34.4	67,615,990	10.7	635,547,986
1926	357,495,247	54.5	224,027,290	34.1	74,949,338	11.4	656,471,875
1927	349,109,272	53.1	230,898,398	35.2	76,976,218	11.7	656,983,888
1928	376,817,127	52.5	241,821,944	33.7	99,254,492	13.8	717,893,563
1929	386,815,222	50.7	252,733,506	33.1	123,799,662	16.2	763,348,390
1930	385,696,487	50.9	248,599,682	32.8	123,192,136	16.3	757,488,305
1931	378,555,292	51.9	236,281,770	32.4	114,769,272	15.7	729,606,334
1932	385,674,627	51.4	240,330,743	32.0	124,297,033	16.6	750,302,403
1933	391,898,752	51.3	247,974,830	32.4	124,933,859	16.3	764,807,441
1934	424,873,910	51.7	264,536,707	32.2	131,747,010	16.1	821,157,627
1935	444,931,833	52.0	274,346,494	32.0	136,793,448	16.0	856,071,775

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capital and various reserve funds. During 1914-1923, the total capital (including paid-up capital, reserve funds, debentures and loans) increased by ¥418 million, of which about ¥237 million or about 56.7 per cent was the paid-up capital, and about ¥172 million

DIAGRAM 31. OUTPUT OF COTTON YARNS IN JAPAN (1913-1935)



or some 41.1 per cent was comprised of various reserves. The percentage of debentures and loans was thus reduced from 18.2 per cent in 1914 to 6.4 per cent in 1923, while the reserve funds which require no payments of interest were increased from 24.8 per cent to 37 per cent during the corresponding period (Table 22).

The total amount of debentures and loans of the mills, however, has more than trebled from ¥ 36 million in 1923 to ¥ 124 million in 1929. During the same period out of ¥ 200 million that was necessary as fresh capital, 44 per cent or ¥ 88 million was supplied from the above sources, the balance being met, to the extent of ¥ 45 million, or 22 per cent, from various reserve funds, and to the

TABLE 23. DEPRECIATION OF FIXED CAPITAL OF JAPANESE COTTON SPINNING-WEAVING COMPANIES (1914-1935)

	Fixed Capital (2nd Half Year) Yen	Depreciation (2nd Half Year) Yen	Rate of Depre- ciation (2nd Half Year) Per cent	Fixed Capital Depreciated Since 1907 Yen	Percentage of Fixed Capital Depreciated
1914	113,107,937	1,514,319	1	28,199,615	25
1915	122,205,186	2,716,685	2	34,114,592	28
1916	110,772,558	11,058,099	0	49,127,679	44
1917	108,480,200	7,919,126	7	66,378,384	61
1918	123,031,465	8,977,888	7	84,834,449	69
1919	142,981,137	11,325,883	8	105,409,989	74
1920	187,263,695	7,051,738	4	123,267,064	66
1921	246,300,597	9,811,588	4	137,343,363	56
1922	296,050,070	6,402,167	2	151,850,542	51
1923	352,571,165	3,457,779	1	160,905,506	46
1924	390,985,136	6,812,683	2	173,335,512	44
1925	425,050,550	7,549,353	2	189,240,888	45
1926	466,676,305	4,412,144	1	199,212,966	43
1927	446,679,246	5,993,922	1	209,669,845	47
1928	507,732,724	9,126,418	2	225,420,017	44
1929	527,110,106	8,430,817	2	244,414,100	46
1930	565,719,755	3,302,708	1	251,425,523	44
1931	563,380,826	10,528,027	2	270,527,167	48
1932	570,068,668	15,409,262	3	298,017,857	52
1933	555,556,257	24,282,207	4	339,715,714	61
1934	571,490,727	24,358,437	4	384,399,202	67
1935	619,228,054	17,971,350	3	421,484,752	68

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extent of ¥67 million or 34 per cent, from capital paid up. As the result of these payments, therefore, while the reserve funds fell from 37 per cent to 33.1 per cent and the amount of paid-up capital from 56.6 per cent to 50.7 per cent, the amount of the debentures and loans rose from 6.4 per cent to 16.2 per cent, making the financial situation of the spinning-weaving mills practically the same as it was before the War. Yet this difference is to be noted, that although the amount of the paid-up capital fell from about 60 per cent to 50 per cent, the reserve funds rose from 20 per cent to over 30 per cent. Hence, financially, the mills were better off after the War than before, since the amount of capital requiring interest or dividends was decreased while various reserve funds requiring neither interest nor dividends were increased.

The second point to be noted is that the large-scale spinning-weaving mills have a good percentage of their fixed capital already depreciated. As Table 23 shows, by the end of the World War over 60 per cent of the fixed capital had been depreciated. This percentage dropped to slightly over 40 per cent during the period 1922-1930, but this drop was due solely to the fact that a large amount of fresh capital had been invested in the form of fixed capital during this period. Whereas the total amount of fixed capital in 1919 was ¥143 million, it had increased 2.5 times to ¥353 million, by 1923, had trebled by 1925 to ¥425 million, and by 1931 had increased four-fold to ¥563 million. But from 1932 on, in spite of this tremendous increase of fixed capital the proportion of depreciated fixed capital had risen again to over 60 per cent, two-thirds of the total fixed capital having thus already been depreciated. Of course, the cost of production cannot be lowered while the industry has to continue to pay back annually part of such tremendous sums of fixed capital. It had been depreciating semi-annually 1-2 per cent of the fixed capital during the period 1923-1931, but after the gold embargo was put into effect in 1931, this was increased to about 3-4 per cent in 1932-1935. As this payment could, however, be suspended if necessary, in the event of severe competition, the cost of production could be reduced to the extent of the amount of interest due on 60 per cent of the fixed capital.

So far we have dealt with the financial advantages enjoyed by the Japanese mills. We now direct our attention to the third point to be noted: the remarkable improvement made in productive

efficiency in the spinning-weaving mills. If we take the amount of output of yarn per worker, there was, as Diagram 30 shows, no marked difference between the pre-war year, 1913, and 1928, but since 1929 (Table 24) it has risen very sharply. During these recent years it has gained about 70 per cent in efficiency as compared with 1926. And when the replacement of thick yarn by the medium yarn is taken into consideration (Diagram 31), the increase of efficiency in recent years becomes all the more significant. This

TABLE 24. INCREASE OF EFFICIENCY IN THE JAPANESE COTTON SPINNING INDUSTRY (1926-1935)

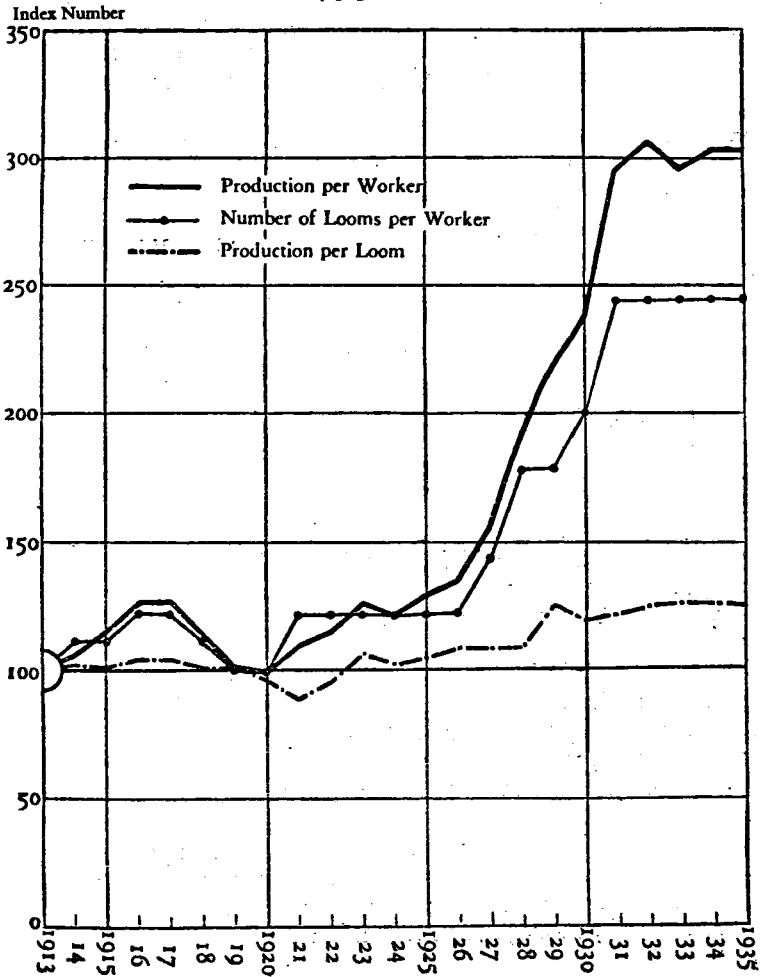
	Spindles in Operation (average)	Output of Yarn (bales)	Workers	Spindles per Worker	Cotton Yarn Produced per Spindle (bales)	Cotton Yarn Produced per Worker (bales)	Spindles per Worker (index)	Cotton Yarn Produced per Spindle (index)	Cotton Yarn Produced per Worker (index)
1926	5,002,932	2,607,747	182,522	27.4	0.52	14.29	100	100	100
1927	4,831,429	2,530,693	170,146	28.4	0.52	14.87	104	100	104
1928	4,843,590	2,451,862	154,052	31.4	0.51	15.92	115	98	111
1929	5,784,069	2,792,586	159,672	36.2	0.48	17.49	132	92	122
1930	5,897,894	2,524,699	139,183	42.4	0.43	18.14	155	83	127
1931	5,904,343	2,567,134	121,669	48.5	0.43	21.10	177	83	148
1932	6,307,884	2,810,437	126,805	49.7	0.45	22.16	181	87	155
1933	6,737,621	3,099,856	129,424	52.1	0.46	23.95	190	88	168
1934	7,497,242	3,472,443	141,408	53.0	0.46	24.56	193	88	172
1935	8,222,277	3,560,833	149,853	54.9	0.43	23.76	200	83	166

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increased efficiency in the spinning mills, however, is not due to increased productivity per spindle. The output per spindle since 1930 has fallen 30-40 per cent below that of the pre-war period. Up till about 1927 this declining tendency was barely covered by the gradual increase in the number of spindles per worker. Since 1928, however, this number of spindles per worker has risen very rapidly, and in 1935 it was already about 2.6 times that of the pre-war days, and as much as twice that of 1926. Therefore, it is quite evident that the increased efficiency of the cotton spinning mills in recent years is due to an increased number of spindles per worker, and not to a quicker revolution of the spindles.

But it must not be concluded too hastily that the workers are strained excessively. Of course, better adjustment in temperature and humidity in the mills and the presence of workers of higher

DIAGRAM 32. EFFICIENCY INDEX NUMBERS IN WEAVING SECTION OF SPINNING-WEAVING MILLS IN JAPAN (1913-1935) (1913 = 100)



standard in these years have played important roles. But the most important factor in the increase of efficiency is the reorganization of the process of production, accompanied by improvements of mechanical apparatus. There are the processes of bale opening, mixing, beating, slubbing, intermediate roving, roving, spinning, and finishing involved in the spinning of cotton yarn. The first two processes had been operated in conjunction with each other from early days, but to-day beating, too, is done in connection with these two processes, resulting in the elimination of the mid-beating.

TABLE 25. NUMBER OF WORKERS EMPLOYED IN DIFFERENT PROCESSES IN THE JAPANESE SPINNING INDUSTRY (10TH OCTOBER, 1927, 1930 AND 1933)

	1927			1930			1933		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Mixing, beating, slubbing and roving	10,880	34,017	44,897	8,179	23,327	31,506	5,933	25,461	31,394
Spinning	3,899	57,602	61,501	4,297	57,204	61,501	2,701	58,889	61,590
Baling, transportation, etc.	22,814	2,650	25,464	13,782	1,588	15,370	11,174	3,973	15,147

Based on *Survey of Labour Statistics*.

Also as a result of introducing drafting apparatus both in the processes of slubbing and intermediate roving as well as the use of the high draft spinner, the process of roving has been completely eliminated. Thus the sliver, which has passed through the processes of slubbing and intermediate roving, is fed into the spinning frame direct. It is difficult to ascertain the extent of this elimination of processes carried on in the Japanese spinning mills. But, comparing figures shown by the *Report of the Survey of Labour Statistics* for 1927 and 1930, we find that, while in both years not only was the amount of yarn produced the same (2,530,000 bales) but also the number of workers employed in spinning (61,501 workers); the number of workers in the processes of mixing, beating and slubbing was reduced from 44,897 to 31,506, or by about 30 per cent; workers in the twisting and finishing processes were reduced from 53,618 to 26,457, or by about 50 per cent; and in the other branches such as

TABLE 26. INCREASE OF EFFICIENCY IN THE WEAVING SECTION OF
SPINNING-WEAVING MILLS IN JAPAN (1926-1935)

	Looms in Operation (average)	Cotton Cloth Produced (thousand yds.)	Cotton Yarn Consumed (thousand lbs.)	Workers (average)	Cotton Cloth Produced per Loom		Looms per Worker		Cotton Cloth Produced per Worker		Cotton Yarn Consumed per Worker	
					(thousand yds.)	(index)	(looms)	(index)	(thousand yds.)	(index)	(thousand lbs.)	(index)
1926	65,699	1,277,727	294,335	57,393	19.45	100	1.1	100	22.26	100	5.13	100
1927	66,733	1,294,669	293,167	50,527	19.40	100	1.3	118	25.62	115	5.80	113
1928	70,606	1,382,034	303,008	43,705	19.57	101	1.6	145	31.62	142	6.93	135
1929	68,640	1,538,249	336,276	42,692	22.41	115	1.6	145	36.03	162	7.88	154
1930	65,169	1,388,423	296,592	35,352	21.30	110	1.8	164	39.27	177	8.39	164
1931	64,392	1,404,668	301,232	28,836	21.81	112	2.2	200	48.71	219	10.45	204
1932	68,028	1,532,851	325,908	30,394	22.53	116	2.2	200	50.43	227	10.72	209
1933	73,967	1,673,881	362,301	34,309	22.63	116	2.2	200	48.79	219	10.56	206
1934	79,630	1,793,845	384,958	35,953	22.53	116	2.2	200	49.89	224	10.71	209
1935	82,397	1,843,471	392,640	37,188	22.37	115	2.2	200	49.57	223	10.56	206

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TABLE 27. TYPES OF CAPITAL INVESTED IN THE STRIPED TISSUES
(Shima-Mitsuaya) TEXTILE MILLS OF JAPAN (1932)

	Establishments	Own Capital		Loans		Total
		Yen	Percentage of total capital	Yen	Percentage of total capital	Yen
Under ¥ 500	1	300	5.4	5,300	94.6	5,600
¥ 500- 999	1	550	100.0	—	0.0	550
¥ 1,000- 1,999	6	8,200	54.7	6,800	45.3	15,000
¥ 2,000- 2,999	15	32,545	61.9	20,017	38.1	52,562
¥ 3,000- 4,999	57	210,970	75.4	68,900	24.6	279,870
¥ 5,000- 9,999	96	623,330	75.7	200,260	24.3	823,590
¥ 10,000- 29,999	113	1,677,848	78.1	469,138	21.9	2,146,986
¥ 30,000- 49,999	31	1,100,146	76.0	347,875	24.0	1,448,021
¥ 50,000-100,000	22	1,365,223	73.9	483,107	26.1	1,848,330
Over ¥ 100,000	7	2,751,140	64.6	1,510,026	35.4	4,261,166
Total	349	7,770,252	71.4	3,111,423	28.6	10,881,675

Ministry of Commerce and Industry, *Survey of the Business Conditions of Industry*, Vol. II, 1933.

TABLE 28. COMPARISON OF COTTON CLOTH PRODUCED PER LOOM IN THE
SPINNING-WEAVING MILLS AND IN SPECIALIZED WEAVING
MILLS IN JAPAN (1926-1936)

	Spinning-Weaving Mills				Specialized Weaving Mills			
	Broad Cotton Cloth Thousand sq. yds.	Looms ¹ for Broad Cotton Cloth	Cotton Cloth Produced per Loom Thousand sq. yds.	Index	Broad Cotton Cloth Thousand sq. yds.	Looms ¹ for Broad Cotton Cloth	Cotton Cloth Produced per Loom Thousand sq. yds.	Index
1926	1,277,727	77,043	16.6	100	1,140,369	68,782	16.6	100
1927	1,294,669	78,352	16.5	99.3	1,261,932	76,557	16.5	99.3
1928	1,382,034	81,209	17.0	102.4	1,304,078	80,624	16.2	97.5
1929	1,538,249	77,898	19.7	118.6	1,425,098	92,651	16.4	92.7
1930	1,388,423	79,466	17.5	105.4	1,358,795	93,607	14.5	87.3
1931	1,404,668	77,782	18.1	109.0	1,248,333	94,429	13.2	79.5
1932	1,532,851	79,277	19.3	116.2	1,745,993	117,381	14.9	89.7
1933	1,673,881	86,343	19.4	116.8	2,204,963	133,967	16.5	99.3
1934	1,793,845	91,146	19.6	118.0	2,317,469	150,094	15.4	92.7
1935	1,843,471	95,982	19.2	115.6	2,291,662	156,697	14.6	87.9
1936	1,802,401	95,079	18.9	113.8	—	—	—	—

¹ Number of looms for narrow cloth was converted into terms of broad looms at the rate of 2.5 looms for narrow goods = 1 loom for broadcloth goods.
Author's Estimate.

baling, transportation, and the like from 25,464 to 15,370, representing a reduction of about 40 per cent. It is evident therefore that during these years, improvement of productive efficiency was made mainly in the processes other than spinning.

The increase of efficiency in weaving is even greater than in spinning. Diagram 32 shows that up till about 1925 there was practically no gain over what it was during the period of the War, in so far as output per worker in the weaving section of the spinning-weaving mills was concerned. But in the course of the next six years, 1926-1931 (Table 26), it increased 2.2 times, the rate of improvement being much higher than in the spinning process. But here again, there is not much gain in efficiency per loom. During the years 1926-1929 an increase of only about 15 per cent was attained in this respect, there being no progress since then. The improvement of productive efficiency in the weaving process should be attributed in a greater degree to the increased number of looms per worker. Whereas in 1926 the number of looms per worker was 1.1, only five years later in 1931 it had exactly doubled to 2.2, there having been no increase since then. It is interesting here to note that this increase was due to the wider use of automatic looms. According to the report of the International Federation of Cotton Spinners' and Manufacturers' Associations, the Japanese spinning-weaving mills operated 65,169 looms in 1930, of which 15,000 or 23 per cent were automatic, and in 1933, out of 73,697 looms, 21,000 or about 30 per cent were automatic. This figure shows that with the exception of the United States, where 68.41 per cent of the total looms were automatic, Japan stands at the head of the percentage list as compared with 22.87 per cent for Italy, 13.82 per cent for France, 7.24 per cent for Germany, and 2.38 per cent for Great Britain.

6. THE SMALLER COTTON TEXTILE MILLS IN JAPAN AND THEIR BUSINESS CONDITIONS

We have just seen the conditions prevailing in the large-scale spinning-weaving mills which produce over one-half of the cotton textiles for exportation. For the specialized textile mills, to which we now turn, there are no accurate data available to show their actual conditions. It is generally believed, however, that in many respects, they cannot stand comparison even with the large spinning-weaving mills which we have just examined.

TABLE 29. COMPARISON OF NUMBER OF LOOMS PER WORKER IN THE SPINNING-WEAVING MILLS AND IN THE SPECIALIZED WEAVING MILLS IN JAPAN (1926-1935)

	Specialized Mills with 10-49 Looms				Specialized Mills with 50 Looms and over				Spinning-Weaving Mills			
	Looms ¹	Workers	Looms per Worker		Looms	Workers	Looms per Worker		Looms	Workers	Looms per Worker	
			Looms	Index			Looms	Index			Looms	Index
1926	49,190	47,374	1.04	100	67,332	80,315	0.84	100	69,191	56,577	1.22	100
1927	50,846	47,869	1.06	102	73,601	84,670	0.87	104	70,091	47,347	1.48	121
1928	49,581	44,697	1.10	106	75,081	84,473	0.89	106	74,876	43,907	1.71	140
1929	50,792	39,873	1.27	122	84,703	80,395	1.05	125	71,561	41,915	1.71	140
1930	50,015	37,439	1.34	129	83,323	69,794	1.19	142	73,806	30,710	2.40	197
1931	50,718	36,298	1.40	135	80,822	62,576	1.29	154	72,142	28,636	2.52	207
1932	53,909	37,883	1.42	137	96,026	70,792	1.36	162	75,629	31,568	2.40	197
1933	60,283	41,336	1.46	140	104,081	74,472	1.40	167	82,725	34,177	2.42	198
1934	60,854	41,581	1.46	140	119,016	84,080	1.42	169	86,071	36,381	2.37	194
1935	64,961	43,143	1.51	145	123,166	89,216	1.38	164	88,029	36,517	2.41	198

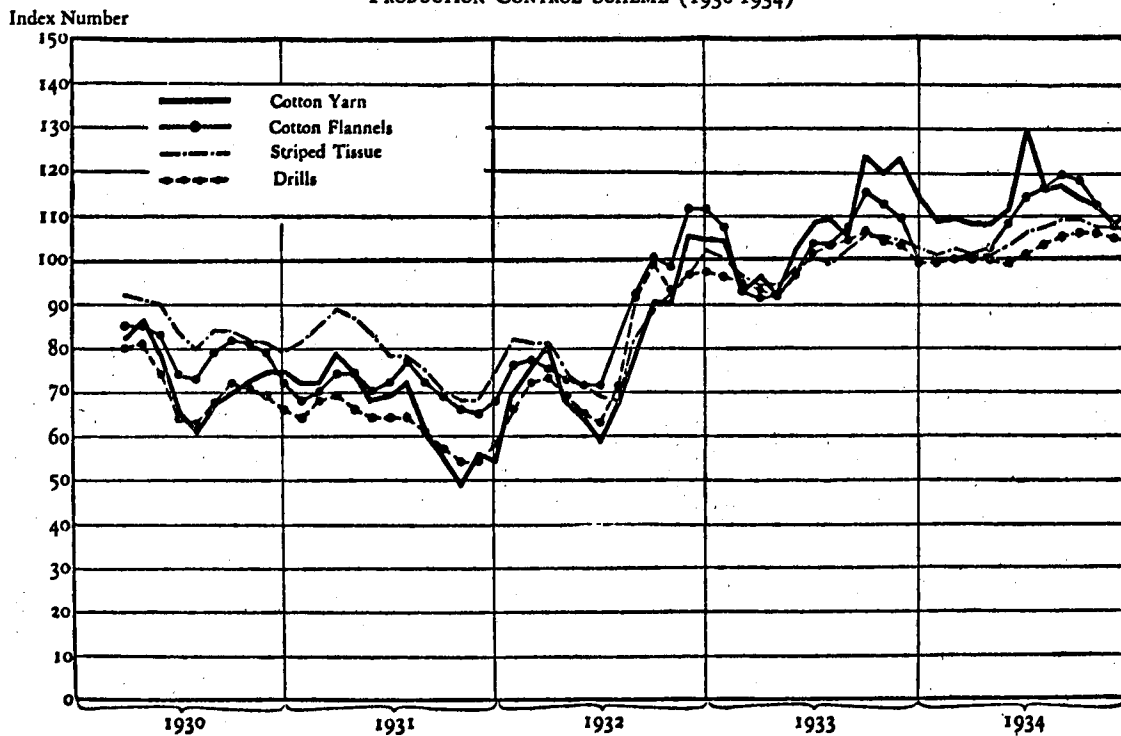
¹ Number of looms for narrow cloth was converted into terms of broad looms at the rate of 2.5 looms for narrow cloth = 1 loom for broadcloth.

Author's Estimate.

In 1932, the Ministry of Commerce and Industry made a study of 349 textile mills producing striped drills (*Shima-Mitsuaya*), the most representative type of the smaller cotton textile mills in Japan. Of the capital of these mills, 71.4 per cent was furnished by themselves and 28.6 per cent was raised by means of loans. These loans were much larger in proportion than those of the spinning-weaving mills for the corresponding year, which were less than 17 per cent. The financial conditions of the smallest specialized mills in particular, and also of the comparatively larger mills, were even worse; 35 to 45 per cent of the capital of the 21 smallest mills, each with a capital of less than ¥ 3,000, and also of the seven largest mills, each with a capital of over ¥ 100,000 was loan capital. But 319 mills, or 90 per cent of the total number of the establishments studied, had each a capital of ¥ 3,000—¥ 100,000. The loans of these mills averaged 22.26 per cent of the total capital employed. 150 mills, or 43 per cent of the total, were running on their own capital without carrying any loans, and 156 mills had loans of less than 20 per cent, which was almost the same as the ratio in the large spinning-weaving mills. It may be said, therefore, that though these smaller textile mills did not measure up to the standard of the large-scale spinning-weaving mills in this respect, they were not so badly off as they might have been (Table 27).

The aspect wherein these specialized mills do fall behind the largest ones is in the matter of efficiency. According to the calculations of the present authors (Table 28), the production per loom in 1926 was the same both for the largest spinning-weaving mills and these smaller textile factories, the figure being 16.6 sq. yards. But from then on a gap occurred and began to widen steadily. The former increased their efficiency yearly till in 1934 it had reached 19.6 sq. yds. per loom representing a gain of 18 per cent, while the latter did not improve their efficiency at all, but on the contrary let it decrease to 13.2 sq. yds. per loom in 1931, and only regained the 1926 level in 1933. When we compare the number of looms per worker (Table 29) in the large spinning-weaving mills and in the specialized textile mills, we find that in the large mills the number just doubled during the period 1926-1931, but it did not increase much more than 50 per cent in those specialized mills having a capacity of 50 looms and over, or 35 per cent in those specialized mills with a capacity of 10-49 looms.

DIAGRAM 33. INDEX NUMBERS OF PRICES OF JAPANESE COTTON TISSUES UNDER PRODUCTION CONTROL SCHEME (1930-1934)

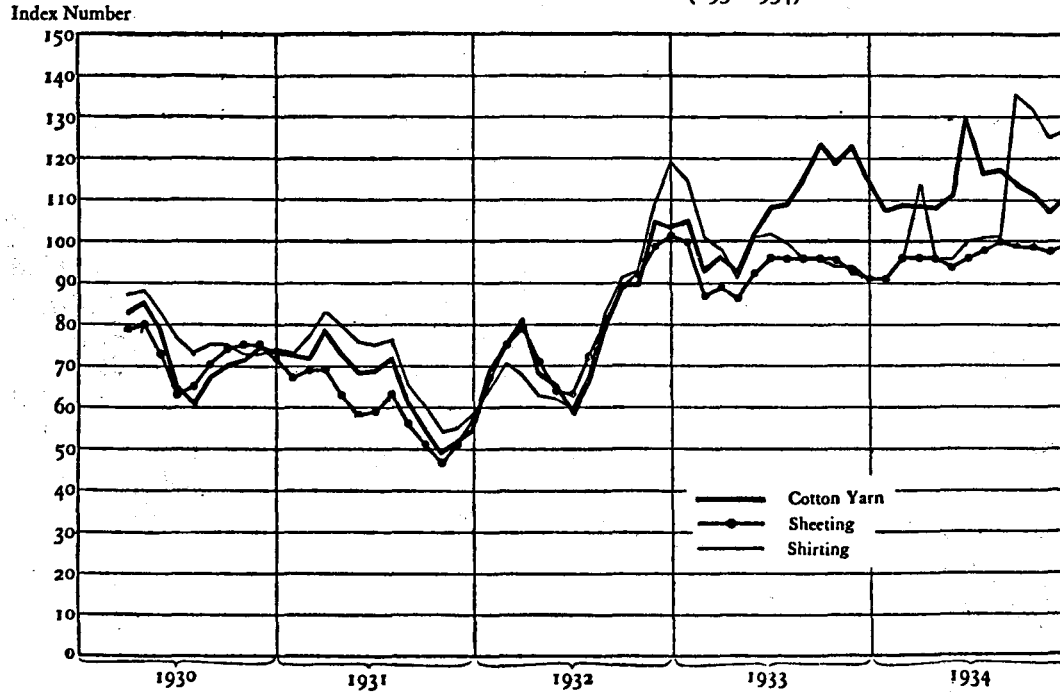


The difference between the large spinning-weaving mills and the specialized textile factories in both the per loom and per worker efficiencies is obviously due to the difference in the degree of improvements made on their respective equipments. While the former have installed many automatic looms, the latter, from the personal observations of the present writers, are using hardly any. This statement is borne out by an investigation made on 1st April, 1933, by the Sennan Textile Mills Association in Osaka Prefecture. In this district are located 347 medium- and small-scale specialized textile mills which are producing mainly cotton cloth for exportation. The types of looms used in these mills are many, including those of the Harada, Kitano, Sakaguchi, Furuhashi, Hamada, Toyoda, Iwama, Matsui, Sakai, Matsushima, Hashimoto, Kaneda, and Nakamura makes. And all of these are power-looms made of iron in whole or in part, but there is only one automatic loom out of the total of 17,485 power-looms in all these mills. The greatest difficulty in increasing productive efficiency with such looms is that if each worker is assigned to tend more looms, there is the danger of lowering the efficiency of each loom, resulting in a deterioration in the quality of the products turned out.

The third weakness of these small mills is the common defect concomitant with any small-scale enterprise, *i.e.* in the matter of financing their enterprises. They are not only inconvenienced in getting the necessary credit but even when they do manage to get credit, it is usually upon disadvantageous terms. There are also disadvantages connected with the purchasing of materials as well as in the selling of their products because of the limited extent of transactions. But part of this defect can be overcome through organizations of the mill owners. In 1925, the Manufacturers' Association (*Kogyo Kumiai*) Act was passed and at the end of 1936 there were 57 associations formed by the cotton mill owners with a total membership of 5,122, this figure including almost all of the small weaving mills producing export goods. These associations formed a national federation, named the Nippon Union of Cotton Textile Manufacturers' Association (*Menkoren*).

The main object of this Manufacturers' Association Act is to enable small industrial manufacturers to remedy or remove any defect in their business management through actions of their own voluntary organization. Roughly speaking, the law deals with two

DIAGRAM 34. INDEX NUMBERS OF PRICES OF JAPANESE COTTON TISSUES NOT UNDER PRODUCTION CONTROL SCHEME (1930-1934)



kinds of activity. The first deals with the exercise of power of control, as in the case of cartels, where the volume of production may be limited, prices fixed, and markets divided among their members. The second deals with provisions concerning the setting up of necessary facilities and means for finance, for joint purchases and sales, and for manufacturing as permitted in the case of co-operative societies. As to the latter type of activity, some of the mill owners' associations are already engaged in warping, sizing, finishing, baling, transporting, storing, acting as middlemen for sales, and for joint purchase of dyes, cotton yarn, starch, coal, and other materials. They are also financing their members, running their own textile laboratories, as well as preparing workers' meals in common kitchens. Of course, every association does not carry on all of these activities; what is to be done by each is decided by each association in accordance with its own requirements. Take,

TABLE 30. PRICES AND WEAVING COSTS IN YEN OF CONTROLLED COTTON CLOTH IN JAPAN (1930-1934)

Average of the Month	Striped Drills		Cotton Crêpes		Cotton Flannels		Cotton Salong	
	Price	Cost	Price	Cost	Price	Cost	Price	Cost
1930 Nov.	2.75	0.65	Control began		Control began		Control began	
Dec.	2.67	0.62	in April, 1931		in June, 1931		in April, 1934	
1931 Mar.	2.79	0.53						
June	2.42	0.40	1.66	0.54	4.40	0.52	—	—
Sept.	2.11	0.48	1.43	0.55	3.80	0.76	—	—
Dec.	2.13	0.39	1.30	0.42	3.78	0.35	—	—
1932 Mar.	2.82	0.59	1.72	0.61	4.57	0.23	—	—
June	2.46	0.67	1.44	0.55	3.91	0.55	—	—
Sept.	3.46	0.78	2.00	0.66	6.10	0.72	—	—
Dec.	3.73	0.67	2.44	0.76	6.96	0.88	—	—
1933 Mar.	3.24	0.44	2.12	0.65	5.63	0.24	—	—
June	3.23	0.23	2.19	0.58	6.48	0.14	—	—
Sept.	3.43	0.24	2.25	0.47	7.54	0.55	—	—
Dec.	3.35	0.49	2.07	0.44	6.14	0.00	—	—
1934 Mar.	3.52	0.61	2.16	0.55	6.31	0.37	—	—
June	3.73	0.49	2.32	0.50	7.50	0.79	1.56	0.41
Sept.	3.52	0.38	2.11	0.37	7.43	1.14	1.54	0.39
Dec.	3.53	0.45	2.11	0.40	6.55	0.50	1.51	0.37

Annual Business Report of the Nippon Union of Cotton Textile Manufacturers' Associations.

THE SMALL INDUSTRIES OF JAPAN

DIAGRAM 35. FLUCTUATIONS OF WEAVING COST AND PRICE OF COTTON FLANNELS (1931-1934)

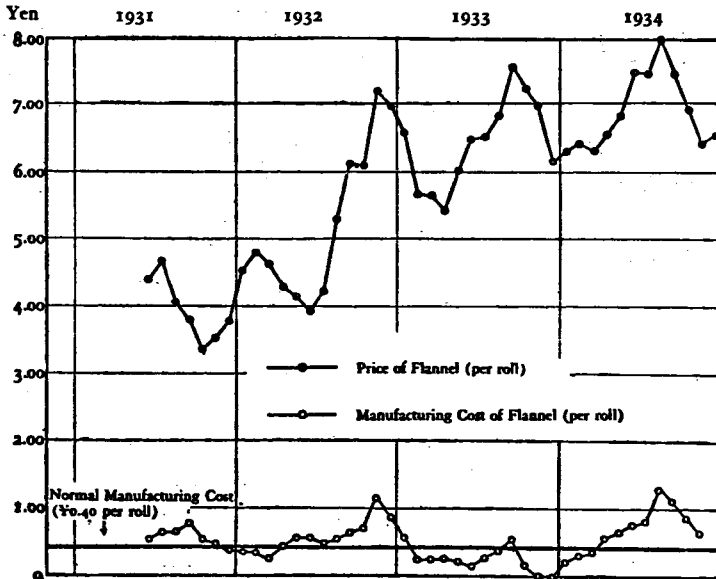


DIAGRAM 36. FLUCTUATIONS OF WEAVING COST AND PRICE OF COTTON CRÊPES (1931-1934)

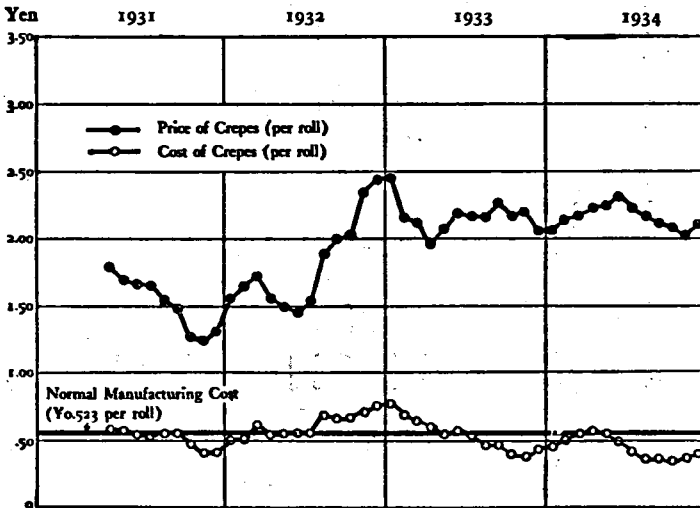
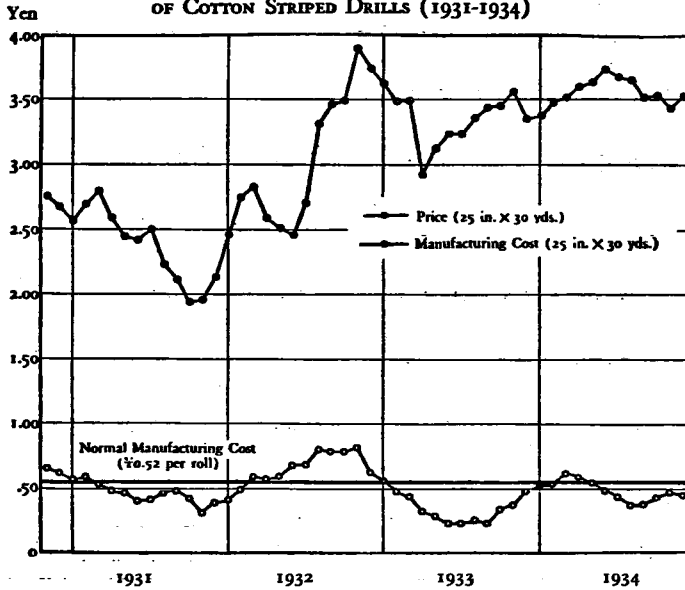


DIAGRAM 37. FLUCTUATIONS OF WEAVING COST AND PRICE OF COTTON STRIPED DRILLS (1931-1934)



for an example, the case of the Sennan Striped Textile Manufacturers' Association. This is the oldest manufacturers' association in Japan with a membership of 87 manufacturers. It has two workshops where warping, sizing, dyeing, bleaching, calendering, folding, and baling are done. In addition it has seven motor lorries for distributing materials to the mills and for hauling the manufactured products from the factories. There is another cotton manufacturers' association, named the Banshu Cotton Textile Manufacturers' Association, with 248 members in and around the city of Nishiwaki, Hyogo Prefecture, which is another manufacturing centre for export cotton textile goods in Japan. This organization has a workshop of about 11,000 sq. ft. on a piece of land of about 21,000 sq. ft., where finishing processes like calendering, sharing, drying, folding, stamping, closing, and baling are carried out. It also undertakes joint purchases of materials including cotton yarn, dyes and starch, joint sales of their products, and transportation of goods, and even maintains a joint dormitory for workers.

As to another type of activity pertaining to the control of industry, restrictions have been effected on the output of six kinds of articles, namely on striped drills, crêpes, flannels, cotton salong, towels, and narrow printed cloth, and no doubt this restriction was a considerable factor in maintaining prices. As Diagrams 33 and 34 show, the prices of controlled articles like striped cloth and flannels have risen considerably, especially since 1933, as compared with uncontrolled articles like shirtings and sheetings. But it was in the last half of 1932 and the first half of 1933 that the textile mill owners realized the advantages of control (Diagrams 35, 36, 37 and Table 30). It can hardly be said, therefore, that much benefit was derived from weaving controlled cotton tissues. Rather should it be said that the control of production merely prevented a sudden slump in prices.

7. CHARACTERISTICS OF LABOUR IN THE JAPANESE COTTON INDUSTRY

We have already seen that the rapid progress made in the export of Japanese cotton textiles since 1932 is due not only to the de-

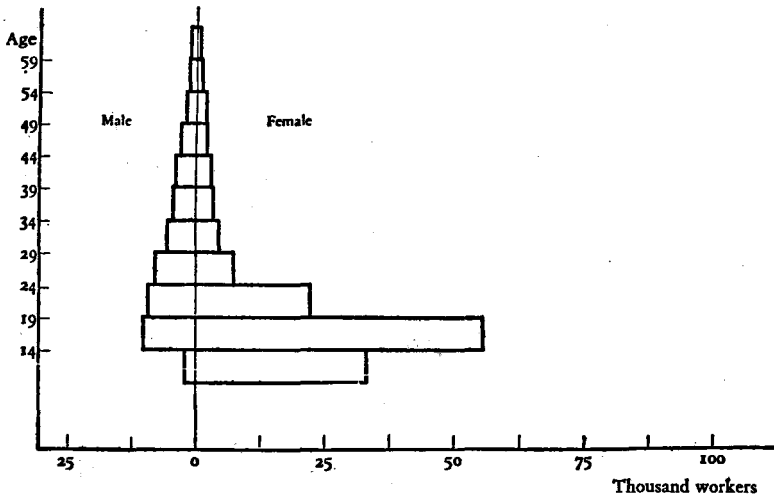
TABLE 31. AGE COMPOSITION OF WORKERS IN THE COTTON SPINNING AND WEAVING INDUSTRIES OF JAPAN (1ST OCTOBER, 1920)

Age Group Years	Spinning Industry				Weaving Industry			
	Number		Percentage of total of males and females		Number		Percentage of total of males and females	
	Males	Females	Males	Females	Males	Females	Males	Females
0-14	2,234	33,806	1.21	18.27	8,437	54,536	1.78	11.51
15-19	10,013	55,741	5.41	30.11	22,872	118,622	4.83	25.03
20-24	9,237	22,276	4.99	12.03	17,960	62,811	3.79	13.26
25-29	7,962	7,111	4.30	3.84	15,871	30,582	3.35	6.45
30-34	5,937	4,131	3.21	2.23	12,603	22,106	2.66	4.67
35-39	4,470	3,360	2.41	1.82	10,997	19,959	2.30	4.21
40-44	3,838	2,623	2.07	1.42	9,344	17,330	1.97	3.66
45-49	3,072	1,955	1.66	1.06	6,481	11,599	1.37	2.45
50-54	2,139	1,285	1.16	0.69	4,589	8,067	0.97	1.70
55-59	1,282	743	0.69	0.40	2,992	5,266	0.63	1.11
60 and over	1,250	629	0.68	0.34	3,634	7,242	0.77	1.53
Total	51,434	133,660	27.79	72.21	115,680	358,120	24.42	75.58
Total of Males and Females	185,094				473,800			

Survey of Labour Statistics, 1920.

preciated yen, but also to the fact that manufacturing costs were prevented from rising because of remarkable improvements made in the management of the mills. But to these must also be added another important factor, namely, special labour conditions in the Japanese cotton industry.

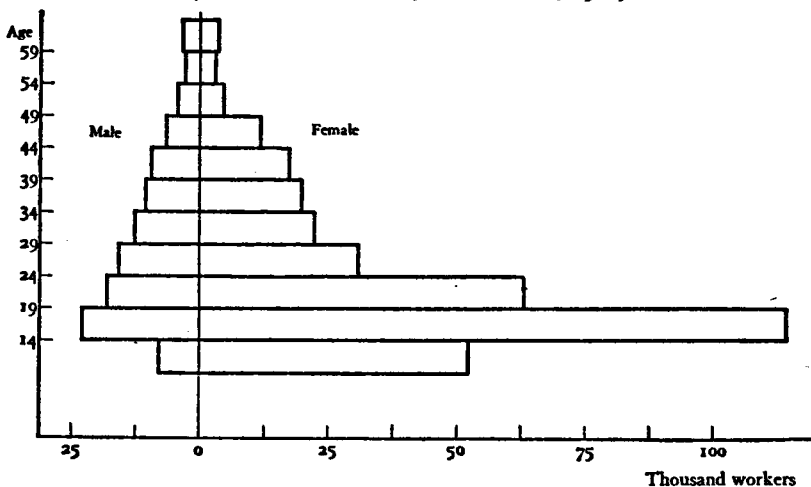
DIAGRAM 38. AGE COMPOSITION OF WORKERS IN COTTON SPINNING MILLS (GOVERNMENT CENSUS, 1ST OCTOBER, 1920)



The labour element in Japanese textile industries has some quite distinctive features. The first point to be noted in this respect is the fact that the majority of the workers are young girls. Taking, first, the cotton spinning industry, the national census of 1920 shows that out of some 185,094 persons engaged in the cotton spinning industry, there were only 51,434 male employees or less than 28 per cent. The remaining 133,660 or over 72 per cent were female employees, and over 60 per cent of the total employees were female operatives of 24 years of age and under (Table 31 and Diagram 38). Still more striking is the fact that over 30 per cent of the total persons engaged were females between the ages of 15 and 19 years. As for cotton weaving mills, out of 473,800 persons engaged,

some 115,680 or about 24 per cent were men, leaving almost 76 per cent for female workers. Girls under 25 years of age comprised about 50 per cent of the total workers, and those between 15 and 19 years comprised 25 per cent of the total persons engaged (Diagram 39 and Table 31).

DIAGRAM 39. AGE COMPOSITION OF COTTON WEAVING WORKERS
(GOVERNMENT CENSUS, 1ST OCTOBER, 1920)



We find that conditions were practically the same 13 years later, as shown by the *Survey of Labour Statistics* for 1933 (Table 32). Out of the total number of 161,973 workers engaged in cotton spinning-weaving mills in 1933, 24,494 or 15.12 per cent were men, while 137,479 or 84.88 per cent were women workers. Girls of 19 years of age and under numbered 99,105 or 61.18 per cent of the total number of the operatives, and those between 20 and 24 years numbered 25,185 or 15.55 per cent of the total, these two age groups of female workers combined constituting 76.73 per cent of the total workers in the cotton spinning mills. In other words, slightly more than three-quarters of the total number of workers employed were composed of girls under 25 years of age. Speaking of cotton spinning female workers alone, those under 25 years constituted over 90 per cent, and those under 20 years constituted 72 per cent of the

total number. With regard to the specialized cotton textile mills, this same census covered only those which employed over 30 workers. Subject to this limitation, out of 62,223 workers engaged in these mills in 1933, 50,803 or 81.65 per cent were female workers, leaving only 11,420 or 18.35 per cent for male workers. Girls under 25 years of age numbered 41,332, which was equivalent to 81 per cent of all the women employed, or to two-thirds of the total number of workers male and female combined; while girls under 20 years alone numbered some 31,249, constituting 61.51 per cent of all the female workers or 13.93 per cent or slightly over one-eighth of the aggregate number of cotton textile workers (Table 32).

This characteristic of labour is not peculiar to the cotton industry alone in Japan, but is a common phenomenon in other textile industries such as silk, rayon, woollen, linen, hosiery, and knitted goods. According to the *Survey of Labour Statistics* for 1933,

TABLE 32. AGE COMPOSITION OF WORKERS IN THE COTTON SPINNING-WEAVING MILLS AND SPECIALIZED WEAVING MILLS OF JAPAN (10TH OCTOBER, 1933)

Age Group Years	Spinning-Weaving Mills				Specialized Weaving Mills			
	Number		Percentage of total of males plus females		Number		Percentage of total of males plus females	
	Males	Females	Males	Females	Males	Females	Males	Females
12-13	48	13,709	0.03	8.46	182	5,573	0.29	8.96
14-15	366	29,708	0.23	18.34	677	9,238	1.09	14.85
16-19	2,633	55,688	1.63	34.38	2,115	16,438	3.40	26.42
20-24	4,817	25,185	2.97	15.55	2,374	10,083	3.82	16.21
25-29	5,753	6,061	3.55	3.74	2,061	3,702	3.31	5.95
30-34	5,156	2,991	3.18	1.85	1,700	2,149	2.73	3.45
35-39	3,056	1,781	1.89	1.10	1,017	1,395	1.63	2.24
40-44	1,578	1,069	0.97	0.66	602	823	0.97	1.32
45-49	704	531	0.43	0.33	300	480	0.48	0.77
50-54	268	262	0.17	0.16	195	329	0.31	0.53
55-59	73	93	0.05	0.06	123	227	0.20	0.36
60 and over	18	25	0.01	0.02	51	136	0.08	0.22
Unreported	24	376	0.01	0.23	23	230	0.04	0.37
Total	24,949	137,479	15.12	84.88	11,420	50,803	18.35	81.65

Survey of Labour Statistics.

TABLE 33. AGE COMPOSITION OF WORKERS IN THE TEXTILE AND OTHER INDUSTRIES OF JAPAN (10TH OCTOBER, 1933)

Age Group Years	All Industries		Textile Industry				Industries other than Textile Industry			
	Males	Females	Number		Percentage of total of males plus females		Number		Percentage of total of males plus females	
			Males	Females	Males	Females	Males	Females	Males	Females
12-13	3,141	53,284	1,259	48,229	0.18	6.92	1,882	5,055	0.26	0.69
14-15	21,954	127,109	5,734	111,485	0.82	15.98	16,220	15,624	2.22	2.14
16-19	95,563	273,476	24,886	227,354	3.57	32.59	70,677	46,122	9.67	6.31
20-24	138,426	147,088	30,702	113,217	4.40	16.23	107,724	33,871	14.74	4.63
25-29	133,956	42,488	26,450	27,922	3.79	4.00	107,506	14,566	14.71	1.99
30-34	119,020	23,407	19,868	13,615	2.85	1.95	99,152	9,792	13.57	1.34
35-39	84,721	15,872	11,384	8,499	1.63	1.22	73,337	7,283	10.03	1.00
40-44	57,298	10,549	6,366	5,383	0.91	0.77	50,932	5,166	6.97	0.71
45-49	35,494	7,131	3,387	3,356	0.49	0.48	32,107	3,775	4.39	0.52
50-54	19,661	4,302	1,720	1,994	0.25	0.29	17,941	2,308	2.45	0.32
55-59	5,137	2,028	761	1,015	0.11	0.15	4,376	1,013	0.60	0.14
60-64	1,424	656	251	353	0.04	0.05	1,173	303	0.16	0.04
65-69	443	210	79	133	0.01	0.02	364	77	0.05	0.01
70 and over	135	70	19	39	0.00	0.01	116	31	0.02	0.00
Unreported	2,012	2,417	30	2,032	0.00	0.29	1,982	385	0.27	0.05
Total	718,385	709,997	132,896	564,626	19.05	80.95	585,489	145,371	80.11	19.89

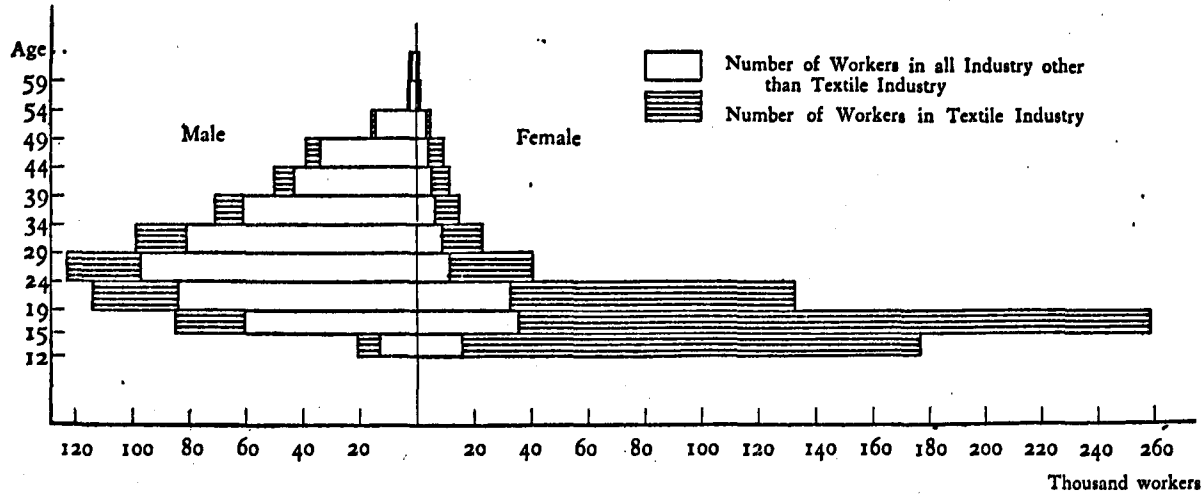
Survey of Labour Statistics.

out of 697,522 workers engaged in all these textile industries, only 132,896 or 19 per cent were male workers, while 564,626 or 81 per cent were female operatives. And out of this 564,626, girls under 25 years and girls under 20 years of age numbered 500,285 (90 per cent) and 382,068 (72 per cent) respectively. Of all textile workers, over 70 per cent were girls under 25 years of age and about 55 per cent were girls under 20 years. The unusually large proportion occupied by young female workers in Japanese industry as a whole is mainly due to the fact that these female workers are so predominant in the textile industries, and that these textile industries play so preponderant a part in industrial Japan at present. In so far as other industries are concerned, we must not forget that most of them are manned by adult male workers (Table 33 and Diagram 40).

The second point to be noted in connection with cotton mill workers is that practically no highly skilled training is required of them. Young girls of 15 or 16 years of age, who have merely finished the six or eight years' course of primary school, can become qualified operatives after two or three months' training, and become skilled workers after a year's practice. It is also interesting to note here that the number of years they spend in factories is much less in the cotton industry than in other industries. According to the *Survey of Labour Statistics* for 1933, one-half of the girls in cotton spinning-weaving mills had less than 3 years' experience, three-quarters less than five years' experience, only one-quarter over five years' experience and only one-twentieth over ten years' experience. Likewise, in specialized cotton weaving mills, one-third of the female workers had less than three years' experience and 55 per cent less than five years' experience, leaving 45 per cent for those who had longer experience. Only eight per cent had over ten years' experience (Table 34).

The same survey shows that in other industries, as, for example, in the construction of ships and other conveyances, where workers are mostly men, the workers have much more experience, with only 11.7 per cent of the total workers having less than three years' experience and 18 per cent less than five years' experience, while over 82 per cent had over five years' experience, two-thirds over ten years' experience, and one-third over 15 years' experience (Table 35). Similar conditions prevail in the tool and machine manufacturing

DIAGRAM 40. AGE COMPOSITION OF WORKERS IN ALL JAPANESE INDUSTRY OTHER THAN
TEXTILE INDUSTRY, AND IN TEXTILE INDUSTRY
(10th October, 1930, *Survey of Labour Statistics*)



factories, where the majority of the workers are men and only about ten per cent are women. In this industry, workers who had less than three years' experience comprised 20 per cent of the total, and those who had less than five years' experience 30 per cent. Over half of the total number had over ten years' experience and even as many as 30 per cent had over 15 years' experience (Table 35).

TABLE 34. DURATION OF EMPLOYMENT IN THE JAPANESE COTTON TEXTILE INDUSTRY: WORKERS ACCORDING TO THE NUMBER OF YEARS' WORK (10TH OCTOBER, 1933)

Length of employment	Spinning-Weaving Mills				Specialized Weaving Mills			
	Males		Females		Males		Females	
	Number	Percentage of total of males plus females	Number	Percentage of total of males plus females	Number	Percentage of total of males plus females	Number	Percentage of total of males plus females
Under 3 Months	230	0.15	2,059	1.37	267	0.55	1,531	3.17
3 Months and over	195	0.13	1,972	1.31	209	0.43	1,341	2.77
5 Months " "	1,065	0.71	7,272	4.83	452	0.93	3,020	6.25
1 Year " "	2,188	1.45	14,015	9.31	575	1.19	3,234	6.69
1.5 Years " "	1,627	1.08	15,176	10.08	478	1.01	2,936	6.07
2 Years " "	2,523	1.68	16,902	11.22	819	1.69	4,707	9.73
2.5 Years " "	2,354	1.56	14,905	9.90	768	1.59	4,679	9.68
3 Years " "	2,872	1.91	12,831	8.52	629	1.30	3,888	8.04
3.5 Years " "	3,042	2.02	10,191	6.77	692	1.43	3,558	7.36
4 Years " "	2,461	1.63	6,590	4.38	548	1.13	2,463	5.09
4.5 Years " "	1,984	1.32	4,250	2.82	510	1.05	1,803	3.73
5 Years " "	2,067	1.38	3,274	2.17	458	0.95	1,400	2.90
5.5 Years " "	1,575	1.05	1,926	1.28	447	0.92	894	1.85
6 Years " "	1,422	0.94	1,444	0.96	506	1.05	934	1.93
6.5 Years " "	1,301	0.86	929	0.62	333	0.69	410	0.85
7 Years " "	1,138	0.76	668	0.44	326	0.67	395	0.82
7.5 Years " "	854	0.57	532	0.35	292	0.60	261	0.54
8 Years " "	632	0.42	353	0.23	239	0.49	186	0.38
8.5 Years " "	550	0.37	357	0.24	248	0.51	223	0.46
9 Years " "	1,350	0.90	659	0.44	360	0.74	339	0.70
9.5 Years " "	780	0.52	334	0.22	276	0.57	183	0.38
10 Years " "	225	0.15	96	0.06	68	0.14	44	0.09
10.5 Years " "	107	0.07	38	0.03	40	0.08	15	0.03
11 Years " "	33	0.02	11	0.01	17	0.04	5	0.01
12 Years " "	7	0	—	—	4	0.01	1	0
Total	32,582		116,784		9,561		38,450	

Based on Survey of Labour Statistics.

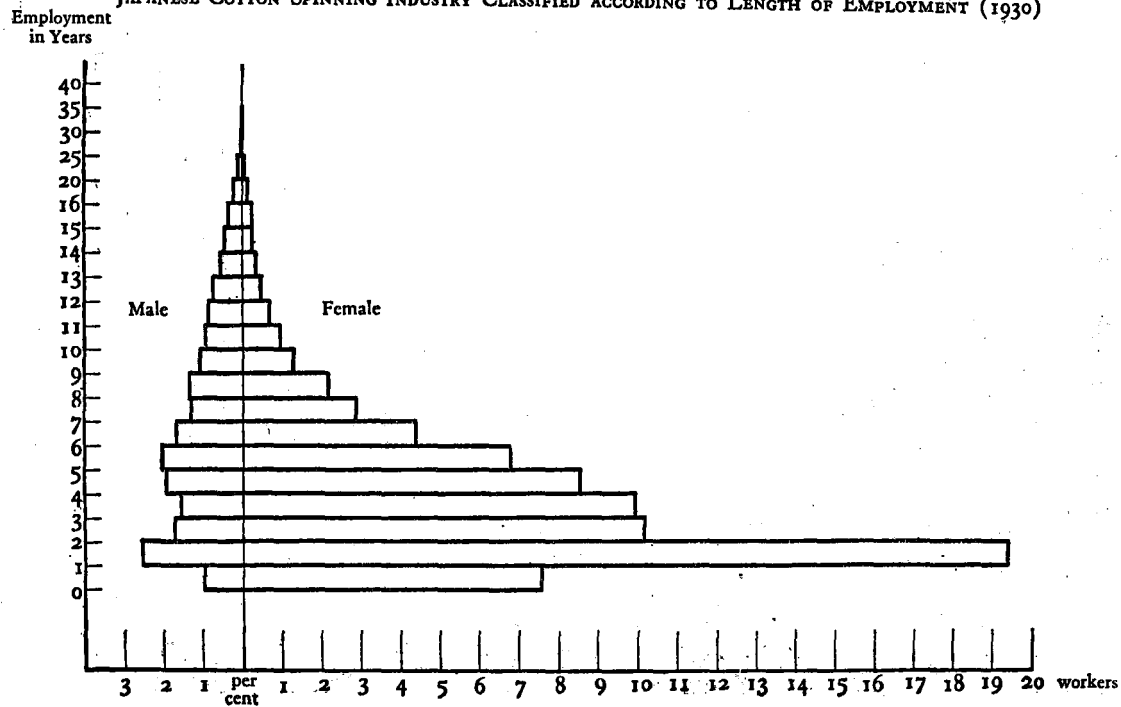
In the metal industry also, where only seven per cent are women, one-quarter of the male workers had less than three years experience, and only slightly over one-third were those with less than five years' experience. Those who had over ten years' experience amounted to 40 per cent, and those of over 14 years' experience ran as high as 20 per cent (Table 35).

TABLE 35. DURATION OF EMPLOYMENT IN THE JAPANESE METAL, MACHINE AND TOOL MANUFACTURING, SHIPBUILDING, AND TEXTILE INDUSTRIES: WORKERS ACCORDING TO THE NUMBER OF YEARS' WORK (10TH OCTOBER, 1933)

Length of Employment	Percentage of total workers in each industry							
	Metal Industry		Machine and Tool Manufacturing Industry		Shipbuilding and other Conveyance Manufacturing Industries		Textile Industry	
	Males	Females	Males	Females	Males	Females	Males	Females
Under 3 Months	1.47	0.29	0.79	0.38	0.38	0.04	0.46	1.66
3 Months and over	1.66	0.28	1.49	0.40	0.50	0.05	0.48	2.82
6 Months	3.33	0.64	2.90	0.83	1.58	0.06	0.95	5.80
1 Year	4.90	0.60	2.97	0.88	1.78	0.07	1.38	6.35
1.5 Years	4.28	0.47	3.73	0.82	2.60	0.06	1.18	8.78
2 Years	7.23	0.87	5.71	1.40	4.65	0.11	1.93	11.69
3 Years	6.33	0.69	4.47	0.89	3.44	0.09	1.60	9.58
4 Years	5.18	0.59	3.94	0.81	2.64	0.06	1.39	8.06
5 Years	5.18	0.52	3.98	0.79	2.88	0.10	1.38	6.60
6 Years	4.77	0.48	3.94	0.57	3.73	0.08	1.13	4.83
7 Years	3.93	0.32	3.24	0.38	3.38	0.06	0.98	3.59
8 Years	3.58	0.26	3.03	0.29	3.51	0.05	0.96	2.95
9 Years	2.81	0.17	2.82	0.13	5.44	0.06	0.74	1.93
10 Years	4.39	0.22	3.76	0.21	6.90	0.12	0.75	1.60
11 Years	3.78	0.18	3.45	0.28	6.24	0.13	0.61	0.95
12 Years	2.96	0.16	3.96	0.22	6.51	0.11	0.53	0.73
13 Years	3.80	0.13	3.81	0.12	5.78	0.06	0.44	0.52
14 Years	3.23	0.09	3.46	0.20	4.16	0.03	0.33	0.35
15 Years	2.71	0.09	3.41	0.16	3.48	0.02	0.32	0.35
16 Years	6.04	0.09	8.39	0.16	9.33	0.05	0.69	0.61
20 Years	5.20	0.06	7.14	0.09	9.83	0.01	0.49	0.39
25 Years	2.62	0.02	4.93	0.02	5.86	0	0.18	0.15
30 Years	1.15	0.01	2.48	0.01	2.56	0	0.09	0.06
35 Years	0.48	0	0.92	0	0.80	—	0.04	0.02
40 Years	0.17	—	0.29	—	0.15	—	0.02	0.01

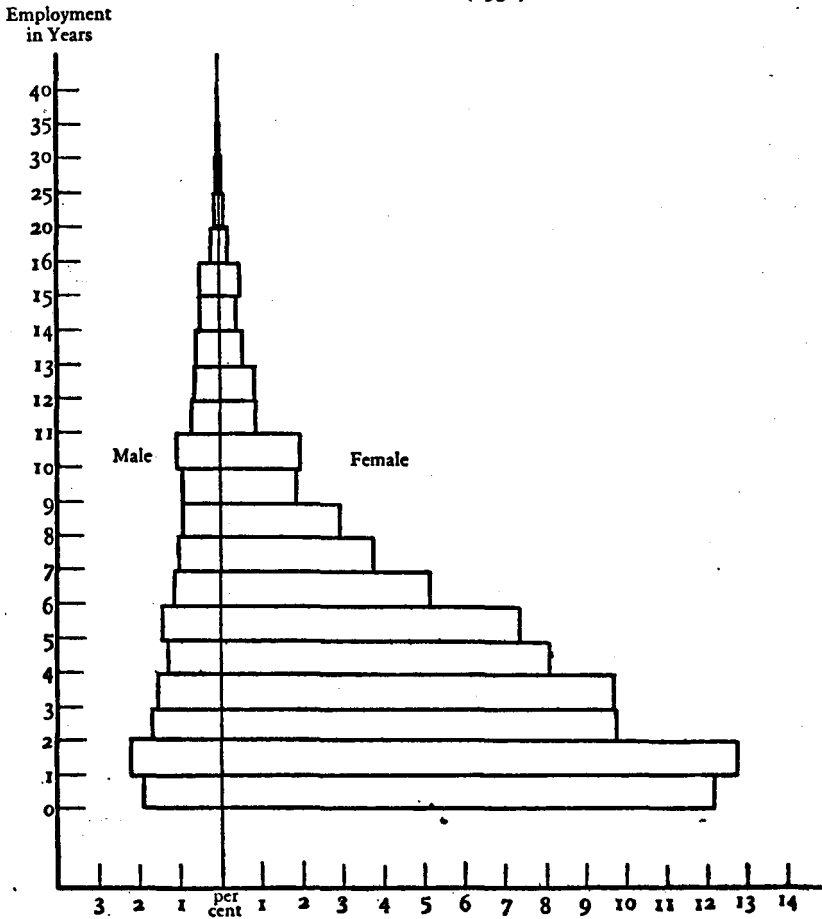
Based on *Survey of Labour Statistics*.

DIAGRAM 41. NUMBER OF MALE AND FEMALE WORKERS (EXPRESSED AS PERCENTAGES OF THE TOTAL) IN THE JAPANESE COTTON SPINNING INDUSTRY CLASSIFIED ACCORDING TO LENGTH OF EMPLOYMENT (1930)



The third point of importance is the fact that the majority of workers in the cotton industry, like those of other textile industries, are supplied from impoverished rural communities. According to the *Annual Report of Factory Inspectors*, out of 88,342 workers newly employed by the cotton spinning mills in 1934, only 2,371 were men while 85,971 were girls. These girls were recruited from

DIAGRAM 42. NUMBER OF MALE AND FEMALE WORKERS (EXPRESSED AS PERCENTAGES OF THE TOTAL) IN THE JAPANESE COTTON WEAVING INDUSTRY CLASSIFIED ACCORDING TO LENGTH OF EMPLOYMENT (1930)

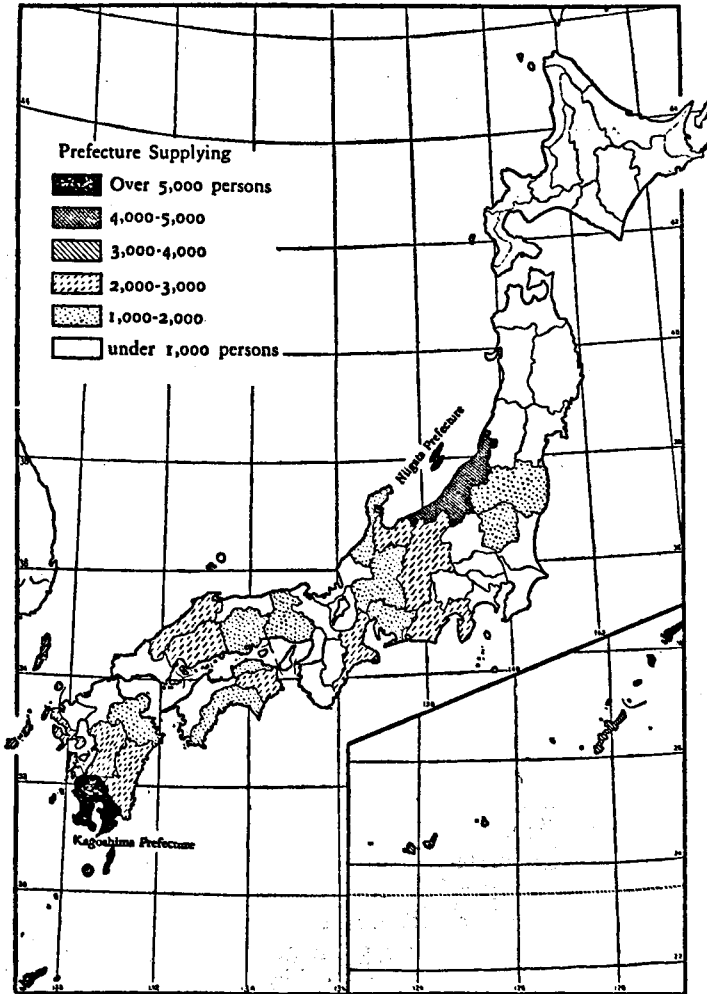


almost all prefectures in Japan, extending from Hokkaido on the north to the southern extremes of Kagoshima and Okinawa Prefectures. The most outstanding district, however, is the southern parts of Kyushu Island with Kagoshima Prefecture at the head, and with Okinawa and Miyazaki Prefectures following. These three southern prefectures in Kyushu supplied more than one-fifth of the total number of girl workers in the Japanese cotton spinning industry, and Kagoshima alone supplied 12 per cent. The second district of importance as a source of female labour supply includes Niigata Prefecture which supplied 7,000 girl workers, Nagano Prefecture which sent out 4,300 girls, Gifu, Shizuoka and other Prefectures situated in the Central District of the Main Island. The third source is comprised of Shimane Prefecture which supplies about 4,000 girls, Okayama, and Hiroshima in the Chugoku District (western end of the Main Island), and the last source of importance includes Kochi and Tokushima Prefectures, situated in the southern part of Shikoku Island (Diagram 43).

According to the study of the Central Bureau of Labour Exchanges, in 1932 there were over 66,500 girls who had gone to work in spinning and textile mills in prefectures other than their own. Out of this number, the first source of Kagoshima, Okinawa, Miyazaki, Kumamoto, Nagasaki, and Oita in Kyushu Island supplied 25 per cent, the second source of Nagano, Gifu, Shizuoka, Aichi and Mie Prefectures in the Central District 15 per cent, the third source of Niigata, Toyama, and Ishikawa in Hokuriku District slightly less than 20 per cent, the fourth source of Shimane, Okayama and Hiroshima in Chugoku District slightly less than ten per cent, and the last source of Tokushima, Kagawa, and Kochi in Shikoku Island six per cent. In other words, these 20 prefectures in five districts furnished almost three-quarters of the girls working in spinning and textile mills away from their homes.

Almost all these prefectures depend chiefly upon agriculture. Furthermore, the particular districts, within these prefectures, whence these mill girls come, are mostly mountainous or sea-side regions. Inhabitants of these regions are far more impoverished than those living in the plains. Taking the second important prefecture of Niigata, for example (Diagram 44), the districts from which these girl workers come are the mountainous regions in the southern part, and the mountainous and sea-side regions in the

DIAGRAM 43. REGIONAL DISTRIBUTION OF SOURCES OF SUPPLY OF FEMALE COTTON SPINNING WORKERS (1931)

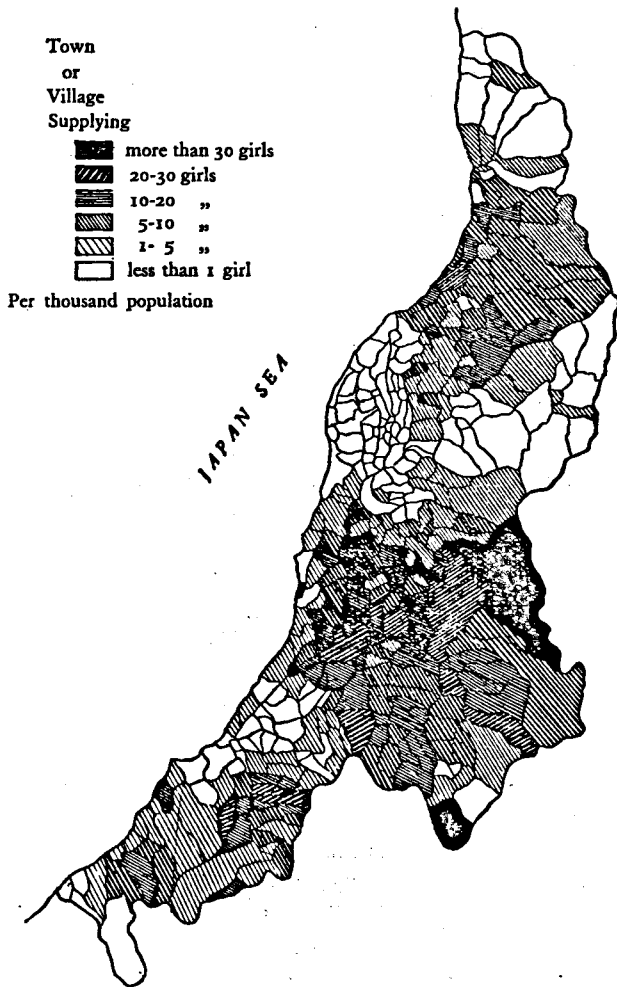


southwestern and the northern parts. Very few come from the Niigata Plain by the lower reaches of the Shinano River—the rich field which is one of the most important rice-producing districts in Japan. This is quite typical of all other prefectures as well. Many girls leave the mountainous prefectures of Nagano and Gifu, the mountainous and sea-side regions of Shizuoka, the mountainous regions of Kagoshima, Miyazaki, and Kumamoto in Kyushu Island, and the sea coasts and the smaller islands of Nagasaki and Kumamoto. (The study of the Central Bureau of Labour Exchanges in 1927 also shows that 62 per cent of the spinning mill girls came from the families of farmers and peasants, and 5.4 per cent from those of fishermen, 6.7 per cent from those of traders, and 6.3 per cent from those of factory workers.

The fourth point to be noted is that the girls working in Japanese cotton spinning mills are young, unmarried girls of tender age, who are not in a position to support their families. The main purpose of their going to a factory is to lighten the financial burden of their families or at most to supplement the family income; or as is so widely talked of, to try to save up something for their wedding. We might take the small village of Ikazawa in the mountainous southern part of Niigata Prefecture as an example. There are only 773 families with a total population of 4,816, including 2,477 males and 2,339 females. From this village 216 girls have gone out to work in cotton spinning mills, and 170 girls to silk reeling mills, making a total of 386. This means that one girl for every two families has left home to work, and it is said that there are no young girls of tender age remaining in that village. These girls earn on the average ¥150 to ¥160 per year, out of which about ¥40 goes for their board and health insurance, leaving some ¥100 in cash as their direct wages. Out of this ¥100, they have from ¥30 to ¥40 for their private use, and send the balance, ranging from ¥70 to ¥60 a year, to their homes, either to aid in their families' livelihood or as their own savings for their wedding. So, in the aggregate, these 386 girls send about ¥20,000 a year back to their village.

When we look into other sources of income for this village, we find that these consist of about 9,000 hectolitres of rice, about ¥50,000 from silkworms, and another ¥50,000 from charcoal. Allowing the Japanese average of 1.8-1.9 hectolitres of rice consumption.

DIAGRAM 44. SUPPLY OF FEMALE COTTON SPINNING WORKERS BY TOWNS AND VILLAGES IN NIIGATA PREFECTURE (1934)



per capita per year, the total yield in this village is just enough to support its own population. This means that no cash income is realized from rice-raising, and that sources of cash income in this village are limited to silkworms, charcoal, and the earnings of girls working in mills. But the *net* income from the first two sources is much smaller than the figures given above. Granting 80 per cent and 40 per cent respectively of the silkworm and charcoal incomes as representing the net earnings of the village inhabitants, the total amount of net income in cash would be ¥ 60,000. If that is so, the girls' yearly remittances would amount to one-quarter of the total cash income of the village.

8. LABOUR CONDITIONS IN THE JAPANESE COTTON INDUSTRY

We have seen the peculiar characteristics of labour composition in the cotton spinning mills of Japan, and it may be reasonable to expect that working conditions are also quite different from those of other industries. The first peculiarity with regard to this industry is the method of recruiting the workers. Since the girls are still young and have not the duty of supporting their families, it is very

TABLE 36. RECRUITMENT OF WORKERS IN THE JAPANESE SPINNING AND WEAVING INDUSTRIES (1927-1934)

End of year	Spinning Industry				Number of workers recruited per agent	Weaving Industry				Number of workers recruited per agent
	Number of workers recruited			Agents		Number of workers recruited			Agents	
	Males	Females	Total			Males	Females	Total		
1927	2,130	66,088	68,218	4,759	14.3	1,621	19,117	20,738	1,718	12.1
1928	1,763	47,087	48,850	3,356	14.6	1,372	13,892	15,264	1,426	10.7
1929	2,269	67,937	70,206	3,394	20.7	772	11,539	12,311	1,068	11.5
1930	677	27,073	27,750	2,698	10.3	512	7,660	8,172	1,080	7.6
1931	782	48,604	49,386	2,071	23.8	562	8,426	8,988	773	11.6
1932	776	50,525	51,301	3,240	15.8	1,075	12,724	13,799	707	19.5
1933	1,819	63,188	65,007	2,474	26.3	951	13,041	13,992	851	16.4
1934	2,371	85,971	88,342	3,856	22.9	1,903	19,199	21,102	1,336	15.7

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rarely that they seek employment on their own initiative. Hence, in order to induce them to apply for employment there must be some agency created, whose function is solely to recruit girl workers. The importance of this task can be appreciated from the fact that the labour turnover in the Japanese cotton mills is as high as 33 per cent a year, the entire personnel of the cotton mills, it is said, changing completely every three years. In other words, as there were about 200,000 girls working in the spinning and textile mills, some 60,000-70,000 fresh workers would have to be recruited to fill up vacancies which had occurred. And indeed, in 1932, there were as many as 4,000 specialized recruiting agents for the spinning and textile mills, and in 1933 there were some 3,300.

These agents usually live in the country districts whence many girls come, and keep in close touch with various institutions such as primary schools, girls' organizations, village authorities, and labour exchanges, as well as the families of individual girls. And after the girls have gone to the mills by their inducement, they act as the intermediaries between those girls working away from home and their families. They do not get any fixed salary from the mills, but receive a commission for each girl they put to work, ranging from ¥ 4 to ¥ 6 per girl. They also receive about 30 *sen* per month for keeping a girl in touch with her people at home. Hence if an agent recruits, say, 40 new girls in 6 months, and also has 200 girls in the mills who have gone to work through him, then after adding a ¥ 80 bonus for half a year, he would get an income of ¥ 640 in 6 months, or an average monthly income of ¥ 100 or more.

The second condition to be noted is the fact that many girls live in the dormitories provided for them by the mill owners. Since these girls are not working out of very great necessity, they would probably give up work, if they were allowed to live outside the dormitories. Those of them who have come from the country in the neighbourhood would probably visit their homes frequently and might stay away from the mills for a week or ten days. Such frequent and long absences would greatly disturb the smooth and efficient operation of the mills. This is one of the reasons why the dormitory system prevails in the Japanese cotton industry. But this system is not to the advantage of the mill owners alone. Parents would not let their daughters stay away from their own care and supervision, unless these girls were assured good care and

proper supervision in good dormitories. Hence, the girls are directed to spend their spare hours most effectively along educational or cultural lines as well as in healthy recreation; facilities for such activities are really one of the chief attractions to them and their parents in selecting mills in which to go to work.

TABLE 37. NUMBER OF WORKERS IN JAPANESE SPINNING MILLS LIVING IN DORMITORIES (1926-1934)

End of year	Number						Percentage			
	Males			Females			Males		Females	
	In dormi- tories	Living out	Total	In dormi- tories	Living out	Total	In dormi- tories	Living out	In dormi- tories	Living out
1926	12,954	49,550	62,504	165,829	54,798	220,627	20.7	79.3	75.2	24.8
1927	11,629	47,302	58,931	151,863	45,574	197,437	19.7	80.3	76.9	23.1
1928	13,387	44,659	58,046	131,766	44,672	176,438	23.1	76.9	74.7	25.3
1929	11,420	46,919	58,339	154,211	49,859	204,070	19.6	80.4	75.6	24.4
1930	7,899	37,472	45,371	106,867	37,225	144,092	17.4	82.6	74.2	25.8
1931	7,280	34,383	41,663	119,781	40,926	160,707	17.5	82.5	74.5	25.5
1932	6,137	32,167	38,304	128,056	36,978	165,034	16.0	84.0	77.6	22.4
1933	6,133	29,712	35,845	132,415	42,431	174,846	17.1	82.9	75.7	24.3
1934	5,736	29,820	35,556	159,198	39,700	198,894	16.1	83.9	80.1	19.9

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TABLE 38. NUMBER OF WORKERS IN JAPANESE WEAVING MILLS LIVING IN DORMITORIES (1926-1934)

End of year	Number						Percentage			
	Males			Females			Males		Females	
	In dormi- tories	Living out	Total	In dormi- tories	Living out	Total	In dormi- tories	Living out	In dormi- tories	Living out
1926	11,991	36,814	48,805	99,585	108,101	207,686	24.6	75.4	47.9	52.1
1927	11,205	36,428	47,633	90,740	105,882	196,622	23.5	76.5	46.1	53.9
1928	10,966	34,786	45,752	89,328	100,256	189,584	24.0	76.0	47.1	52.9
1929	10,757	34,203	44,960	78,643	100,504	179,147	23.9	76.1	43.9	56.1
1930	9,124	30,381	39,505	71,158	90,434	161,592	23.1	76.9	44.0	56.0
1931	9,641	28,919	38,560	70,947	91,017	161,964	25.0	75.0	43.8	56.2
1932	9,150	31,319	40,469	73,244	97,756	171,000	22.6	77.4	42.8	57.2
1933	10,754	32,650	43,404	84,654	104,000	188,654	24.8	75.2	44.9	55.1
1934	12,451	39,391	51,842	100,812	118,894	219,706	24.0	76.0	45.8	54.2

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This dormitory system for workers maintained by the mill owners is quite common in the Japanese cotton industry, and prevails most extensively in spinning mills in particular. According to the 1933 *Report of Factory Inspectors*, out of 174,846 girls working in the spinning mills, 132,415 or 75.7 per cent of them lived in dormitories, while in weaving mills out of 188,654 girls 84,654 or 45 per cent did so. The reasons for this comparatively low percentage in textile mills are that these mills are rather small and consequently they do not rely upon supplies of labour from distant parts of the country. Textile mill owners generally find enough workers available in the neighbourhood of the factories. Take, for example, the town of Nishiwaki and its vicinity in Hyogo Prefecture, one of the centres for smaller textile mills in Japan. About 40 per cent of the mill workers are residents of the same town, some 50 per cent have come from the neighbouring villages, and 10 per cent from remote regions, while in many other mills in the vicinity of this town, 70 per cent of the workers are people of the villages where these mills are situated, and only 30 per cent have come from the neighbouring villages. Thus, 80 per cent of the mill girls in the town of Nishiwaki live in dormitories, while in the mills of surrounding agricultural villages only 38 per cent do so.

As to the equipment of the dormitories, those of the specialized textile mills very often fall far short of those in the large spinning-weaving mills. According to the *Report of Factory Inspectors* for 1934, the larger spinning-weaving mills possessed proportionately large dormitories. Almost all of the 164,934 spinning mill workers were living in dormitories with capacities of 100 persons or more, and 139,881 workers or 84.7 per cent were in large dormitories with facilities for boarding 500 or more. On the other hand, the textile mills had a total dormitory population of 113,263 workers; 58,936 or over one-half living in dormitories with capacities of fewer than 100 persons, and 44,563 or about 40 per cent boarding in those with capacities of 50 persons or fewer. Most of the dormitories are wooden buildings. In the larger dormitories, a room of about 33 square metres is given to a group of 12 or 13 girls. A dining-room, bath-room, toilet, recreation room, kitchen for cooking classes, library, and gymnasium are maintained for their common use. Life in the dormitory is on the whole comfortable, certainly so to those girls who have come from impoverished rural villages. In their leisure

hours, they may learn the arts of flower arrangement, tea ceremony, manners and general culture—more or less necessary requirements for girls marrying, as these are regarded in Japan. They also have the privilege of attending classes in reading, writing, arithmetic, letter writing, sewing, and other subjects. But in the smaller dormitories arrangements rarely go beyond the mere provision of rooms and bath in some of the small textile mills; sometimes a part of the mill, or even a part, possibly upstairs, of the mill owner's own

TABLE 39. NUMBER OF WORKERS IN THE JAPANESE SPINNING AND WEAVING INDUSTRIES LIVING IN DORMITORIES OF VARIOUS SIZES (1ST OCTOBER, 1934)

Number of workers per dormitory	Spinning Industry			Weaving Industry		
	Males	Females	Total	Males	Females	Total
1-9	30	29	59	1,508	5,168	6,676
10-49	114	517	631	5,977	31,910	37,887
50-99	134	689	823	1,958	12,415	14,373
100-499	523	23,017	23,540	1,730	24,890	26,620
500 and over	4,935	134,946	139,881	1,278	26,429	27,707
Total	5,736	159,198	164,934	12,451	100,812	113,263

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residence is set aside as living quarters for the girls. In these latter cases, not only is the employers' supervision over the private conduct of the girls inadequate, but the girls have no access to adequate educational, medical, or recreational facilities which their sister workers in the better dormitories enjoy.

The entire expense of maintaining the dormitory and other facilities for education, health and hygiene, and recreation is borne by the employers. The girls pay only for their board, of which the cost varies in the different mills. Usually, however, it ranges from 10 to 15 *sen* per day both in spinning and textile mills, the monthly expense being between ¥3.00 and ¥4.50. This may appear too little for a month's board, but the quality of food given to the mill girls is much better than that of the peasantry in Japan. One of the present writers himself has tried dormitory meals many times, and

has found them adequate to meet the workers' requirements. As the quality of meals has a direct bearing upon recruiting new girls, considerable pains are taken to make it rich and good, and even financial subsidies are budgeted for by some mill owners.

TABLE 40. WAGES OF FEMALE WORKERS, GROUPED ACCORDING TO LENGTH OF EMPLOYMENT, IN JAPANESE COTTON SPINNING AND WEAVING MILLS (10TH OCTOBER, 1933)

Length of employment	Cotton Spinning Mills	Specialized Cotton Weaving Mills	Metal Industry	Shipbuilding and other Conveyance Manufacturing Industries	Machine and Tool Manufacturing Industries
	Yen per diem	Yen per diem	Yen per diem	Yen per diem	Yen per diem
Under 3 Months	0.39	0.41	0.62	0.67	0.63
3 Months and over	0.43	0.44	0.66	0.81	0.72
6 Months " "	0.48	0.46	0.68	0.83	0.75
1 Year " "	0.55	0.53	0.73	0.84	0.82
1.5 Years " "	0.58	0.51	0.72	0.87	0.92
2 Years " "	0.52	0.58	0.74	1.00	0.93
3 Years " "	0.69	0.63	0.82	0.95	1.03
4 Years " "	0.73	0.68	0.91	1.00	1.09
5 Years " "	0.76	0.71	1.00	1.00	1.16
6 Years " "	0.79	0.73	1.01	1.06	1.24
7 Years " "	0.82	0.75	1.11	1.10	1.33
8 Years " "	0.84	0.75	1.11	1.10	1.43
9 Years " "	0.87	0.76	1.23	1.10	1.39
10 Years " "	0.86	0.74	1.16	1.28	1.41
11 Years " "	0.89	0.74	1.18	1.26	1.45
12 Years " "	0.89	0.73	1.26	1.21	1.48
13 Years " "	0.90	0.72	1.36	1.36	1.59
14 Years " "	0.91	0.75	1.44	1.41	1.79
15 Years " "	0.92	0.73	1.46	1.48	1.91
16 Years " "	0.93	0.75	1.57	1.65	2.13
20 Years " "	0.91	0.71	1.31	1.64	2.18
25 Years " "	0.98	0.68	1.57	1.66	2.14
30 Years " "	0.90	0.60	1.19	2.14	2.32
35 Years " "	0.79	0.76	—	1.92	1.58
40 Years " "	0.81	0.32	—	1.43	—
Average	0.62	0.60	0.88	0.99	0.98

The third feature to be noted is the fact that wages are low in the Japanese cotton industry. According to the *Survey of Labour Statistics* for 1933, the average wage per day in the metal industry was ¥2.29, in the machine and tool manufacturing industry ¥2.18, in the shipbuilding and other conveyances manufacturing industry ¥2.58, while in the large cotton spinning-weaving mills it was ¥0.73, and in the specialized textile mills only ¥0.68. But these averages

TABLE 41. WAGES OF FEMALE WORKERS, GROUPED ACCORDING TO AGE, IN JAPANESE COTTON SPINNING AND WEAVING MILLS (10TH OCTOBER, 1933)

Age Group Years	Cotton Spinning-Weaving Mills Yen per diem	Specialized Cotton Weaving Mills Yen per diem	Metal Industry Yen per diem	Shipbuilding and Vehicle Manufacturing Industries Yen per diem	Machine and Tool Industries Yen per diem
12-13	0.43	0.38	0.45	0.43	0.49
14-15	0.50	0.47	0.56	0.65	0.64
16-19	0.62	0.62	0.73	0.83	0.87
20-24	0.75	0.72	0.89	0.93	1.10
25-29	0.79	0.71	0.97	0.98	1.17
30-34	0.80	0.68	1.01	1.02	1.20
35-39	0.79	0.68	1.07	1.10	1.39
40-44	0.78	0.65	1.11	1.20	1.53
45-49	0.76	0.59	1.20	1.36	1.58
50-54	0.80	0.55	1.16	1.35	1.19
55-59	0.69	0.53	1.04	1.33	0.97
60-64	0.62	0.46	0.77	0.74	1.14
65-69	0.78	0.48	0.80	—	1.06
70 and over	—	0.36	0.62	—	—
Average	0.62	0.60	0.88	0.99	0.98

Survey of Labour Statistics.

are for both male and female workers together; it does not necessarily follow that wages in the cotton industry compare unfavourably with those in other industries. Since female workers by far outnumber men in the cotton industry, it becomes all the more important that we treat the two groups separately. Taking the wages for women in different industries, we find that those in the metal industry get ¥0.88 per day, those in machine and tool factories ¥0.98, those in shipbuilding and other conveyance manufacturing ¥0.99, while those in cotton spinning-weaving mills

¥ 0.62 and those in specialized textile mills ¥ 0.60. The difference between average wages in the first group and those in the second is therefore from ¥ 0.26 to ¥ 0.39 per day.

The lower wage level prevailing among cotton mill workers is mainly due to the fact that the number of years since they began to work in that industry is much less and also that the majority of them are so young. The *Survey of Labour Statistics* for 1933 throws light on the relation between wages and the length of the experience of women workers. For the first three months of employment in metal manufacturing they got ¥ 0.62 per day, in machine and tool manufacturing ¥ 0.63, in shipbuilding and other conveyance manufacturing ¥ 0.67, as compared with ¥ 0.39 for those in cotton spinning-weaving mills, and ¥ 0.41 for those in specialized textile mills. For the period of from one-and-a-half to two years, the corresponding wages were ¥ 0.72, ¥ 0.92, and ¥ 0.87 respectively in the first group as compared with ¥ 0.58 and ¥ 0.51 respectively in the second, showing a considerable difference between cotton mill workers and others. When their wages are compared by age, workers of 16-19 years of age in the metal industry earned ¥ 0.73 per day, in machine and tool manufacturing ¥ 0.87, and in shipbuilding and other conveyance manufacturing ¥ 0.83 as compared with ¥ 0.62 both in cotton spinning-weaving mills and in specialized textile mills; for those of 20-24 years of age the corresponding groups earned ¥ 0.89, ¥ 1.10 and ¥ 0.93, respectively in the heavier industries as compared with ¥ 0.75 and ¥ 0.72 respectively in the cotton industries. This comparison shows that there is not much difference in wages between the spinning-weaving mills and the specialized cotton textile mills.

During investigation of the specialized weaving mills in the Sennan district in Osaka Prefecture, one of the centres of export cloth manufacturing in Japan, the present writers observed that usually each weaver tends five to six looms and produces 15 to 18 rolls per day. Under a piece-work system she is paid at the rate of five to six *sen* per roll, so her daily earnings range from ¥ 0.60 to ¥ 1.20. The Hyogo Prefectural Government has also made a similar study of the mills in the town of Nishiwaki and its vicinity, which is another centre for the manufacture of export cloth. Payment there is also on a piece-work basis. Each girl, operating four to eight looms, produces 8 to 16 rolls per day, with each loom able to

THE COTTON INDUSTRY

TABLE 42. WAGES OF WORKERS IN THE JAPANESE COTTON INDUSTRY (1929-1936)

	Spinning Industry				Weaving Industry			
	Nominal Wages Yen per diem		Actual Earnings Yen per diem		Nominal Wages Yen per diem		Actual Earnings Yen per diem	
	Male	Female	Male	Female	Male	Female	Male	Female
1929 Jan.	1.414	0.932	1.663	1.110	1.326	0.822	1.714	1.052
Feb.	1.414	0.935	1.649	1.102	1.327	0.827	1.712	1.064
Mar.	1.415	0.925	1.649	1.095	1.462	0.883	1.683	1.046
April	1.412	0.901	1.615	1.055	1.323	0.826	1.680	1.039
May	1.414	0.901	1.618	1.047	1.325	0.828	1.681	1.038
June	1.412	0.909	1.607	1.040	1.325	0.829	1.693	1.040
July	1.411	0.908	1.600	1.021	1.325	0.828	1.677	1.012
Aug.	1.411	0.907	1.604	1.014	1.328	0.829	1.672	1.003
Sept.	1.413	0.908	1.600	1.022	1.329	0.828	1.664	1.009
Oct.	1.412	0.908	1.604	1.027	1.327	0.826	1.671	1.017
Nov.	1.412	0.912	1.597	1.024	1.326	0.823	1.659	1.007
Dec.	1.414	0.908	1.601	1.024	1.317	0.815	1.650	1.001
1932 Jan.	1.289	0.731	1.437	0.757	1.162	0.651	1.533	0.754
Feb.	1.287	0.718	1.423	0.753	1.157	0.643	1.534	0.758
Mar.	1.288	0.711	1.416	0.744	1.157	0.644	1.507	0.751
April	1.280	0.704	1.405	0.733	1.150	0.636	1.510	0.742
May	1.278	0.697	1.408	0.723	1.152	0.633	1.495	0.733
June	1.275	0.696	1.406	0.711	1.150	0.628	1.501	0.733
July	1.274	0.688	1.399	0.701	1.148	0.626	1.501	0.728
Aug.	1.272	0.682	1.393	0.694	1.152	0.627	1.505	0.724
Sept.	1.271	0.674	1.389	0.691	1.150	0.625	1.492	0.730
Oct.	1.273	0.672	1.391	0.695	1.150	0.627	1.489	0.729
Nov.	1.268	0.670	1.387	0.697	1.144	0.629	1.487	0.731
Dec.	1.273	0.672	1.392	0.698	1.146	0.632	1.496	0.737
1933 Jan.	1.277	0.668	1.394	0.703	1.151	0.632	1.480	0.732
Feb.	1.279	0.664	1.394	0.700	1.151	0.630	1.506	0.736
Mar.	1.277	0.658	1.395	0.695	1.146	0.628	1.487	0.726
April	1.273	0.647	1.385	0.686	1.139	0.617	1.469	0.717
May	1.267	0.640	1.385	0.673	1.135	0.616	1.463	0.712
June	1.266	0.639	1.418	0.671	1.133	0.616	1.458	0.714
July	1.262	0.639	1.383	0.664	1.131	0.615	1.453	0.706
Aug.	1.262	0.637	1.380	0.665	1.132	0.616	1.459	0.703
Sept.	1.262	0.639	1.384	0.671	1.134	0.617	1.457	0.707
Oct.	1.263	0.636	1.380	0.675	1.131	0.619	1.456	0.708
Nov.	1.261	0.640	1.377	0.681	1.123	0.617	1.461	0.716
Dec.	1.259	0.640	1.374	0.678	1.122	0.616	1.443	0.713

Continued on next page

TABLE 42—continued

	Spinning Industry				Weaving Industry			
	Nominal Wages Yen per diem		Actual Earnings Yen per diem		Nominal Wages Yen per diem		Actual Earnings Yen per diem	
	Male	Female	Male	Female	Male	Female	Male	Female
1934 Jan.	1.264	0.640	1.376	0.675	1.128	0.618	1.449	0.704
Feb.	1.264	0.641	1.371	0.679	1.124	0.623	1.455	0.712
Mar.	1.263	0.639	1.353	0.673	1.127	0.623	1.450	0.710
April	1.259	0.627	1.356	0.662	1.119	0.615	1.451	0.707
May	1.251	0.623	1.372	0.657	1.122	0.616	1.428	0.707
June	1.249	0.623	1.362	0.656	1.124	0.619	1.433	0.712
July	1.247	0.623	1.362	0.653	1.131	0.624	1.412	0.715
Aug.	1.248	0.623	1.358	0.659	1.132	0.627	1.436	0.723
Sept.	1.249	0.620	1.359	0.662	1.131	0.630	1.431	0.716
Oct.	—	—	—	—	—	—	—	—
Nov.	1.252	0.629	1.364	0.670	1.132	0.634	1.441	0.726
Dec.	1.255	0.625	1.367	0.671	1.129	0.632	1.439	0.724
1935 Jan.	1.421	0.917	1.602	1.018	1.309	0.805	1.664	0.988
Feb.	1.417	0.919	1.603	1.015	1.306	0.797	1.653	0.981
Mar.	1.414	0.919	1.598	1.007	1.300	0.790	1.636	0.971
April	1.389	0.866	1.581	0.986	1.290	0.778	1.623	0.950
May	1.369	0.880	1.583	0.976	1.279	0.767	1.606	0.936
June	1.363	0.878	1.579	0.968	1.266	0.753	1.609	0.915
July	1.359	0.866	1.580	0.934	1.245	0.734	1.602	0.877
Aug.	1.345	0.856	1.561	0.913	1.233	0.717	1.582	0.852
Sept.	1.333	0.845	1.531	0.895	1.222	0.712	1.578	0.849
Oct.	1.323	0.836	1.501	0.880	1.223	0.712	1.554	0.838
Nov.	1.320	0.829	1.485	0.868	1.227	0.711	1.557	0.835
Dec.	1.322	0.821	1.483	0.867	1.218	0.705	1.573	0.839
1936 Jan.	1.315	0.817	1.504	0.860	1.214	0.701	1.583	0.821
Feb.	1.313	0.808	1.500	0.849	1.210	0.696	1.580	0.829
Mar.	1.308	0.792	1.481	0.840	1.208	0.688	1.573	0.819
April	1.306	0.783	1.477	0.829	1.201	0.682	1.567	0.818
May	1.302	0.773	1.466	0.818	1.197	0.680	1.555	0.808
June	1.302	0.766	1.464	0.819	1.195	0.676	1.570	0.814
July	1.304	0.759	1.461	0.806	1.203	0.680	1.558	0.807
Aug.	1.302	0.751	1.446	0.796	1.201	0.677	1.552	0.800
Sept.	1.300	0.744	1.447	0.790	1.194	0.673	1.544	0.791
Oct.	1.300	0.740	1.445	0.781	1.172	0.661	1.523	0.773
Nov.	1.296	0.739	1.431	0.774	1.163	0.651	1.521	0.766
Dec.	1.293	0.733	1.438	0.671	1.161	0.647	1.524	0.759

Bank of Japan, *Statistics of Factory and Mining Labour*.

produce 2 rolls of 30 yards each. Hence at the rate of 5.5 *sen* per roll, she earns between ¥ 0.50 and ¥ 0.90, the average being ¥ 0.80 per day. So far as these data show, the earnings of the girls in these specialized textile mills are not much lower than those of their sister workers in spinning-weaving mills. The lower average earnings of the former group can, therefore, only be due to the inferior standard of the girls themselves as compared with those of the latter group. The present writers have also observed that in Niigata Prefecture girls do not wish to work in mills without good dormitories and other welfare facilities. The small mills, therefore, have great difficulty in securing workers of good quality, and in some extreme cases they are obliged to employ even those with defective hearing or eyesight.

TABLE 43. INCREASE AND DECREASE OF EMPLOYMENT IN THE JAPANESE SILK REELING, SPINNING AND WEAVING INDUSTRIES (1927-1935)

End of year	Number of Workers Employed			
	Silk Reeling Industry	Spinning and Weaving Industries		Total
		Spinning Industry	Weaving Industry	
1927	354,499	174,829	232,285	407,114
1928	376,579	160,353	228,952	389,305
1929	385,206	185,280	204,046	389,326
1930	371,329	132,468	197,043	329,511
1931	357,085	146,663	199,795	346,458
1932	300,718	167,973	210,602	378,575
1933	288,352	161,925	240,595	402,520
1934	258,878	200,073	270,145	470,218
1935	277,161	240,158	354,267	594,425

Factory Statistics.

The fourth point to be observed as a special feature of labour conditions in the Japanese cotton industry is the fact that, in spite of the remarkable progress made in productive efficiency and the rapid expansion in exports since 1931, wages of cotton spinning workers have not risen much, as is borne out by the studies made by the Bank of Japan (Table 42 or Diagrams 45 and 46). This phenomenon is explained by some on the grounds that an actual increase which has taken place among the workers already in employment is more than cancelled by the low initial wages which have been given to so

DIAGRAM 45. INDEX NUMBERS OF WORKERS AND WAGES (NOMINAL AND ACTUAL) IN JAPANESE COTTON SPINNING INDUSTRY (1926-1936)
(Average of 1926 = 100, Based on the Bank of Japan's Index Numbers)

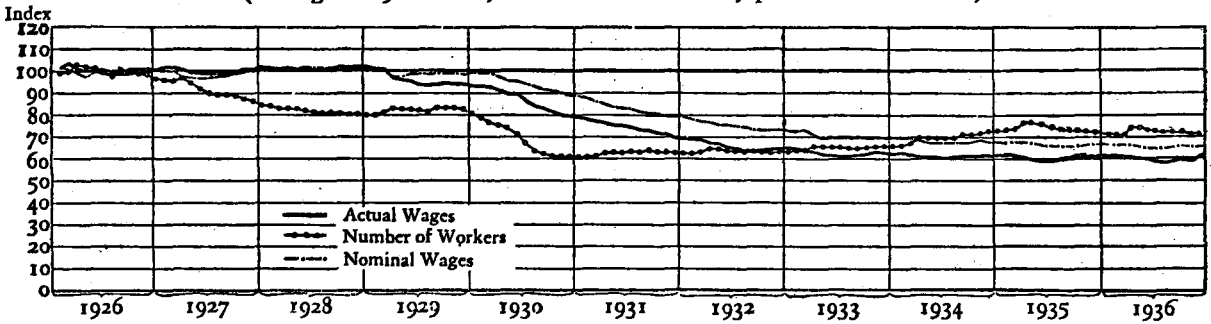
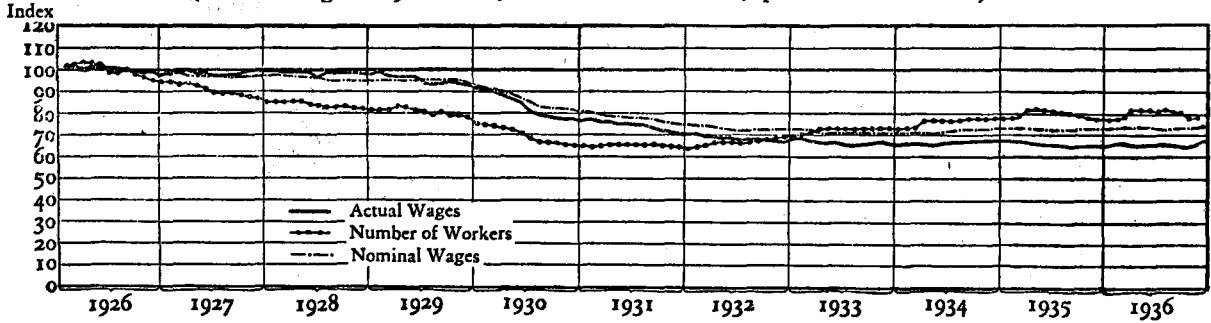


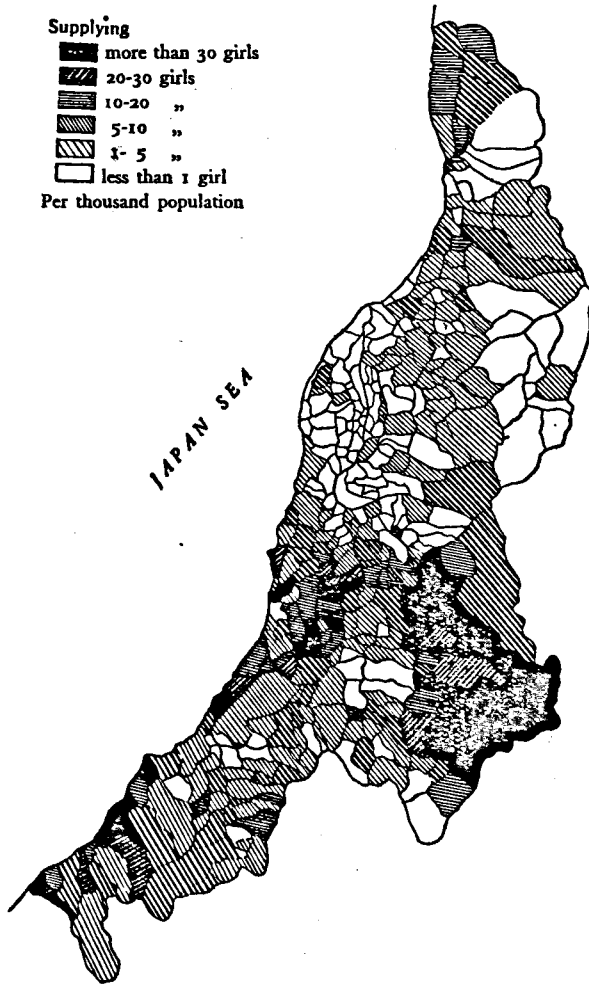
DIAGRAM 46. INDEX NUMBERS OF WORKERS AND WAGES (NOMINAL AND ACTUAL) IN JAPANESE COTTON WEAVING INDUSTRY (1926-1936)
(Base: Average of 1926 = 100, Based on the Bank of Japan's Index Numbers)



many girls newly recruited. The same studies of the Bank of Japan show that the index number of workers employed has risen 16 to 17 per cent since 1933 in both spinning and textile industries. This increase means that some 60,000 workers have been newly added in the corresponding period. Taking this for what it is worth, this factor alone, however, seems inadequate to explain satisfactorily what the statistics indicate.

The most important factor to be mentioned is the fact that, during this period of trade expansion, the silk reeling mills had already passed their peak of prosperity, and naturally their demand for labour had declined sharply. *Factory Statistics* show that while there were 385,206 girls in the silk reeling mills in 1929, they fell to 288,352 in 1933, and to 258,878 in 1934, showing a sharp drop of over 126,000 girls during this short period. In the spinning and weaving industry, however, 141,000 girls have been added during the period 1929-1934, thus absorbing what the silk reeling industry had released. Indeed, this statement can be borne out by the fact that the districts for recruiting girls have gradually shifted to Hokuriku District. Formerly, girls for cotton mills, as above stated, were recruited mostly from the central and southern parts of Kyushu; the central and southern parts of the Central District, and from Shikoku Island; while those for silk reeling mills were drawn from Hokuriku District and the central and southern parts of the Central District. But as the silk reeling industry declined, more cotton mill hands were recruited from Hokuriku District. If we compare Diagrams 44 and 47, which show the sources for cotton and silk reeling mill hands respectively in Niigata Prefecture, we can easily discern that the districts which furnished workers to silk reeling mills in times past are now doing so for cotton mills. Hence the increased demand for workers in recent years in the cotton industry has been easily met without any shortage of workers being felt at any time. That is why wages have not risen in the cotton industry, although the industry itself has expanded tremendously during this time.

DIAGRAM 47. SUPPLY OF FEMALE SILK REELING WORKERS BY TOWNS AND VILLAGES IN NIIGATA PREFECTURE (1934)



CHAPTER III
THE RAYON TEXTILE INDUSTRY

I. INTRODUCTION

A SMALL quantity of rayon tissues was already being manufactured in Japan for home consumption at the turn of the century, and for that purpose rayon yarn was being imported from abroad. It was, however, not until the Great War that the rayon weaving industry became established in Japan, and since then it has made a rapid progress. (Table 44).

TABLE 44. SUPPLY AND CONSUMPTION OF RAYON YARN
IN JAPAN (1918-1936)

	Supply (Long tons)		Consumption (Long tons)	
	Production	Import	Japan Proper	Export
1918	45	35	80	—
1919	66	34	100	—
1920	91	36	127	—
1921	117	63	180	—
1922	240	103	343	—
1923	355	434	789	—
1924	622	368	990	—
1925	1,454	379	1,833	—
1926	2,270	1,510	3,780	—
1927	4,770	360	5,130	—
1928	5,550	116	7,585	31
1929	12,270	285	12,485	70
1930	16,400	383	15,326	1,457
1931	21,400	528	20,757	1,171
1932	30,000	169	26,827	3,342
1933	41,104	229	37,307	4,026
1934	62,590	30	52,524	10,096
1935	100,000	15	83,913	16,032
1936	122,926	10	101,313	21,603

Based on the Report of the Teikoku Jinken (Imperial Rayon) Co., Ltd.

Worthy of special notice is the rapid increase in the exports of rayon tissues within the past few years. From a value of ¥8,328,000 and a quantity of 13,023,000 sq. yards in 1918, the figures for 1933 reached ¥77,381,000 and 260,043,000 sq. yards respectively (Table 45), surpassing exports of silk tissues in value. Development has continued since then, and rayon tissues now rank third among Japanese export articles, being surpassed only by cotton tissues and raw silk.

TABLE 45. EXPORTS OF RAYON TISSUES FROM JAPAN (1928-1936)

	Quantity (In thousand sq. yds.)	Value (In thousand yen)
1928	13,031	8,328
1929	47,513	27,163
1930	89,632	34,929
1931	139,517	39,713
1932	241,565	60,539
1933	260,043	77,381
1934	345,656	113,484
1935	424,114	128,234
1936	527,941	149,258

The Tei-jin Times.

How has this remarkable development come about? The primary factors which have given rise to this growth, in addition to the depreciated yen, are: (1) the presence of a manufacturing system and skilled workers in the silk textile industry in Japan that were well adapted to the rayon weaving industry; and (2) the epoch-making development in our rayon yarn industry, which provided the weavers with an abundant and cheap supply of rayon yarn.

We shall begin with a brief survey of the rayon yarn industry in Japan, and then turn to the rayon weaving branch.

The first rayon yarn factory was established in Japan in 1916. The output of rayon yarn in Japan, which was only 100,000 lbs. in 1918, amounted to a little more than 90,000,000 lbs. in 1933 (Table 46), and Japan is now, after the United States, the principal rayon yarn producer in the world.

In 1925 there were only five rayon yarn companies, with an aggregate capital of ¥9,550,000; the number had increased to 17,

with an aggregate capital of ¥ 222,000,000, in 1934. Likewise the persons employed in this branch of industry increased in number from 7,658 in 1923 to 64,727 in 1935. If we include the families of these employees, more than 200,000 persons are earning their livelihood in this newly born industry.

TABLE 46. PRODUCTION OF YARN IN JAPAN (1918-1936)

	Quantity (In thousand lbs.)	Value (In thousand yen)
1918	100	—
1919	140	8,454
1920	200	677
1921	250	334
1922	527	354
1923	780	473
1924	1,368	5,046
1925	3,200	9,808
1926	5,000	14,173
1927	10,500	25,608
1928	16,500	36,779
1929	27,000	45,814
1930	35,959	49,881
1931	46,764	51,023
1932	64,382	—
1933	90,429	—
1934	156,000	—
1935	224,000	—
1936	275,355	—

Based on *Factory Statistics*, and the Report of the Teikoku Jinken Co., Ltd.

All the factories in this industry possess up-to-date equipment and the scale of operation is also very large, each factory employing on the average over 2,000 workers. Consequently, working conditions in this industry are good. The eight hour working day prevails throughout the whole of this branch of industry, and the average wage per hour was 12 *sen* in 1935, or 60 per cent higher than that of the weaving industries of Japan. The welfare schemes for workers are also adequate.

The price of rayon yarn has dropped with increasing rapidity as the cost of production fell as the result of technical improvements

in manufacturing, and is but one-fifth of what it was in 1923 (Table 47).

The price of rayon yarn, 120 denier, is about ¥ 60 per 100 lbs., which is somewhat cheaper than that of cotton yarn of similar dimension. This is due to the following facts: eighty per cent of the cost of cotton yarn is taken up by the price of raw cotton which must be imported from abroad, whereas in the case of rayon yarn, the cost of pulp does not exceed 30 per cent of the total cost

TABLE 47. PRICE OF RAYON YARN IN JAPAN (1923-1936)
(quality 120 denier per 100 lbs.)

	Yen	
1923	420	
1924	350	
1925	365	
1926	300	
	Maximum	Minimum
1927	288	214
1928	280	204
1929	253	130
1930	210	98
1931	185	65
1932	250	72
1933	189	95
1934	108	87
1935	93	53
1936	88	53

The Tei-jin Times.

TABLE 48. COST OF RAYON YARN IN VARIOUS COUNTRIES (DECEMBER, 1933)
(In yen per 100 lbs.)

	U.S.A.	Gt. Britain	Germany	Italy	Japan
Pulp	11.0	11.0	11.2	11.4	11.4
Chemical materials	38.8	38.2	35.0	29.9	18.6
Labour cost	54.3	49.3	36.5	17.6	10.8
Power	23.3	22.8	17.3	20.2	11.4
Other expenses	28.0	27.0	25.0	8.8	7.8
Total	155.4	148.3	125.0	87.9	60.0

The Tei-jin Times.

(would be around ten per cent at par of exchange) and the other items such as chemicals, machinery, etc., are mainly of domestic manufacture. Consequently, a far greater opportunity is presented for rayon yarn manufacturing to reduce the producing cost by technical improvement than in the manufacture of cotton yarn. Furthermore, the price rise of imported raw materials, owing to the depreciated yen, affects the cost of rayon yarn to a lesser degree than that of cotton yarn. Thus, the various components in the cost of rayon yarn in Japan as compared with those in other countries are as given in Table 48, which shows clearly why the low price of rayon yarn is a vital factor in stimulating Japanese export of rayon tissues.

2. GROWTH OF RAYON WEAVING INDUSTRY

We have no available statistics concerning rayon tissues for the earlier periods, for rayon weaving is a newly developed industry in Japan, and the figures for rayon tissues were included until

TABLE 49. OUTPUT OF RAYON TISSUES IN JAPAN (1930-1936)
(In thousand yen)

		1930	1931	1932	1933	1934	1935	1936
Wide width for export	Crêpes & <i>Kabe-ori</i> ¹	5,887	12,292	24,501	35,967	75,302	69,204	96,318
	Figured	21,965	21,119	21,970	17,059	17,302	22,481	24,622
	Velvet	40	469	49	134	361	993	608
	Others	32,015	36,213	42,682	58,311	61,317	54,688	86,465
	Total	59,907	70,093	89,202	111,471	154,282	147,366	208,013
Narrow width for domestic use	Crêpes	3,581	3,747	5,585	8,689	10,450	11,876	21,334
	Cloth for Japanese Clothes	5,256	6,501	4,713	7,611	10,650	21,510	35,424
	Others	4,564	2,896	2,515	3,772	3,818	5,453	7,522
	Total	13,401	13,144	12,813	20,072	24,918	38,839	64,280
Wide Special types	<i>Obi</i> ² for Men	446	375	283	182	223	202	2,076
	<i>Obi</i> for Women	22,629	19,891	18,089	15,938	18,219	22,740	26,867
	Ribbons & Tapes	182	517	255	243	444	352	359
	Others	720	752	1,098	2,114	3,020	4,114	5,087
	Total	23,977	21,535	19,725	18,477	21,906	27,408	34,389
Total		97,285	104,772	121,740	150,020	201,106	213,613	306,682

¹ *Kabe-ori* is a kind of crêpe.

² *Obi* is a Japanese sash.

Based on *Annual Statistics of Cotton and Silk Tissues*.

recently in those of silk tissues. The value of the rayon tissue output in 1936, however, reached ¥ 306,000,000.

The increase in the production of rayon tissues has taken place almost exclusively in the wide-width tissues for export, while the production of the narrow-width or special types for domestic use has been practically at a standstill. In 1931, the wide-width tissues for export purposes represented 61 per cent of the total quantity of rayon tissues produced, but in 1933 that percentage had climbed to 74. In 1928, 12.9 per cent of all the yarn produced was used for weaving tissues for export purposes; in 1932, it had reached 67.4 per cent. In terms of value, more than 50 per cent of the total production of rayon tissues was exported.

The principal markets for Japanese rayon tissues are the Eastern Asiatic and South Seas areas, especially British India, the Netherlands Indies, and Australia.

TABLE 50. JAPAN'S EXPORTS OF RAYON TISSUES TO PRINCIPAL COUNTRIES
(1928 AND 1930-1936)
(In thousand yen)

	1928	1930	1931	1932	1933	1934	1935	1936
British India	1,319	10,527	16,530	22,554	17,654	22,422	22,152	26,220
Netherlands Indies	431	7,768	7,970	13,644	14,973	13,068	12,675	11,632
Manchoukuo and Kwantung L. T.	1,634	505	192	621	2,926	8,268	11,983	22,333
Australia	—	120	513	2,899	9,136	16,937	22,306	18,508
Egypt	—	—	862	5,726	4,328	8,076	5,449	2,941
Union of South Africa	—	457	2,912	3,126	4,873	6,250	5,149	5,818
Straits Settlements	740	3,688	2,053	2,143	3,294	3,688	136	2,847
Other Countries	4,205	11,864	8,681	9,827	20,198	34,775	48,384	59,159
Total	8,329	34,929	39,713	60,540	77,382	113,484	128,234	149,258

The *Tei-jin Times*.

The history of the development of the rayon weaving industry in Japan is on the whole a story of a transition from the silk weaving industry. The production centres for rayon tissues, Fukui and Ishikawa Prefectures in the northern district of the central part of the Main Island along the Japan Sea, Gumma Prefecture about fifty miles north of Tokyo, and Kyoto, are places which were

famous as districts for silk weaving in former days. Now the Fukui and Ishikawa Prefectures are principally engaged in the weaving of rayon for foreign markets, while Gumma Prefecture and Kyoto are the principal weaving centres for the home market.

The reasons why people in the silk weaving industry were able to shift easily over to the weaving of rayon are:

(1) The production processes are practically alike. Equipment set up for silk weaving may be utilized for weaving rayon without any alterations whatsoever. Moreover the uniformity in quality of rayon yarn makes its weaving quite easy.

(2) Rayon yarn is cheaper than raw silk and there is little need to worry about the uniformity of its quality at the time of purchasing it.

(3) More rayon tissue can be woven in a given time, so that the capital required for a given volume of production is not locked up for such long periods. For instance, it takes over two weeks to weave 60 yards of *habutae* silk but 60 yards of rayon tissue can easily be woven in two days.

Because of these factors the manufacturers who had been suffering from business inactivity in the silk weaving industry, shifted over to the weaving of rayon.

TABLE 51. FACTORIES WEAVING SILK AND RAYON TISSUES
IN FUKUI PREFECTURE (1923-1924 AND 1926-1935)

	1923	1924	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Silk tissues						483	347	318	282	268	299	260
Rayon tissues	292	619	599	725	778	471	688	733	965	1,029	1,475	1,628

Based on *Factory Statistics*. Excludes factories with four workers and under.

This transition taking place in Fukui Prefecture, which is the main centre of the rayon textile industry, is shown in Table 51.

The decreasing number of factories from 1924 to 1926 is due to the decline in the number of silk weaving mills, for at that time the comparatively undeveloped state of the rayon industry did not offer them opportunities for shifting over to the latter. With the subsequent development of rayon weaving many silk weaving mills have shifted over to the rayon weaving branch, others

which had been closed have re-opened, and many new ones have been set up. The rayon weaving mills now number over seven times the number of silk weaving mills. A similar trend is shown in the figures for output of these two industries (see Table 52). If we bear in mind the fact that rayon is cheaper than silk, the rapidity and extent to which rayon is replacing silk is even more clearly seen.

TABLE 52. PRODUCTION OF RAYON TISSUES AND SILK TISSUES
IN FUKUI PREFECTURE (1930-1936)
(In thousand yen)

	Rayon tissues	Silk tissues
1930	35,358	37,574
1931	47,526	37,341
1932	58,013	32,903
1933	60,735	36,239
1934	100,541	35,146
1935	82,020	41,494
1936	101,061	27,071

Annual Statistics of Cotton and Silk Tissues.

3. SCALE OF PRODUCTION

The number of rayon textile factories in Japan employing five or more workers and the number of persons engaged therein are shown in Table 53. The number of factories has increased in every class. The greatest percentage of the total number of factories is formed by those employing from five to nine workers, representing over one-half of the total. The total number of factories employing from five to twenty-nine workers constitutes almost 90 per cent of the total number, furnishing evidence of the extent to which small-scale mills are predominant in this industry. The situation as to the number of workers is a little different; the total number of workers in establishments employing from five to nine persons barely constitutes one-sixth of the total in the industry. However, the workers of small-scale factories employing fewer than thirty workers each represent almost 50 per cent of the total number.

The respective amounts turned out by the various factories classified according to size are shown in Table 54. Factories employing

TABLE 53. NUMBER OF FACTORIES AND WORKERS IN THE JAPANESE RAYON WEAVING INDUSTRY ACCORDING TO NUMBER OF WORKERS PER FACTORY (1929-1935)

Factories according to number of workers employed	1929		1930		1931		1932		1933		1934		1935	
	Factories	Workers	Factories	Workers	Factories	Workers	Factories	Workers	Factories	Workers	Factories	Workers	Factories	Workers
5- 9	497	3,237	719	4,695	885	5,603	1,070	6,832	1,243	8,005	1,753	11,190	1,981	12,552
10- 14	157	1,885	224	2,615	273	3,196	300	3,500	351	4,193	547	6,473	698	8,417
15- 29	212	4,416	277	5,558	329	6,629	416	8,339	470	9,562	685	14,341	864	17,799
30- 49	53	2,050	90	3,337	100	3,786	137	5,140	181	6,745	268	10,353	359	13,961
50- 99	22	1,533	35	2,402	42	2,842	69	4,792	91	6,214	147	10,386	182	12,592
100-199	3	439	9	1,892	12	1,604	16	2,249	34	4,585	49	6,792	60	8,415
200-499	—	—	5	1,444	6	1,484	6	1,722	10	2,926	15	4,354	19	5,311
500 & over	—	—	1	549	—	—	—	—	1	523	3	1,865	2	1,711
Total	944	13,560	1,360	22,492	1,647	25,144	2,014	32,574	2,381	42,753	3,467	65,754	4,165	80,758

Based on Factory Statistics.

THE RAYON TEXTILE INDUSTRY

from 15 to 29 workers command the lead with respect to the volume produced, and in 1931 their output represented 27 per cent of the total amount produced. Factories employing from five to nine workers came next with a production of 21 per cent of the whole. The total output of establishments employing fewer than 30 workers amounted to 60 per cent of the total production.

The annual production per worker and per factory in factories of different sizes is indicated in Table 55.

It must be borne in mind that the foregoing figures are confined to factories employing five or more workers. Hence these figures are insufficient to bring out clearly what an overwhelming majority

TABLE 54. PRODUCTION OF RAYON TISSUES BY VARIOUS SIZED FACTORIES IN JAPAN (1929-1935)
(In thousand yen)

Factories according to number of workers employed	1929	1930	1931	1932	1933	1934	1935
5- 9	6,636	8,356	9,317	14,199	17,292	23,559	22,523
10- 14	4,128	5,018	5,445	7,094	9,188	13,033	15,066
15- 29	10,253	11,065	12,027	17,808	20,341	28,731	31,335
30- 49	4,922	6,031	7,060	10,974	16,266	22,960	25,254
50- 99	85	5,131	5,198	10,373	15,565	23,890	26,047
100-199	1,325	2,385	3,354	5,429	11,382	16,082	16,849
200-499	364	2,194	2,908	3,728	6,156	9,424	9,177
500 & over	—	2,131	—	—	1,081	3,954	2,950
Total	27,713	42,311	45,309	69,605	97,271	141,633	149,201

Based on *Factory Statistics*.

TABLE 55. PRODUCTION OF RAYON TISSUES PER WORKER AND PER FACTORY BY VARIOUS SIZED FACTORIES (1931)
(In yen)

Factories according to number of workers employed	5-9	10-14	15-29	30-49	50-99	100-199	200-500
Average Production per worker	1,617	1,964	1,773	1,802	1,773	1,997	1,894
Average Production per factory	10,520	19,940	36,550	70,590	123,780	279,500	484,450

Based on *Factory Statistics*.

the small-scale factories or workshops possess in the industry as a whole. To complete the picture, let us compare the production figures of factories with five or more workers with the output of factories with four and under. This comparison is shown in Table 56, and indicates that 30 to 56 per cent of the total output of the industry is that of these small factories employing fewer than five workers.

It may be justly said that in Fukui Prefecture one worker attends to two looms on the average, and therefore, the number of mills

TABLE 56. OUTPUT OF RAYON TISSUES IN FACTORIES WITH
4 WORKERS OR UNDER AND 5 WORKERS OR OVER (1930-1935)
(In thousand yen)

	With four workers or under	With five workers or over	Total output
1930	54,974	42,311	97,285
1931	59,464	45,309	104,773
1932	52,132	69,605	121,737
1933	52,743	97,271	150,014
1934	59,335	141,633	200,968
1935	64,413	149,201	213,614

Based on *Factory Statistics*, and *Annual Statistics of Cotton and Silk Tissues*.

TABLE 57. NUMBER OF WEAVING FACTORIES AND WORKSHOPS
IN FUKUI PREFECTURE CLASSIFIED ACCORDING TO NUMBER
OF LOOMS (1924, 1927, 1930, AND 1933-1936)

Number of looms	1924	1927	1930	1933	1934	1935	1936
1- 9	373	374	478	618	788	755	770
10- 19	326	344	413	585	758	866	972
20- 29	233	185	198	280	338	373	418
30- 39	75	86	114	213	240	303	348
40- 49	43	58	71				
50- 69	54	57	56	95	103	101	117
70- 99	32	23	29	45	49	64	70
100-999	43	45	47	67	87	97	111
Total	1,179	1,172	1,406	1,903	2,363	2,559	2,806

Based on the Report of the Weaving Dogyo Kumiai (Trade Association) of Fukui Prefecture. Includes closed factories. Shows the whole number of weaving factories and workshops, of which those of rayon weaving occupy 80 per cent. As the distribution of factories according to the number of their looms is almost the same for rayon weaving as for all weaving, this table shows almost exactly the scale of rayon weaving in Fukui Prefecture.

with one to nine looms just corresponds to the number of factories with fewer than five workers. Judging from this fact, the table indicates that the percentage of small-scale factories of fewer than five workers each is noticeably low in the Prefecture of Fukui. To bring out this factual relationship further, let us examine Table 58.

TABLE 58. NUMBER OF FACTORIES (WHOLE COUNTRY AND FUKUI PREFECTURE) CLASSIFIED ACCORDING TO NUMBER OF LOOMS (1932)

Number of looms	Number of factories	
	Whole country	Fukui
Under 5	63,747	162
5- 9	3,890	334
10-49	4,354	942
50 and over	457	179
Total	72,448	1,617

Based on *Factory Statistics*. See note to Table 57.

Contrary to the general condition prevailing in the industry as a whole, smaller factories are few in Fukui Prefecture and the scale of the factories is relatively large. A similar situation prevails in the Prefecture of Ishikawa.

From the foregoing data we are able to make an interesting observation, namely, that whereas in the regions which are now turning out products for the home market and whose output is practically at a standstill the small-scale factories employing fewer than five workers constitute the overwhelming majority, the factories of Fukui and Ishikawa, producing 60 per cent of the total output and 80 per cent of the wide-width tissues for export purposes, are comparatively large-scale. The trend towards the enlargement of the factory scale in Fukui and Ishikawa is seen during the last

TABLE 59. NUMBER OF WORKERS PER FACTORY IN THE RAYON WEAVING INDUSTRY IN FUKUI PREFECTURE (1923-1936)

Workers per factory	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
		11	12	14	15	16	17	17	16	18	16	17	17	17

Based on the Report of the Weaving Dogyo Kumiai of Fukui Prefecture.

ten years, in which a transition from the silk to the rayon weaving industry and a stupendous increase in the volume of production have been taking place (Table 51).

Nevertheless, in spite of all that has been said, Japan's rayon weaving industry is still conducted on a very small scale. Even where the small factories are few, as in the Prefecture of Fukui, the establishments with fewer than 30 workers form almost 90 per cent of the total number.

4. LABOUR CONDITIONS

The number of workers engaged in the rayon weaving industry has increased steadily, as shown in Table 53. In 1933, the total number reached over 42,000. This figure excludes those factories with fewer than five workers, whose total estimated number of workers runs into over 60,000 or over 60 per cent of the total number of workers in this industry, which in turn totals around 100,000. In the Prefecture of Fukui, however, the factories employing under five persons are fewer than elsewhere, and hence the estimated number of employees in such small establishments is believed to be not more than 7 per cent of the total number in that prefecture.

Table 60 shows the sex and age distribution of workers in the rayon weaving industry. As is true of all textile industries in Japan in general, the greater number of workers are female. But whereas

TABLE 60. SEX AND AGE COMPOSITION OF RAYON WEAVING WORKERS IN JAPAN (1929, 1931, 1933-1935)

Age		1929	1931	1933	1934	1935
Under 16 years	Male	213	286	643	1,121	1,405
	Female	1,122	2,041	4,535	6,840	8,553
	Total	1,335	2,327	5,178	7,961	9,958
16 and under 50 years	Male	2,155	3,899	6,702	10,249	12,342
	Female	9,972	18,730	30,447	44,894	55,114
	Total	12,127	22,629	37,149	55,143	67,456
Total including 50 years and over	Male	2,384	2,219	7,445	11,477	13,879
	Female	11,176	20,927	35,308	52,125	64,067
	Total	13,560	23,146	42,753	63,602	77,946

Based on *Factory Statistics*.

the percentage of workers under 16 years of age in all the textile industries combined is 17 per cent of the total number of workers, the like percentage in the rayon weaving industry is only 12. This may be due to the fact that a comparatively high degree of experience is necessary in this industry and therefore the field of work for unskilled labour is limited. Moreover wages are based on a piece rate in this industry. These factors render it unprofitable to hire inefficient juvenile workers who are mature in neither body nor mind.

TABLE 61. NUMBER OF FAMILY WORKERS AND WAGE WORKERS
IN THE WEAVING INDUSTRY, FUKUI PREFECTURE (1931-1935)

	Factories & Workshops	Family workers		Wage workers	
		Men	Women	Men	Women
1931	1,560	844	1,310	3,608	21,308
1932	1,791	968	1,352	3,943	22,388
1933	1,968	1,422	1,780	4,709	25,484
1934	2,407	1,943	2,238	6,365	29,825
1935	2,606	2,062	2,398	7,239	32,968

Based on the Report of the Weaving Dogyo Kumiai of Fukui Prefecture. See footnote to Table 57.

As a general rule, family workers (members of the factory owner's family who help him in the factory but receive no wages) are numerous in small-scale industries. The percentage of such family workers in relation to the total number in this industry is shown in Table 61. According to this table, even in Fukui Prefecture with its comparatively large factories, there were over ten per cent of the workers who fell into this category in 1933. The trend is towards an increase in number each year. If we further classify the family workers according to sex, we find that in actual number the female workers predominate. On the other hand, male family workers constitute over 20 per cent of all (i.e. family plus wage) male workers, which is very much higher than the corresponding percentage for females.

In general, the male workers are engaged in running machines or in warping. The male family worker is quite often both a worker and the owner of a small factory at the same time. It is not unnatural that the wives and children of such workers should

also be engaged as family workers. The family workers are mainly found in mills having fewer than 20 looms each, and about 60 per cent of all factories employ some kind of family help.

Let us now examine the conditions of the workers. A general idea may be had from examining Table 62.

TABLE 62. AGGREGATE WORKING HOURS, WAGES, AND HOURLY WAGES IN THE RAYON WEAVING INDUSTRY (1929-1935)

	Aggregate working hours	Aggregate wages	Wages per hour
	Thousand hrs.	Thousand yen	Sen
1929	43,982	3,724	8
1930	65,926	4,299	7
1931	81,291	5,050	6
1932	98,191	6,362	6
1933	124,350	8,209	7
1934	193,228	13,213	7
1935	247,397	17,020	7

Based on *Factory Statistics*.

The aggregate number of working hours and the aggregate amount of wages have gone up together, but the wage per hour has declined. The average wage per hour in this industry for 1933 corresponded to the general average wage per hour for all Japanese textile industries combined, namely 7 *sen*. This is equivalent to only 60 per cent of the average wage per hour of all Japanese industries combined.

The amount and form of wages vary according to the manufacturing process or operation performed. To enumerate briefly the highlights in the production processes, they are as follows: At first, rayon yarn is put through a preparatory process, such as the starching and warping operations. These are performed mainly by machine and manual labour is not used to any great extent. The yarn that has passed through this preparatory process is then placed on a loom. The loom is an electric power-loom even in the small factories. Usually one person operates two or three looms. Except for the dyeing and printing processes, all operations from the preparatory process to weaving are performed in the same factory.

The allocation of workers to various processes is shown in three illustrations taken from Fukui Prefecture.

Example A. Looms 114. Workers 76, of whom 40 are female. Of this number one is a warper, 35 are engaged in the preparatory processes, and the rest are engaged in weaving.

Example B. Looms 67. Workers 38, of whom three are male. The preparatory processes take five female and three male workers, leaving 30 female workers to carry on the weaving.

Example C. Looms 6. This is a family workshop with three family workers. Both the preparatory processes and the weaving are done by all three.

Let us examine the amounts and forms of wages. In the family workshops without any outside helpers everything is jumbled into just the general household income and expenditure so that no accurate wage figure is obtainable. As the wage of the weaver is on a piece-work basis, it differs in accordance with the type of fabric being woven, but it usually runs from 45 to 60 *sen* per 60 yards of fabric, generally amounting to about ¥ 20 to ¥ 30 per month. While the output of each worker has increased with the increased efficiency of the looms, the wage rate has decreased in inverse ratio to the output. Hence the total monthly amounts of such piece-wages have remained stationary. The female workers in the preparatory processes who are paid on a *per diem* basis receive from 40 to 60 *sen* per day or about ¥ 13 to ¥ 18 per month.

The ordinary working hours run about ten per day. It is also the usual custom for the workers to have the first and third Sundays of each month off as holidays. Instances of over-time work are only occasional, due to the fact that the supervision of the prefectural authorities is strict, and also because in some places the supply of electric current is shut off after certain fixed hours. Nevertheless, some over-time work on the part of those in farm villages who are pursuing this industry as a supplementary occupation is said to be inevitable.

The greater proportion of the workers in this industry, which in turn is made up largely of female workers, come from rural villages within the prefecture. In the small-scale establishments, most of the workers are women and children from the immediate neighbourhood. Only a few large-scale factories have dormitory systems or employ workers from distant places.

Aside from health insurance premiums and meals paid for by the factories, there are very few other welfare facilities. The mills, however, are much more sanitary than the cotton mills. Relations between factory owners and workers are amicable, due largely to most of the workers being from the immediate neighbourhood, and moreover being predominantly young female helpers. A so-called family-like intimacy, therefore, prevails, and no labour disputes have been experienced. Generally speaking, the workers are treated almost like family members, and so the duration of employment is also comparatively long.

In other words, most of the workers in the rayon weaving industry are not of the up-to-date type that have to support themselves entirely by their earning as do industrial workers. The workers in the rayon weaving industry are usually daughters of tenant farmers or similar small farmers, who are not faced with the necessity of supporting entire households by themselves; their income merely constitutes additional earnings to their family households. Most of them are content with merely earning their own spending money or saving up for the expenses incident to their impending marriages. The wages are consequently low, but these cash incomes, however small, are of great importance to the peasant families which are eagerly seeking opportunities for utilizing the spare time of their surplus family labour. There is a dire need for some place where the surplus labour from these poverty stricken farm areas can be dumped. The various villages in Fukui Prefecture suffering from both depression and excess population are offering rayon factories special privileges and factory sites at very low rents in order to attract such mills to their villages.

5. ORGANIZATION OF THE INDUSTRY AND THE POSITION OF THE WEAVER

Although it has been repeatedly stated that the rayon weavers carry on their operations on a small scale, the mills of late have been becoming gradually larger and are taking on the appearance of modern industrial plants. To-day there is an exceptionally large weaving factory with as many as 4,000 looms. Nevertheless small-scale enterprises of fewer than 20 looms, the greater number of

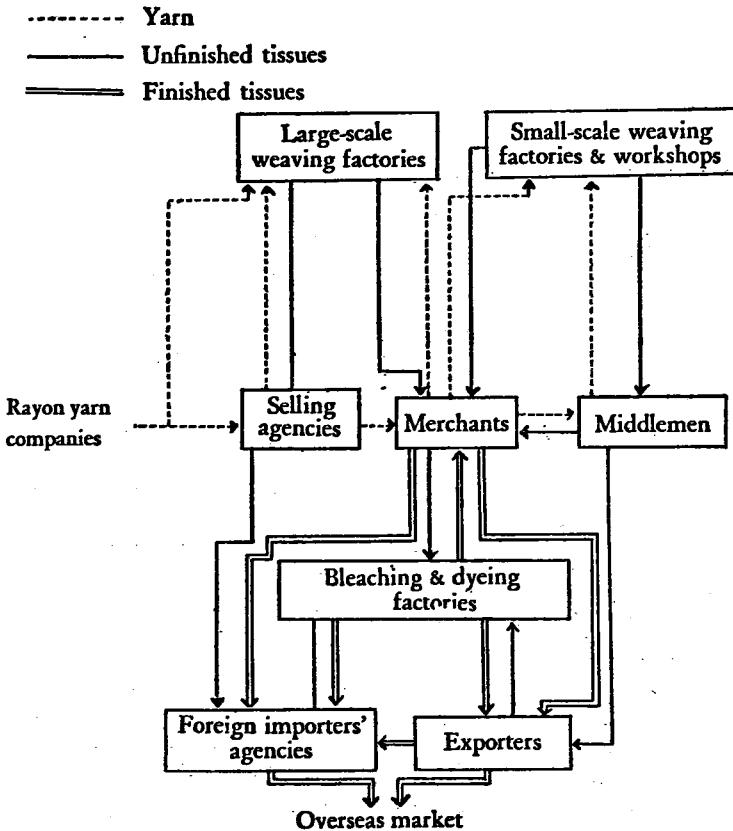
which utilize family workers, are still in the majority. It is not unusual for such a small mill to be nothing more than a part of the factory owner's home; in other instances, the owner's living rooms are just a part of his mill.

The varying scales of factory operations play a part in the mode of employing workers and also in the geographical distribution of the factories. In the Prefecture of Fukui there had been many unemployed skilled silk weavers, and their presence was one factor in the development of the rayon industry in that prefecture, but recently even a shortage in the supply of weavers has become evident. Competition in securing workers had become active. The large factories having dormitory facilities are able to recruit large numbers of workers from the outlying districts, but such a practice is impossible for the small mills, so they have solved the problem by moving their own plants out into the rural areas. This trend is still continuing. Moreover, the farmers, wishing to utilize their surplus or spare-time labour, have taken to rayon weaving as a supplementary occupation. The number that have taken up this weaving is increasing. There are some villages where approximately 90 per cent of the working population are more or less engaged in the weaving of rayon textiles. It is believed that the seasonal fluctuation in the amount of rayon tissues produced is partly due to the fact that these farmers engage in weaving as a supplementary occupation only during the non-farming seasons.

The large-scale mills undertake the purchase of rayon yarn and the sale of their finished manufactures themselves. The small mills with fewer than 20 looms each, however, do not have adequate capital; they are consequently unable to purchase raw materials or sell their woven cloth unaided. Hence, a merchant class steps into the picture and sells the yarn to these small-scale weavers and then purchases the woven cloth from them. This is, however, merely the ostensible relationship. The actual relationship is that of the merchant-employer entrusting the weaving process to these small weavers and paying them for their labour. These small-scale establishments are really so-called 'out-weavers'. The greater number of them are under the control of the merchants, and because of this dependent position, a lowering of the price paid for their services is often arbitrarily forced on them. On the other hand, the risk of changes in the market price of rayon textiles, of which the

fluctuations are often violent, is not borne by the weaver. Hence, although these small-scale weavers are subject to the merchant-employer system or putting-out system, they enjoy a certain degree of protection from the risks of the market. The small-scale weavers in this industry are not usually exposed to the severe financial exploitation by merchants which their fellow small-scale weavers in

DIAGRAM 48. ORGANIZATION OF THE RAYON WEAVING INDUSTRY IN JAPAN



the other branches of the textile industry are suffering. This is because rayon yarn is inexpensive, the period during which capital must be tied up is relatively short, and the demand for the rayon tissues has been fairly constant.

The channels through which the raw materials come to the mills and through which the finished goods find their way into the open market are represented in Diagram 48.

Very few rayon yarn companies sell direct to the weavers; most of them entrust their sales to selling agencies, who are usually the wholesale merchants in the districts where the weaving mills are located. The weaver purchases the yarn from the merchant or middleman, and also sells his woven tissues to the same person from whom he purchases the materials. Then the merchant generally turns over the dyeing and printing of the fabric to dyeing factories in accordance with the exporter's directions, and upon the completion of this process, he sells the finished goods to the export merchant. Only the main persons in the commercial organization of this industry have been enumerated above. There may naturally be other intermediate dealers who may force themselves into the organization scheme.

Having thus seen the position occupied by the weaver in the trading organization of the industry, let us now see what his business conditions are.

The prime factors which affect the business conditions of the weaver are the selling price of tissues and the purchasing price of rayon yarn, which constitutes the greatest portion of his producing cost. These factors are not of such great concern to the small-scale weavers, who are really paid wages by merchants for their services, but to the weaver who purchases his yarn and sells his woven goods on his own responsibility, these are most vital factors.

The items which make up the total cost of production are set forth in Table 63.

The costs of the requisite materials, and of bleaching, dyeing, and printing constitute about 90 per cent of the total cost of turning out plain cloth, while the cost of weaving is about eight per cent. Even in the case of comparatively high quality goods such as figured tissues, the latter cost is only about 14 per cent. And moreover, the market price of rayon tissues fluctuates not so much according to the changes in the prices of component items in the

cost of production, but to a greater extent according to the changes in the supply and demand of rayon tissues. The price of rayon tissues for export has been declining, as shown in Table 64.

TABLE 63. COST PER YARD OF RAW MATERIAL AND PROCESSES IN THE MANUFACTURE OF RAYON TISSUES

		Raw material	Weaving	Bleaching	Dyeing	Printing
Ordinary tissues	A	5.95	1.5	2.00	2.50	5.5
	B	8.20	2.0	2.75	3.25	6.5
Figured tissues	A	5.67	2.5	2.00	2.50	5.5
	B	7.58	3.5	2.75	3.25	6.5

A: 27 inches wide; B: 36 inches wide.

TABLE 64. OUTPUT AND PRICE PER *Tan*¹ OF RAYON TISSUES IN FUKUI PREFECTURE

	1925	1927	1929	1931	1933	1935
Output						
Quantity (thousand <i>tan</i>)	37	439	1,969	5,160	8,880	15,027
Value (thousand yen)	619	6,886	19,610	26,472	51,107	58,749
Price per <i>tan</i> (in yen)	16.7	15.6	9.9	5.1	5.7	3.8

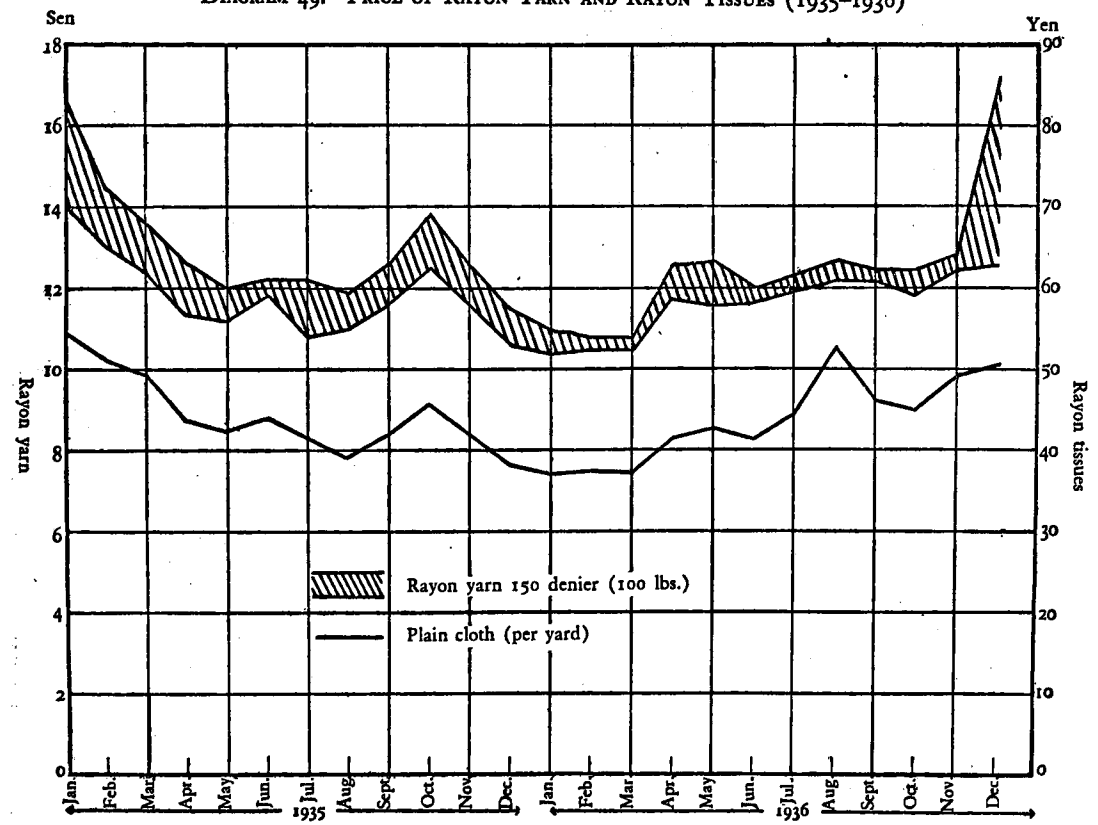
¹ A *tan* is roughly the length of cloth required for a *kimono*, usually 28 long *shaku*, or about 12 yards.

Based on the Report of the Weaving Dogyo Kumiai of Fukui Prefecture.

Rayon yarn is produced from these components mainly by large companies and the dyeing, bleaching, and printing costs are fairly well regulated by manufacturers' associations, so that the costs of these items have been lowered but little. Any drop in the market price of tissues, therefore, most seriously affects the weaver, on whose shoulders the burdens are usually shifted. The weaving cost of 1.5 to 3.5 *sen* is the result of this decline. In 1928, the weaving cost was seven to eight *sen* per yard.

The weavers, faced with this severe situation, put forth strenuous efforts to reduce the cost of production and raise the efficiency of their looms. Their endeavours have brought about some notable results. The first is the remarkable increase in loom efficiency, which is now about three times what it was in 1924. This improve-

DIAGRAM 49. PRICE OF RAYON YARN AND RAYON TISSUES (1935-1936)



Based on the Report of the Weaving Dogyo Kumiai of Fukui Prefecture.

ment is attributable to improvements in the technique and in the quality of the yarn. The second is the improvements that have taken place in the starching process; better paste is being produced at lower prices. The cost of figure-paper has likewise been reduced. The wages of workers in weaving mills naturally suffered a cut side by side with these improvements.

TABLE 65. COST OF PRODUCTION OF PLAIN CLOTH (1933)
(3000 yards \times 27½ inches)

Starching	4.00
Fuel, electric power, & lighting	5.72
Depreciation of machines	2.50
Wages of workers performing preparatory processes	14.53
Wages of weaving workers	15.00
Salaries of technicians and foremen	2.64
Wages of other workers	2.74
Health insurance premiums	1.00
Allowance for sick and injured workers	0.29
Ground rent	1.00
House rent	4.11
House tax	1.17
Other taxes	0.64
Repairs	5.03
Conditioning charges	1.20
Fire insurance premiums	0.78
Other expenses	2.34
Total	64.69

Based on the Report of the Tissue Inspection Office of Fukui Prefecture.

In analysing weaving costs, we find that labour cost occupies over 55 per cent of this expenditure. The reduction of wages as the result of the improvements mentioned above, therefore, directly affects the total cost of production. This is the clue to an understanding of why the use of family workers in the small-scale mills is such a tremendous weapon in cases of forced competition. Moreover, as this type of weaver usually mixes his household expenditures with his costs of production, there is ample opportunity for economizing overhead costs, so that even with very low earnings he has exceptional staying power with which to withstand the fiercest kind of competition.

6. CONTROL IN THE RAYON WEAVING INDUSTRY

From the discussion of the conditions under which rayon textiles are being produced in Japan today, we turn to the examination of the mechanics by which this industry is regulated or controlled.

A cartel under the name of the Nippon Union of Rayon Yarn Companies was organized in February, 1928, and its membership includes all the rayon yarn companies. Several agreements to curtail production have been entered into, and because of the small number of members and the large capital of each the cartel has shown great effectiveness.

While the bleaching, dyeing, and printing branch of the industry is composed of many small-scale establishments, the regulating organization is quite adequate. In the main prefectures there are manufacturers' associations, *Kogyo Kumiai*, for the dyeing of rayon textiles for export. These dyeing manufacturers' associations are federated into the Federation of Dyeing Manufacturers' Associations for Export Rayon Tissues organized on 1st September, 1932. A minimum rate for the dyeing, bleaching, and printing operations and the regulation of output have been agreed upon, and very effective control is being displayed.

By contrast, the regulating organization of the rayon weaving industry, which is the mainspring of the industry, with numerous plants, has been comparatively weak and ineffective until recently, even though there were *Dogyo Kumiai*, or trade associations which were organized in various provinces and which carried out inspections of goods. Since 1930 *Kogyo Kumiai* or manufacturers' associations have been gradually organized and developed in the chief rayon textile districts.

The activities of these *Kogyo Kumiai* are not necessarily all the same, but in general they undertake the inspection of goods, the regulation of output, the fixing of minimum selling prices, joint-selling, the setting up of co-operative equipment and the financing of their members in case of need. This regulating organization of the rayon weaving industry, though quite weak at first, became a strong institution in December, 1934, when the scattered local *Kogyo Kumiai* were united and consolidated into the Japan Federation of Rayon Weaving Manufacturers' Associations. This organization has striven to eliminate undesirable tendencies arising from

free competition among medium-sized and small-scale factories. Regulations concerning the registration of the number of weaving machines and the amount of production have been put into force and are very successful. At the same time the inspection of exported goods, which had been carried on by self-governing institutions like *Dogyo Kumiai* and *Kogyo Kumiai*, began to be systematically undertaken by the government organization after January, 1935. Government control in this branch of industry has been very much improved and strengthened.

With regard to the export merchants of rayon tissues, there are exporters' associations in Osaka, Kobe, Yokohama and Nagoya. The exporters' associations fused themselves into a larger body of national scope, namely the Japan Federation of Rayon Exporters' Associations, in August of 1933. The Federation has been endeavouring to establish a minimum price at which rayon textiles may be exported.

CHAPTER IV

THE WOOLLEN INDUSTRY

I. THE GROWTH OF THE WOOLLEN TEXTILE INDUSTRY IN JAPAN

i. *Period when foreign supply of woollen tissues dominated*

THE woollen textile industry in Japan has been rapidly developed, but it is only in very recent years that it has reached the stage of being an export industry. The origin of woollen tissue can be traced far back to about fifteen hundred years ago, but it was after the Meiji Restoration in 1868 that it established itself as an enterprise. In 1897 the Government constructed a factory in Tokyo to encourage this industry. The amount produced by this factory, however, was not comparable with that of imports, nor could its products compete with the foreign-made goods in price and quality. But we cannot overlook the fact that this government factory served as a reservoir for the private factories in providing them with technical experts and guidance, and it laid the first firm foundations in the development of the industry in Japan.

The Sino-Japanese War, 1894-1895, afforded the first important landmark in the history of the Japanese woollen industry, which up to that time had been only in its embryo stage. Owing to the increased military needs for woollen cloths and the boom following the war, private enterprises made a marked advance. Further, the abolition of the duty on raw wool which had been in force since the Ansei Treaty of 1858, and the raising of the tariff on finished woollen goods from 5 per cent to 25 per cent *ad valorem* by the Tariff Act of 1899 were influential factors in the post-war development of this industry. Notwithstanding the above mentioned facts, the increase of domestic production could not keep pace with the increased demand, a large part of which continued to be met by

imports. Moreover, the kinds of products manufactured at home were also limited to those which did not require a high degree of skill.

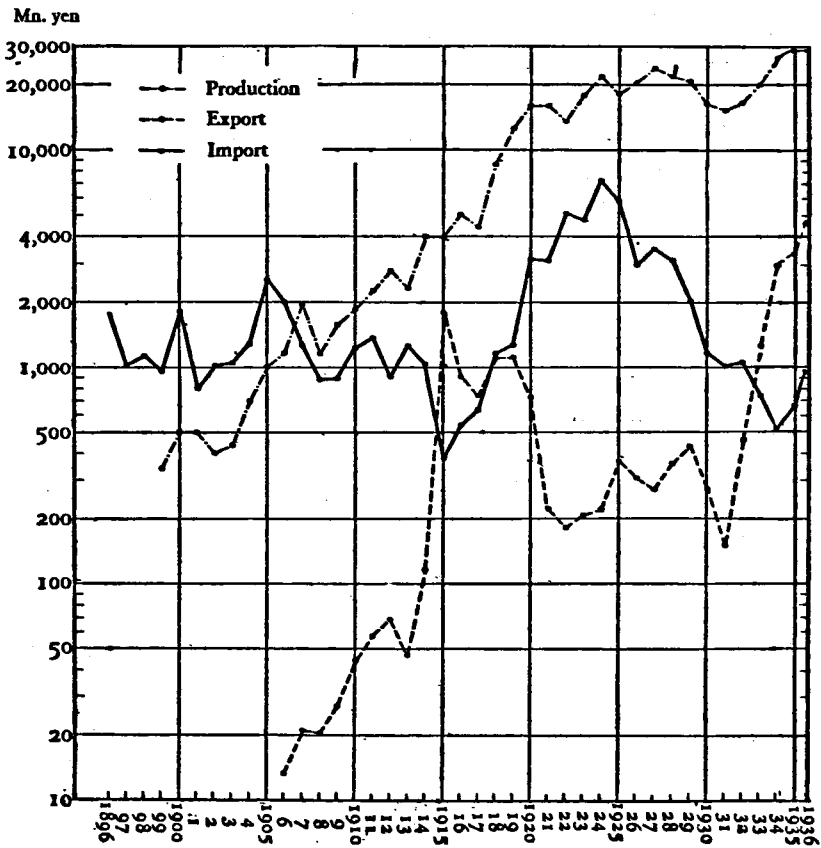
ii. *Growth of the muslin industry*

The rise of the muslin industry in this period should now receive some attention. Up to this time muslin factories, which were very few in number, were only equipped with hand looms, and accordingly Japan had to look entirely to foreign-made muslin. The boom after the Sino-Japanese War, however, enabled the raising of capital which was indispensable to the muslin industry, and of which the lack had been the chief obstacle to the growth of this industry. Many new muslin factories came to be established and hand looms were supplanted by power-looms. Consequently the production increased remarkably, and at last reached a stage in which home-made muslin was able to vie with imported muslin on an equal footing. This development of the muslin industry laid the foundation for the later development of the Japanese woollen industry as a whole.

What gave a still greater impetus to the development of the muslin industry was Japan's victory in the Russo-Japanese War (1904-1905). The great boom which ensued and the reform in the tariff enabled the muslin industry to make a rapid development, while successfully checking imports, which began to decline from 1905, especially after the tariff reform of 1911. Foreign manufactures were gradually expelled from the home market, till by 1916 they had disappeared completely (Diagram 51). Though this development of the muslin industry was largely due to the post-war boom and the tariff reform, it also owed much to the invention of the printing process and other technical improvements. The invention of machine printing enabled the dyeing of muslin on a large scale with several distinct bright colours. While this technical revolution was a menace to the art of hand printing prevalent in those days, it also gave a heavy blow to the imported muslin, for muslin began to be printed in large quantities with such patterns as would suit Japanese tastes.

The effect of the Russo-Japanese War was not confined to the muslin industry. Other branches of the woollen industry such

DIAGRAM 50. JAPAN'S PRODUCTION, EXPORT AND IMPORT OF WOOLLEN TISSUES (1896-1936)



as the manufacture of woollen cloth, stuffs, and serge became active, and new factories sprang up in great number. But in these fields, as the method of production was still rather primitive and equipment insufficient, the woollen cloth and stuffs for military use during the war were mostly imported from abroad (Diagram 53).

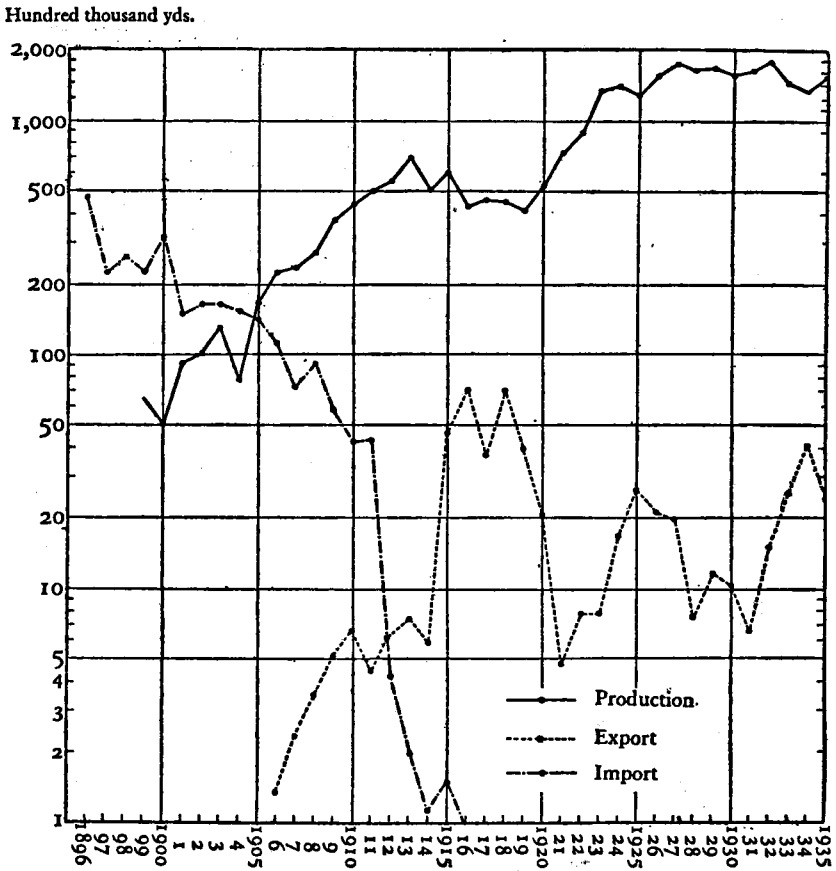
The ascendancy of the muslin industry over other branches can be accounted for by the fact that muslin was from the first used for making native clothes with a broad home market while other woollen clothes, stuffs, and serge for Western dress had to cultivate a new field. Thinner kinds of serge, however, began to be used for making native clothes and to take a firm position in the market; yet the serge industry for Western dress was still in its infancy as compared to its later development, on account of the unsuitability of design for *kimono* and the lack of skill in weaving. The manufacturing of woollen cloth, stuffs, and serge for Western dress was, therefore, limited to military use.

iii. *Establishment of the woollen and worsted yarn spinning industry and the development of the weaving industry*

The World War was a powerful stimulus in further development of the woollen industry in Japan. The large export of woollen cloth to Russia for military use, the increased domestic demand for woollen cloth and serge caused by the change in the mode of living and by the stoppage of imports—all these played an important part in bringing about great activity in all branches of the woollen textile industry. New companies and factories were established, while the existing establishments enlarged their plants, especially in Aichi Prefecture located in the centre of Japan. In this district there was a remarkable expansion of small-scale weaving mills with hand looms, making serge for native clothes.

Until the War the semi-manufactured raw materials such as tops and yarns had been procured entirely from foreign countries, and the imports of these materials had been increasing year by year. With a view to attaining self-sufficiency, the manufacture of these materials was undertaken by some people, but before the efforts bore fruit, the Great War broke out and many factories were obliged by the shortage of raw materials to suspend operations. An abnormal rise in price and profits followed, but the increase in

DIAGRAM 51. JAPAN'S PRODUCTION, EXPORT AND IMPORT OF MUSLIN (1896-1935)



quantity of production was slight (Diagram 52). During this period of difficulty which the weaving industry was undergoing the spinning branches achieved a tremendous development. But this, too, suffered from the export prohibition of Australian raw wool. Although the shortage of raw wool was relieved to some extent by a supply from South Africa and South America, it did not entirely suffice by any means.

iv. *Manufacture of woollen cloth and serge for Western dress*

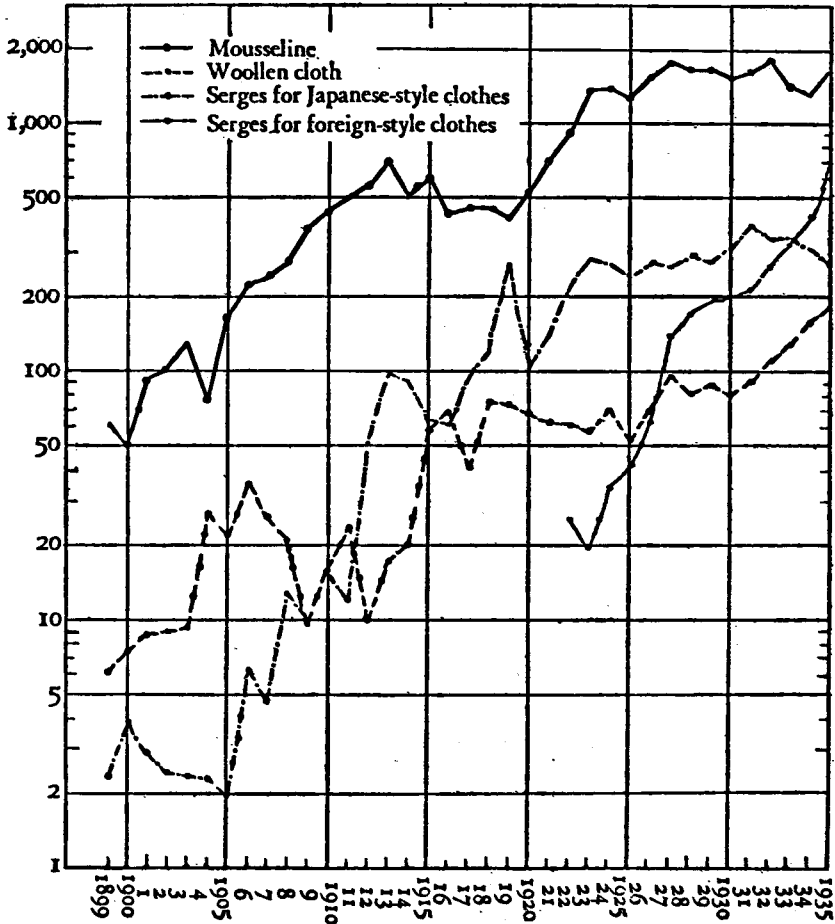
The woollen industry received a heavy blow from the severe depression which followed the Armistice; the heavy inflow of foreign goods from European countries as their mills returned to normal conditions, the destruction of mills by the great earthquake of 1923, and the retrenchment policy of the Government, all acted adversely on the home industry. It was thrown into such a desperate condition that even the suitability of the woollen industry to the country began to be doubted. The period after the War towards the beginning of the Showa Era was, so to speak, a long period of adjustment and reorganization for this industry.

In spite of the fact that many establishments underwent a heavy financial drain and imports of woollen cloth and serge increased, the home production also showed a steady rise. While the manufacture of muslin and serge for Japanese clothes had reached the height of development and accordingly showed little sign of making further progress, the manufacture of woollen cloth and serge for Western clothes which had by then become popular among the Japanese made a remarkable advance. The first year of Showa (1926) was a turning point in this industry, when domestic production exceeded imports. The depreciation of the yen after the reimposition of the gold embargo in 1931 tended to drive foreign manufactures from the home market, and simultaneously brought about a remarkable increase in the domestic output of woollen cloth and serge for Western dress (Diagram 53).

Now let us proceed to the study of the factors which brought about such a rapid growth in the Japanese woollen textile industry within such a short period of time. The first is the rapid increase of domestic demand. In the advance of time, especially after the World War, modes of living manners and customs were fairly

DIAGRAM 52. PRODUCTION OF WOOLLEN TISSUES IN JAPAN (1899-1935)

Hundred thousand yds.



westernized in Japan. In consequence of these changes, Western clothes, for which demand until twenty-five years ago was limited to quite a small circle, began to be welcomed universally, regardless of sex, age, and class, in both urban and rural districts until they came to be regarded as necessities. As a result of these changed living conditions, the per capita consumption of wool rose from 1 lb. in 1912 to 3.7 lbs. in 1933, or, say, about a four-fold increase. In addition, the rapid increase of Japanese population may be counted as another factor increasing the demand. The total consumption of wool, which was only 50,000,000 lbs. in 1912, reached almost 250,000,000 lbs. in 1933, nearly a five-fold increase. It indicates that the increase was due not only to the changed conditions

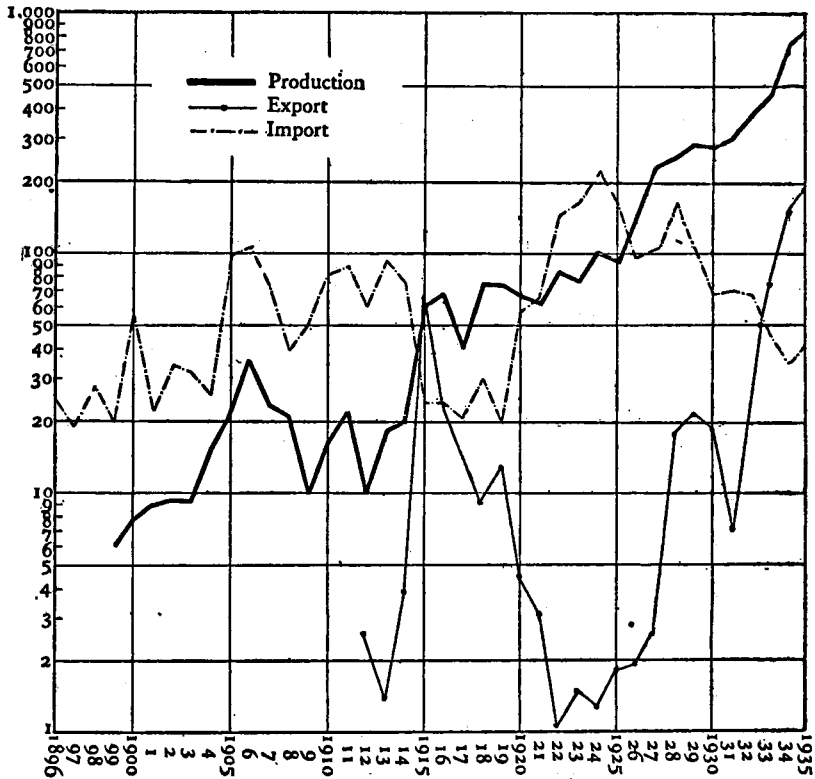
TABLE 66. WOOL CONSUMPTION IN JAPAN (1912-1933)

	Total Consumption	Per Capita Consumption	Population
	(In thousand lbs.)	(Lbs.)	(In thousands)
1912	50,418	0.97	52,167
1913	60,582	1.14	52,912
1914	49,791	0.93	53,669
1915	69,922	1.28	54,439
1916	56,511	1.02	55,225
1917	60,851	1.09	56,023
1918	61,468	1.10	55,663
1919	62,767	1.12	56,253
1920	95,331	1.70	55,963
1921	62,866	1.12	56,787
1922	141,414	2.45	57,656
1923	153,719	2.63	58,482
1924	165,619	2.80	59,139
1925	154,082	2.58	59,737
1926	136,149	2.25	60,522
1927	160,919	2.62	61,317
1928	166,442	2.68	62,122
1929	139,588	2.22	62,938
1930	138,900	2.16	64,450
1931	216,645	3.31	65,367
1932	223,296	3.37	66,296
1933	249,905	3.72	67,239

Author's estimate. Includes tops, woollen and worsted yarns, woollen cloths and serges in terms of raw wool.

DIAGRAM 53. JAPAN'S PRODUCTION, EXPORT AND IMPORT OF WOOLLEN CLOTH AND SERGES (1896-1935)

Hundred thousand yds.



Excludes Serges for Japanese-style clothes.

of life but to the increased population (Table 66). These two factors called forth a lasting demand for woollen cloth and serge and helped towards the consolidation and expansion of the home market.

The second factor is the steady progress achieved in the yarn spinning branches of the industry within the country. Supply of raw materials such as yarns and tops which had been grievously wanting during the War became more easily obtainable, and consequently the woollen weaving industry has been put on a more stable foundation (Table 67).

The third factor may be assigned to the protection of the woollen textile industry, and to the depreciation of the yen in recent years. The woollen cloths for Japanese clothes such as muslin and serge found a ready market and accordingly soon succeeded in expelling foreign goods from the home market. The industry of weaving serges and woollen cloth for Western dress, however, under the intense competition of foreign goods, might not have achieved its present state of prosperity, were it not for the aid of the protective tariff and the depreciated yen, even though there was a steady increase in the demand for domestic manufactures as a consequence of improvements in quality and the lowering of the cost of production.

v. Transition from domestic to export industry

Generally speaking, as mentioned above, the woollen textile industry in Japan has only recently reached the self-supporting stage. The amazing expansion has taken place in the production of woollen cloths and serge for Western clothes. The imports of serge and woollen cloth, a few years ago, had far exceeded the exports, but from about 1928 on, the amount of exports gradually increased. Especially after the re-imposition of the gold embargo a remarkable increase was witnessed, until finally in 1933 the exports exceeded imports. This was an epoch-making event in the history of the Japanese woollen industry. In view of the fact, however, that exports of serge and woollen cloths amounted to 10.6 per cent of the output and the total export of woollen tissues constituted no less than 11.3 per cent of the total output, it must be admitted that the woollen textile industry has only taken the first step towards being an export industry. The principal markets for the Japanese woollen

TABLE 67. JAPAN'S IMPORTS, EXPORTS AND OUTPUT OF RAW WOOL,
WOOLLEN AND WORSTED YARNS, AND TOPS (1896-1935)
(In thousand lbs.)

	Imports of Wool	Woollen and Worsted Yarns			Tops	
		Imports	Exports	Output ¹	Imports	Output ¹
1896	3,833	1,308				
1897	3,612	1,637				
1898	3,785	964				
1899	10,329	639				
1900	6,016	1,656				
1901	6,599	935				
1902	4,269	1,184			1,153	
1903	5,919	1,280			1,325	
1904	17,157	3,554			4,190	
1905	9,625	5,830			4,467	
1906	7,663	2,029			5,465	
1907	18,920	3,911			3,799	
1908	5,323	4,097			3,896	
1909	7,662	4,243			5,628	
1910	9,715	4,345	131		7,838	
1911	8,197	3,558	124		6,858	
1912	13,336	6,752	120		9,025	
1913	11,610	9,384	154		9,450	
1914	12,636	3,254	215		8,196	
1915	52,534	329	516		5,182	
1916	40,870	894	589		5,978	
1917	47,071	415	744		5,767	
1918	48,380	81	706		3,398	
1919	51,377	163	533		4,320	
1920	71,135	1,639	344		3,814	
1921	30,128	4,645	191	21,200	5,517	
1922	67,458	16,170	213	32,137	7,896	17,855
1923	57,775	26,184	200	37,455	11,268	18,659
1924	59,513	21,013	159	41,221	10,786	20,905
1925	70,145	15,602	288	42,528	11,458	24,272
1926	73,054	12,346	229	47,050	8,548	28,103
1927	99,239	18,413	296	49,637	5,967	35,449
1928	115,697	11,690	259	60,331	1,716	44,354
1929	107,949	7,423	371	64,302	707	46,640
1930	115,560	8,011	617	55,048	58	44,603
1931	190,572	9,550	698	77,587	149	70,455
1932	205,824	3,219	1,289	89,661	41	80,716
1933	240,715	1,625	3,168	101,361	64	90,402
1934	182,992	920	5,920	103,145	66	89,603
1935	245,387	1,089	5,319	112,776	77	not available
1936	218,423	934	87,141	123,263	189	not available

¹ Production figures of the member companies of the Japan Woollen Industry.
Based on Japan Woollen Industry Association's *Annual Statistics of the Woollen Industry*.

cloths lie in the South Sea Islands and the Far Eastern countries such as China, the Liaotung Peninsula, Hongkong, British India, the Netherlands Indies, etc. Hence, it can be concluded that the future of Japan's woollen textile industry as an export industry depends on an expansion of the Oriental market.

2. SCALE OF THE WOOLLEN TEXTILE INDUSTRY IN JAPAN

The Japanese woollen industry may be divided into the following divisions ranging from the supply of raw material to the selling of the manufactured goods:

First Section: The supply of raw materials.

- (a) Importers of raw wool.
- (b) Woollen yarn spinners.
- (c) Wholesale dealer of yarns.

Second Section: Manufacturing.

- (d) Dyeing of yarn.
- (e) Weaving.
- (f) Fulling, finishing and dyeing.

Third Section: Sales.

- (g) Clothiers and Middlemen in manufacturing centres.
- (h) Wholesalers (in cities—commercial centres).
- (i) Retailers.
- (j) Exporters.

Among the branches mentioned above, those which admit of the existence of small-scale establishments are the branches of weaving, dyeing of yarn, and a part of the retailing business at the sales end; other branches are generally controlled by large capital. Spinning is carried on entirely by large companies, which have organized an association called the Japan Woollen Industry Association. Almost all factories which belong to the Association manage the entire operations in each establishment: spinning of yarn, weaving, finishing, and dyeing. There are some companies which import raw wool, and export their products by themselves. But on the other hand, in the small-scale factories only weaving is done, leaving to the respective specialists the subordinate processes, that is, dyeing of yarn and the finishing and dyeing of the cloth.

As the development of the Japanese woollen textile industry depended exclusively upon the muslin industry, the large-scale factories whose products consist mainly of muslin are generally regarded

as the representatives of the woollen textile industry in Japan and the barometers which indicate changes in the economic conditions of the industry. But cloths such as patterned cloths and serges for Japanese clothes, which are subject to the tastes of the people and the fashions of the time, are not suited to large-scale production. Especially in dealing with the Japanese, who have

TABLE 68. JAPAN'S EXPORTS OF WOOLLEN TISSUES TO PRINCIPAL COUNTRIES (1929-1936)

	1929	1930	1931	1932	1933	1934	1935	1936
	In thousand yen							
Kwantung L. T.	2,059	1,184	737	2,926	5,944	8,281	8,729	13,187
Manchoukuo	1,431	1,150	280	170	1,361	1,540	1,397	1,052
China				429	1,687	2,975	3,043	3,616
Hongkong	16	42	152	1	35	799	3,175	—
British India	376	188	63	617	1,647	8,219	4,921	5,254
Straits Settlements	26	8	7	15	156	610	431	—
Netherlands								
East-Indies	19	19	23	75	567	1,586	1,213	333
Philippines	22	4	15	10	8	130	401	—
Australia and								
New Zealand	2	4	3	38	81	69	60	—
Great Britain	—	10	—	5	17	73	75	—
U.S.A.	56	35	28	26	4	9	118	—
Egypt	—	—	—	—	284	2,835	2,278	4,051
Total (including other countries)	4,153	2,758	1,396	4,481	12,377	29,849	32,401	45,956

Based on the Department of Finance's *Monthly Returns of Japan's Foreign Trade*.

independent personal tastes of their own and who abhor standardization, it is far more advantageous to carry on industry on a small scale. Under these circumstances there must necessarily be many small-scale factories for the manufacturing of such kinds of cloth. As the demand for woollen cloth for Western dress has increased in recent years, the small-scale factories have been enjoying a remarkable degree of prosperity; and now they share the whole field of the woollen textile industry with the large-scale factories on equal terms, both playing their own respective parts, producing, as they do, goods for which they are specially fitted, without encroaching upon each other's sphere of production, and constituting the two wheels, as it were, of the whole woollen textile industry.

TABLE 69. NUMBER OF FACTORIES AND WORKERS IN THE JAPANESE WOOLLEN WEAVING INDUSTRY
ACCORDING TO NUMBER OF WORKERS PER FACTORY (1929-1935)

Number of workers per factory	(A) Factories							(B) Workers						
	1929	1930	1931	1932	1933	1934	1935	1929	1930	1931	1932	1933	1934	1935
¹ Under 5	347	329	314	434	462	425	398	6,205	2,669	2,356	9,429	3,581	8,043	6,371
5-9	251	288	359	316	314	333	476	1,556	1,782	2,274	2,000	2,120	2,136	2,862
10-14	81	82	77	912	94	116	137	972	828	919	1,088	1,100	1,358	1,604
15-29	135	160	171	172	158	181	217	2,807	3,286	3,304	3,601	3,182	3,694	4,477
30-49	53	43	50	51	73	81	101	1,865	1,600	1,876	1,901	2,709	3,055	3,832
50-99	24	34	31	37	36	48	54	1,721	2,360	1,207	2,611	2,610	3,197	3,685
100-199	13	15	18	20	20	19	23	1,954	1,892	2,205	3,312	2,755	2,522	3,035
200-499	7	7	7	6	6	11	10	2,243	2,410	2,441	2,124	1,781	3,294	3,025
500-999	4	4	5	3	6	5	7	3,014	2,561	3,355	1,863	4,462	3,731	4,767
1,000 & over	9	8	7	8	9	7	7	16,683	15,174	12,516	13,677	17,011	13,317	13,484
Total	924	970	1,039	1,959	1,178	1,226	1,430	39,020	34,562	32,453	41,606	41,311	44,347	47,142
¹ Under 50	867	902	971	1,885	1,101	1,136	1,329	13,405	10,165	10,729	18,019	12,692	18,286	19,146
50-199	37	49	49	57	56	67	77	3,675	4,252	3,412	5,923	5,365	5,719	6,720
200 & over	20	19	19	17	21	23	24	21,940	20,145	18,312	17,664	23,254	20,342	21,276
Percentages														
¹ Under 50	93.8	93.0	93.5	96.2	93.5	92.6	92.9	34.4	29.4	33.1	43.3	30.7	41.2	40.6
50-199	4.0	5.1	4.7	2.9	4.8	5.5	5.4	9.4	12.3	10.5	14.2	13.0	12.9	14.3
200 & over	2.2	1.9	1.8	0.9	1.7	1.9	1.7	56.2	58.3	56.4	42.5	56.3	45.9	45.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ The figures for the number of factories employing under five workers, and especially for the number of workers employed in such factories, are not so reliable, since these figures are the difference between the totals of *Factory Statistics* and *Statistics of the Department of Commerce and Industry*. The former include only the 'five workers and over' classes and the latter include all factories. But because the latter statistics are not so accurate, the difference between the two totals does not show the reliable figure for the 'under five' class.

Based on *Factory Statistics* and *Statistics of the Department of Commerce and Industry*.

Now let us make a survey as to the scale of the woollen weaving industry of Japan in general. As Table 69 shows, small factories which employ fewer than fifty workers constitute more than 90 per cent of the total number of factories, while large factories with more than 200 employees constitute less than two per cent. About five per cent is occupied by medium-scale factories which employ 50 to 200 workers. Thus, we can conclude that 98 per cent of the total number of factories are medium- and small-scale plants. But as to the number of workers, those working in small-scale factories which employ fewer than 200 workers, constitute only 40 per cent to 55 per cent. This is because, notwithstanding the multiplicity of medium- and small-scale factories, the number of workers employed in each factory is very small. But at any rate it cannot be denied that those employed in the small-scale factories, at least with regard to their number, hold an important position in the industry.

TABLE 70. PROPORTION OF TOTAL OUTPUT OF WOOLLEN TISSUES PRODUCED BY LARGE COMPANIES (1924-1936)

	I Whole country	II Large-scale Factories ¹		II I
		Factories	Production	Per cent
1924	¥202,390,264	25	¥119,072,963	58.8
1925	182,481,115	26	124,889,232	68.4
1926	205,252,363	23	107,385,030	52.3
1927	238,706,252	22	99,323,409	41.6
1928	220,419,036	29	104,159,950	47.3
1929	210,512,310	28	100,603,754	47.8
1930	164,584,030	25	59,578,894	36.2
1931	153,824,442	26	57,363,677	37.3
1932	167,010,054	27	60,663,358	36.3
1933	201,137,749	28	77,137,604	38.3
1934	264,131,170	33	81,777,352	31.0
1935	296,226,848	43	82,548,959	27.8
1936		49	79,214,404	—

I, based on *Statistics of the Department of Commerce and Industry*.

II, based on *Statistics of Woollen Industry*.

¹ Figures for member companies of the Japan Woollen Industry Association.

Turning our attention to their relative positions in relation to the output, Table 70 shows the comparison between the output of the whole country and that of the large-scale factories, taking the output of large factories in the table to mean that of the factories belonging to the Japan Woollen Industry Association. The percentage of the output of large factories is yearly declining while that of small-scale factories is rising. According to the most recent statistics available, 79 per cent of the total output is produced by small-scale factories, the remainder being the output of the large factories. The output of the smallest factories which employ fewer than four workers also shows yearly increases and in 1934 it constituted 31.3 per cent of the total.

However, large-scale and small-scale industries, as shown in Table 71, do not occupy the same sphere of production. Muslin manufacture belongs to large-scale industry, while serges (for both Western and Japanese dress) fall decidedly within the scope of small-scale industry. The general tendency, moreover, is towards a clearer demarcation of this division in the sphere of production year by year.

As to the geographical location of the factories in this industry, the outstanding feature of the small-scale weaving factories is the high degree of concentration in Aichi Prefecture, the central part of Japan, where many subsidiary branches of the woollen industry, for example dyers, fullers, etc., are also located, constituting what Marshall calls 'external economy', while large-scale factories are scattered in several districts. 83 per cent of the total number of factories or 85 per cent of the small-scale factories are situated in this district. The remaining few are distributed in Osaka and several other prefectures. In Aichi Prefecture, there are but seven factories which employ more than 200 workers, and the aggregate number employed therein amounts to only 2,189; it is thus true to say that the woollen textile industry of Aichi Prefecture is carried on almost exclusively by small-scale factories. The state of the woollen weaving industry in this district, therefore, may be said to be typical of the state of small-scale factories of the whole country. From the following example of Aichi Prefecture, therefore, one may obtain a fairly accurate insight into the condition of small-scale woollen textile industries in Japan.

The woollen textile industries of Aichi Prefecture made remarkable progress within the thirty years after the weaving of serges for

TABLE 71. PROPORTIONS OCCUPIED BY LARGE COMPANIES IN THE TOTAL PRODUCTION OF MOUSSELINES DE LAINES, WOOLLEN CLOTH, AND SERGES (1924-1935)

A. Total Production

	Mousselines de laines		Woollen Cloth		Serges	
	A. Quantity	B. Value	C. Quantity	D. Value	E. Quantity	F. Value
1924	139,276,829	91,884,039	6,577,099	20,171,453	31,125,011	49,033,735
1925	127,572,665	88,338,333	5,371,316	16,359,911	28,284,459	45,465,200
1926	154,043,757	86,684,674	7,214,227	20,248,993	33,688,678	54,030,112
1927	174,588,457	99,057,868	9,719,498	27,086,195	40,865,376	64,830,350
1928	165,858,613	89,070,265	8,276,644	23,992,711	46,853,058	79,370,072
1929	165,572,608	82,731,932	8,950,643	23,507,157	47,635,623	76,055,620
1930	154,455,043	54,518,694	8,122,606	19,360,204	51,683,875	69,028,955
1931	161,121,120	49,476,288	8,948,771	18,497,529	60,611,891	64,790,935
1932	199,989,093	51,379,813	11,366,568	21,930,632	61,744,225	73,574,951
1933	145,403,397	48,276,271	13,107,425	29,927,479	67,398,260	93,011,853
1934	132,943,659	50,848,485	16,898,641	36,710,705	90,542,936	144,059,865
1935	146,811,501	54,807,185	17,698,269	41,100,367	94,393,907	164,479,412

B. Production of Large-scale Factories (Members of the Japan Woollen Industry Association)

	Mousselines de laines		Woollen Cloth		Serges	
	A.' Quantity	B.' Value	C.' Quantity	D.' Value	E.' Quantity	F.' Value
1924	117,063,899	79,641,199	6,374,844	20,603,179	3,312,816	8,914,796
1925	121,144,660	84,800,124	6,873,147	21,793,110	3,156,428	11,197,988
1926	130,118,138	70,831,609	6,512,696	19,937,821	2,690,314	9,904,285
1927	129,986,164	68,737,534	6,046,157	16,661,011	2,353,744	8,031,478
1928	116,153,909	65,430,047	7,909,029	22,084,038	3,201,214	10,184,638
1929	121,971,958	63,416,741	8,275,535	21,059,819	3,463,971	10,004,253
1930	106,280,433	40,040,028	4,850,856	11,061,926	2,015,317	5,142,301
1931	134,974,822	39,166,888	5,856,846	9,967,816	2,374,219	4,981,203
1932	142,089,179	41,729,993	5,814,966	9,356,048	3,321,945	6,420,226
1933	141,337,285	49,856,603	5,885,918	12,983,526	3,153,978	7,914,285
1934	120,945,571	47,017,694	7,933,221	17,381,677	3,912,844	11,488,816
1935	132,901,057	49,043,810	8,292,988	17,182,456	4,644,359	12,037,368

C. Proportion of Large-scale Factories' Production to Total Production

	Mousselines de laines		Woollen Cloth		Serges	
	A'	B'	C'	D'	E'	F'
	$\frac{A'}{A}$	$\frac{B'}{B}$	$\frac{C'}{C}$	$\frac{D'}{D}$	$\frac{E'}{E}$	$\frac{F'}{F}$
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
1924	84	87	93	102	11	18
1925	95	96	128	133	11	25
1926	84	82	90	98	8	18
1927	74	69	62	62	6	12
1928	70	73	96	92	7	13
1929	74	77	92	90	7	13
1930	69	73	60	57	4	7
1931	84	79	65	54	4	8
1932	71	81	51	43	5	9
1933	97	103	45	43	5	8
1934	91	92	47	47	4	8
1935	91	89	47	42	5	7

Based on *Annual Statistics of the Woollen Industry*.

Japanese clothes was invented in 1904 in Bisei district (adjoining the city of Nagoya). The causes of this development, besides those stated in the first section, can be found in the fact that at the outset manufacturers cleverly chose serges for domestic wear which happened to be best suited to the industrial scale of this district as their main item of production. At the time of business prosperity, the manufacture of muslin, blanket, and woollen cloth was also attempted, but the results in most cases were marked by failure.

The reason for the concentration of this industry in this district is, in the first place, that the district is well provided with equipment, skill, and knowledge of textile industries, due to its having been the weaving centre of cotton cloth and cloths of silk and cotton mixture. The second factor is that the climatic humidity of the district is suitable for weaving woollen cloth. The third reason is that the district is advantageously situated for both sea and land transport, and because of its proximity to the city of Nagoya can market its products and secure the requisite materials. In addition to the three factors mentioned, other causes have also fostered the growth of the woollen industry. Japan is a very small-scale farming

country, where there are a great many peasants who each cultivate less than 1 *cho-bu* (2.45 acres) of land. In such circumstances, farmers had to resort to other occupations in addition to farming for their living. The weaving of silk and cotton was the most typical kind of supplementary occupation. But when the industrial revolution took place in the weaving industry, the peasants were

TABLE 72. NUMBER OF WORKERS AND LOOMS PER FACTORY
(1923-1934) AND OUTPUT (1932) IN AICHI PREFECTURE

	Workers ¹	Number of Looms		
		Hand looms	Power-looms	Total
1923	16.9 (12)	7.85	6.89	14.7
1924	16.4 (13)	6.16	11.21	17.4
1925	16.7 (13)	6.28	10.65	16.9
1926	15.4 (13)	3.26	10.92	14.2
1927	14.4 (13)	2.23	10.19	12.4
1928	16.6 (14)	1.30	13.09	14.4
1929	13.8 (13)	0.53	11.79	12.3
1930	13.8 (13)	0.41	11.96	12.4
1931	13.7 (14)	0.38	13.15	13.5
1932	17.2 (13)	0.59	13.75	14.3
1933	17.9	0.23	15.29	15.5
1934	19.2	0.15	15.06	15.2

1932

		No. of Workers	No. of Looms	Annual Output in thousand yen
Medium & small Factories in Aichi Pref.	Whole Pref.	17	14	89
	Bisei District	13	12	79
Large factories, member companies of Japan Woollen Industry Association,		1,583	372	2,247

¹ Figures in parentheses are of Bisei District.
Based on the Monthly Report of the Bisei Weaving Trade Association.

compelled either to take up weaving as their principal occupation, or to send their wives and daughters, who had been pursuing this work at home, to factories in other districts as wage-earners. Aichi Prefecture is a comparatively rich agricultural district which is economically well endowed, and it was this economic fact that made the change from hand looms to power-loom possible, prevented the district from becoming a mere source of wage-earners, raised the weaving industry from its secondary position to the status of a principal occupation, and enabled the woollen textile industry to make a successful start in the district by overcoming the economic difficulties which always accompany newly undertaken enterprises. The successful achievement of the woollen textile industry in this district has also been due to the foresight of the pioneers who introduced into this district the manufacture of a new cloth which then had only an uncertain future, and to the enterprising ability of the local inhabitants (who are said to have got long experience in business from the fair in Ichinomiya, the centre of this district, which still exists to-day). Thus, to-day the woollen industry of this district holds a pre-eminent position.

The scale of weaving factories in Aichi Prefecture is very small, nor has there been any enlargement in the scale, as shown in Table 72, which indicates the number of workers and looms per factory, and (for 1932) the output. There was a yearly increase in the total output, mainly brought about by the increase in the number of factories, especially small ones; the change from hand looms to power-loom; and the improvement in the efficiency of looms and of labour. There are factories which have extended their plants in recent years, but the change on the whole is not great enough to raise them above small-scale standards. According to the statistics of factories affiliated with the Bisei Woollen Textile Manufacturing Association, the number of workers per factory was 10 in 1931, and 11 in both 1932 and 1933, while that of looms underwent no change, being 11 in each year.

The principal reason for the existence and development of the small-scale factories is the complexity of patterns. Patterned cloth is affected by changes of fashion, and there is no limit to the variety of patterns or designs. To design a new pattern in order to conform to the fashion or to lead it, therefore, is the main concern of each manufacturer. And there are even some patterns which

are regarded as a sort of family recipe or formula. It is no wonder, therefore, that the units ordered and produced should be very small. The products for domestic use especially are generally of fine quality and have exquisite patterns; and the unit of production for each pattern is limited to 20 to 30 *tan* (240 to 360 yards. See footnote to Table 64, page 133) at the most, being usually confined to only two to five or six *tan*. As to the cloth for women's *kimonos*, it is not at all unusual for one pattern to be used for one *tan* only. Goods for export are much simpler in pattern and in colour than those for domestic use, yet there are nearly 100 patterns. The higher the quality of patterned cloth, the oftener the looms have to be stopped or changed. Consequently the mass production of such cloth brings very little profit and is therefore unsuitable for large-scale factory production. On the other hand small factories, being highly adaptable to the changes in fashion and to the fluctuation of economic conditions, are able to make any change in their products. This adaptability in both technique and management is the principal reason for the existence of prosperous small-scale factories in this line of manufacturing. In recent years large-scale companies have begun to join with small-scale factories which undertake the production of patterned cloth exclusively for the large-scale enterprises. It may be said that the general tendency is towards a monopoly on the part of the small-scale factories in the production of patterned cloth.

3. ORGANIZATION OF THE INDUSTRY

How is the small-scale industry organized and carried on, and what changes has it undergone? Again, how have these changes affected the channels of distribution? In the early days of the woolen textile industry—the age of hand looms—the domestic system was prevalent. The mill owner received yarn from clothiers or middlemen. He then wove the yarn, handed over the finished product to the clothiers or the middlemen, and was paid for his labour. There were, therefore, many mill owners who were under the 'thumb-rule' of such clothiers or middlemen. But the transition from hand looms to power-looms brought about a change. The manufacturers secured an independent position as industrialists, and in recent years organized the Manufacturers' Association; and the clothiers or middlemen of old days gradually made their exit.

At present, there are still about 200 small out-weavers who weave cloth for other factories on a sub-contract basis, but they are of a different type from the weavers under domestic system. Those, who, in the domestic system, used to earn piece-work wages by weaving the yarn which they received from clothiers or middlemen, under whose financial control they were suffering, have almost entirely disappeared. Those that now survive own their own looms, purchase yarn themselves, employ labourers, and engage in weaving at their own expense, as well as acting as out-weavers. Very few out-weavers who earn wages by engaging solely in out-weaving are under a financial yoke like that which existed under the domestic system. Those who engage solely in out-weaving have been recently attempting to manage factories at their own expense so that they are rapidly decreasing in number. Moreover those who give them the work now are not clothiers or middlemen, but small-scale manufacturers who resort to those weavers when pressed for time. Under such circumstances, therefore, any financial interdependence between them and the manufacturers cannot very well exist. There is also very little financial interdependence between the ordinary manufacturers and the middlemen or wholesalers of larger cities such as Osaka and Tokyo. The relation between them is that of seller and buyer.

The strengthened position of these manufacturers meant the decline of the financial dominance of clothiers and middlemen. They have now lost all the brilliance of their former existence; and some of them who possessed sufficient capital established factories and began weaving themselves, thus being metamorphosed into manufacturers. There are instances in recent years where large companies supplied small-scale manufacturers with yarn to be woven into cloth, but they do not number more than ten, and the general tendency is toward the independence of manufacturers who, although they may not be any too well off financially, have at least rid themselves of the financial restriction which was a feature of domestic industry.

The rise in the manufacturers' position may be attributed to the following circumstances: first, the present manufacturers are mainly those who have been converted from comparatively well-to-do farmers or cotton-textile manufacturers with ample means, which meant that they were able to construct and equip factories with

power-looms with money derived from selling their farms, or else replace their hand looms with power-looms at their own expense. Very few had to rent land, houses, or looms. Those who had been unable to replace hand looms with power-looms had been driven out of existence during the industrial revolution, while those who started in the industry later owned considerable capital, and were hence not dependent upon the financial aid of clothiers and middlemen or wholesalers. Second, the main type of goods manufactured in this district being fortunately serges for Japanese wear and more recently cloth for Western clothes, the industry has always been active, thriving under this favourable environment, and consequently enriching the manufacturers financially. These two factors saved them from the fetters of the clothiers who had financially enslaved them by advancing loans or furnishing machines. The independent position which mill owners acquired enabled them to maintain a firm trading position, bringing about a change in the channels of distribution as well.

The yarn never goes direct from spinning companies to weavers, but passes through the hands of yarn wholesalers, and that which requires dyeing is passed on to the dyers. There once existed brokers who acted as middlemen between yarn wholesalers and weavers, but recently they have been diminishing. The weavers, after the finishing touches by those who are specialized in the work, finally sell to merchants. What is described above was the usual process up to contemporary times, but now considerable changes have occurred. In times past, finished manufactures were usually sold to wholesalers in large cities through the clothiers or middlemen of the districts but lately a large part are usually sold direct to city wholesalers. The manufactures for export are also sold in the main to the wholesalers of Tokyo and Osaka, or sometimes direct to the exporters of Kobe, Nagoya, Osaka, and Yokohama. The transactions between independent weavers and clothiers, middlemen, wholesalers, or exporters are now executed mostly by means of bills. This recent strengthening of the financial independence of manufacturers, it must be added, is reducing the importance of the position occupied by district clothiers and middlemen, as well as the positions of the wholesalers of Tokyo and Osaka and exporters to that of a mere 'assembling organ'.

4. LIVING CONDITIONS OF SMALL-SCALE WEAVING MANUFACTURERS

The small-scale industries are often accused of 'sweating', as well as having insanitary factories and imperfect equipment. As for woollen textile factories, many of them are better equipped, and are more airy and clean than one might expect them to be. Small-scale workshops are not generally separated from the residences of their owners, but are attached to them. In some of the smallest factories, looms are operated even in parts of the residence. As the scale of the factory becomes large, the distance between the workshop and the owner's abode becomes greater. The factories which are furnished with 20 to 50 looms have separate buildings set apart from the dwellings. Those of larger scale have the aspect of well-organized modern mills, with their offices apart from the mills, and the mill-owners' residences far from them both.

In almost all the factories, lighting and ventilation are satisfactorily effected by means of large and numerous windows. Probably, the fact that woollen textiles are comparatively expensive and require much delicacy of art in colours and patterns has been influential in making industrialists pay attention to lighting and cleanliness even in small factories.

Next, let us consider how living conditions are influenced by irregularity of work, which is said to be the fundamental drawback in small-scale industries. Speaking of the living conditions of operatives, the problem of those who are members of the mill owner's family is the most important. A common sight often seen is that of a mill owner himself working in his own mill, taking all the responsibility of both technical and business operations. He keeps the accounts, purchases raw materials, and sells the finished products, while his family works with the other employees. Factories that are run wholly by family labour are also not few in number. In each of those factories equipped with less than 50 looms, we always find one or two family hands. Though, of late, this sort of factory help has shown a remarkable decrease in number, there are still 1,500 such family operatives working, who constitute more than 10 per cent of the total number of employees. The smaller the mill, the greater the proportion of family hands engaged in it. To run a factory chiefly by family labour is convenient in one respect, namely, that its business can be enlarged or held back

according to the conditions of the market. When we think of the industry as a whole, the existence of this kind of factory is not at all desirable, for there is a danger that it may cause confusion. Besides, the existence of out-weavers maintained by family labour may give the independent factories an opportunity of choosing between wages and out-weaving costs, and consequently this may be used (and has been used) as a means of checking the rise of wages. Moreover, there is no clear line between the household income and expenditure and that of the mill kept by those who carry on factories by family labour. In an extreme case, their accounts may show no income as remuneration for their labour. Accordingly, in times of keen competition in the business, the existence of this kind of mill owners, it is feared, may cause a lowering of the amount of wages and other labour conditions. Fortunately, however, the woollen textile industry has been experiencing steady progress till now, and as a consequence has witnessed no competition in lowering wages so extreme as to drive workers to starvation. At present, the general conditions of the business are rather in favour of these factories, although, once depression hangs over the market, the danger above stated may be brought about. Setting apart the question of wages, there is still another consideration. In factories run by family labour, they manage with imperfect equipment, and are apt to work for longer hours than is desirable, with very few recesses. In cases with no outside employees, this may be practiced excessively. People may think it a virtue to try to increase output by night work, but the influence which such a practice may have on both spirit and body, should not be ignored on any account.

The family hands engaged in woollen textile manufacture are rather few when compared with those in other industries conducted on a small scale; hence it is believed that the influence which they exercise upon the industry is comparatively small. Actually, management of a mill by family members results in fairly large profits, and a considerable advance in the proprietor's knowledge of the market and other items of business. Their factory equipment and labour conditions are quite different from what were expected to exist in the time of the domestic system. In clean, though not too spacious, workshops, they are working cheerfully and hopefully. Their life is far from being drudgery, and they are more favourably situated than large-scale factory workers, for the bright prospect

before them enables them to toil hard in high spirits. To make this clear, let us look at one or two instances of small-scale factories that the writers visited personally.

One was a factory with an area of 15 or 16 *tsubo*,¹ where a young couple were operating four looms. The building was divided into two parts by frosted glass: one part was their dwelling place, composed of two cosy rooms, furnished with a chest of drawers, a mirror and other furniture; the other part was an unfloored, but clean and well kept workshop with windows on one side. They worked together, but when the wife had to do cooking or other household work, or the husband was compelled to leave the looms for some business, the four looms were tended by one person. According to what the man told the writers, the looms were purchased second-hand, and by operating them in the manner described above, the man and his wife were able to earn their living as well as save a little every month. From this factory the writers received no impression of hardship or unwholesomeness caused by combining the dwelling house with the workshop.

In another mill with 18 looms, the owner and his wife were working with 15 girl employees. The owner was undertaking work which required a man's power and skill, such as mending machines, purchasing yarns, keeping the books, and selling products; and his wife not only operated a loom herself but directed the girls and helped them in their operations. Their business, they said, paid well. Their four sons were able to attend a technical school. With cheerful hopes of getting a supply of more looms and the help of their four sons who would have better knowledge and skill than themselves, the couple were working happily.

5. LABOUR CONDITIONS

In 1935, the woollen textile industry employed about 47,000 operatives throughout the country. Until 1930, the number showed a somewhat diminishing tendency, except in 1927 and 1928 when some increase was seen; since 1931 it has been on the increase. In small factories with less than 10 looms, the number of workers was annually increasing, except from 1928 to 1930 when it dipped a little. The increase of operatives in small-scale establishments is indeed amazing (Table 73).

¹ One *tsubo* = 3.95 sq. yds.

The greater part of the total number of operatives are women. The latest percentage of female operatives is 80 per cent as against 20 per cent for male operatives. Generally men engage in rough work in the preparatory stage or in mending machines. Most of the women attend looms or arrange yarns in the preliminary process.

The woollen textile industry is no exception to the general rule in Japanese textile industries, and most of the operatives are young girls. According to the survey conducted in 1930 and 1933, as shown in Table 74, unmarried girls predominate. As a result, the average duration of employment is as short as three-and-a-half years. The investigation further disclosed that a great number of female operatives were those whose duration of employment had been from two to five years, contributing 30 to 40 per cent of the total number of girls, and 72 to 73 per cent were those whose duration was less than five years. On the other hand, among men, those whose duration of employment was two to seven years took the lead but not as conspicuously as in the case of girls.

Almost all of the female operatives are farmers' daughters. Formerly they worked with a view to saving money for their marriage, but ever since hard times pervaded the Japanese villages, farmers have been inclined to rely upon their daughters' working away from home for a part of their livelihood. Since even the girls from the near vicinity of the factories are the daughters of labourers, it can be concluded that most of the factory girls contribute to the support of their families.

The chief means of recruiting candidates for factory girls is to canvass farm villages, and to persuade farmers to send their girls to work in factories. Formerly this custom sometimes resulted in cases of seduction as well as commercial abuses of various kinds. In these days, however, wrongs caused by frauds of canvassers or mill owners have been considerably minimized; to-day much stress is put on qualifications of canvassers, and nobody can undertake such work unless he obtains a certificate, with his photograph attached, from the prefectural government. Of late, girls who are recruited through the medium of official labour exchanges have increased considerably in number.

Upon entering the service of a small factory, girls live together with the family of the mill owner. Recently, a few have established

TABLE 73. NUMBER OF WORKERS IN ESTABLISHMENTS CLASSIFIED BY NUMBER OF LOOMS (1923-1935)

A. Actual Numbers

	Under 10 Looms			10 to 49 Looms			50 Looms & over			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
1923	189	1,617	1,806	1,262	7,183	8,445	6,579	30,284	36,863	8,030	39,084	47,114
1924	180	1,869	2,049	1,002	6,486	7,488	8,219	35,006	43,225	9,401	43,361	52,762
1925	221	2,242	2,463	1,316	6,501	7,817	6,157	29,019	35,176	7,694	37,762	45,456
1926	295	2,337	2,632	980	6,243	7,223	4,875	21,489	26,364	6,150	30,069	36,219
1927	482	2,408	2,890	1,203	5,888	7,091	5,498	25,404	30,902	7,183	33,700	40,883
1928	455	2,282	2,737	1,326	6,435	7,761	5,895	23,949	29,844	7,676	32,666	40,342
1929	455	2,234	2,689	1,265	6,236	7,501	6,683	22,147	28,830	8,403	30,617	39,020
1930	468	2,164	2,632	1,426	6,635	8,061	5,665	18,204	23,869	7,559	27,003	34,562
1931	517	2,435	2,952	1,706	7,357	9,063	5,788	20,154	25,942	8,011	29,946	37,957
1932	586	2,824	3,410	1,967	8,556	10,523	5,934	21,739	27,673	8,487	33,119	41,606
1933	629	2,910	3,539	1,754	8,646	10,400	6,130	21,142	27,272	8,513	32,798	41,311
1934	699	3,230	3,929	1,937	9,195	11,132	6,451	22,835	29,286	9,087	35,260	44,347
1935	720	3,582	4,302	1,990	10,809	12,799	6,697	23,344	30,041	9,407	37,735	47,142

B. Index Numbers

1923	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1924	95.2	115.6	113.5	79.4	90.3	88.7	124.9	82.6	117.3	117.1	110.9	112.0
1925	116.9	138.7	136.4	104.3	90.5	92.6	93.6	95.8	95.4	95.8	96.6	96.5
1926	156.1	144.5	145.7	77.7	86.9	85.5	74.1	71.0	71.5	76.6	76.9	76.9
1927	255.0	148.9	160.0	95.3	82.0	84.0	83.6	83.9	83.8	89.5	86.2	86.8
1928	240.7	141.1	151.6	105.1	89.6	91.9	89.6	79.1	81.0	95.6	83.7	85.6
1929	240.7	138.2	148.9	100.2	86.8	88.8	101.6	73.1	78.2	104.6	78.3	82.8
1930	247.6	133.8	145.7	113.0	92.4	95.5	86.1	60.1	64.8	94.1	69.1	73.4
1931	273.5	150.6	163.5	135.2	102.4	107.3	88.0	66.5	70.4	99.8	51.0	80.6
1932	310.0	174.6	188.8	155.9	119.1	124.6	90.2	71.8	75.1	105.7	84.7	88.3
1933	332.8	180.0	196.0	139.0	120.4	130.7	93.2	70.4	74.3	106.1	83.9	87.9
1934	369.8	199.8	212.6	153.5	128.0	131.8	99.1	75.4	79.4	111.3	90.3	94.1
1935	380.9	221.5	238.2	157.6	150.4	151.5	101.8	77.1	81.4	117.1	96.5	100.1

Based on *Statistics of the Department of Commerce and Industry.*

TABLE 74. AGE DISTRIBUTION OF WORKERS CLASSIFIED BY TYPE OF WORK PERFORMED (1930 AND 1933)
(Excluding Government factories)

Type of Work Performed	12—13 years		14—15 years		16—19 years		20—29 years		30—39 years		40—49 years		50—59 years		60 years & over		Total		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
Preparing	1930	3	343	34	631	120	553	159	223	88	56	25	45	3	17	—	4	432	1,872
	1933	10	948	47	1,021	116	771	150	246	99	71	29	48	4	26	—	3	455	3,134
Weaving	1930	3	125	7	953	40	3,443	204	2,163	75	276	25	122	2	13	—	3	356	7,098
	1933	1	117	11	801	18	3,047	74	2,330	66	302	17	102	1	14	—	2	188	6,715
Finishing	1930	2	15	18	116	113	464	354	364	166	120	60	72	18	22	—	2	731	1,175
	1933	10	31	27	110	124	466	276	444	166	128	37	68	10	21	—	2	650	1,270
Dyeing	1930	1	—	8	13	70	16	204	12	100	1	35	4	6	—	2	—	426	46
	1933	1	—	8	9	33	16	194	8	143	1	24	1	—	—	1	—	404	35
Spinning	1930	4	486	17	808	326	1,159	824	639	326	229	94	141	11	39	1	5	1,603	3,506
	1933	4	278	22	487	127	725	545	448	292	179	96	79	6	16	1	1	1,093	2,213
Packing and other Services	1930	2	15	18	24	31	62	101	104	96	52	67	35	20	14	4	2	339	308
	1933	13	9	33	12	58	12	69	14	70	7	33	6	14	3	1	2	291	65
Other work	1930	4	99	37	179	127	197	437	104	304	6	141	8	30	—	1	—	1,081	593
	1933	3	4	41	11	159	54	367	63	232	26	97	20	11	9	—	2	910	189
Total	1930	19	1,083	139	2,724	827	5,894	2,283	3,609	1,155	740	447	427	90	105	8	16	4,968	14,598
	1933	42	1,387	189	2,451	635	5,091	1,675	3,553	1,068	714	333	324	46	89	3	12	3,991	13,621

dormitories for girls, although both in number and in equipment they as a matter of course, cannot stand comparison with those of the large-scale concerns. Therefore, almost all the girls have to live under the same roof with the mill owner's family.

TABLE 75. DURATION OF EMPLOYMENT OF WORKERS IN WOOLLEN WEAVING INDUSTRY (1930 AND 1933)

Duration	Male				Female			
	Number		Per cent		Number		Per cent	
	1930	1933	1930	1933	1930	1933	1930	1933
Under 1 year	301	544	6.06	13.62	2,398	3,384	16.43	24.80
1 & under 1.5 years	238	180	4.79	4.51	1,248	1,091	8.55	8.00
1.5 " " 2 "	181	123	3.64	3.08	1,178	1,048	8.07	7.68
2 " " 3 "	451	244	9.08	6.11	2,207	1,753	15.12	12.85
3 " " 4 "	474	191	9.54	4.78	2,057	1,305	14.09	9.57
4 " " 5 "	262	242	5.27	6.06	1,568	1,212	10.74	8.88
5 " " 6 "	288	307	5.80	7.68	1,123	1,061	7.69	7.78
6 " " 7 "	387	240	7.79	6.01	842	768	5.77	5.63
7 " " 8 "	368	105	7.41	2.63	612	512	4.19	3.75
8 " " 9 "	372	148	7.49	3.70	427	387	2.93	2.84
9 " " 10 "	287	227	5.78	5.68	228	250	1.56	1.83
10 " " 11 "	214	241			202	225		1.65
11 " " 12 "	215	288			130	113		
12 " " 13 "	178	208	16.54	24.73	83	107	3.55	2.45
13 " " 14 "	113	107			63	63		
14 " " 15 "	102	144			40	51		
15 " " 16 "	93	112	5.80	7.16	31	44	0.78	0.84
16 " " 20 "	195	174			83	69		
20 " " 25 "	147	112	2.96	2.80	39	47	0.27	0.29
25 " " 30 "	61	33	1.23	0.83	25	21	0.17	0.18
30 " " 35 "	23	18	0.46	0.45	10	5	0.07	0.07
35 " " 40 "	14	3	0.28	0.08	—	3	—	—
40 " upwards	5	—	0.10	—	1	2	—	0.01
Total including duration unknown	4,969	3,995	100.00	100.00	14,595	13,643	100.00	100.00

Survey of Labour Statistics.

Woollen textile manufacture requires manual skill of a certain standard, though it varies according to the kind of fabric. As a greater amount of skill was required in the time of hand looms than at present, the apprentice system was widely in practice. Since

power-loom took their place, this system has almost gone out of practice. To-day, girls who enter the service for the first time can become weavers after training for six months to two years.

As to wages, there are two systems of payment: one is on a piece-work basis, the other on a time basis. Male operatives and some of the female operatives in training are paid by the day, while weavers are paid by piece work. Girls in training are paid ¥0.30 to ¥0.50 *per diem*, and dine at the expense of their employers. The daily wage of weavers varies, as they are paid by piece work, but it seldom exceeds the limits of ¥0.50 to ¥1.30 *per diem*. The average is ¥0.70 to ¥0.80 *per diem*, which amounts to a total of ¥20 to ¥30 per month.

TABLE 76. AVERAGE DAILY WAGE OF WOOLLEN TEXTILE WORKERS

	1927		1930		1933	
	Men	Women	Men	Women	Men	Women
	yen	yen	yen	yen	yen	yen
Preparing	1.51	0.87	1.27	0.73	1.12	0.54
Weaving	2.08	1.06	1.96	0.90	1.74	0.81
Finishing	1.93	1.02	1.62	0.90	1.34	0.71
Dyeing	1.88	1.01	1.70	1.19	1.84	0.86
Spinning	1.92	1.00	1.89	0.84	1.70	0.69
Packing and incidental services	1.71	0.80	1.73	0.87	1.24	0.56
Other work	2.17	0.96	1.93	0.79	1.49	0.74
Average ¹	1.95	1.02	1.78	0.86	1.51	0.72

¹ Obtained by dividing the total wages paid by the total number of workers in the industry.

Based on *Survey of Labour Statistics*.

The latest list of piece-work wages per yard for each kind of cloth is: three to ten *sen* (average 5.9 *sen*) for serges; 2.9 to 14.8 *sen* (average 7 *sen*) for goods of other kinds; and seven to 36.3 *sen* (average 24 *sen*) for serges for Japanese *kimonos*. Female operatives usually weave from six to ten yards per day of serges and other goods with patterns, and 20 yards of plain thin material. Here their daily earnings total about the same amount as the daily average time basis wage, e.g. 70 to 80 *sen per diem*. As serges for Japanese *kimonos* are of various kinds of pattern, and also of exquisite workmanship, the usual amount that can be woven is accordingly five yards or so less than the amount of other cloths.

The average daily wages of woollen textile workers throughout the country are given in Table 76 according to the kind of work. It will be seen that wages have been falling gradually.

The foregoing relates to fixed wages. When extra pay given for overtime or night work in times of business pressure and allowances in kind are taken into account, the actual wages are increased a little. These allowances in kind are estimated to be about 10 per cent of the fixed wages. In June and in December small allowances in addition to the fixed wages are given. In the case of girls it is customary, when they leave in order to get married or for other reasons, for them to be given, as congratulatory presents or allowances, chests of drawers, clothes, or money in proportion to their term of continuous service. Though the girls are enabled to enjoy moving pictures and theatres once every two or three months as part of their recreational programme, the facilities as a whole for the welfare of operatives are still far behind those of the large factories.

All the girls, except the few who are in training, pay 15 or 16 *sen* per day as a part of their board. There was a time when the food provided by some factories was so poor that many of the girls left discontented. In these days, when demand for labour is greater than before and keen competition for girls takes place among mill owners, it is obvious that poor meals tend to drive girls to competitor's mills. For this reason, much improvement has been realized of late in the matter of food. There are also a few districts where mill owners' common cooking places are provided with a view to extending equality of food to all the girls, thus removing causes for grumbling about the food and changing their positions on that account.

The above-mentioned average wages of a female operative in the industry are the rates for the daily wage of a factory girl in Japan at present. It is almost the same as that of factory girls of cotton spinning or other large industries. The wages of ¥0.70 or ¥0.80 per day cannot be said to be too small an income in Aichi Prefecture and its adjoining districts when compared with other districts; for in this district prices of commodities are lower than in the others. Especially of late, on account of pressure of business and a dearth of factory girls, wages have maintained a higher rate. It is said that at Ichinomiya, a town with a population of 40,000, and the emporium of the district situated near Nagoya, girls in

domestic service (another occupation for farmers' daughters working away from home) are paid from ¥15 to ¥20 as a monthly wage, which exceeds the usual wages of girls performing similar work in Tokyo or Osaka. This fact is one of the instances that suggest that factory girls in this Aichi district are paid comparatively well. This does not mean, however, that a daily income of ¥0.70 or ¥0.80 is high enough for factory girls in the woollen textile industry, but that it is rather high compared with the remuneration paid in other industries, and at least not lower than the average wages of factory girls as a whole in present-day Japan.

Usually, two days a month are allowed for holidays, the first and the third Sundays. The average hours, excluding recesses, are ten hours a day, the maximum length allowed by the Factory Law of Japan; they start working at 6.00 or 7.00 a.m. and stop at 6.00 or 7.00 p.m. Notwithstanding the fact that a great number of factories, subject to the application of the Factory Law, are complying with the regulations prescribed therein, and the fairly strict surveillance of prefectural authorities, there are many small factories that cannot be so thoroughly supervised. This abuse is, however, inevitable, because they are so numerous and so widely scattered. Besides, the working hours mean the period while workers are operating looms, consequently work without machines can be forced after the regular working hours. In fact overtime work is really universally practiced to a certain point in small factories, especially in those run by family labour and excluded from the application of the Factory Law. This is a socially unhealthy feature in the small-scale factories.

It is a common temptation among employers and factory girls paid by piece work to try to gain more income by overtime work. Lest the noise may become a nuisance to the neighbourhood, they refrain from operating looms at night. Instead, they attend to the preliminary arranging of yarns such as looming, or the inspection of woven cloth, or other jobs as night work. Yet there is the possibility of this habit having a bad influence upon the general run of mill owners and operatives. In this way, the wages of girls in this district can never be said to be high in proportion to their working hours.

Not only do the members of employers' families work with employed girls, but the girls live with them as one large household in the same buildings. So intimate does this family-like feeling

become that the employers willingly lend a helping hand to the employed operatives even in such matters as marriage or funeral ceremonies. There has, therefore, been no record of any strikes.

It is said that the dexterity of operatives has improved and the efficiency of labour has been raised to a remarkable degree, but that wages, although their yearly changes are not available, have not risen or fallen more than ten per cent, and even since the re-imposition of the gold embargo, they have remained at almost the same level. The enhanced efficiency of labour is shown by the increased rate of output. From this, an advance in wages is to be expected, but the fundamental scales of wages are fixed, as has been stated above, in such a way that it is doubtful whether they have risen in proportion to the efficiency of labour. Moreover, for overtime work, which we find to be increasing, no additional allowances are paid. It is also true that the increase of overtime and that payment by piece work are more easily accomplished in small factories than in the large factories.

The fact that wages did not rise above the fixed point after the re-imposition of the gold embargo cannot be attributed entirely to the managements being on a small scale. As previously stated, the average wages of girls in woollen textile factories are almost the same as those of female operatives of large-scale factories. One of the reasons why wages did not go up is that the Japanese way of living and necessities of life being only indirectly connected with international affairs, domestic prices did not rise in response to the fall in the exchange rate of the yen, and hence there was no necessity for raising wages. There are still other strong factors that have kept wages from rising. These are the policy of rationalization widely pursued at the beginning of the Showa Era (1927), and the depression in the same period in rice and sericulture, the chief agricultural products of the farmers that make up one-half the population. A flood of labour flowed simultaneously out of the fields of both industry and agriculture, reducing the rate of wages, and after the re-imposition of the gold embargo prevented them from rising. In a word, through an increase in the number of employed, the standard of living of working people as a whole was kept on the same level. It will be readily understood that the woollen textile industry, which draws its supply of labour chiefly from farming villages, was not immune from this general tendency. Thus, it can

be said that wages were not lowered by a policy calculated to harass foreign competitors, *but whatever lowering there was may be ascribed to the general tendency of the whole system of industry*, as seen in the field of woollen textile manufacture. There are many reasons for this tendency, but it may be enough to mention here that wages paid in the woollen textile industry are not lower than those paid in other similar branches of industry.

6. RECENT BUSINESS CONDITIONS OF SMALL-SCALE WOOLLEN TEXTILE WEAVERS

As repeatedly reiterated, the woollen textile industry made its start as a purely domestic industry dependent solely on a home market. As this domestic industry underwent a rapid expansion and improvement, the overseas market was also opened for what had been purely domestic products. Under such favourable conditions the demand expanded so amazingly, that the output, though also increased, was unable to keep pace with the demand until very recently. Consequently, in the small-scale woollen textile industry, unlike some of the other small-scale industries, there was no opportunity for competition to operate as a factor permanently tending to lower the price of products. The small manufacturers, therefore, have never been driven into financial straits, and consequently have not been faced with the necessity of lowering labour conditions because of enforced competition, as was clearly seen in the preceding section.

It was at the beginning of the Showa Era, when prices dropped suddenly on account of deflation, that the small-scale woollen textile manufacturers experienced their greatest difficulties. The drop in the price of yarn and products dealt a heavy blow to future tradings as well as to those who had materials and finished products on hand, and there were some factories which went into bankruptcy under this blow. But that time of hardship furnished an opportunity for rationalization, and paved the road for the present prosperity. The transition from hand looms to power-looms was remarkable, ending in the complete attainment of an age of power-looms after 1929. Another important factor which fostered this transition was the abolition of night work which became effective on 1st June, 1929. The fact that even the small-scale factories with fewer than ten

looms kept pace with the general trend of the industry, supplies ample proof of the enthusiasm with which they strove at that time for mechanization. Table 77 shows the state of transition from hand looms to power-looms in Aichi Prefecture, and clearly indicates the mechanization of small-scale industries.

TABLE 77. PERCENTAGE OF HAND LOOMS AND POWER-LOOMS
IN AICHI PREFECTURE (1923-1934)

	Hand looms	Power-looms
1923	53 per cent	47 per cent
1924	36	64
1925	38	62
1926	23	77
1927	19	81
1928	9	91
1929	4	96
1930	4	96
1931	3	97
1932	4	96
1933	2	98
1934	1	99

Based on the Statistics of Aichi Prefecture.

In recent years, certain changes in the power-looms themselves have taken place: from narrow looms about 32 inches wide to broad looms for broader cloth over 64 inches in width, and from old-fashioned looms to new ones. As has been already referred to, there was hardly any increase in the number of looms per factory, yet the output showed a tremendous increase; this was due in some degree to the rise in the productive efficiency brought about by this mechanization.

Extensive rationalization, new and better equipment for production, increase in the number of employees, and increase in the output of small-scale factories—all these changes are the hall-marks of the improvement in the business conditions of the industry. However, there are still other factors which have brought about the thriving condition of small-scale manufacturers.

First: when manufacturers wove imported yarn several years ago, they were exposed to the risk of loss caused by fluctuations in

the price of yarn which might take place in the long period between purchases in advance and actual deliveries. But now they use yarn produced in the country, and the risk of a fall in prices between the times when orders are placed and deliveries are made has been lessened to that extent.

Second: when the small-scale manufacturers were mainly engaged in the production of serges for Japanese dress, their financial condition lacked stability over the whole year on account of the seasonal nature of the business. But since they began to weave cloth for Western dress, they have come to produce various kinds, thus doing away with the seasonal fluctuation of business pressure and enabling the manufacturer to operate its productive facilities to their highest efficiency. This is the important factor which brought about the improvement in the management of factories. The recent transition of out-weavers to independent manufacturers is due to a great extent to the elimination of this seasonal fluctuation. Silk cloth is a great rival to the serges for Japanese dress; and when the price of silk drops, serges receive quite a heavy blow. But woollen cloth for Western dress, even if it is for ladies' dresses, still stands outside the field of competition from silk; and its manufacture therefore compensates for the losses sustained in the manufacture of serges for Japanese dress.

As to monetary facilities, which are the vital point of the small-scale industries, the small-scale woollen textile manufacturers are carrying on their business by either resorting to banks or transacting business by means of bills. This fact shows that they are amply provided with collateral securities on which to obtain loans. The recent drop in interest rates, which had advanced at the time of deflation, has brought these manufacturers financially easier conditions.

From the foregoing description, it may be observed that the small-scale manufactures in this industry are faring well at present, but it is impossible to describe the situation in detail on account of the lack of data showing the precise state of business conditions. The investigations on business conditions conducted by the Ministry of Commerce and Industry in 1932, and by the Research Institute of Nagoya Higher Commercial School in 1933 present the average profit of the factories included in the survey as shown in Tables 78 and 79.

TABLE 78. AVERAGE INCOME AND EXPENDITURE PER FACTORY (1932)

Type of factories	Number of factories	Type & Number of Employees		Capital	Loans	Net income	Total Expenditure	Percentages of Total Expenditure										Profit & Loss	
		Family workers	Wage workers					Raw materials	Fuel & power	Wages & salaries	Taxes	Repairs & depreciation	Rent	Pay for outweavers	Miscellaneous	Total	Profit	Loss	
With Family workers only	56	3.2	—	yen	yen	yen	yen										yen	yen	
With Family workers and Wage workers	596	2.4	11.4	183	126	910	520	12.1	30.9	1.2	8.0	8.6	1.8	1.0	36.4	100.0	390	—	
With Wage workers only	261	—	167.5	14,705	1,719	46,337	44,401	74.3	1.7	6.5	5.5	1.3	0.5	8.0	2.2	100.0	2,305	369	
				280,468	70,994	636,308	560,859	64.3	3.3	12.6	5.5	4.5	1.7	2.6	5.5	100.0	77,495	2,046	

Based on Department of Commerce and Industry, *Survey of Business Conditions of Industry*, Vol. 6, 1934.

THE WOOLLEN INDUSTRY

TABLE 79. EXAMPLES OF INCOME, EXPENDITURES, AND PROFIT IN THE WOOLLEN WEAVING INDUSTRY (1933)

1. Ichinomiya City and Okoshi-machi Town (Near Nagoya, Aichi Prefecture)				2. Tsushima-machi Town (Near Nagoya, Aichi Prefecture)		
	A	B	C		A	C
Total income	100.00	100.00	100.00	Total income	100.00	100.00
Expenditure				Expenditure		
Raw materials	70.35	66.22	66.86	Raw materials	75.16	73.09
Factory expenses	18.16	12.72	16.59	Factory expenses	18.14	10.25
Business expenses	9.65	10.53	10.56	Business expenses	5.48	5.64
Total	98.16	89.47	94.01	Total	98.78	96.23
Profit	1.84	10.53	5.99	Profit	1.22	3.77

- A. Small-scale factories, average of 23 factories.
Average number per factory: looms 21, workers 20.
- B. Medium-scale factories, average of 8 factories.
Average number per factory: looms 44, workers 59.
- C. Large-scale factories, average of 9 factories.
Average number per factory: looms 86, workers 121.

- A. Small-scale factories, average of 10 factories.
Average number per factory: looms 14, workers 15.
- C. Large-scale factories, average of 10 factories.
Average number per factory: looms 77, workers 120.

Based on the Nagoya Higher Commercial School's *Survey of the Woollen Industry in Japan*, Vol. I, *Survey of Business Conditions of the Woollen Industry in Bisei District (Aichi Prefecture)*, 1934.

The change in the composition of the cost of woollen cloth cannot be studied because of the scarcity of information; but the investigation carried out by a certain manufacturers' association for the year 1933, is shown in Table 80. This table shows the results of a survey in a district which mainly produces woollen cloth for exportation.

TABLE 80. CONSTITUENTS IN THE COST OF WOOLLEN TISSUES (1933)

	Yarn	Other raw materials	Wages			Power	Other expenses
			Prepar- ing	Weav- ing	Finish- ing		
	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Serges	83.09	0.75	1.49	2.43	9.79	1.70	0.75
Cloth for Western dress	80.85	1.13	1.62	2.54	11.07	2.21	0.58
Cloth for Japanese dress	85.40	0.85	1.78	5.00	5.00	1.55	0.42
Average	83.11	0.91	1.63	3.32	8.62	1.82	0.58

Based on a survey carried out by a certain manufacturers' association.

According to this table, weaving expense, even in the case of cloth for Japanese dress which is the most expensive to weave, is only 5 per cent of the cost; the total expense for labour, including weaving expense, the expense for preliminary work, and of dyeing and finishing, constitutes only 15.2 per cent of the cost of cloth for Western dress. The percentage of the labour expense in the cost of production is very small. The largest element in the cost is material yarn, which is about 80 per cent to 85 per cent. Consequently what influences the price of woollen cloth is the price of yarn; the expense for labour plays very little part in it.

Accordingly, the fact that the woollen cloth of the country became able to compete with foreign products after the re-imposition of the gold embargo is chiefly due to the exchange rate of the yen. It is natural that any advantages received from the drop in the exchange rate of the yen should be counterbalanced in the case of woollen textile products exported, because raw wool is imported from abroad; but in reality, for one or two years after the re-imposition of the gold embargo a considerable profit was realized because raw wool had in the main been imported at the pre-devaluation rate, or at least before the drop in the exchange rate of the yen had

become too great. Even with the exchange stabilized at a low rate, a certain margin is still being realized over the expense for labour and the material produced in Japan, because there has not as yet been any rise in the commodity prices (including expense for power) and in wages within the homeland.

As 80 per cent of the cost of woollen cloth is for yarn, the concern of the manufacturers with regard to the prices and supply of yarn is very great. They always concentrate their utmost attention on striking a proper balance between the price of yarn and the price of their manufactures. It can be said, therefore, that keen insight into the state of the market, and quick management in dealing with materials are requisites which are indispensable in this industry. Manufacturers must be at once engineers and financial wizards. Even then they must pay unceasing and untiring attention to the fluctuation of the market.

Finally the control over the small-scale manufacturers must be touched upon. As is often pointed out, it is the excess production resulting from the tremendous increase in newly established small factories with varying degrees of managerial ability that drives the small-scale industries into difficulties. Such instances were not rare, and to meet this situation, manufacturers' associations were organized here and there. In the woollen textile industry, the competition has not been so intense and serious as to render the establishment of associations really indispensable. But the authorities among the small-scale woollen weaving manufacturers, observing the trying condition of the pottery industry,¹ adopted a wise policy of establishing associations. In March, 1934, there existed seven associations, which were organized according to district and kind of goods woven, and which formed an organization called the Japan Federation of Woollen Textile Manufacturers' Associations. The articles of association of the Federation say that its functions are the joint sales of products, joint purchases of material, and the establishing of co-operative facilities; but as it is still young, and as the industry is still in a flourishing state, it has not yet reached the state of mature activity. Among the activities of the Federation the greatest stress is put at present on the inspection of products. The inspection of products was carried on from an early stage by the Trade Association, which has been the organ of control.

¹ One of the main industries in Aichi Prefecture.

In the meantime, in December, 1930, the Aichi Prefectural Office issued as a prefectural decree a set of regulations concerning the inspection of woollen cloth in Aichi Prefecture, and began its own inspection from 1st January, 1931. Thus the products have come to be strictly inspected by prefectural inspectors as well as by those of the Trade Association and Manufacturers' Association. Transactions in goods not yet inspected were forbidden with the aim of raising the quality of cloth in this district.

7. CONCLUSION

Thus far the present writers have described the general state of the small-scale woollen textile industry in Japan. There has been a considerable increase in the profit with the rise in the position of entrepreneurs and the improvement in the condition of management and labour. But the amazing increase in the output of the small-scale industries is chiefly due to the increase in the number of factories and in the efficiency of labour and machines; and there has been no enlargement of the scale as a whole. In times of business prosperity, it is natural that there should be an accumulation of profit, which is followed by the enlargement of manufacturing facilities, but we cannot find such a trend in the small-scale woollen textile industry. The writers believe that this situation may be attributed to the following facts. First, the profit gained by the entrepreneurs is partly spent in purchasing goods for consumption, for they are striving to improve their living conditions, as is clearly seen in the actual rise in the standard of their living. Second, their profit is partly turned into working capital. The increase of profit has enabled them to possess their own capital, though hitherto they have been controlled by middlemen. As has been mentioned in Section 3, this possession of capital is also a factor that has raised the position of textile manufacturers. Third, a part of the profit is used for the improvement of manufacturing methods, as is clearly shown in the change of weaving machines from hand looms to power-looms, and from antiquated power-looms to looms of a newer type. Last, a small part of their profit is spent for the expansion of their manufacturing plants, but this feature has not yet become a general tendency. These are factors which, in spite of the prosperous state of the industry, tend to prevent the enlargement of the manufacturing scale.

The reason then for the seemingly firm position of the small-scale industry, as has been repeatedly referred to, is its weaving method. The method of to-day not only makes possible, but, in fact, necessitates production in small-scale units. Another significant factor is that the convenient and ample supply of hydro-electric power is the main motive force used in the industry. A small manufacturing scale is made possible by the fact that electrical equipment may be easily installed, power may be freely made use of in small units, and because the handling and operation of such electrically driven motors are simple. If power were generated by steam, it would demand a large amount of expense for its equipment and operation which the small-scale industry could not afford to purchase by any means. The general use of hydro-electricity in Japan is an important factor in determining the fate of all Japanese small-scale industries. The opinion of Mr. Crocker on this subject is worth mentioning here:

It is conceivable indeed that the plentitude of electric power resources may bring about a new form of industrialization in Japan, one in which the massing of men in large cities and in large factories will give way to a kind of domestic industry dispersed throughout the countryside (W. R. Crocker, *The Japanese Population Problem*, pp. 156-7).

But the new form of industrialization of Japan, it must be noticed, is not domestic industry, but small-scale factories run by large capital. Whether small-scale industry will continue to develop and keep its existence in future, however, is a very complicated and difficult question. Regarding this problem we must bear in mind the difference between the medium- and small-scale factories of small capital and the small-scale plants of many such units run by large capital. As far as the small-scale woollen textile industry is concerned, as already referred to, the present technical necessities require small-scale production, and as for capital, it operates in a different field of manufacture from large factories run by large capital; these large-scale factories with large capital do not produce the kind of goods which are manufactured by small-scale industry. This means the decisive power of technique over capital. The present state of the small-scale industry, which is not being extended, betrays the fact, in a sense, that the industry is still in a transition stage from a domestic to a factory industry. Whether the small-scale industry will be close pressed by large-scale industry when the

former is completely turned into a factory industry, depends wholly upon whether a change in technique will likewise have to be effected.

On the other hand, though the fact has not yet emerged on the surface, it might be that some unhealthy small factories are allowed to exist as merely a temporary phenomenon due to a favourable condition which accompanied the unprecedented fall in the yen rate of exchange. Therefore, we are not without fear that there may be some growing force hidden from present sight which will cause endless competition and lowering of labour conditions after the favourable circumstances have disappeared. Accordingly, in future, proper regulation and superintendence are necessary for the sound development of this small-scale industry. It is agreed on all sides that supervision for the prevention of lowering the conditions of labour is extremely difficult, and on that account there are not a few observers who look unfavourably upon the existence of the small-scale industry in Japan. Yet it is not an impossibility. As long as small-scale industry exists at all, it is our duty to urge a betterment in the conditions of its workers. Judged from these circumstances it is necessary to consider the following two points as the means of promoting better labour conditions in the small-scale industry. The first is to limit the supply of electric power by time, and the second is to improve the system by which wages are paid, so that the overwork caused by piece work is minimized. The former measure is likely to be realized; it has already been put into practice in the rayon weaving industry. There might be some obstacles, however, in realizing the latter as it involves very many difficult problems. Yet no satisfactory result can be reached by the former without being accompanied by the latter.

CHAPTER V
THE RUBBER GOODS INDUSTRY

I. DEVELOPMENT OF THE RUBBER GOODS INDUSTRY IN JAPAN

IN keeping with the indispensable role which rubber plays in the daily life of modern civilized society, one encounters rubber goods or products manufactured from rubber in almost every phase of Japanese life. Japan to-day ranks with Great Britain, France, and Germany as a rubber utilizing nation, although she is still far behind the United States of America.

TABLE 81. WORLD CONSUMPTION OF RUBBER (1930-1935)
(In thousand tons)

	1930	1931	1932	1933	1934	1935
Japan	32	44	56	65	70	56
U. S. A.	376	349	313	406	465	497
Great Britain	74	78	85	80	110	100
Germany	46	39	44	54	59	63
France	67	48	43	63	50	51
U. S. S. R.	17	30	28	27	47	37
Canada	29	25	21	20	28	26
Italy	15	10	14	20	21	22
Australia	5	8	13	14	10	10
Belgium	11	12	9	11	9	7
Other Countries	31	37	40	57	68	63
Total	703	680	666	817	937	932

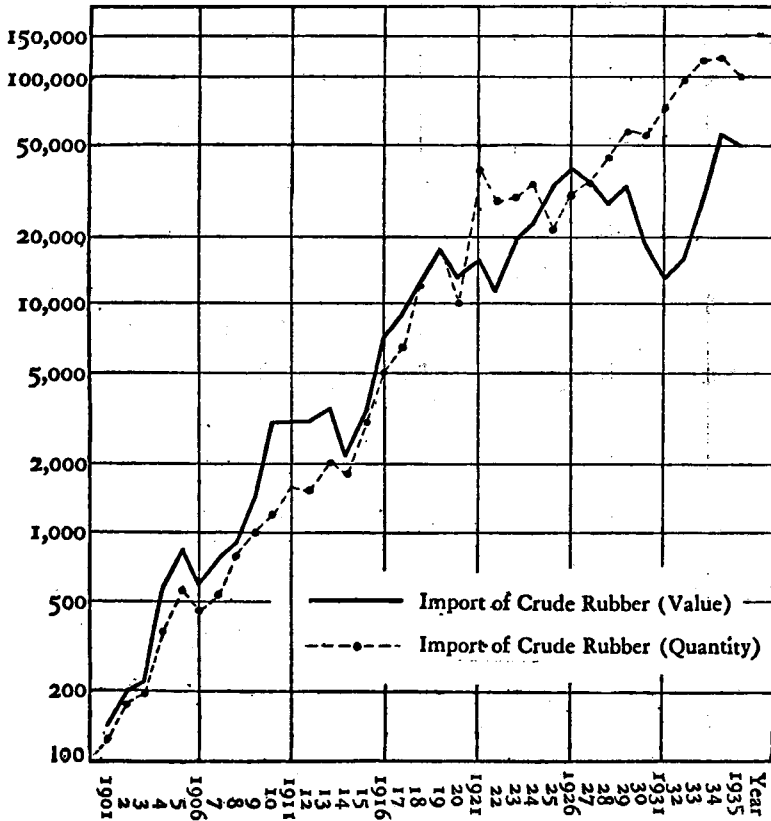
The Economist, London. 18th February, 1933, and 15th February, 1936.

Manufacture of rubber goods is one of Japan's more recent industries. Although the origin of the industry may be traced back as far as 1886, it was not until very recently that it made any notable headway. The Mitatsuchi Rubber Manufacturing Company, the first rubber manufacturing company in Japan, was started in Tokyo in 1886, but no other factories were established until 1900. In that

year, the Meiji, the Tokyo, and the Nippon Rubber Companies were formed. In the second year of the Russo-Japanese War (1905) the Kakuichi Rubber Company and the Kansai Rubber Company were established in the Osaka area. In 1909, the Dunlop Company of

DIAGRAM 54. JAPAN'S IMPORTS OF CRUDE RUBBER (1901-1935)

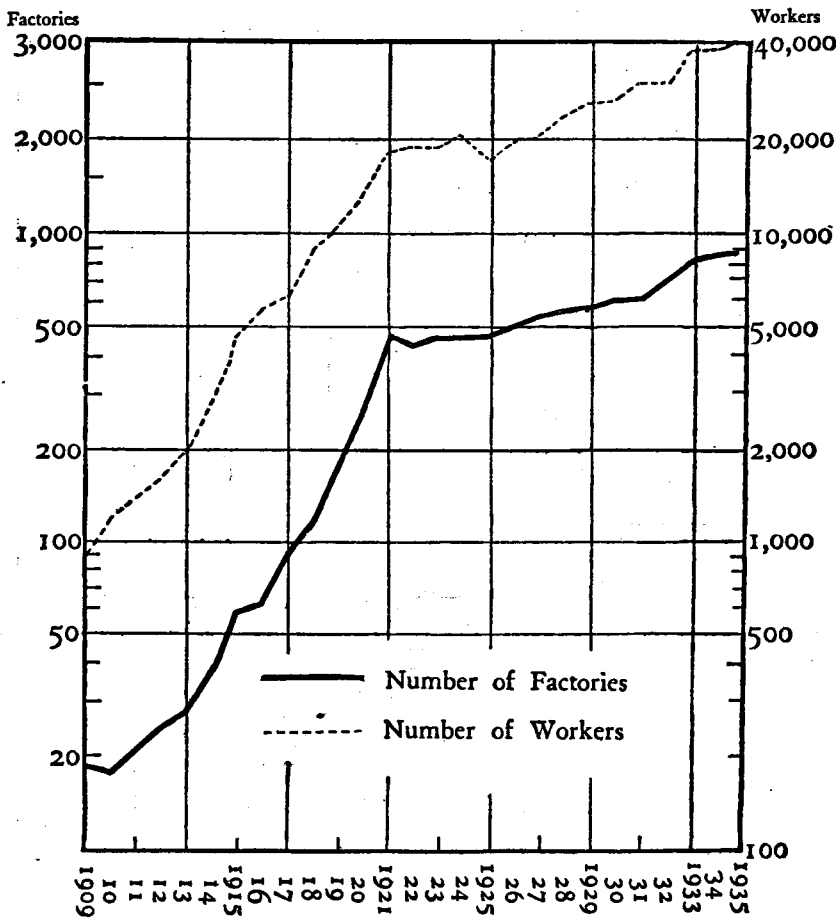
{ Thousand yen
{ Ten piculs



Based on the Monthly Returns of the Foreign Trade of Japan.

England erected its Far Eastern factory at Kobe. The reason for the development after 1900 is to be found in the treaty revisions of 1899 which provided for a 10-20 per cent protective tariff on imports of rubber goods. This tariff was raised later, in 1905 and 1906.

DIAGRAM 55. NUMBER OF FACTORIES AND WORKERS IN THE RUBBER GOODS INDUSTRY IN JAPAN (1909-1935)



Based on *Factory Statistics*.

In spite of this protection it was not until the World War that Japan's rubber industry really began to thrive. For the first time the exports of manufactured rubber goods exceeded the imports of similar articles. The factories in Europe which had turned out rubber products were converted into plants for manufacturing munitions of war, which meant a curtailment of rubber goods exported to Japan. This situation, which stimulated the industry in Japan, is emphasized by the following facts.

TABLE 82. NUMBER OF RUBBER MANUFACTURING PLANTS IN JAPAN
(End of 1935)

Date unknown	11
Established in 1868-83	3
" 1884-88	1
" 1889-93	1
" 1894-98	2
" 1899-1903	4
" 1904-08	8
" 1909-13	13
" 1914-18	64
" 1919-23	189
" 1924-28	152
" 1929-33	257
" 1934	37
" 1935	25
Total	767

Factory Statistics, 1937.

1. In the short period from 1914 to 1919 the importation of crude rubber increased tenfold (see Diagram 54, showing the amount of crude rubber imported).

2. In direct contrast with the drop in the amount of manufactured rubber goods imported during this period, the amount of exports increased (see Table 84, showing exports of rubber goods).

3. An increase in the number of rubber factories and a sudden increase in the number of factory hands employed therein occurred during this period (see Diagram 55). Most of the factories which are in business to-day were established during this period (see Table 82, indicating the years during which the rubber factories were established).

In the post-war period, however, Japan's rubber industry, the technical skill of which was still no match for that of the American and European manufacturers, declined in activity. Exports of Japanese rubber goods fell off, as did the amount of crude rubber imported into Japan. Small factories which had been operated on a slender financial foundation began to fail one after another. The large factories laid off large numbers of their workmen and retrenchment was effected.

The Great Earthquake of 1923 in the Tokyo area caused a great change in the geographical location of the industry. Factories in the Tokyo-Yokohama area, representing 80 per cent of the producing capacity of the industry, met with destruction. These factories were moved down to the Osaka-Kobe district.

Thereafter, except for one short rise and fall in business, the industry passed through gloomy days, reaching the rock bottom of its period of comparative inactivity during the depression years of 1929-1931.

The re-imposition of the gold embargo in December, 1931, was a happy event for the rubber industry of Japan. The fall in the exchange value of the yen meant some rise in the import price of raw materials; but inasmuch as the cost of raw materials constitutes but a comparatively small item of the total cost of production, as will be further elaborated, the benefits which this drop in the exchange value of the yen brought about in the export end of the industry far outweighed the slight increase in the price paid for raw materials.

Since 1932 the industry has been further spurred on by enormous increases in the Military Budget for purchases of rubber products used in modern military equipment especially of ebonite, gas-masks and water-proof fabrics.

In 1932 and after, the volume of crude rubber imports took an upward trend, new factories sprang up, and the amount of manufactured rubber articles shipped abroad showed a decided increase. The export of finished rubber goods which had until then been grouped with other articles in the Export Statistics now received an independent classification. This separate itemizing of rubber products is, however, a very recent development. Figures for the exports and total production of various rubber goods can be derived from *Factory Statistics*, published by the Ministry of

TABLE 83. PRODUCTION OF RUBBER GOODS IN JAPAN (1919-1935)

(In thousand yen)

	Tyres			Other Goods									
	For automobiles	For bicycles	Total including other tyres	For machinery	Boots & Shoes	Toys	Pipes	Belts & Belting	Elastic Webbing	Rubber-soled Tabi ¹	Total including other goods	Hard rubber manufactures	Total (excluding tyres)
1919	—	8,899	8,899	—	204	1,914	—	—	—	—	—	4,029	—
1920	—	15,212	15,212	—	4,570	2,403	—	—	—	—	—	895	—
1921	—	14,241	14,241	—	12,642	1,297	—	—	—	—	—	3,361	—
1922	—	6,761	6,761	—	9,932	1,810	—	—	—	—	—	1,260	—
1923	3,410	11,119	17,300	—	12,309	2,263	—	—	490	—	—	1,039	—
1924	2,951	10,168	14,979	—	12,708	3,384	—	—	2,896	—	—	2,618	—
1925	2,225	9,965	13,275	—	14,073	3,438	—	—	958	—	—	3,270	—
1926	396	14,907	16,716	—	15,879	2,700	—	—	1,631	—	—	3,766	—
1927	3,562	14,353	19,874	—	18,153	3,065	—	—	2,161	—	—	3,723	—
1928	6,078	14,380	21,475	—	21,306	2,518	—	—	2,152	—	—	1,195	—
1929	8,819	11,589	25,753	2,126	28,797	2,318	1,319	4,698	3,555	24,507	102,934	1,727	104,661
1930	7,116	8,975	19,285	1,420	21,010	2,314	1,973	4,577	3,133	10,932	73,629	1,203	74,832
1931	6,640	9,430	19,454	636	15,929	3,320	1,747	4,005	1,578	11,218	67,788	1,113	68,901
1932	11,068	9,000	24,080	1,173	17,353	5,028	2,192	4,439	2,409	13,249	80,436	1,055	81,491
1933	15,303	11,452	31,826	1,001	21,879	5,563	2,989	5,662	2,875	16,553	104,409	1,724	106,133
1934	18,248	13,942	40,588	492	25,103	3,548	3,448	7,166	3,218	15,956	119,777	2,715	122,492
1935	21,589	15,994	45,907	1,133	28,974	4,619	4,422	8,263	3,058	16,855	136,344	2,621	138,965

¹ The *tabi* is the Japanese-style sock.Based on *Factory Statistics*, excluding factories with four workers and under.

TABLE 84. EXPORTS OF INDIA-RUBBER AND GUTTA-PERCHA MANUFACTURES FROM JAPAN (1918-1936)

Articles		Quantity in	1918 thousand yen	1920 thousand yen	1925 thousand yen	1927 thousand yen	1928 thousand yen	1929 thousand yen	1930 thousand yen	1931 thousand yen	1932 thousand yen	1933 thousand yen	1934 thousand yen	1935 thousand yen	1936 thousand yen	Quantity
Elastic webbing		100 <i>kin</i> ¹												1,691	2,258	28,948
Hats & caps (India-rubber)		doz.												225	284	155,161
Rubber-soled <i>tabi</i>		doz. pr.											1,146	1,270	1,277	189,595
Boots, shoes, clogs	Boots & shoes (India-rubber)	"					3,884	7,445	6,593	4,394	4,890	8,213	3,332	2,699	1,832	251,204
	Sporting shoes (for tennis)	"												220	422	97,799
	" (others)	"											13,298	16,692	14,704	2,611,801
	Other shoes, sandals, etc.	"	3,786	2,906	1,491	3,583	3,957	6,788	10,276	12,820	15,044	19,993			—	—
Rubber Tyres & inner tubes	(for ricscha)	100 <i>kin</i>								858	652	819	620	654	720	8,004
	(for cycles)	"					5,725	6,301	5,274	1,901	2,248	4,306	5,699	5,240	4,426	56,868
	(for automobiles)	"								1,099	1,477	3,713	3,675	2,814	4,531	50,367
	(for other vehicles)	"												238	261	3,983
Rubber toys			—	—	1,789	1,533	1,934	2,161	2,049	2,199	5,507	8,633	6,406	4,195	4,641	—
Other india-rubber & gutta-percha manufactures (soft & hard)	(soft) hoses	100 <i>kin</i>											428	590	825	16,383
	" belt & belting	"												1,305	1,857	23,425
	" erasers	"												352	229	7,122
	" cords, twines, etc.	"												970	953	9,555
	" tennis balls	"												101	66	29,909
	" baseballs	"												101	66	29,909
	" football bladders	"	1,225	1,527	1,131	964	1,187	1,449	1,280	1,044	1,479	3,327	4,505	48	13	5,345
	" other sports goods	"												76	82	35,340
	" other toys	"												222	116	—
	(hard)	"												2,561	2,780	—
(others)	"												180	182	—	
	"												164	321	—	

¹ One *kin* = 1.323 lbs., or 600 gr.Based on the *Monthly Returns of Japan's Foreign Trade*.

Commerce and Industry, and from the official export returns. *Factory Statistics* includes only those factories that employ more than five workers and refers chiefly to factories that produce tyres, rubber boots and shoes, rubber-soled shoes with fabric uppers, rubber toys, rubber tubes and hose, rubber belts and belting, storage batteries and ebonite. Rubber-soled *tabi* (Japanese footwear) and rubberized fabric are listed under other factories manufacturing rubber goods. There are, of course, many other articles whose basic component is rubber. Among the items listed in the Ministry of Finance's Export Statistics, rubber-soled shoes with fabric uppers, tubes and hose, and rubber belts and belting may be classified as rubber manufactured goods. No one can deny the fact that other articles whose basic component is rubber, such as certain surgical instruments, are also being shipped abroad. But as the precise percentage of goods of that class made from rubber is not clearly known, the same has been omitted here.

Of these rubber goods, the production of tyres and shoes has increased. The development of the hard-rubber factories has recently reached a standstill. It is believed that the demand for the rubber-soled *tabi* in Japan has just about reached the saturation point. On the other hand the development of the factories producing military goods has been outstanding. Expansion of factories producing tyres is due to the increase in the number of automobiles and bicycles. Tyres for richas are mostly made with a view to

TABLE 85. AUTOMOBILE TYRES IMPORTED INTO AND MANUFACTURED IN JAPAN (1930-1935)

	Imported ¹		Manufactured ²
	quantity (<i>kin</i>)	value (thousand yen)	value (thousand yen)
1930	4,113,540	3,832	7,116
1931	2,630,624	2,084	6,640
1932	529,005	423	11,068
1933	11,273	8	15,303
1934	10,508	9	18,248
1935	9,325	10	21,589

¹ Based on *Monthly Returns of Japan's Foreign Trade*. ² Based on *Factory Statistics*.

export to China and Manchuria rather than for domestic use. The foreign made tyres for automobiles, motor-bicycles, and bicycles have been practically driven out, and manufacture for export trade is becoming a reality.

The development in the rubber boots and shoes line within the industry is especially to be noted. 'Rubber shoes' includes those shoes with rubber soles. These canvas shoes have recently become a big export item, surpassing in volume the export of shoes made totally of rubber. The rubber-soled *tabi*, which is a distinctly different article from the canvas shoe, is very similar both in manufacturing processes and in the use to which it is put. Rubber boots and shoes were first introduced in Japan around 1907. This branch of the rubber industry, centring in Kobe began to thrive in 1918 as the result of the discovery of a vulcanizing process. Welcomed by labourers as a footwear well-suited to the muddy condition of the soil following snows and rains, this branch of the rubber industry made rapid strides in its development. This new industry provided relief to the depressed match industry in and around Kobe, many of the former match factories being converted into factories for making rubber footwear.

The cheap made-in-Japan rubber shoes are the most suitable type of shoe for the people in the South Eastern Asiatic market whose purchasing power is low. The result, therefore, was the domination of this market and the practical expulsion of the high priced English, American, German, and Canadian rubber shoes.

Thus, this rubber shoe industry, which had been rather dull from 1920 to 1930, recovered from its inactivity, and the acute drop of the yen in the foreign exchange market as the result of the re-imposition of the gold embargo in December of 1931 further stimulated the development. This period of prosperity, however, was met with the greatest number of obstacles, the chief ones being increased tariff duties or restriction on the volume of imports which other countries had effected. The more important hindrances which the rubber industry faced in 1931-1934 are enumerated below:

Great Britain: Rubber sheets (50 per cent dumping duty imposed, December, 1931). † Rubber shoes and boots (surtax levied, October, 1931; tariff raised, April, 1933).

Irish Free State: Automobile tyres (Importation prohibited, August, 1934).

- France:* Rubber or rubber product toys (restriction on imports, January, 1932). Manufactured rubber goods (import quota lowered, January, 1934).
- Hungary:* Rubber-lined mantles (import licence required, April, 1932). Hard-rubber (importation restricted, June 1933).
- Switzerland:* Rubber boots and shoes (import licence required, March, 1933).
- Poland:* Manufactured rubber products (importation restricted, April, 1933).
- Netherlands:* Rubber boots and shoes (importation restricted, September, 1933).
- Belgium:* Rubber boots and shoes (quantity of imports placed on quota basis, September, 1933).
- Italy:* Rubber boots and shoes (tariff raised, January, 1934).
- Turkey:* Rubber boots and shoes (licence to import required). Rubber-soled shoes (tariff raised, August, 1933).
- Straits Settlements:* Rubber boots and shoes (tariff raised, May, 1933).
- Ceylon:* Rubber or rubber product toys and rubber footwear (tariff raised, February, 1932).
- Siam:* Rubber or rubber product toys, tyres, and tubes (tariff raised from 30 per cent to 33 per cent, February, 1932).
- French Indo-China:* Automobile and ricksha tyres and tubes (foreign exchange surtax, September, 1932).
- Federated Malay States:* Rubber boots and shoes, and canvas shoes (tariff raised, 50 cents per pair, October, 1932).
- Philippine Islands:* Rubber and canvas shoes (tariff raised, February, 1933 and October, 1934).
- China:* Rubber boots and shoes (tariff raised, June, 1934).
- Jamaica:* Rubber-soled shoes (tariff raised, June, 1934).
- Tanganyika:* Rubber boots and shoes (tariff raised 40 per cent per pair, October, 1934).
- Union of South Africa:* Rubber footwear (enforcement of foreign exchange dumping duty, February and March, 1932. Further increase therein, April, 1934).
- British Zanzibar:* Rubber boots and shoes (tariff raised 15 per cent per pair, August, 1933).
- British Johore:* Rubber boots and shoes and canvas shoes (tariff raised, 50 cents per pair, October, 1932).

- East Africa:* Rubber boots and shoes (tariff raised, June, 1933).
U.S.A.: Rubber boots and shoes (tariff raised, February, 1933.
 Duty imposed, September, 1933).
Panama: Rubber-soled shoes (surtax of 25 cents to \$1 per pair,
 March, 1932).

TABLE 86. JAPANESE EXPORTS OF RUBBER BOOTS AND SHOES, ACCORDING TO
 CONTINENTS (1931-1935)
 A. Rubber boots and shoes with fabric uppers (thousand pairs)

	1931	1932	1933	1934	1935
Asia	13,213	18,610	19,934	18,084	22,200
Europe	4,014	6,789	7,664	2,844	2,415
North America	620	4,182	1,296	410	154
Central America	147	660	571	420	459
South America	463	504	380	237	233
Africa	5,602	3,405	4,506	4,056	7,219
Australia	186	560	1,657	1,085	1,097
Total	24,248	34,714	36,010	27,141	33,782
B. Shoes made entirely of rubber (thousand pairs)					
Asia	10,098	3,185	5,755	4,705	3,674
Europe	1,691	5,778	3,661	503	515
North America	117	447	476	301	18
Central America	5	23	119	17	20
South America	20	10	38	71	47
Africa	210	188	739	1,009	979
Australia	41	151	500	181	130
Total	12,185	9,786	11,290	6,789	5,386

Figures correct only to nearest thousand.

Based on the survey made by the Japanese Federation of Manufacturers' Associations, 1936.

The gradual decrease in the export of shoes made entirely of rubber in contrast to the increase in the quantity of canvas shoes being exported is due partly to the increased tariff barriers, but it also reflects a gradual transition of the demand from the comparatively high priced complete rubber footwear to the canvas type shoe. The decrease in the volume of rubber shoes exported to Europe and North America subsequent to 1934 as indicated in

Table 86, however, may be directly traced to the increase in the tariff duties effected about that time.

The story with respect to rubber toys is the same. Rubber toys were first made and sold in 1887, when the Mitatsuchi Rubber Company put a ball marked with a red letter M on the market. Rubber dolls were first manufactured in Japan around 1914. This phase of the industry was not so active at first, but with the coming of the World War, it became more active as its markets were extended. People who do not wish to take the risk of inflammable celluloid toys have recently turned to the purchase of rubber playthings. In 1932 the export of rubber toys surpassed the volume of celluloid toys shipped out of the country. The competition among the manufacturers of rubber toys was even more keen than the competition among the manufacturers of shoes. The evil of defective quality from careless manufacture became acute, and among the complaints received by rubber goods manufacturers, those relating to toys were numerous. Following the raising of the tariff barriers, this phase of the rubber industry has become somewhat quiet.

Most of these rubber goods-manufacturing plants are located in urban communities. They are, moreover, concentrated in certain geographical centres, the manufacture of more delicate rubber goods and toys centring round Tokyo, the plants turning out rubber shoes and rubber-soled shoes being situated round Kobe, and the Osaka area having many factories manufacturing bicycle tyres and rubber shoes. In addition, there are three large establishments making automobile tyres, situated respectively in Kobe, Yokohama, and Kurume (in Kyshu). There is also in Kurume a large-scale plant called the Nippon Tabi Manufacturing Company which manufactures the rubber-soled *tabi* and canvas shoes. Although there are other small rubber goods-manufacturing enterprises in other parts of Japan, the bulk of the rubber factories are in the districts named. Factories in and around Tokyo produce 24 per cent of the total output in Japan, those in and around Kobe, 36 per cent, and those situated in and around Osaka, 17 per cent. The plants in the urban areas are small factories usually located in the districts where the poorer classes of people live.

The factors which made this outstanding development in Japan's rubber products manufacture possible are: (1) the close proximity

of the plants to the raw material markets; (2) the low scale of wages that exists in Japan; (3) the deftness of Japanese workers in manual work; and (4) the drop of the exchange value of the yen, especially with reference to the more recent advance of the industry.

The proximity of the plants to the source of the necessary raw materials means a saving in transportation costs. Of the leading rubber goods-manufacturing nations, Japan is closest to the Straits Settlements, the centre of the world's supply of crude rubber. But, one might ask, and rightly so, if nearness to the rubber plantations is an advantage, does not the greatest advantage in rubber manufacturing belong to the country which produces the crude rubber? This query is answered, as will later be pointed out in detail, by the fact that the cost of the raw materials in the manufacture of rubber goods constitutes but a comparatively minor item in the total cost of the finished product. For instance in the case of the rubber-soled canvas shoes which are being exported in large quantities, the cost of raw materials is less than 30 per cent of the total production cost. Even in the case of rubber toys in which the crude rubber is the main component, the cost of raw materials represents not more than 39-40 per cent of the total cost. There is also the need for obtaining, besides crude rubber, other raw materials which are necessary in making the finished product. The rubber-soled shoe with fabric uppers is being exported in large quantities to India. This does not mean that there are no factories making shoes of that type in India. Notwithstanding the existence of such factories in India, Japanese canvas shoes with rubber soles are being sold in India at a price which is also driving other foreign shoes out of the Indian market. The cause of this phenomenon is none other than the element of the cost of production. The cost of producing the canvas shoe with rubber sole in India is two and a half times as great as the cost of producing the same shoe in Japan, and the cost of producing the shoe made entirely of rubber in India is more than twice the cost of making the same shoe in Japan. The factors which existed in August, 1933, may be analyzed as follows:

(1) Only in respect of the low cost of transporting the crude rubber did India have an advantage over Japan.

(2) The market price of canvas fabric of 8 ounce per yard quality, which is usually used in the manufacture of rubber shoes with fabric uppers, was about 30 *sen* per yard in Japan. If the

same material is to be purchased in India, there are added the 75 per cent tariff duty, the transportation costs over sea and land, insurance charges, and other miscellaneous costs, bringing the market price up to about 60 *sen* per yard. If fabric woven in India is to be used, the cost per yard runs from 80 to 90 *sen*.

(3) The chemicals used in the manufacture of rubber products are in the main imported from Japan. The price for these is raised some 30 per cent by the tariff duty and some 20 per cent by other miscellaneous costs.

(4) The cost of attaching the rubber parts to the fabric in India is three times the cost in Japan. In Japan, such costs are about 2.5 *sen* per pair, while in India about 8 *sen* is required.

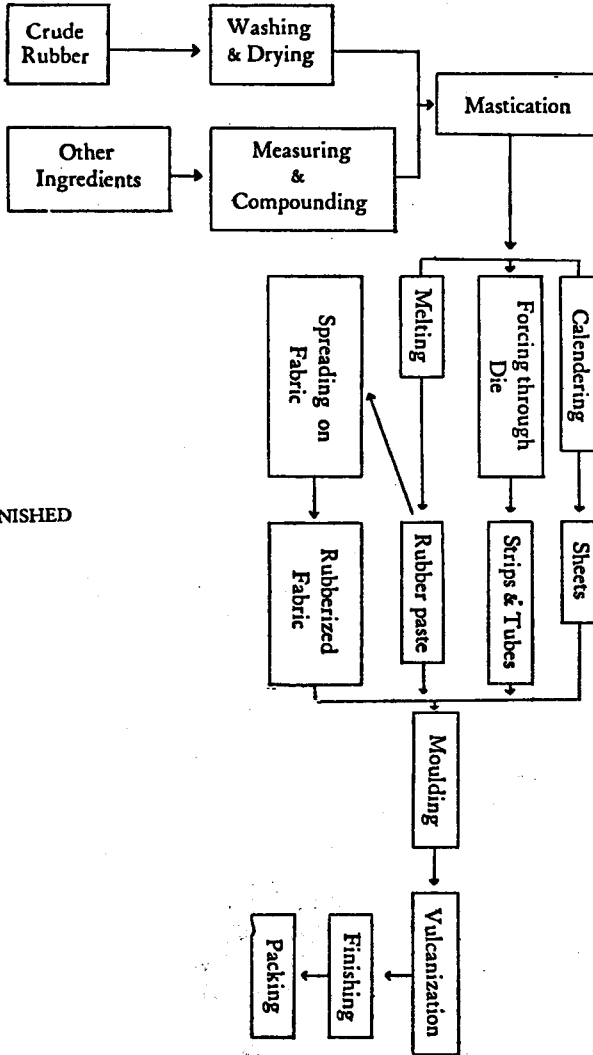
It is true that wages in Japan are lower than wages in America and Europe. The labour employed in Japan's rubber factories is cheaper than the labour employed in other foreign countries but its efficiency is high. The fact that Japanese workmen are nimble in the use of their hands and fingers is often mentioned, but this fact has been of great benefit to the rubber industry in Japan. As will be discussed in the next section, labour in the factories turning out rubber products has not been displaced to any great extent by machinery. Those processes which must be performed by hand are just as numerous as they were in former days. Even in the rubber *tabi* factories, where it is believed that a high degree of mechanization has been introduced, hand labour is required in the mechanical processes, and in the running of the machinery itself considerable skilled technique is required. The Nippon Tabi Manufacturing Company has explained that the deftness of the Japanese worker in the use of his hands and fingers is really one of the vital factors in the far-reaching expansion into world markets which the Japanese fabric shoe has made.

2. PROCESSES IN THE MANUFACTURE OF RUBBER GOODS

The various processes in the manufacture of rubber articles are comparatively simple. It is true that scientific research into the chemistry of rubber and continuous improvement of the industry require both unusual endeavour and a profound scientific learning, and the larger factories are spending no small sums towards this

DIAGRAM 56. PROCESSES IN THE MANUFACTURE OF RUBBER GOODS

RAW MATERIALS



SEMI-FINISHED

Based on *Factory Statistics*.

end. But at the same time, the manufacturing processes are not complicated. All rubber goods go through the following steps: The crude rubber is first washed in order to eliminate foreign substances. It is then dried, and other ingredients are added. The whole is then thoroughly mixed by a 'masticator.' After this has been done, the mixture is cast into the various shapes and forms. Vulcanization then follows. The process of mixing the crude rubber with other ingredients by means of the 'masticator' and the process of vulcanization are common to all types of rubber goods. The shaping of the rubber mixture into the various forms, which is the most complex step, differs a great deal, depending upon the type of article being manufactured. The various processes may be presented graphically as in Diagram 56.

The entire supply of crude rubber is imported in the form of 'smoked sheets'. Most of the chemicals used in the kneading or mastication of the rubber are obtainable in Japan at a small cost.

Admixtures are added either to vulcanize, to accelerate the vulcanization process, to increase the volume, or to tint the rubber. Each ingredient so added may, however, have an incidental effect, and expert technique is needed to obtain superior goods through the use of just a small quantity of chemicals. The several factories, therefore, are most zealously conducting researches with regard to the chemical admixtures, and such discoveries as are made are guarded as trade secrets.

Thus the general term rubber goods covers articles of such innumerable grades or qualities that one cannot speak of them all in one breath. But if an exporter or a wholesale dealer should request a great many low priced goods, it is possible to fulfil his order by adding other ingredients to the rubber or by using cheap grade admixtures used in the masticating process and thus increase the volume or quantity of goods. It stands to reason that if inferior materials are used, the finished product itself will be inferior. The finished product, however, may appear to be the same to the layman, the difference in quality being detectable only by an expert. Thus, when confronted with a rise in the market price of crude rubber and at the same time wishing to make no change in the price of the manufactured article, there is the temptation to produce inferior goods through the employment of the above process.

The kneading of this rubber, as well as the admixture of the

various compounds, is a task which requires experience and training, and it is done entirely by male workers. Regardless of the type of factory in which he is employed, the men working in this branch of the industry are working under conditions that are not healthy but they receive correspondingly higher wages.

The agglomerated substance is now shaped into the various forms designated by the term 'semi-finished' in Diagram 56. It is either placed on a calendering machine and rolled into sheets, forced through a die into rubber strips or tubes, or melted and made into a rubber paste. These 'semi-finished' forms represent the first step in the production of the manufactured article and the uses to which they will be put are generally determined at this stage. This phase of the work is also done by male workers under somewhat the same conditions as the men doing the kneading or masticating.

From these drawn out rubber sheets are derived the materials for the soles of shoes and cemented rubber toys. From the substance forced through the dies, rubber bands and tubes may be made after a slight additional processing. Nipples, balloons, contraceptives and rubberized fabrics are made from the rubber paste. Moulding the rubber substance into these various shapes or forms is called the *moulding process* and differs in no small degree, depending upon the product to be made. Very little mechanization has taken place in this process and the use of human hands is required. The work requires deftness of the hand rather than a trained mind and hence the female workers outnumber the male. Male workers are employed mainly in the moulding or shaping of lorry tyres, large diameter tubes, moulded tops, and tarpaulin. The rubber shoe so extensively made in Japan, the cemented rubber toys, and bicycle tyres are made almost entirely by female hands.

Following this moulding process, all rubber goods must then be subjected to vulcanization, which is a process in which sulphur is added to the rubber and the mixture heated. In the manufacture of fragile rubber goods like balloons, the 'cold-cure' method of vulcanizing is usually employed. This work of vulcanization is performed in the main by male workers. Vulcanization is not an easy task. There is exposure to heat in the 'hot-cure' method of vulcanization and the risk of chloridized sulphur in the 'cold-cure' process. The work, therefore, requires skill and consequently the workers in the vulcanization end of production receive high wages.

The various processes in the manufacture of rubber articles outlined above are carried on mainly by hand, especially in the moulding process, which is complex. Labour, therefore, is the main item in the total cost of production. It is, however, the present writers' belief that this does not mean that the industry is one which cannot be profitably mechanized. The Nippon Tabi Manufacturing Company at Kurume has effected a minute division of labour combined with a more extended use of machine apparatus and the result has been in the main successful. In view of the general uniformity which exists in the rubber shoes with fabric uppers, it is not difficult to apply to their manufacture the technique employed in the manufacture of the rubber-soled *tabi*. In fact, this is being done by the Nippon Tabi Manufacturing Company, but not by the majority of medium or smaller sized factories in and around Kobe. Dispensing with machinery means smaller capital requirements, but it also means a certain lag in output efficiency. The various Kobe establishments, placed in a painful situation in face of the low selling price of the Nippon Tabi Manufacturing Company, have accused that company of 'dumping'. The Nippon Tabi Manufacturing Company, on its part, reports that its low selling price is not at all unfair or unjustified and that the company is earning sufficient profit at that price. One would gather from this situation that there is still room for a certain amount of mechanization in the production of rubber-soled shoes with fabric uppers. It would seem that if the level of wages should rise, a decided increase in mechanization would take place. This, however, remains to be seen.

On the other hand, mechanization is probably not so feasible in factories turning out products like rubber toys, where the forms are varied and various types of moulds or dies are a necessity. The use of hand methods now being employed in the operations of most of the smaller factories manufacturing toys is probably inevitable. To standardize the various shapes and forms is almost an impossibility. Moreover, one must recognize the fact that the production of these vari-formed and multi-typed toys has the effect of acting as a cushion to the fluctuations in the industry. This phase of the industry must be considered and treated separately from those branches of the industry which turn out goods like the rubber-soled *tabi* in which the demand is inelastic.

3. SCALE OF PRODUCTION

The processes in the manufacture of rubber goods which require the use of power or machinery are the kneading and vulcanization operations. If these two operations are delegated to some one else, the manufacture of rubber articles requires but very simple equipment. Even if the kneading and vulcanizing are performed, the scale of the plant need not necessarily be enlarged or extended. With one roller and one vulcanizer and 10 or 20 workmen, it is possible to carry on a small rubber goods-manufacturing establishment. This is not only a possibility, but it is actually done.

According to the *Factory Statistics* issued by the Ministry of Commerce and Industry, the factory scales are as follows: factories employing from five to nine people are the greatest in number, constituting one-quarter of the total number of factories producing rubber products. Factories employing 15 to 29 and 30 to 49 workers respectively then follow in order. Factories employing fewer than 30 workers make up 62 per cent of the total and factories employing fewer than 50 people represent 80 per cent of the total number of rubber factories. Factories employing fewer than 100 workers constitute 92 per cent of all rubber works. These figures of themselves indicate how great the number of small-scale factories in this industry is (see Table 87). Except for the large-scale factories producing automobile tyres, it may be said that most of the rubber articles are made in small factories.

While the larger factories are fewer in number, each factory employs many workers. The distribution in the number of workmen, therefore, differs from the above distribution of factories. Workmen employed in establishments employing from 50 to 99 persons are the greatest in number, representing 18 per cent of the total. Next in number come the workmen employed in factories hiring from 200 to 499 persons. But even here the total number of workers in factories employing fewer than 50 persons amounts to 10,900 or over 30 per cent. The total number of workers in factories having fewer than 100 workmen makes up 52 per cent of the whole (see Table 88).

The greatest part of the output of the rubber goods-manufacturing industry was the product of the factories employing the greatest number of workers, while factories employing the smaller number

TABLE 87. RUBBER GOODS FACTORIES CLASSIFIED ACCORDING TO NUMBER OF WORKERS EMPLOYED (1919-1935)

	Number of factories employing:									Total number of factories
	5-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers	100-199 workers	200-499 workers	500-999 workers	1,000 workers and over	
1919		30	67	36	13		18	1	2	167
1920		80	65	50	40		25	1	1	262
1921	76	50	118	95	67		27	1	1	435
1922	67	66	115	101	52		22	1	1	425
1923	94	53	143	78	51		25	3	—	447
1924	84	63	136	90	53		28	1	1	456
1925	114	80	132	77	34		22	—	1	460
1926	117	83	141	87	39		30	—	1	498
1927	127	87	137	100	49		29	—	1	530
1928	125	92	131	102	59		38	—	1	548
1929	132	78	138	105	63	33	12	1	1	563
1930	132	87	147	102	73	26	15	—	1	583
1931	148	76	138	107	79	24	19	—	2	593
1932	154	88	167	132	91	31	17	3	1	684
1933	174	83	186	135	109	31	18	4	2	742
1934	188	106	185	127	96	36	22	3	2	765
1935	210	83	195	118	97	39	20	2	3	767

Based on *Factory Statistics*. Does not include factories producing rubber fabrics or rubber-soled *tabi*.

TABLE 88. NUMBER OF WORKERS EMPLOYED IN RUBBER GOODS FACTORIES OF VARIOUS SIZES (1919-1935)

	Number of workers employed in factories employing:								Total number of workers	
	5-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers	100-199 workers	200-499 workers	500-999 workers.		1,000 workers and over
1919		204	714	1,325	872	3,052		713	2,543	9,423
1920		751	1,354	1,851	2,566	4,175		920	1,257	12,874
1921	515	595	2,472	3,534	4,486	4,514		660	1,350	18,126
1922	545	863	2,677	4,036	3,481	3,916		641	1,056	17,215
1923	664	633	3,584	3,222	3,401	4,197	2,319		—	18,020
1924	634	858	3,231	3,529	3,511	4,877	655		1,249	18,544
1925	865	993	2,931	3,044	2,466	3,976			1,033	15,308
1926	790	976	3,094	3,568	2,776	5,224			1,260	17,688
1927	881	1,080	2,959	3,853	3,751	4,796			1,343	18,663
1928	913	1,120	2,799	3,977	4,094	6,560			1,611	21,074
1929	841	925	2,820	3,960	4,284	4,513	3,503	552	1,647	23,045
1930	789	1,010	3,043	3,815	5,161	3,428	4,730		1,594	23,570
1931	815	887	3,215	4,095	5,190	3,179	5,873		3,236	26,490
1932	962	1,057	3,647	5,162	6,236	4,316	5,133	1,924	1,345	29,782
1933	1,012	1,010	4,196	5,198	6,340	4,547	5,481	2,807	4,176	34,767
1934	1,093	1,233	3,977	4,700	6,494	4,827	6,611	1,943	3,828	34,706
1935	1,209	959	4,098	4,622	6,909	5,307	6,151	1,310	4,863	35,428

Based on *Factory Statistics*.

of workers turned out smaller quantities. The articles manufactured by factories employing fewer than 50 persons represented 23 per cent of the total production of the industry, and the establishments hiring fewer than 100 hands, 41 per cent. The fact that the volume of production is not altogether proportionate to the number of workers is due partly to the varying degrees of efficiency resulting from the varying scales of the various factories, and also to the numerous kinds of goods that are manufactured.

TABLE 89. VALUE OF RUBBER GOODS PRODUCED IN JAPAN (1929-1935)
(In thousand yen)

Factories classed according to Number of Workers Employed	1929	1930	1931	1932	1933	1934	1935
5- 9	2,004	2,080	1,630	1,872	2,457	2,614	2,951
10- 14	2,343	2,394	1,425	1,860	2,372	2,797	2,505
15- 29	7,707	6,620	5,339	6,758	8,310	9,483	11,328
30- 49	11,263	9,464	10,237	12,492	11,686	12,298	12,547
50- 99	12,812	11,760	14,993	11,398	16,547	20,015	19,030
100-199	15,487	9,412	9,941	9,508	12,214	15,235	18,447
200-499	12,753	14,285	12,082	16,696	19,630	27,688	28,619
500-999	1,638	—	—	2,765	10,823	8,409	17,817
1,000 and over	12,208	9,170	13,000	6,647	16,440	18,477	23,541
Total	78,215	65,185	68,647	69,996	100,479	117,116	136,785

Based on *Factory Statistics*, 1931-1937. Does not include the rubberized fabrics or rubber-soled fabric shoe factories which appear in *Factory Statistics*.

The scale of production in the rubber goods-manufacturing industry varies exceedingly according to the type of manufactured article being put out. For example, each of the three great factories in Japan manufacturing automobile tyres has thousands of employees. In direct contrast, the factories turning out rubber boots and shoes are somewhat smaller in scale, and according to the Ministry of Commerce and Industry's *Survey of the Business Condition of Industry* (Rubber Boots and Shoes) conducted in 1932, factories employing fewer than 50 workers constituted 67.8 per cent of the total number of factories, while establishments employing fewer than 100 workmen represented 86.5 per cent of the total

number. On the other hand looking at the situation from the point of view of the number of workers, the great majority, or 72.5 per cent, are employed in factories having 100 operatives and over. It is likewise with the volume of production. Over 75 per cent of the total of manufactures was produced in factories employing 100 workers and over. Over 70 per cent of the production is the output of corporate enterprises (Table 90).

Contrasted with the rubber shoe factories, the factories producing rubber toys appear to be somewhat smaller in scale.

We must note here the omission, from the factories listed according to the number of workmen employed, of a factory run on a very extensive scale, namely, the aforementioned Kurume factory of the Nippon Tabi Manufacturing Company which employs thousands of workers and which manufactures rubber-soled *tabi*. While the outward appearance would give one the impression of a single giant-sized factory, it is not confined to the manufacture of one kind of rubber article. Various kinds of goods are

TABLE 90. NUMBER OF ESTABLISHMENTS AND PERSONS EMPLOYED IN RUBBER BOOT AND SHOE FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED (1932)

Factories classed according to Number of Persons Employed	Establishments		Employees		Output	
	Number	Per-centage	Number	Per-centage	Thousand yen	Per-centage
Family members only	43	12.9	93	0.3	26.5	—
Under 3	3	0.9	6	—	1.9	—
3-4	11	3.3	37	0.1	31.4	0.1
5-6	19	5.7	104	0.3	78.3	0.1
7-9	20	6.0	163	0.5	185.5	0.3
10-14	21	6.3	241	0.8	295.0	0.5
15-29	57	17.1	1,256	4.2	1,917.7	3.2
30-49	52	15.6	2,096	7.0	3,564.1	6.0
50-99	62	18.7	4,204	14.1	7,633.4	12.9
100 and over	45	13.5	21,574	72.7	45,504.8	76.9
Total	333	100.0	29,774	100.0	59,238.4	100.0
Individual Enterprises	245	73.6	8,311	27.9	17,542.2	29.6
Corporate Enterprises	88	26.4	21,463	72.1	41,696.2	70.4

manufactured on a small scale. Each unit producing a particular kind of merchandise like the rubber shoes or rubber tyre is just like any other small-scale establishment. The manufacturing processes of each different class of merchandise are practically entirely divorced from others, and the markets and the points to which these goods are shipped are also different as a general rule. This, indeed, is a fact which is not clearly brought out by the statistics.

The large factories have power-driven equipment, but some of the small factories are without such equipment. The *Factory Statistics* for 1933 indicate that factories having no power-driven machinery numbered 73. Of this number 31 factories employed fewer than ten workers and 26 employed ten to 30. Factories employing over 100 workmen have power machinery without exception. The number of factories so equipped seems to be on the increase.

Factories which do not have motor-run equipment cannot operate even a single roller or vulcanizer. They therefore delegate the curing operations to some one else and engage in just the moulding or shaping of rubber goods. There are kneaders or masticators for hire just to meet the needs of such establishments. The function of these masticators for hire is to take a supply of crude rubber which has just been mixed with other ingredients, and put them through the manufacturing processes ending with the rolling operation performed by the calender. And some factories, having vulcanizing equipment, take a supply of rubber goods which have just passed the moulding or shaping operation and put them through the vulcanization process. In other instances, the so-called kneader or masticator for hire who happens to have a certain amount of capital of his own, may purchase the crude rubber and chemical admixtures, knead the same, and put it through the various operations as far as the calender rolling operation. He then sells this half-finished substance to the small factories. In the vicinity of Tsurubashi, the centre of Osaka's rubber manufacturing industry, there are about ten of these masticators for hire. The larger plants of this nature employ from 20 to 30 operatives, but the greater number consist of factories with no vulcanizing equipment and where the owner himself carries on the operations on a small scale.

There are also varnishers or painters for hire who varnish or paint and dry the vulcanized product. Machinery, of course, can be

TABLE 91. AGES OF WORKERS IN RUBBER GOODS MANUFACTURING (1921-1935)

	Workers under 15 years			Workers 16-49 years			Workers 50 years & over			Total Workers			Total employees
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	
1921	822	1,234	2,056	10,533	6,840	17,373				11,355	8,074	19,429	21,686
1922	368	460	828	9,286	7,101	16,387				9,654	7,561	17,215	18,930
1923	283	378	661	9,751	7,618	17,369				10,034	7,996	18,030	19,779
1924	305	499	804	10,061	7,679	17,740				10,366	8,178	18,544	20,377
1925	201	372	573	8,361	6,374	14,735				8,562	6,746	15,308	17,106
1926	231	484	715	9,564	7,409	16,973				9,795	7,893	17,688	19,556
1927	189	417	606	10,041	7,836	17,877	233	21	254	10,230	8,253	18,483	20,295
1928	162	371	533	11,182	9,359	20,541	305	62	367	11,344	9,730	21,074	23,090
1929	184	334	518	11,735	10,461	22,196	264	70	334	12,183	10,865	23,048	25,919
1930	135	301	436	12,057	10,714	22,771	290	73	363	12,482	11,088	23,570	26,593
1931	163	462	625	12,878	12,685	25,563	243	59	302	13,284	13,206	26,490	29,252
1932	247	489	736	14,790	13,987	28,777	260	59	319	15,297	14,535	29,832	32,318
1933	301	814	1,115	17,388	15,955	33,343	280	79	359	17,969	16,848	34,817	37,974
1934	254	515	769	16,999	16,581	33,580	298	59	357	17,551	17,155	34,706	38,087
1935	343	965	1,308	17,073	16,626	33,699	320	109	429	17,728	17,700	35,428	38,875

Based on *Factory Statistics*.

dispensed with and even the larger establishments carry on their work on a small scale with just five or six workers. This process is applied to shoes, toys and balloons. These painting or varnishing houses are to be found mostly in Tokyo and Osaka; and it is said that there are about 20 such establishments in the latter city.

4. LABOUR CONDITIONS IN THE RUBBER GOODS INDUSTRY

i. *Age and sex of workers*

Even in looking at the conditions of the workers in the rubber goods-manufacturing industry, one must remember that the condition varies according to the type of finished rubber goods manufactured. The distribution of workers according to sex is, as has been briefly mentioned in connection with the description of the manufacturing processes, as follows:

Classified according to the operation performed, we find that except the moulding or shaping operation, which is carried on in the main by female operatives, operations are performed by male workers. But inasmuch as the moulding or shaping operation requires the greatest number of workers, the percentage of female workers in this industry is proportionately high.

According to the kind of finished product being produced, we find that with regard to lorry tyres, moulded-rubber toys, and water-proof fabric within the shaping or moulding process itself, this operation is performed almost entirely by male workers. The operation with regard to rubber shoes, fragile rubber products and cemented rubber toys is almost entirely confined to female workers. Because the manufacture of rubber-soled *tabi* might be termed a sewing operation in its essential nature, the work is performed almost entirely by female operatives. It is clearly indicated in the survey conducted by the Ministry of Commerce and Industry that the female workers in factories manufacturing rubber boots and shoes and rubber-soled canvas shoes make up 68 per cent of the total number of workers, and that the female workers constitute 71 per cent of the total number of workers in plants hiring over 100 persons in the same branches of industry.

In the matter of the age of female workers the rubber goods-manufacturing industry is not unlike industry in general, in that their age is very young. The greater number consists of workers whose ages

run from 15 to 25 years, and of these, those from 15 to 19 years are most predominant. The age of male workers usually runs from 20 to 30 years. Aged workers are comparatively few. It is in the shaping or moulding operation that the youngest workers are to be found. Workers who have been employed for some time and who are highly skilled in their work are found in the operation of rolling or in the vulcanization processes. It is believed that one of the factors contributing to the youthful age of the workers in this industry is that the industry itself is a new one which has developed but recently.

With these few general remarks, let us now turn to the examination of such detailed material or data as may be found.

The *Factory Statistics* for 1935 show that the total number of workers employed in the Japanese rubber goods factories was 35,400. The numbers of males and females so employed are about even, the greater number being from 16 to 49 years of age. Workers above 16 years are predominantly male while those of 15 years or younger are predominantly female, numbering twice as many as the males.

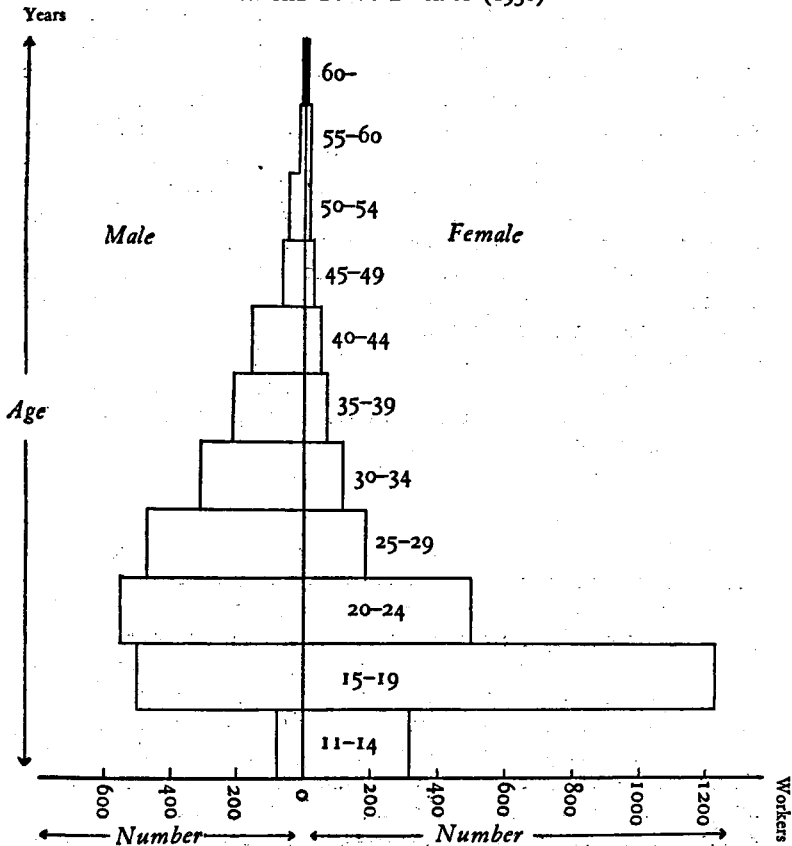
Turning to the total number each year, we note that the number of workers declined until 1925, after which a change to an increasing trend took place. As for age distribution, the proportion of workers of over sixteen years is high, the trend generally being the same as in other industries, but the number of workers under 15 years of age declined by 60 per cent during the depression of 1922, which was even before the promulgation of the Factory Laws in 1923. 1925 also showed a decline, but the bottom of this downward trend was not reached until 1930. Subsequently the number increased with the recovery of the industry, but even at the end of 1933 it was at the same level as in 1921. The fluctuation in the number of juvenile workers is sharp, the characteristic of youthful labour being its high rate of turnover.

But the age of female workers is unusually low, the majority being from 15 or 16 to 25 or 26 years of age, the very oldest being in most cases not more than 30. The *Survey of Labour Statistics* for Rubber and Rubber Goods-Manufacturing Industries is not necessarily co-terminous with the *Factory Statistics* for factories producing rubber goods. What is more, the *Survey* was confined to factories employing more than 30 people. Taking the number of workers in the rubber moulding plants in the Tokyo vicinity as given by that

Survey, we find the situation as indicated in Diagram 57. One should note with attention the fact that the great proportion of female workers are from 15 to 19 years of age.

The fact that these female workers work in the medium or smaller scale factories has already been mentioned, but there are proportionately more male workers in the smaller factories while the

DIAGRAM 57. AGE DISTRIBUTION OF WORKERS IN RUBBER MOULDING IN THE TOKYO DISTRICT (1930)



Based on *Survey of Labour Statistics, 1934.*

number of female workers employed increases with the scale of the factory. Boys are found in larger numbers in small-scale establishments and girls are most numerous in the large-scale factories (see Table 92).

While one may surmise from the great number of small-scale factories that the number of household members engaged in the work is high, the precise aggregate total of such household workers is not clear. Table 93 indicates that there are 322 such workers in the rubber shoe and rubber fabric shoe-manufacturing industry. At the same time they represent a fairly large percentage in the smaller establishments, often in fact working alongside the hired workers. In plants where somewhat greater numbers of workers are hired, these household members may take charge of keeping the accounts, or assume the additional function of foreman, or, as technicians, direct the entire production. In plants of the foregoing description, the small factory and the residence of the owner may be under one and the same roof. Even in the case of slightly larger factories employing from 20 to 30 workers, the plant is merely moved from under the same roof. And in many cases, although under a separate roof, it is still within the same compound as the residence. The fact that there are so many household helpers in the rubber goods-manufacturing industry plays a vital role in the management end of the industry, as will be explained in the next section.

ii. *Working Conditions*

The situation resembles that in the cotton and silk spinning industries in regard to the great number of young girl workers. These girl workers, however, are not recruited from the provinces as are the girl workers in the cotton or silk spinning industries, so that there are practically no examples of the dormitory system in the rubber goods-manufacturing industry. The fact that the general run of establishments is on a small scale is probably responsible for this situation. Many female workers are employed by the Nippon Tabi Manufacturing Company at Kurume, but as the neighbouring towns and villages furnish an overabundant supply of female workers, it is not necessary to resort to the practice of despatching special recruiting agents. Although the factory maintains a dormitory, only slightly over ten per cent of the female workers live

TABLE 92. AGES OF WORKERS IN FACTORIES CLASSIFIED ACCORDING TO NUMBER OF WORKERS EMPLOYED (1935)*

		Factories Employing								1,000 workers and over	
		5-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers	100-199 workers	200-499 workers	500-999 workers		
Number of Factories		210	83	195	118	97	39	20	2	3	
Workers	under 16 years	Male	28	17	52	45	57	61	65	10	8
		Female	6	17	57	128	170	159	156	25	247
		Total	34	34	109	173	227	220	221	35	255
	16-49 years	Male	879	643	2,402	2,477	3,103	2,404	2,810	631	1,724
		Female	278	264	1,536	1,882	3,481	2,648	3,018	642	2,877
		Total	1,157	907	3,938	4,359	6,584	5,052	5,828	1,273	4,601
	50 years & over	Male	12	17	39	61	58	26	91	2	6
		Female	6	1	12	29	40	9	11	—	1
		Total	18	18	51	90	98	35	102	2	7
	Total	Male	919	677	2,493	2,583	3,218	2,491	2,966	643	1,738
		Female	290	282	1,605	2,039	3,691	2,816	3,185	667	3,125
		Total	1,209	959	4,098	4,622	6,909	5,307	6,151	1,310	4,863
Office Employees		108	102	351	353	533	367	519	159	416	
Other Employees		14	5	31	33	130	38	120	25	143	
Grand Total		1,331	1,066	4,480	5,008	7,572	5,712	6,790	1,494	5,422	

Based on *Factory Statistics, 1937*.

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TABLE 93. NUMBER OF WORKERS IN FACTORIES PRODUCING RUBBER SHOES
AND RUBBER-SOLED FABRIC SHOES (1932)

	Office Workers			Wage Workers			Family Workers			Others			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Family Members only							56	37	93				56	37	93
Less than 3 persons . . .				2	1	3	2	1	3				4	2	6
3-4 persons	1	—	1	11	6	17	11	8	19				23	14	37
5-6 persons	1	1	2	47	22	69	20	12	32	1	—	1	69	35	104
7-9 persons	4	1	5	60	71	131	18	9	27				82	81	163
10-14 persons	19	1	20	107	93	200	12	8	20	1	—	1	139	102	241
15-29 persons	48	4	52	495	667	1,162	26	12	38	2	2	4	571	685	1,256
30-49 persons	116	5	121	882	1,029	1,911	27	11	38	17	9	26	1,042	1,054	2,096
50-99 persons	176	11	187	1,449	2,494	3,943	28	17	45	22	7	29	1,675	2,529	4,204
100 persons and over	883	113	996	5,901	14,524	20,425	3	4	7	132	14	146	6,919	14,655	21,574
Total	1,248	136	1,384	8,954	18,907	27,861	203	119	322	175	32	207	10,580	19,194	29,774
Percentage				32.1	67.9	100.0							35.5	64.5	100.0

Based on *Survey of the Business Conditions of Industry*, Vol. 4, 1934.

there. The other 90 per cent live in their homes in farm villages nearby or form voluntary groups for finding living quarters in the city where they can do their own cooking. This latter method reduces the running expenses.

The method of the Nippon Tabi Manufacturing Company is the exception in the Tokyo and the Kobe-Osaka areas. As most of the factories are erected within the industrial zone, workers are recruited by the simple method of posting notices in front of the factories. It may be said that practically every worker lives at his own home. Although originally from the farm villages, they do not seem to be labourers who have come direct from the fields. They are people who have either changed their calling or who happen to be children or younger relatives of people who have previously become definite city workers. In the Kobe district, it is not unusual for a whole family to become workers in a rubber factory. In no small number of instances, the head of the family may be working on the rollers and his wife or daughters in the operation of cementing the rubber to the shoes. The factories, moreover, are purposely erected in districts where the supply of labour abounds to excess. The wages in these congested districts are also low as a general rule.

Working conditions are probably not uniform, depending both upon the type of goods manufactured and the locality of the factory. According to a survey conducted among its own members by the Osaka Rubber Manufacturers' Association in 1934, the following conditions were found to prevail:

(1) Out of the 5,845 workers employed in the industry, the majority, 3,897, were female workers; the males making up the balance of 1,948.

(2) Both male and female workers consider their work in the rubber factories their main work, and not as a spare-time occupation. The fact that there are practically no departures even during the farming season would seem to indicate that work in these rubber factories is not considered a temporary job for earning extra money.

(3) Employment in some instances is by simple oral agreement, while in other cases, a *curriculum vitae* and written pledge are demanded. The method of recruiting is just by advertisement posters on telegraph and telephone-poles.

(4) The recesses or rest periods during the working day vary with each factory, but the common practice is a 30 minute rest

period at noon and two 15 minute recesses at 9 a.m. and 3 p.m., out of a working day that commences around seven or eight in the morning and lasts till five or six in the evening. Some factories omit the 15 minute recesses at nine and three o'clock and grant their employees a full hour at noon. The length of the working day is about nine hours. There are instances, however, where the workmen must work incessantly in conjunction with a machine operation, or where, with a certain amount of work to be performed on a lot-contract basis, the workmen may take longer to accomplish their task.

(5) Over-time. This is not resorted to very often, but it may occur where a rush-order is placed with the factory.

(6) There are some establishments on the weekly holiday basis, but far the greater number are on the two-days-off-per-month schedule.

(7) Wages. Variation exists among the different factories. Most male workers are on a *per diem* wage, while female workers are paid on a piece-work or unit-contract basis. About ¥1.00 for male workers and ¥0.70 for female workers appear to be the most current wages paid.

(8) Payment for over-time is from 12 per cent to 20 per cent of the regular daily wage for each hour before or after the regular working hours. There are some factories which give additional prize money for regular attendance, semi-annual bonuses, or additional pay for efficiency (to those working on machines), but the precise amount is uncertain. Even within the same factory, the amounts may vary. A discharge or dismissal allowance is to be found in the regulations of the various factories, but in the case of small factories whether such allowance shall be granted is at the discretion of the factory owner, and the precise amounts are also unascertainable.

While it is difficult to draw general conclusions which may do justice to all the factories from this mass of details, according to the report of the *Survey of Labour Statistics* carried out in 1930, the working day in the rubber and waterproof fabric industries is usually from nine to eleven hours. But as the average length of the recesses during that time is 56 minutes, the net working time is about 9 hours and 48 minutes which is longer than that of other industries. And the two-holidays-per-month schedule seems to be

the most common one. Owing to the fact that the large factories are on the weekly holiday basis, the number of workers enjoying four holidays per month are in the majority, raising the average days free per month in the industry to 2.6. But as the foregoing survey was confined to factories employing over thirty workers, the study is limited to factories whose regulations in regard to working hours and holidays are strictly observed. The regulations in the smaller factories are either notable for their absence or for their laxity. Wages on a piece-work basis actually exist as the Osaka Rubber Manufacturers' Association has pointed out, and under such a system, the more work is done the greater will be the amount of wages drawn, and it is easy to fall into the practice of coming early to work and staying late. Although rather rare, nevertheless there are instances under the piece-work system, where workers realizing that waiting idly at the factory for a batch of goods to reach their particular operation is sheer waste, go home and finish their meals or attend to housework. These people have no definite working hours. In the smaller factories however, the actual working hours are not extreme. Although the hours which the worker spends at the factory may be long, the time which he actually spends in working is not so long. In the large factories a division of labour is practised and the work is done with regularity. We cannot, however, rightfully conclude that this means that large factories are more kind to their employees. As more and more machinery is placed in the factory, it means that the opportunity for man to become the slave of the machine becomes greater. In some factories, the amazing speed of the power-driven machinery practically drags the girl workers along, and it is only with the strain of their entire nervous systems that these girl workers can keep pace with these machines. But it is a fact that the larger the factory, the more sanitary the condition of the working room and the more adequate the equipment.

iii. *Wages*

It is a self-evident fact that even with regard to wages there are variations due to differences in the type of article being manufactured and to the comparative ease or difficulty of the particular job. As has been alluded to before, the general run of work to be done in rubber goods-manufacturing plants may be performed by unskilled labour, the level of education required is low, and

young boy or girl workers are quite capable of doing the work—all factors tending to drive the wage scale downward to a very low level. But this does not mean that workers who are paid fairly high wages are not to be found. Among the workers performing the kneading, the rolling, or the vulcanizing process, there are some who are receiving from ¥2.00 to ¥4.00 per day.

TABLE 94. DAILY WAGES OF WORKERS IN THE KOBE
RUBBER GOODS FACTORIES (FEBRUARY, 1934)

Class of Workers	Average Wage		Minimum Wage	
	Male	Female	Male	Female
Masticators	¥ 1.60		¥ 1.30	
Rollers	1.45		1.10	
Stokers	1.60		1.20	
Vulcanizers	1.25		.70	
Rubber Paste Spreaders	1.45		.65	
Solers	1.45		.65	
Foremen	1.80		1.50	
Shoe Cementers	1.40	¥ 1.35	.75	¥ 0.70
Sewers	1.50	.75	.90	.55
Machine Operators	1.40	1.30	.90	.80
Finishers	1.00	.70	.60	.50

To give an illustration of the fact that wages differ according to the particular job performed, let us look at Table 94 which the Kobe Rubber Manufacturers' Association compiled in connection with its report to the municipal government. Although *prima facie* it would seem that a reasonable amount is paid in wages, it must be remembered that the greatest number of workers are the female solers or female shoe cementers whose wages are so low that the general average settles at a very low figure.

A feature which might be said to be peculiar to the Japanese wage system is the granting of commodity wages. In addition to the money wages, there are such practices as giving meals, clothing, and lodging to the workers. Such practices, however, are very limited in the rubber goods-manufacturing industry and occur in rare instances only, probably due to the fact that there are only a few dormitories in this industry. In factories having dormitory systems, some commodity wages are granted. In large factories maintaining dining rooms, free meals may be given, or only a

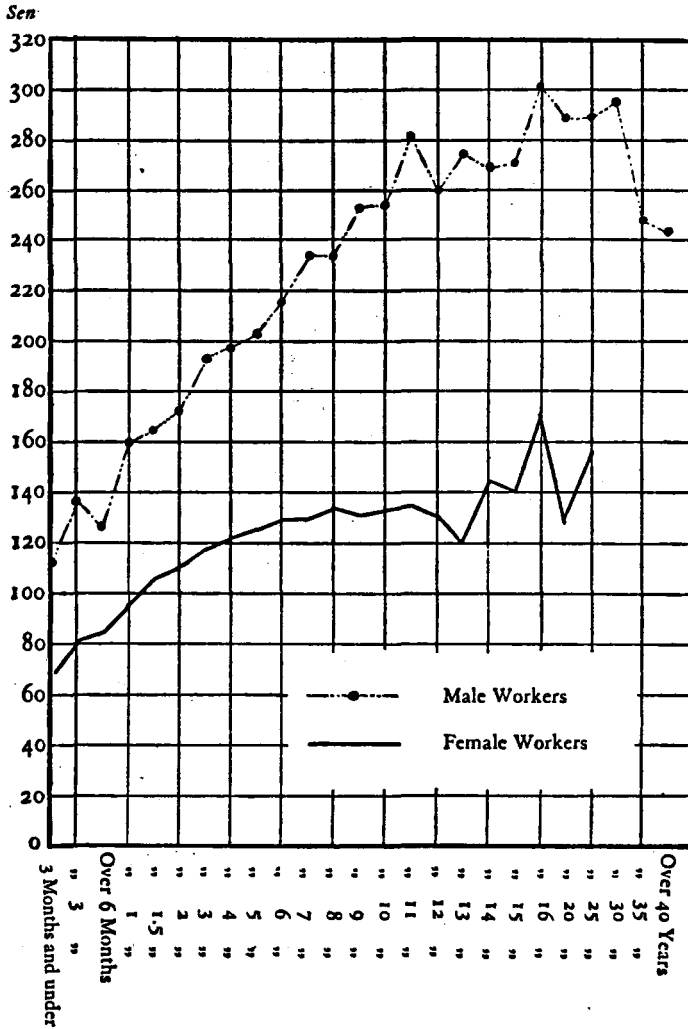
small fee, which is much less than the actual cost of the goods, is charged. The Nippon Tabi Manufacturing Company is an example, but such factories are not very often seen elsewhere. We may therefore conclude that as a general rule the money wages constitute the sole income of the workers in the rubber goods factories.

The representative wages of workers in the rubber goods factories during 1935 were from ¥ 1.20 to ¥ 1.30 *per diem* for the men and from ¥ 0.60 to ¥ 0.70 *per diem* for the women. There are, of course, some who receive lower or higher wages depending on individual circumstances, but the above figures are representative of the wages paid to most workers. Although there is not too great a difference between the large and small factories, the wages in the smaller factories tend to fluctuate to a greater extent, that is, when times are prosperous the wages are higher than those paid by the larger factories, but when business becomes dull, they may drop very sharply.

There is also a difference in wages depending upon the length of service in the particular factory. This factor, however, is confined almost entirely to male workers, and the wage level of female workers does not seem to vary much in relation to the length of service. The length of service of the average male worker also seems to be longer than that of the female worker; most female workers seem to leave at the end of four or five years. Classifying the girl or women workers according to their respective length of service we find that those who have worked less than one year constitute 11 per cent of the total number of female workers; those who have worked less than two years represent one-third of the total; those working less than three years make up 48 per cent; and those working less than five years constitute fully two-thirds of the total number of female workers in this industry. It appears that most of these female workers engage in this factory work during their pre-marriage days only. The *per diem* wages of male workers increase with the length of service, but the rise in the wages of female workers is so slow that it is not distorting the facts too much to say that there is no increase. This is probably due to the fact that most of the female workers are unskilled labourers and that the length of service has very little to do with the efficiency of their work.

What then is the trend which the wage level in this industry is taking? The Research Bureau of the Bank of Japan issues

DIAGRAM 58. AVERAGE DAILY WAGES IN RUBBER GOODS FACTORIES
ACCORDING TO LENGTH OF EMPLOYMENT (1930)



Based on *Survey of Labour Statistics, 1934.*

each month an index for wages in this industry, dividing the wages into the two classes of fixed wages and actual earnings per day. By fixed wages is meant the *per diem* wage as fixed by contract. By actual earnings is meant the actual wage which is paid out. Thus fixed wages do not include allowances for over-time work, whereas the same are included under the term actual earnings. These figures are the result of an arithmetical average of the contract wages and the total amount of wages paid each divided by the number of working days. The recent trend of these index figures is shown in Diagram 59.

The number of workers seems to be gradually increasing, but after 1933 the number showed practically no increase or decrease. The general trend over the period of the past few years of the wage indices has been a downward one. As the fluctuations in the fixed wage scale are not so sharp, it is often hard to observe their peculiarities. The actual wage scale seems to correspond to the index of the number of workers. When a greater number of workers are demanded, it means that the volume of work has increased, over-time and night work become rampant, and the fixed wage level itself may rise slightly. The amount of actual wages paid also increases.

The *Factory Statistics* include the number of working hours and the total amount of wages paid. Dividing the latter by the former, we obtain the wage per hour. Looking at the figure for rubber goods-manufacturing, we find that there has also been a downward tendency.

TABLE 95. AGGREGATE WORKING HOURS AND WAGES IN THE RUBBER GOODS FACTORIES OF JAPAN (1929-1935)

	Aggregate Working Hours (thousands)	Aggregate Wages Paid (thousand yen)	Wages Per Hour
1929	66,468	10,426	¥ 0.16
1930	69,273	10,505	.15
1931	71,714	10,312	.14
1932	77,312	10,180	.13
1933	105,792	12,851	.12
1934	105,795	13,298	.13
1935	108,118	13,350	.12

Based on *Factory Statistics*.

The statistics compiled by the City of Osaka also show a like decline in the *per diem* wages of workers in the factories turning out rubber goods.

It is of course a question as to how far we may put our trust in figures. The reliability of the general wage statistics is contingent on the various reports being truthfully and accurately made. The number of temporary workers may also create differences. But by the data gathered from the rubber toy manufacturers in the Tokyo

TABLE 96. AVERAGE DAILY WAGE OF THE ORDINARY WORKMAN IN OSAKA RUBBER GOODS FACTORIES (1926-1933), AND BANK OF JAPAN WAGE INDEX (1926-1936)

	Average Wage		Index		Bank of Japan Index	
	Male workers	Female workers	Male workers	Female workers	Amount of fixed wages	Actual earnings
1926	¥ 1.69	¥ 0.88	100.0	100.0	100.0	100.0
1927	1.65	.94	97.6	106.6	99.6	101.6
1928	1.77	.90	104.7	102.3	98.2	103.4
1929	1.68	.88	99.4	100.0	96.9	104.6
1930	1.65	.80	97.6	90.9	95.7	96.5
1931	1.46	.77	86.4	87.5	92.2	92.2
1932	1.58	.79	93.5	88.6	88.1	88.3
1933	1.32	.70	78.1	79.8	84.3	84.3
1934	—	—	—	—	82.4	86.2
1935	—	—	—	—	81.3	86.8
1936	—	—	—	—	79.0	85.2

Based on the Annual Statistics of Osaka City, and Bank of Japan's *Statistics of Factory and Mining Labour*.

area, a drop in wages from 15 per cent to 20 per cent seems to be a fact. While this may not be true of the industry as a whole, the above figures do indicate that there has been a general decline in the wage level and we shall probably have to accept this as true. It may also be a reflection of the recent slackening which has occurred to some degree in the industry.

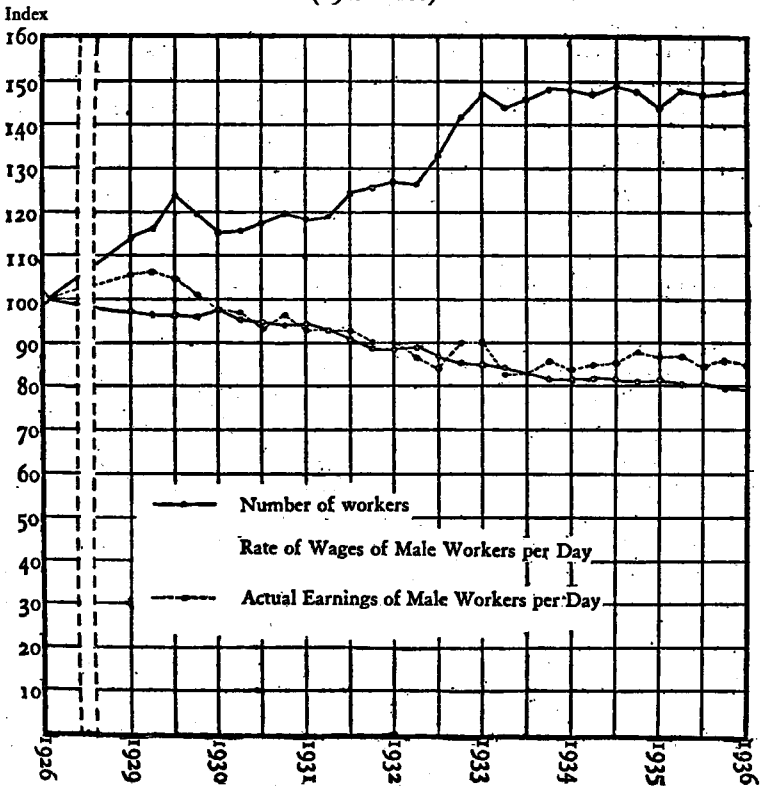
5. CONTROL AND MANAGEMENT OF RUBBER GOODS FACTORIES

It was thought that the re-imposition of the gold embargo at the end of 1931 would place rubber goods manufacturers in severe financial straits in view of the rise in the price of crude rubber which

would follow. The unprecedented drop in the exchange value of the yen, however, created a situation favourable to exports and the volume of exports in rubber goods took a sudden upward jump. The period from 1932-1933 was most fittingly called the prosperous era of this industry.

Owing, however, to the fact that most of these factories can be set up with such a small amount of capital and just a small amount of technical knowledge, they sprang up like mushrooms when the industry became profitable. This sudden increase in the number of

DIAGRAM 59. EMPLOYMENT, WAGE RATES AND EARNINGS IN RUBBER GOODS FACTORIES (1926, 1929-1936)
(1926 = 100)



Based on the Bank of Japan's Statistics of Factory and Mining Labour.

factories meant that reckless competition among themselves was certain to take place. The increase in the number of factories, already mentioned above, also indicates this condition, which meant that the export price must fall and that the industry must suffer accordingly.

The fact that reckless competition was carried on is manifested in the export phase of the industry. Notwithstanding the fact that goods might have been sold abroad for higher prices, they were often sold at unbelievably low prices because of the fierce competition between the manufacturers at home. This was the seed of the Japanese rubber goods export expansion which overwhelmed all competitors in foreign markets and which drove the high-priced American-made rubber articles almost entirely from the Eastern market and South Seas market. Various foreign countries at this time, however, assumed a united attitude of boycotting Japanese rubber goods, raising tariff barriers or restricting the amount of imports. Japanese rubber goods which met this ill fate were numerous and the financial loss resulting therefrom being extremely great, many of the factories had either to suspend business or liquidate.

It was in order to stop this state of affairs that the control of production by the manufacturers' associations, and the restriction of exports by the exporters' associations came to be adopted and enforced. The number of articles which have been subjected to this control is still limited and the effect of the control has not been satisfactory as yet. The industry has yet to see a complete obliteration of wanton cut-throat competition.

The condition of the rubber goods industry in Japan cannot, therefore, be termed by any means satisfactory. According to a survey made by the Ministry of Commerce and Industry, for the year 1932 when the volume of Japanese rubber goods shipped abroad showed a sharp rise, only 262 factories (or 80.5 per cent) out of 333 turning out rubber shoes or fabric shoes with rubber soles, earned a net profit. Factories showing net losses numbered no less than 60, or 18 per cent (see Table 97). But out of those showing a profit, 13.8 per cent realized a profit of over 100 per cent, and those earning more than a 20 per cent profit ran up to 46 per cent. Although the table would seem to indicate that the greatest profit was realized by the individually run enterprises, it must be remembered that the scale on which these individual enterprises are run is very small, that workers from the owner's own household are comparatively

many, that most of these household members draw no monetary salaries, and that the apparent profit shown is contingent on the foregoing factors. The plants run entirely by household members are tiny plants of fewer than three workers; the enterprise is run on a minimum of capital; and the only way in which to show a profit of over 40 per cent on paper is discounting the above factors. If these household helpers were to be paid at the same rate as the hired workers, and if this figure were to be included in the calculation, then some of these small factories showing an apparent profit would show an operating net loss. It would therefore seem that the profit realized by these individual managements is about the same percentage level as that of the corporate enterprises, namely, from 20 per cent to 30 per cent. If, however, calculations of what would normally be salaries are not brought into the picture, then some of the smaller establishments can show a prodigious profit. This point must be kept in mind.

To compete with such factories, one is forced to minimize wages. It is only by dint of sweating and toiling that one can remain in the arena of competition. In such a situation, it is easy to fall prey to an over-supply of equipment and an over-production of manufactured goods. It is rather difficult to make an accurate investigation of such branches of the rubber goods-manufacturing industry as make rubber shoes and fabric shoes with rubber soles; but except for the manufacture of these kinds of articles, the foregoing description may be said to characterize the situation in this industry.

The fact that the managerial situation in the industry is not a satisfactory one, in spite of the increased volume of production, is in short due to the absence of a proper adjustment between the sales price and the cost of production. The price of crude rubber, moreover, is no mean figure in the total cost of production. The price of crude rubber began to rise with the re-imposition of the gold embargo in 1931. It took a further jump upwards when in April of 1933 an international agreement to curtail production was entered into. The price of Japanese rubber goods, however, did not rise to any great extent. Rubber goods manufacturers in Japan agreed among themselves on numerous occasions to raise the sales price of their products, but the effort, if any, was not very conspicuous.

The effect which the rise of crude rubber prices exerts upon manufacturers is dependent upon amount of crude rubber required

TABLE 97. CORPORATE AND INDIVIDUAL RUBBER GOODS MANUFACTURING ENTERPRISES CLASSIFIED ACCORDING TO PROFIT AND LOSS (1932)

	Corporate Enterprise		Individual Enterprise	
	Establishments		Establishments	
	Number	Percentage	Number	Percentage
Net Loss				
Over 100 per cent	1	0.4	1	1.1
50-100	7	2.9	2	2.3
30-49	9	3.7	2	2.3
20-29	5	2.1	2	2.3
15-19	2	0.8	1	1.1
10-14	2	0.8	2	2.3
7-9	4	1.6	2	2.3
5-6	2	0.8	1	1.1
3-4	5	2.1	1	1.1
Under 3	6	2.4	3	3.5
Total Number of Establishments	43	17.6	17	19.4
No Profit or Loss	2	0.8	—	—
Net Profit				
Under 3	7	2.8	8	9.1
3-4	10	4.1	7	7.9
5-6	11	4.5	5	5.7
7-9	14	5.7	5	5.7
10-14	21	8.6	7	7.9
15-19	15	6.1	5	5.7
20-29	21	8.6	13	14.8
30-49	26	10.6	8	9.1
50-100	33	13.5	6	6.8
Over 100	40	16.3	6	6.8
Total Number of Establishments	198	80.8	70	79.5
Balance ¹	2	0.8	1	1.1
Total	245	100.0	88	100.0

¹ There were in addition three other establishments which either had no capital of their own or whose loss, brought forward, exceeded the amount of capital unpaid. Ministry of Commerce and Industry: *Survey of the Business Conditions of Industry*, Vol. 4, Rubber Shoes and Rubber-Soled Fabric Shoes, 1934.

in proportion to the total materials needed in the manufacturing process. This ratio in turn varies with the kind of article being manufactured. Take for instance, the six-inch eight-ply rubber football which is a popular article of export. Crude rubber makes up about 33 per cent of the raw material which goes into the football. The crude rubber that goes into the rubber-soled fabric shoes which

TABLE 98. PERCENTAGE OF PROFIT ACCORDING TO SIZE OF ESTABLISHMENT IN THE RUBBER SHOE AND RUBBER-SOLED FABRIC SHOE INDUSTRIES (1932)

	Return on Own Capital Investment	Return on Own Capital Investment Plus the Investment of Others
No. of Persons Engaged		
Family Members only	44.1 per cent	40.8 per cent
Under 3 persons	57.5	42.5
3- 4 persons	14.3	13.4
5- 6 persons	16.8	11.5
7- 9 persons	26.5	19.7
10- 14 persons	30.7	26.4
15- 29 persons	8.7	7.4
30- 49 persons	17.3	13.9
50- 90 persons	15.8	10.8
100 persons and over	23.6	19.3
Rate of Return on Total Capital in these Industries	21.7	17.4
Persons who have no Capital of their own	—	4.5 ¹
Amount of Capital		
Under ¥ 500	74.7	53.7
¥ 500 and under ¥ 1,000	33.6	27.7
¥ 1,000 " " ¥ 2,000	77.3	37.9
¥ 2,000 " " ¥ 3,000	69.7	36.3
¥ 3,000 " " ¥ 5,000	34.0	25.2
¥ 5,000 " " ¥ 10,000	52.9	33.0
¥ 10,000 " " ¥ 30,000	20.0	15.4
¥ 30,000 " " ¥ 50,000	13.9	10.6
¥ 50,000 " " ¥ 100,000	13.5	10.5
¥ 100,000 and over	22.6	18.7
Rate of Return on Total Capital in these Industries	27.7	17.4

¹ Means a net loss.

Based on the Ministry of Commerce and Industry: *Survey of the Business Conditions of Industry*, Vol. 4, 1934.

are made for export trade occupies about 30 per cent of the total amount of raw materials used; and the crude rubber in the rubber shoes (wholly of rubber) made for domestic use is about 50 per cent. Consequently, if there has been no change in the price of other raw materials or the cost of manufacture, the prices of these articles should rise with the rise in the crude rubber cost in the ratio indicated. The actual fact, however, was that in spite of the increase in the price of crude rubber, the prices of many of these finished rubber goods declined.

To maintain prices at the same level in the face of increasing costs in the purchase of raw materials means that economy in the cost of production must take place elsewhere. Otherwise financial loss is invited. In fact manufacturers who are running up deficits are not uncommon. It is the natural order of events, however, to curtail expenditures before running up deficits. The supply of raw materials is purchased from raw material producers whose production is more effectively controlled than the production among these rubber goods manufacturers. Therefore, the required economy takes place in the use of cheaper ingredients in the masticating process. The reckless production of inferior goods comes to pass. No reserve for depreciation is set aside and the repair or improvement of equipment becomes thoroughly neglected. The cut in wages is believed to have been carried out in conjunction with the above conditions. Wages, moreover, constitute a relatively large percentage of the production cost. In the case of the rubber-soled fabric shoes already mentioned above, it is about 13 per cent, and in the case of the rubber football, it runs close to 20 per cent. Reduction of wages is the first thing that comes to mind when a manufacturer is caught in financial straits. Moreover in view of the small scale of the plants in which the manufacturing process is carried on, there are practically no labour unions to oppose the wage-cutting.

Among the various causes to which the above situation has been ascribed is the presence of too many people engaged in this industry. This is the case where the small-scale establishments, run on small capital, with simple equipment and with no unusual skill, affect the industry. Their number increases and competition between them becomes most violent. Reckless sales and dumping become rampant and soon inferior goods under a false guise begin to be

produced by the manufacturers. Because of this fierce competition, the industry as a whole is utterly exhausted and many establishments stand on the brink of bankruptcy. At the same time the cry of cheap goods is raised abroad.

To leave matters to their own course would have meant that the industry which had been nurtured with some pains would have been destroyed in its infancy. Measures were, therefore, taken to remedy the evil effects of this wanton, cut-throat competition and at the same time to curb the malady itself.

In Kobe, where the manufacture of rubber goods is most flourishing, a rubber goods manufacturers' association was established very early in 1927. This association endeavoured to better and develop the activities of its members. Similar organizations in Osaka and Tokyo were created somewhat later. Under the leadership of the Kobe association, the Japan Federation of Rubber Manufacturers' Associations (Nippon Gomu Kogyo Kumiai Rengokai) was formed in October, 1931. The control of the industry on a nation-wide scale was then carried out with this Federation as the focal agency. The headquarters of the Federation are situated in Kobe and its Articles of Association provide for:

- (1) The inspection and supervision of the goods produced by its members or affiliated manufacturers.
- (2) The inspection and supervision of rubber goods at the port of exportation.
- (3) The standardizing and improving of the manufactured rubber articles.
- (4) The study of ways in which to improve the methods of packing, and the facilitation of the same.
- (5) The regulation of the production of its members and affiliates and the fixing of the selling prices thereof.
- (6) The survey of markets, the means of expanding the same or opening up new markets. The establishment of facilities to accomplish the same.
- (7) The erection or establishment of places where its members and affiliates can display and sell their wares together.
- (8) The reconciliation and settlement of disputes, and in general whatsoever is necessary to accomplish the purposes of this Federated Association or facilitate the same.

The control of production was first applied to rubber shoes, and, as the initial step in that programme, an inspection of merchandise about to be exported was made in order to eliminate that of inferior quality. In January, 1932, the inspection of rubber shoes (including shoes made entirely of rubber, rubber-soled fabric shoes, and rubber overshoes) was effected by the Federation at the instance of the Ministry of Commerce and Industry. In October of the following year, this inspection was extended to rubber tyres and tubes and belting to be used on motors. Inspection of rubber toys and rubber athletic equipment made for the export trade has been carried out since November, 1934. Among the other articles for which the stamp of approval is required is the waterproof fabric manufactured in and around Tokyo. A fixed charge for this inspection is levied. The charge imposed on non-members is ten times that charged the Federation's members or affiliates. In this way the effectiveness of the Federation as an instrument of control is promoted.

The most important feature of this control is in respect of its control over the management end of the industry. The production of the rubber shoes which are being exported to-day has been controlled since 15th May, 1932, while the control of production of rubber tyres and tubes has been in force since 1st October, 1933. With the re-imposition of the gold embargo, exports of Japanese rubber shoes made an unprecedented advance, but as the factories turning out such shoes in Japan also increased correspondingly, the price of the shoes dropped as the result of the ensuing competition. The industry began to sense its precarious situation. The Japan Federation of Rubber Manufacturers' Associations on its part recognized the need for controlled production. At the request of many of the manufacturers, the Ministry of Commerce and Industry put this control into force on 15th May, 1932.

The main feature of this production control may be outlined as follows: The Federation establishes for each kind of article an allotment ratio based upon the volume of production in the past. The volume of production for each month is first determined and then this volume is apportioned among the member associations according to the allotment ratio. Each association then re-allots its quota among its member-manufacturers, the quota allotted to each manufacturer being determined in the light of his past volume of production and his facilities for production. This allotment was

applied to all goods made for the export trade. Since August, 1933, however, goods made for export to Manchoukuo and China have been placed upon a different quota basis.

In order to defray the expenses of administration incident to this control, a fee is collected. These fees are of three kinds: The *ordinary fee* is a fee charged to cover the actual costs of administration. The *special fee* is assessed for the dual purpose of raising the general export price and of setting up a compulsory savings plan for members of the Federation. The greater part of the funds so raised is returned to the associations. This used to be returned to such associations within one year, but since 1936 the funds so raised are kept by the Federation for at least three years in the furtherance of the compulsory savings feature. With respect to the *excess production fee*, the Articles of Association of the Federation provide that 'Associations which are members of this Federation may expand their production beyond their allotted quota, provided such excess production shall not exceed 30 per cent of their aforesaid allotted quota.' This fee, which is in the nature of a penalty, mitigates the severity of the quotas to some extent and at the same time is a factor which discourages over-production.

As a further activity of the Federation, an agreement in respect of the minimum selling price of rubber shoes has been in force since 1st August, 1932, while a similar agreement in respect of rubber beltings was made on 1st October, 1933. Up to the present time, the price agreed upon has been raised several times, but at times the price so fixed also becomes the maximum price as well. To what extent such price control is beneficial is, therefore, still a question. But since the enactment of production and price control, the price of rubber shoes which have been exported has risen somewhat, and 1933 was indeed a favourable year for the manufacturers of rubber shoes. Thus some effects of control have begun to appear.

Nevertheless, the market conditions of rubber shoes have not improved to any great extent even since 1933, and many difficulties still lie in the path of control, judging from such reports as the following, published by the Hyogo Prefecture Rubber Manufacturers' Association in Kobe:

Notwithstanding the thoroughness in inspection and utmost endeavour in the observation of agreements, there are still instances of sales under the established price . . . [and] confronted with prohibitive tariff rates in every

foreign country, our volume of exports has dwindled. Just as, among our manufacturers, there are ingenious devices, not apparent on the surface, for circumventing the agreement made with regard to selling prices, so there has been a subtle shift from factories producing superior quality goods to factories producing goods of lower grade. A tendency towards decline is beginning to manifest itself in our industry.

Whether it be rubber shoes or other rubber products, the scale of most of the factories is so small that the administration of this control is not an easy task. On the other hand, before stability can be obtained by the free play of uncontrolled forces in competition, untold sacrifices will have to be made. Some kind of control is, therefore, necessary.

The control over the rubber goods industry is being exercised not only in respect of production, but also in respect of the exportation of rubber goods. In August, 1934, the Japan Rubber Goods Exporters' Association came into being and began to exercise a restriction or control over exports from December of that year. Since then exports of rubber shoes (shoes made entirely of rubber and rubber-soled fabric shoes) and of miniature sized rubber shoes have been placed upon a quota basis.

It is hoped that this type of control will eliminate to some extent the harmful situation created by the presence of so many medium- and small-scale factories in the industry.

CHAPTER VI
THE BICYCLE INDUSTRY

1. HISTORICAL INTRODUCTION

THE history of the bicycle industry in Japan may be divided into four periods representing the four stages through which the industry has passed.

i. *The first period*

Bicycles were first imported into Japan from England and the United States, importation taking place as early as 1881. In those days, they were still regarded as mere amusement facilities and their use for practical purposes was limited to a small group of foreign missionaries and a few young scions of well-to-do families.

A small number of people tried to manufacture them by imitating the imported models, but they soon found out that owing to the primitive methods then employed (that is, the use of hand-hammers and hand-filing) the cost of manufacturing them at home was prohibitive. Consequently most of the factories turned out business failures.

ii. *The second period*

Sharing in the impetus which the Russo-Japanese War gave to industrial manufacturing in general, the bicycle industry made rapid strides in development. With the vast improvement of the manufacturing machinery itself, with the adoption of the favorable features in the imported bicycles, and with the standardization of the bicycle along lines employed by the English bicycle manufacturers, the manufacture of the various parts in Japan became amazingly active. It is to be noted that the unique art and technique of Japan's traditional metal-smiths contributed greatly to this progress. For example, the City of Sakai near Osaka, known to-day as one of the greatest bicycle manufacturing centres in Japan, is also a city noted since olden times for its splendid guns, swords, and other such metal working. Many of these skilled workmen

turned to bicycle manufacturing as the demand for traditional arms decreased as the result of the westernization of the army after the Meiji Restoration.

Favoured by the fortunate circumstances mentioned above, the manufacture of accessories gradually developed during this period, but notwithstanding, both the completed bicycle and the various parts still continued to be imported in the main from abroad.

Bicycles first appeared in Japan's foreign trade statistics in 1896 at which time the importation of bicycles was listed at ¥100,000. This figure continued to increase until in 1907 it reached ¥1,290,000 for 35,000 completed bicycles and ¥950,000 for parts or accessories.

In 1912, the imports of finished bicycles decreased to 16,000 in number or ¥850,000 in value. Imports of the various parts or accessories, on the contrary, increased remarkably, reaching the total of ¥2,300,000 in value. This change was very significant, for it clearly indicated that, although the parts were still supplied by foreign countries, the bicycle industry in Japan had advanced from the stage of part-making to that of manufacturing the completed bicycle. Except for these few parts which still had to be imported from abroad, the production of the completed bicycle within Japan's own borders became a reality.

One of the features which attract our attention in the bicycle manufacturing industry of Japan is that factories are not widely spread over the country but gathered in a very few centres. The fact that most of the bicycle factories are small-scale and manufacture only one or two parts explains the necessity and convenience of such a concentration of manufacturers in a few places. Osaka Prefecture, in which the above mentioned town of Sakai is located, is one of these few centres.

Its output is approximately 50 per cent of the total output of the Japanese bicycle manufacturing industry; Tokyo Prefecture's production constitutes about 30 per cent of the national output; and Aichi and Hyogo Prefectures produce the remaining 20 per cent. Bicycles intended for overseas markets are manufactured chiefly in Osaka Prefecture.

iii. *The third and fourth periods*

With the outbreak of the World War, the importation of bicycles into Japan from European countries stopped almost completely, and

instead orders poured into our factories from China, India, the Straits Settlements, and the South Seas, to say nothing of the increasing demand at home. According to *Factory Statistics* (which does not include factories employing fewer than five workmen), the total output of bicycles leaped suddenly from a small figure which was no more than ¥460,000 in 1913 to ¥12,550,000 in 1918.

The output of bicycles continued to increase during the post-war period until a stage of self-sufficiency was attained, but it was

TABLE 99. ANNUAL OUTPUT OF BICYCLES IN JAPAN (1913, 1918, 1929-1936)
(In thousand yen)

1913	460
1918	12,548
1929	18,701
1930	14,997
1931	15,753
1932	28,771
1933	37,005
1934	41,140
1935	53,830
1936	55,708

Based on *Factory Statistics* and the Report of the Japan Federation of Bicycle Manufacturers' Associations. Does not include the output of small factories employing under five workers. The total output, including such factories, exceeds the above figures for each year by 40 per cent.

TABLE 100. ANNUAL EXPORTS OF BICYCLES FROM JAPAN (1917-1936)
(In thousand yen)

1917	168	1927	1,879
1918	342	1928	2,557
1919	356	1929	3,430
1920	305	1930	2,901
1921	396	1931	3,297
1922	441	1932	6,028
1923	460	1933	11,784
1924	745	1934	18,876
1925	2,296	1935	16,807
1926	1,960	1936	20,473

Based on *Annual Returns of Japan's Foreign Trade* and the Report of the Japan Federation of Bicycle Manufacturers' Associations.

not until after 1924 that exports of bicycles merited any special notice or attention (the third period).

After 1924 exports steadily increased and especially after the re-imposition of the gold embargo in 1931 exports began to show a remarkable increase, namely to ¥6 million in 1932, ¥12 million in 1933, ¥19 million in 1934, ¥17 million in 1935 and ¥20 million in 1936.

The principal markets for the export of Japanese bicycles are the South Sea Islands, China, and British India. Of these the South Sea Islands imported about 50 per cent of total exports in 1933, and China and British India about 20 per cent each. Due to the increase in the tariff in the Dutch East Indies, exports to the South Seas areas have decreased. On the other hand, a notable increase in the exports to the Chinese and Manchurian markets has been registered.

With this development in the export end of the industry, there has been an increase both in the amount of the annual output of the industry and in the number of workmen employed. Compared with 1930, the statistics for 1936 show that the yearly output leaped from ¥15 million to ¥56 million while the number of people engaged in this industry increased from 23,000 to 37,000 during the same period.

From this brief historical sketch of the industry let us now direct our attention to the examination of the organization of the industry, its supply of labour, its production control and finally the effect of the depreciation of the yen upon the industry.

2. ORGANIZATION OF THE INDUSTRY

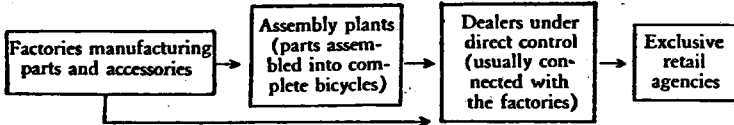
It is a commonplace that the bicycle is the assembled product of a vast number of component parts and of these essential parts there are more than thirty different varieties. In Japan, only a small number of the larger factories manufacture more than two kinds of parts or accessories, the other factories limiting themselves to the production of just one or two component parts of the completed bicycle.

A historical study of the industry in the country seems to indicate that this accessory-manufacturing in Japan was first established with the idea of producing the various parts necessary in repairing the bicycles which had been imported from abroad. Thus from the very beginning the bicycle industry was organized into various units, each

manufacturing just one or two parts necessary to produce the completed bicycle, but this system of one factory producing one unit part became even more common around 1910 when standardization of the various component parts along lines found in the models imported from England was effected. Under the foregoing system it was possible to establish and operate small-scale factories with a comparatively small capital investment, in many instances with about ¥500. Standardization of the various parts of the bicycle was one of the prime factors which made a small factory system possible.

DIAGRAM 60. ORGANIZATION OF THE BICYCLE INDUSTRY: LARGE UNITS

A. FOR HOME USE



B. FOR EXPORT

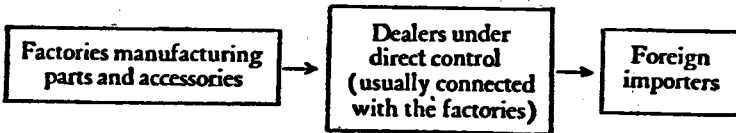


DIAGRAM 61. ORGANIZATION OF THE BICYCLE INDUSTRY: SMALL INDEPENDENT UNITS

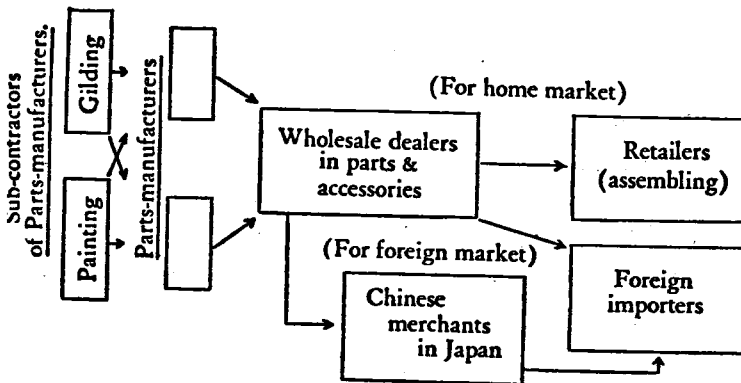


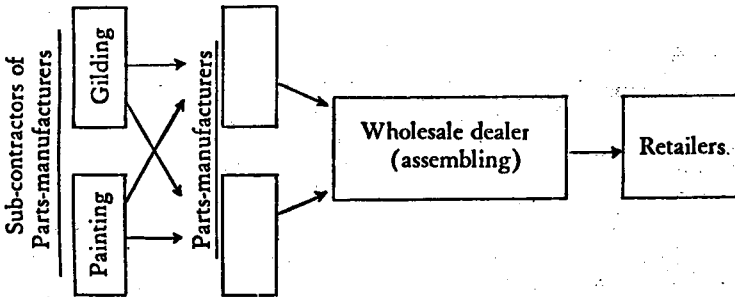
TABLE 101. NUMBER AND PERCENTAGE OF FACTORIES AND WORKERS IN THE JAPANESE BICYCLE
INDUSTRY ACCORDING TO NUMBER OF WORKERS PER FACTORY (1930)

	Factories Employing:							Total
	5-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers	100-199 workers	200-499 workers	
Number of factories	197	63	69	31	11	10	2	383
Percentage of all factories	51.44	16.45	18.02	8.09	2.87	2.61	0.52	100
Number of workers	1,194	804	1,464	1,383	836	1,598	656	7,935
Percentage of all workers	15.05	10.13	18.45	17.43	10.53	20.14	8.27	100

Based on *Factory Statistics*. The number of workers in the small factories employing fewer than five constitutes 65 per cent of the total.

The fact that the number of workmen in small factories, each employing fewer than five hands, represents approximately 65 per cent of all workers engaged in this industry in Japan of itself drives us to the inevitable conclusion that the number of small-scale factories in the country is indeed large. There are, however, a few large-scale factories. The number of workers employed in factories hiring more than 200 workmen constitutes about 4 per cent of the total number of workmen engaged in this industry, while the hands employed in plants employing from 100-200 workmen represent about 8 per cent. (Table 101.)

DIAGRAM 62. ORGANIZATION OF THE BICYCLE INDUSTRY:
SMALL CONTROLLED UNITS



There is, of course, a great difference between the large-scale enterprises and the smaller ones both in the manner in which the factories are arranged and in the system employed in production activities. Directing our attention to the large-scale units, we find, as indicated in Diagram 60 that one capitalist controls the production of the various parts, the assembling of these parts into the completed bicycle, and the marketing of the completed product. There may be some few parts which are not made in his own factories, but these are purchased from other manufacturers.

The situation of the small-scale establishments is different from that of the foregoing large-scale units. In some instances the manufacturer of the various parts and the wholesale dealer are totally independent of each other, while in other instances the former is under the control of the latter. The assembling of the parts into complete bicycles is done by the wholesale dealers or by the retailers. A good number of the parts-manufacturers who are unable to

perform certain processes, e.g. painting and gilding, because of a lack of sufficient capital, delegate this phase of the work to craftsmen specializing in this work. The organization of the latter system of production, with the wholesaler occupying the most important position, is minutely divided and extremely complicated.

Diagram 6r indicates the usual organization in instances where the parts-manufacturer and the wholesale dealer are independent of each other.

Diagram 6z indicates the organization in instances where commercial capital controls the manufacturing of the parts. In this case, the wholesaler plays the role of banker to the actual manufacturer or sub-contractor and at the same time acts as the owner of a factory, that is, he holds himself out as a manufacturer of parts, selling the products bearing his own trade-mark which he has in turn obtained from the sub-contractor.

The financial control which the wholesaler exercises over the parts-manufacturer is due to the lack of sufficient capital on the part of the latter. The large factories possess valuable properties which may be put up as security or collateral and hence are able to open accounts with the ordinary city banks. The small factories, on the other hand, have very few assets acceptable as security or collateral for loans and as there have been violent fluctuations in the market price of their product, entering into business relations with the ordinary bank has become an impossibility. The small-scale manufacturer, therefore, finds himself in narrow straits so far as liquid capital for the running of his business is concerned when sales drop and his stock accumulates. Nor is it unusual for some wholesale dealers themselves to run their business with very little capital, and in times of depression they often find themselves unable to meet the various payments which they owe. As the small manufacturers are unable to enter into direct transactions with the city banks, they are forced to turn to the wholesale dealer as their only instrument of financing their operations. At times the rate of interest imposed on them by the wholesaler is unbelievably high. It is true that in some instances money is borrowed with no nominal interest, but then because of the manufacturer's inability to pay back the loan in cash, the price which the wholesaler pays him for the manufactured article is beaten down to such a low level that the net effect for the borrower is the same as if he had paid an exorbitant rate of

interest. The wholesaler who thus finds himself in a position to exert financial control over these small manufacturers does not remain a mere banker to them but eventually becomes in reality their employer.

Of recent years, however, the wholesale dealer's financial control over the small manufacturer has been gradually on the wane and, in many instances, the wholesale dealer has transformed himself from the type indicated in Diagram 62 to that set forth in Diagram 61. One of the reasons for this transition lies in the fact that the recent activity in this line of industry has enabled the manufacturer not only to pay off his pre-existing debts, but also to accumulate some capital of his own. Another factor is the enforcement of production control by the industrial association whereby the over-accumulation of stock on hand has become rather rare.¹

It is inevitable that certain disadvantages still go along with small-scale enterprises, as in the matter of obtaining capital as well as in the purchase of raw materials and in the marketing of the finished product. In that case, it may be asked, why so many small factories in Japan? Among other reasons may be listed the fact that although the various parts and accessories have been standardized, the models and designs of the bicycles are still subject to great variety. Mass production, therefore, is still unprofitable from the technical point of view.

The principal factor contributing to the existence of these small-scale enterprises, however, is the combination of inexpensive machinery used in the manufacturing process and the abundant supply of labour peculiarly adapted to this type of work. Although we shall go into more detail on this point in the next section we may take up one example here, namely the machine for making handle-bars. Among the various power-presses, there are some which can be operated by hand. Such simple machines do not require the attendance of an adult male and can be worked adequately by housewives or children. The more improved machines used by the larger factories, of course, require the attention of adult males. The smaller enterprises, through the utilization of machines which though somewhat less efficient are cheaper in costs and the employment of labour which though somewhat inferior is less expensive to hire, have found their own field of profitable activity in the

¹ Compare Section 4 below.

manufacture of low-priced commodities. The larger factories on the other hand produce articles of a higher grade as a general rule. In other words, from the business point of view, it can be said that the only way of manufacturing low-priced bicycles is to combine the use of low-priced machinery with the employment of cheap labour.

3. LABOUR CONDITIONS

What is the quality of labour demanded in this industry? Through what channels does this labour find its way into the factories? What is the state of the employer-employee relationship; what are the age and sex of the workers; by what method are they recruited; from what localities do they come? How do the size and scale of the enterprise alluded to in the previous section affect the worker and his technical efficiency? These are the problems which we shall discuss in this section.

i. *Relations between employers and employees*

It has already been observed that 65 per cent of all workmen engaged in the bicycle manufacturing industry in Japan are hired in small factories employing fewer than five workers. It is not difficult to suppose that a good many of this number are members of the immediate household of the manufacturer. It is self-evident that the employer-employee relationship of these people is not the same as the employer-employee relationship as it exists among the ordinary run of wage-earning workmen. During periods of depression many of the small factory owners managed to remain in business only by prolonging working hours and cutting down even the daily needs of life. Judging from the fact that a considerable number of small-scale factories still continue to exist, we are probably not far wrong in believing that the old master-apprentice regime still holds sway in some districts. The mechanization of this industry within recent years has meant the gradual decline in the demand for skilled hands. The place of the apprentice who formerly entered employment in order to train himself to become a skilled hand is now being taken by unskilled or juvenile workers. When business is not so brisk and the small manufacturers enter into cut-throat competition with each other, the employer does not hesitate to lower either his own standard of living or that of the workers in order to enable himself to make sales at cheaper prices.

ii. *Age and sex of workers*

Minors employed in the industry constitute about 35 per cent of the whole. In view of the fact that the percentages of child workers in relation to the total number of workers employed in the machine and in the vehicle manufacturing industries in Japan amount only to 11 and 19 respectively, the average age of workers in the bicycle manufacturing industry is extremely low.

The foregoing figures are calculated from the 1930 census by the Bureau of Statistics in respect of factories employing more than 100 workmen. Judging from the fact that there are a good many young apprentices in the smaller factories and in view of the fact that the Factory Law is not applicable to such small-scale plants, it is believed that the average age of workers is even lower than that of employees in the large factories.

TABLE 102. AGE DISTRIBUTION AND DAILY WAGES OF WORKERS IN LARGE BICYCLE FACTORIES IN JAPAN (1930)

Age Group Years	No. of male workers	Wages paid (In yen)	No. of female workers	Wages paid (In yen)
12-13	10	0.55	3	0.85
14-15	144	0.70	10	0.88
16-17	193	0.96	10	0.95
18-19	155	1.33	13	1.04
20-29	515	1.87	47	0.94
30-39	778	3.94	3	2.01
40-49	248	4.12	4	1.36
50-59	51	3.15	—	—
60 and over	8	2.24	—	—
Average		1.72		0.94

Based on *Survey of Labour Statistics*.

Looking at the relation of skill to the age of the workers, the upper age limit of the skilled workman is about 40 years, and in the case of the unskilled workman the general run is between 22 and 23. When a skilled workman reaches forty, he usually either begins to run his own small-scale factory or changes his calling.

In classifying workers by sex, we find that female workers in this industry constitute fewer than 10 per cent, their activity being confined largely to packing and other miscellaneous tasks of a similar nature.

iii. *Method of recruiting factory operatives, localities from which they are drawn and duration of employment*

Operatives for the larger factories are obtained either through the medium of public or private employment agencies or through direct advertisement. In the smaller factories a sign indicating that workers are wanted is posted on the factory premises.

A study of the localities from which workers come shows that most of them represent the surplus labour which has drifted in from nearby farming or fishing villages. Workers coming from urban areas are comparatively few, not exceeding 29 per cent of all factory hands.

Turning to the areas from which the large- and small-scale factories obtain their labour, we note that the small-scale factories' method of recruiting hands is very simple. The employee is usually some one living in the vicinity, who can walk to and from his work; and the labour supply from this rather restricted area is sufficient to meet the small-scale factories' needs. The larger factories are compelled to draw their labour from a wider area and consequently cannot avail themselves of the people who happen to be in need of work and at the same time living near the factory.

An inquiry into the duration of employment of workers in this industry discloses that about 44 per cent of the total number have worked for less than five years, which means that the period of employment of workers in the bicycle manufacturing industry is on the average shorter than that for workmen in the other machine manufacturing industries of Japan. A great many child workers leave very quickly. This is especially true of the small factories, and the rate at which their operatives change from one factory to another is much higher than that for the large factories.

iv. *Labour unions*

With regard to labour unions, there is a notable difference between the Tokyo area and the vicinity of Osaka. In the city of Sakai in Osaka Prefecture, there still remains 'a beautiful custom' handed down from Japan's feudal days whereby apprentices maintain a tie of loyalty to their former masters even subsequent to their becoming independent; and the masters on their part willingly give assistance, both material and moral, to their former apprentices. Thus a harmonious relation between capital and labour exists not only in each

individual factory, but also between independent manufacturers, because of the common ties with the same former master. The result is that there are very few workers who are members of labour unions. In Tokyo, on the other hand, the situation is somewhat different and many of the factory operatives of the larger and medium-sized factories are members of labour unions, and labour disputes do arise from time to time.

v. Conditions relating to employment

The following are the main characteristics of conditions of employment in small-scale establishments:

(a) Workers are mostly members of the manufacturer's own household or apprentices. Their condition is, of course, different from that of the ordinary run of wage-earners in this industry.

(b) A very narrow labour market being sufficient to meet the demands of these small factories, the part-time labour of those living in the immediate neighbourhood can be had at very low wage levels.

(c) Only a few of these workers join labour unions. In a weak bargaining position with their employers, it is inevitable that they often have to put up with unfair terms of employment.

(d) Owing to the comparatively youthful age of workers and the brevity of their period of employment, the degree of skill is somewhat low.

Under such circumstances, it is natural that the wage-level of these smaller factories is distinctly lower than that in medium-sized or large factories. These small factories are trying to find their own peculiar place in the industry by combining the use of less expensive but somewhat less efficient machinery and the employment of labour that is cheap although still somewhat unskilled. It is said that cheap though somewhat inferior labour is best suited for the operation of low-priced machines of low efficiency. If, however, the efficiency factor is taken into consideration, it is rather doubtful whether we can say that the labour cost of the smaller factories is really less than that of the larger factories as it would seem off hand. A comparative measurement of the wage levels between the worker in the large and small factories is extremely difficult because of the great disparity in the efficiency of the labour employed; they represent two distinct classes of labour differing in their intrinsic quality and working with machines of varying degrees of efficiency.

The wages paid depend upon the factory in which the worker is employed, his period of employment, and his age. The average wage, according to the age of the worker, is indicated in Table 102.

Although actual working hours differ greatly among the various factories, they run from nine to ten in the large- and the medium-sized factories. There are no fixed working hours in the smaller establishments, but as a general rule they run much longer than in the large factories. The fixed rest period (including lunch time) is thirty minutes in some of the large factories while it may run to one hour in others. In the smaller factories, one-hour periods are the general rule. The weekly holiday system is in force in the larger factories, but in most of the smaller factories the workmen are given just two holidays per month. There are, moreover, very few facilities for promoting the welfare of the workers, the extent of welfare activities being limited to excursions, tea-parties, and picnics provided for in the regulations of some few factories.

vi. *Wages in recent years*

There have been cries from certain quarters to the effect that the phenomenal expansion in the export activities of Japan is made possible because of her low wage level. Let us examine fluctuations in the wage level around the year 1932 when the increase in the export of Japanese goods became unusually great.

TABLE 103. WAGES PER HOUR IN THE BICYCLE INDUSTRY (1929-1935)

1929	¥ 0.193
1930	0.167
1931	0.149
1932	0.145
1933	0.141
1934	0.110
1935	0.140

Based on *Factory Statistics*.

Table 103 indicates that the hourly wages of labour have been gradually on the decline since 1929. It was natural that wages should drop during the years 1930-1931 at which time Japan underwent an economic depression, but in view of the fact that from 1932 on the industry was favoured with a period of prosperity, the gradual

decline of the wage level is a phenomenon out of line with the general trend of business. What then is the reason for such a phenomenon?

The year 1932-1933 showed a 50 per cent increase in the number of workers as compared with the two preceding years when business was duller. However, most of these newly employed were comparatively young and almost unskilled and naturally their wages were rather low. Moreover, in the wage system of Japan, wages are generally low at the start and are increased gradually according to the length of employment. To make matters worse, in spite of the boom of that time, there was a surplus of labour, and this tended to reduce the wages of new workers as low as, if not lower than, those of the depression period. This low standard of wages was responsible for lowering the average wage level of the entire industry.

On the other hand, the wages of those workmen who had been engaged in this line of work from the pre-depression days rose generally, and especially was this true of skilled workers, whose wage level took a noticeably upward trend. According to a survey made by the present writers as at July, 1934, wages which had declined during the years 1930 to 1931 took an upward trend from 1933 until in 1934 there had been an increase of 13 per cent in the fixed wages² for the average run of workers and 25 per cent in the fixed compensation of skilled workers. The index numbers for the corresponding period indicate that the cost of living rose only about 7 per cent, so that it can be said that the real wages of the skilled worker did increase in fact.

4. IMPROVEMENT IN INDUSTRIAL MANAGEMENT

As the number of small factories in this industry increased, it became evident that because of their meagre capital resources they were in a very disadvantageous position both as to the purchase of raw materials and the sale of the manufactured product. To remedy this weak point in the management end of the industry, it is absolutely necessary that the individual manufacturers should not only co-operate with the others but also pool their assets.

² This means the wages paid aside from bonuses and other gratuities which are common in Japanese industry.

Because new plants can be established with a relatively small capital and because the technical skill required is rather simple, these small-capital factories are continually growing up like mushrooms after rain only to disappear again like ghosts in the night. To eradicate this uncertain situation, co-operation between the small factory managements is essential. But notwithstanding this vital need for co-operation, its realization is not so simple. The recently formed industrial associations have made very little headway in the line of co-operative purchase of materials and co-operative sale of the finished products. It is to be noted, however, that these industrial associations have been reasonably effective in bringing about controlled or regulated production.

In 1932 when Japan was just coming out of a period of depression, the manufacturers who had rapidly increased their output in anticipation of an increased demand found themselves confronted with the problem of how to deal with an unusually acute state of over-production. It was on this occasion that the industrial associations, with the aid of encouragement rendered by the government, devised a plan for the control of production. The plan was to become effective as from the end of the same year. The outstanding points of this plan were:

(a) The control was to be applied for the time being to the manufacture of handle-bars and brakes and was to be gradually extended to the manufacture of the other several parts of the bicycle.

(b) A quota was to be fixed on the basis of an approximated amount necessary to meet the demands of the market, and then the total quota was to be subdivided and apportioned among the several manufacturers belonging to the association.

(c) Sales were to be controlled by fixing a minimum sales price and by restricting the number of persons with whom business might be transacted.

(d) The enforcement of this production control was to be carried out by the Union of Japanese Bicycle Manufacturers' Associations.

We shall pass over the various details relating to the enforcement of this production control, but mention may be made of the fact that the control has been carried out smoothly with almost no attempts at circumventing the control on the part of the members of the associations. This control has now been extended to more than ten different kinds of manufactured articles.

The activities of the association consist of the inspection of the quality of merchandise, co-operative selling, and co-operative manufacturing. Co-operative sales by the association are limited to the sale of tubes for the rear part of the frame; and in some quarters co-operative manufacturing does not extend to more than the joint assembling of the bicycle. Examination of the merchandise is conducted not only in reference to the completed bicycle but also with reference to the more essential parts. The stamp of approval is not placed on the rejected articles, so that even if some of this inferior-quality merchandise should find its way into the open market the price at which it can be sold is so beaten down by the sales agencies that it is often less than the cost of manufacture. Thus the manufacturers prefer to produce superior goods within the limits of their allotted quota rather than to resort to production of a large quantity of goods of inferior grade.

The organ next in importance to the industrial associations in so far as the promotion of co-operative activities is concerned is the Exporters' Association. While the industrial associations control the manufacturers of the bicycles, the Exporters' Association regulates the activities of wholesale exporters.

The activities of this institution are the establishing of branch offices abroad, the acting as agents, the lending of good offices for miscellaneous purposes, the despatching of experts to survey foreign markets, and the advertising and exporting of bicycles of superior quality. It regulates the export of bicycles by means of various agreements concerning the markets to which the merchandise may be exported, the export price, and the quantity of export merchandise in the following manner:

(a) The Exporters' Association makes agreements with regard to the regulation of the volume and minimum price at which certain articles (which need not be enumerated here) may be exported.

(b) The volume of exports is controlled in respect of merchandise bound for the Netherlands Indies, British India, and the Straits Settlements,

(c) Agreements relating to the minimum export price are made with reference to exports to the Netherlands Indies, British India, Burma, the Straits Settlements, Siam, the Philippine Islands, Africa, Europe, the Near East, the Americas, Australia and New Zealand.

In instances where the drop in the foreign exchange rate makes dumping possible, this control of the export end of this industry becomes especially necessary. Uncontrolled competition in the foreign markets means not only an adverse effect upon foreign competitors, but also that the manufacturers in Japan will sell their bicycles at unduly low prices.

Effect of controlled production

In view of the fact that the control of production in this industry has been in force for only five years, there has not yet been time to estimate the full effects of the system. However, if we compare the situation of the demand and supply and the price at which the articles, in reference to which control was applied, sold during the year previous to the restriction with that of the year after, we may observe a clear-cut difference between the two.

It is unnecessary to dwell again at this point upon the condition of over-production which existed during the year previous to the imposition of a quota. It is sufficient to point out that during the year following the enforcement of the production control, the demand just about balanced the supply. In fact the supply of the articles to which the restriction had been applied barely met the demands for that year. During the year prior to the control of production, the factories (taking into account all factories manufacturing every type of article) were running at 80 per cent of their producing capacity. During the year subsequent to the regulation of output, those factories producing articles to which the control or restriction had been applied were running at 80 per cent of their full capacity, and those factories producing articles to which the control had not been applied were running at 100 per cent of their producing capacity. This difference in the rate of operation between the plants producing the controlled items and those manufacturing the non-controlled articles is one concrete indication of the effect of the control of production.

While the belief that the unmitigated enforcement of this production control will result in raising the market price of the manufactured product and hence have an unfavourable effect upon the consumer is entertained by some people, the actual result is not always so. A comparison of the market price of the controlled articles during the year previous and the year subsequent to the adop-

tion of this restriction in production indicates that it rose but 10 per cent. In view of the fact that the price of raw materials and fuel which represents 40 per cent of the total cost of production for the same period rose 30 per cent, it can be said that the rise of the market price of the manufactured article subject to control is not the consequence of the control of production.

Up to the present time, therefore, this control of the volume and price of the output of the industry has been achieving its anticipated results without bringing any unforeseen adverse features in its wake. In noting some of the other effects of this controlled production, we find that brokers and small wholesale dealers have disappeared. The undue influence of the larger wholesaler has been eliminated. In short, all of these changes mean that the commercial organization of the industry itself has been improved.

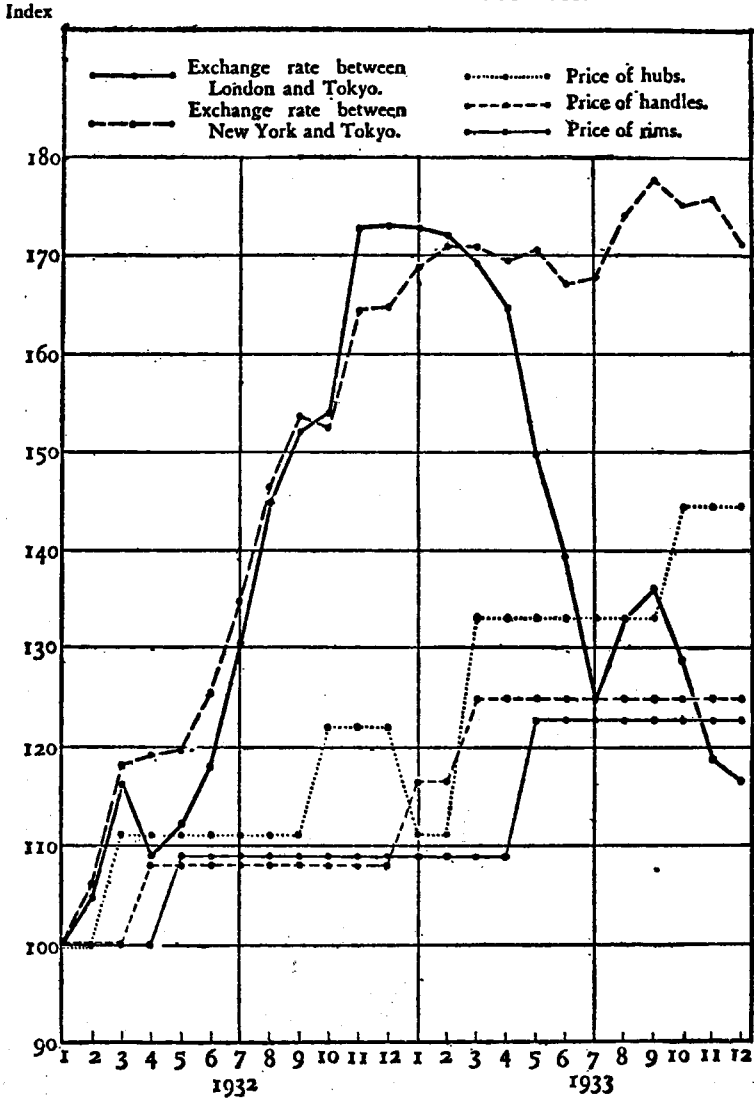
5. CHIEF FACTORS CONTRIBUTING TO THE RECENT ADVANCE OF THIS INDUSTRY INTO WORLD MARKETS

The development of this industry subsequent to the re-imposition of the gold embargo and its notable advance into foreign markets have already been mentioned in the first section. To what may we ascribe this phenomenon?

The unprecedented drop of the exchange value of the yen has resulted in only a very slight rise in the Japanese market price of the manufactured articles. The direct influence which the rate of exchange exerts upon this industry is, of course, on the cost of raw materials or parts which must be imported from foreign countries. The price of the imported items in this field of industry, although varying in accordance with the type or kind of parts imported, represents only 10 per cent or so of the total manufacturing cost. The rise in the price of the home-made materials, which amounts to 20-30 per cent of the total cost of production, was also very slight.

The cost of labour, representing as it does 30-60 per cent of the total, is the most important item in the total cost of production. As pointed out in previous sections, although the wages of old hands have increased by about 10 per cent, the general hourly wage level, taking into consideration the average wage of all the people engaged in the work including newly employed unskilled workers, is slightly lower than previously. In view of the fact that the technique required in this industry is comparatively simple and the fact that

DIAGRAM 63. INDEX NUMBERS OF PRICES OF BICYCLE PARTS AND OF FOREIGN EXCHANGES (1932-1933)



Price indices of the Japan Federation of Bicycle Manufacturers' Associations.

there has always been an overabundance of unskilled labour in the country, it is believed that wages in this industry could not possibly have gone up to any marked degree.

Among the other items in the cost of production, only the price of fuel rose, but inasmuch as the rise was only slight and the fact that the cost of fuel constitutes but a minor item in the total cost of production, its effect upon the market price of the manufactured goods was almost negligible.

The advantageous position in which the exchange rate placed the manufacturers must, therefore, be taken as the most decisive factor in stimulating sales in foreign markets. From 1934 to 1936 there were no conspicuous movements in the rates of exchange or in the prices of commodities, but they remained nearly as they were in December, 1933. That is, the yen-dollar exchange stayed at about 29 cents and the yen-sterling at about 1s. 2d. (see Diagrams 23 and 63).

At the same time, we must not overlook the fact that this favourable situation of the manufacturer due to the rates in foreign exchange was further enhanced by the improvement in the managerial organization of the industry as well as by the improvement in the machinery used for manufacturing the bicycle. As has been pointed out above, unnecessary middlemen and factories operating with small capital have disappeared with the coming of the activities of the industrial associations. The larger wholesale dealers have organized themselves into the Exporters' Association, making agreements themselves as to the quantity and minimum price at which merchandise is to be exported abroad, and are carrying on distribution on a rational basis. Moreover, the manufacturers have increased their capital and installed more up-to-date machinery so that the operating efficiency of the plants and the state of the managerial organization has reached a higher state than was anticipated.

A word of explanation must be added as to why the goods made for the foreign market are as a general rule somewhat cheaper than those made for the home market. The bicycles made for the home market are made with a view to their use as luggage or light freight carriers, whereas the bicycles for the foreign market are made for the load of the rider alone. It is natural, therefore, that there should be a difference in the amount of raw materials in the two types of bicycle, the bicycle for the home market requiring more. From a failure to realize this fact, Japan has often been unjustly

accused of engaging in dumping. At the present time, however, an agreement is in force regarding the minimum sales price of both the domestic and foreign market bicycle.

In short, it is not only the advantage of the exchange rate which has been responsible for the inroads which Japanese bicycles have been making in foreign markets in spite of the high tariff barriers, but also the improvement in the managerial organization of the industry and the installation of more complete and efficient facilities of production.

6. CONCLUSION

The foregoing represents an attempt at presenting the more essential features of the conditions of labour in the bicycle manufacturing industry in Japan and at making clear the factors which have played the more vital parts in the expanding exportation of Japanese bicycles to foreign markets. Briefly summarized, the main points are as follow:

(a) There is extensive division of labour in the manufacturing end of the bicycle industry. Not only is the manufacture of one particular part by one factory the common practice but in a great many instances even manufacture of one part represents a division of labour between several factories, each employing the labour best suited to its peculiar needs.

(b) As the technique required in this industry is comparatively simple, labour can be drawn in the main from the ranks of juvenile or unskilled workers of whom there is a tendency towards overabundance in the country.

(c) The extremely unstable or uncertain state in which the industry found itself as the result of cut-throat competition between the many small manufacturers who had entered into this business, which needed very little technical skill and capital to start out with, has been ameliorated by the introduction of production control. Controlled production has eradicated most of the old abuses and at the same time bettered the managerial organization of the industry.

(d) The gain from a low exchange rate was a direct factor in facilitating the export of Japanese bicycles to foreign markets, but at the same time other basic factors within the industry itself which have been set forth above must not be forgotten.

CHAPTER VII

THE ENAMELLED IRONWARE INDUSTRY

I. HISTORICAL INTRODUCTION

THE origin of the enamelled ironware industry in Japan can be traced back to the end of the last century, but on account of the primitive method of manufacture and the consequent high cost of production, this industry was unable to compete with German and Austrian goods until the outbreak of the Great War. The War so crippled the German and Austrian industries that their products, which had dominated the Oriental market, suddenly ceased to appear, resulting in a tremendous increase in the demand for Japanese goods in the markets of China, India, and the South Sea Islands. The value of the output of enamelled ironware in Japan was below one million yen in 1913, but rose in 1918 to ¥6 million,—¥4 million worth being exported and ¥2 million worth being consumed at home. There followed a period of decline on account of the pressure exerted by aluminium ware, which began to oust small enamelled ironware from the market. The demand at home slackened temporarily, but the exports showed a gradual increase. In 1924 they reached ¥6,700,000.

The world-wide depression of 1930 and 1931 had a very damaging influence on this industry and a number of manufacturers collapsed on account of the bitter competition which ensued. Statistics show a decrease in output of two to four million yen during this period. In order to cope with this situation, a committee for promoting the industry was established with the aid of the Government, and considered practical means with which to save the industry from collapse. The committee finally succeeded in initiating a plan of production control. This production control (see Section 4), together with the favourable conditions brought about by the drop in the exchange rate of the yen after the reimposition of the gold embargo, gave an unprecedented impetus to the industry. The annual output increased steadily, as the following figures show: ¥5,300,000 in 1931, ¥8,700,000 in 1932, ¥12,000,000

in 1933, ¥14,200,000 in 1934 and ¥16,000,000 in 1935 (Table 104). Likewise in the annual values of exports an immense increase was seen, the total export figures being ¥2,700,000 in 1931, ¥4,100,000 in 1932, ¥7,300,000 in 1933, ¥8,000,000 in 1934, ¥9,400,000 in 1935 and ¥9,800,000 in 1936 (Table 104). An annual increase was also

TABLE 104. JAPANESE OUTPUT AND EXPORTS OF ENAMELLED IRONWARE
(1920-1936)
(In thousand yen)

	Output ¹	Exports ²
1920	6,893	6,337
1921	6,690	3,244
1922	7,141	4,194
1923	7,249	4,537
1924	8,657	5,621
1925	9,920	6,908
1926	9,028	5,970
1927	7,097	5,933
1928	8,814	6,444
1929	8,624	6,707
1930	6,538	4,044
1931	5,343	2,698
1932	8,703	4,133
1933	11,992	7,282
1934	14,216	8,049
1935	15,945	9,419
1936	—	9,795

¹ Based on *Factory Statistics*.

² Based on *Annual Returns of Japan's Foreign Trade*.

witnessed in the number of workers engaged in the manufacture, these numbering 3,400 in 1931, 2,700 in 1932, 3,400 in 1933, 4,500 in 1934, and 5,000 in 1935.

An outstanding feature of the enamelled ironware industry is its geographical concentration in a few cities. From 70 to 80 per cent of the total output is produced in Osaka, and from 10 to 20 per cent in Tokyo. Osaka specializes in the production of goods for foreign markets, and over 80 per cent of its products, which constitutes about 60 per cent of the total output in the country, is exported.

During the early stage of the industry, pans were the only articles manufactured in Japan, but the varieties gradually increased, and

now, washbasins, cups, spoons, plates, tumblers, trays, ricebowls, bowls, teapots, soap-cases, spittoons, lunch-boxes, chamberpots, ladles, coffeepots, and many other articles are being manufactured. Like other general merchandise the foregoing articles find their way into the foreign market.

2. ORGANIZATION OF THE INDUSTRY

Enamelled ironware, as just stated, is now being manufactured in many varieties; but the process of manufacture itself consists of three operations, namely, the making of the iron plate, enamelling, and baking in the kiln.

It is desirable, from both the technical and financial points of view, that these three steps in the manufacturing process be united and undertaken under one establishment. There was a time, on account of the scarcity of capital, when each of them was carried on separately on a small scale. Recently, however, the small-scale units have been decreasing and are being replaced by medium-scale works. Another trend within the small scale establishments is the tendency towards specialization in the production of such parts as the spout of a teapot or the handle of a pan, for which the manufacturing process differs from that for the iron plate. Thus there are quite a number of accessory makers.

Compared with the bicycle industry, it may be said that, by Japanese standards, the enamelled ironware industry is generally of

TABLE 105. NUMBER AND PERCENTAGE OF ENAMELLED IRONWARE FACTORIES AND WORKERS ACCORDING TO NUMBER OF WORKERS PER FACTORY (1930)

	Factories Employing:								Total
	5-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers	100-199 workers	200-499 workers	500 workers and over	
Factories Number	14	7	10	14	12	2	3	1	63
Percentage	22	11	16	22	19	3	5	2	100
Employees Number	100	93	237	578	863	341	602	536	3,350
Percentage	3	3	7	17	26	10	18	16	100

Based on *Factory Statistics*. Factories which employ fewer than five workers number 11, and employees in these 11 factories number 38.

medium scale, and there are very few factories which employ fewer than five workers. Factories which employ 30 workers and over are the most numerous and there are more workers employed in factories with 50-99 workers than in any of the other classes of factory (Table 105). The factories whose capital is below ¥30,000 are the most numerous; and workers in the large factories (*i.e.* in factories which employ 200 workers each and over) constitute 32 per cent of the aggregate number of workers engaged in this industry. (Compare Table 105).

TABLE 106. WAGES PER HOUR IN THE ENAMELLED IRONWARE INDUSTRY
(1929-1935)

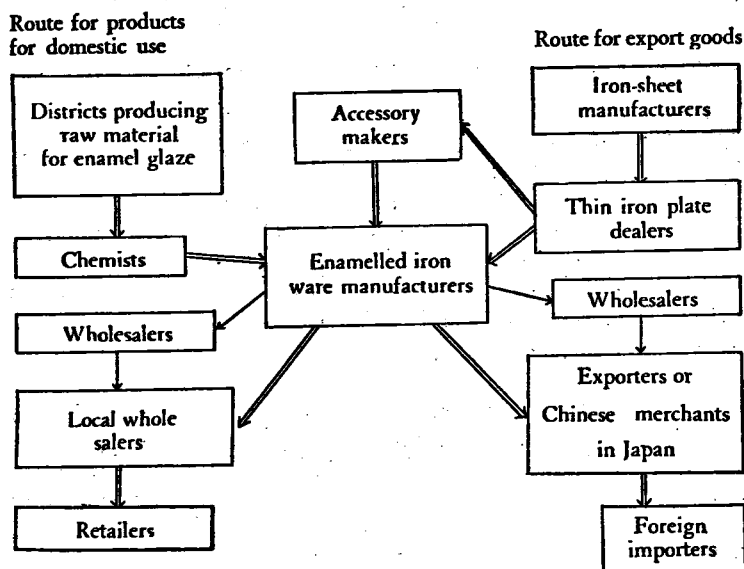
1929	¥ 0.201
1930	0.196
1931	0.173
1932	0.179
1933	0.155
1934	0.150
1935	0.150

Based on *Factory Statistics*.

Most of the medium-scale factories and, needless to say, the small-scale units are financially handicapped so that they are subject to merciless exploitation by wholesalers on whom they are dependent for their incomes. The writers, however, need not touch upon these subjects in detail, as the situation in the bicycle industry is almost identical with the situation which prevails in this industry. The result of the recent boom in the industry enabled those concerned to pay off their old debts, and also to increase the amount of their capital to no small extent. The production control also played its part in eliminating the evil effects resulting from the accumulation of stocks on hand. These favourable conditions made it possible for the manufacturers finally to break away from the shackles of the wholesalers, and they are now selling their goods, not through wholesalers but direct to exporters (who are mostly Chinese merchants in Japan).

In Diagram 64 we can observe the organization of the enamelled ironware industry and trace the route by which materials are purchased and products are sold.

DIAGRAM 64. ORGANIZATION OF THE ENAMELLED IRONWARE INDUSTRY IN JAPAN



Single-line arrows indicate the routes which are being discarded. Almost all the raw material used in this industry is produced in Japan.

3. LABOUR CONDITIONS

The two principal factors which have enabled medium- and small-scale manufacturers to hold their own in the enamelled ironware industry in Japan, have been the fact that the transactions in the industry are mainly on an order basis, and the fact that the type of merchandise makes it possible to specialize in the manufacture of just one kind of article. Because the medium- and small-scale manufacturers are financially weak, they are still somewhat at a disadvantage compared with the large-scale producers in purchasing raw materials and in selling finished products. As there is no noticeable difference between the goods of the medium- and small-scale manufacturers and those of the large-scale producers, there must be some factors to compensate for the financial weakness of the former and make their existence possible. The advantage may be found in their position to make use of a peculiar supply of labour.

The labour conditions treated in this chapter should be considered in connection with the industrial scale.

i. *Relations between employers and employees*

There are four classes of employees: regular artisans, temporary employees, juvenile apprentices, and domestic hand-workers whose relation with the employer differs a great deal from the general case. Those employed in the medium- and small-scale plants are generally the last three, and these plants are noted for their amazing adaptability to the fluctuation of business conditions, because dismissal of workers, or the prolongation of working hours can be effected comparatively freely and easily.

ii. *Age and sex of workers*

About 90 per cent of the employees are males, 40 per cent of these being minors. Comparison with other industries in Japan shows that the age of the employees in this industry is extremely low, for the medium- and small-scale factories employ juveniles to a greater extent. The fact that this industry does not require skilled labour, and that the small-scale factories are not in a position to pay high wages for the experts, may be the main reasons for the employment of so many young workers in the industry.

iii. *Localities from which workers are drawn and duration of employment*

An investigation made in Osaka revealed that 40 per cent of the employees are from the rural districts, 30 per cent from the cities, and the remainder from Korea. The areas which supply labour differ according to the scale of industry; for example, the medium- and small-scale factories can obtain a sufficient supply of labour from a considerably limited area, and they can easily obtain extra labour by temporarily employing those living in the neighbourhood of the factories. The large-scale establishments are in a comparatively disadvantageous position in this respect.

The length of employment in this industry, as revealed by the following percentages, is short: those employed for less than five years constitute 50 per cent of the total number of workers while the percentage of those similarly situated in the ceramic industry is

45 per cent. This comparatively brief duration of employment may be explained by the fact that temporary workers and juveniles are employed in great numbers by the medium- and small-scale factories.

iv. *Home conditions*

Wages of the workers are never sufficiently high to support their families. Other members of the family must do piece work at home, open little shops, or work at factories. A common type of piece work done at home is the making of paper boxes for enamelled ironware or the making of paper bags, while the small shops which they may open usually deal in cheap sweets, groceries, or tobacco. The male members of a family are mostly employed in various factories, but never in the same factories. The female members in their teens or early twenties contribute toward the support of the families by serving as maidservants.

The average age of the employees in the enamelled ironware industry is comparatively low, which implies that only a small number of them are legally and economically heads of families, and that the wages of one member of a family have little significance in the total income. According to one factory owner, it was this absence of individual responsibility on the part of the workers that made it possible for them to endure a strike which lasted six months and nearly bankrupted the factory.

v. *The employee and the labour union*

Only 30 per cent of the total number of employees who are regular workers in the large factories are members of the Labour Union. Partly because of this fact and partly because temporary employees and juvenile apprentices are easily available, the employees of small-scale factories are powerless against their employers so far as any bargaining is concerned.

The lack of foresight on the part of the employers in saving a portion of the profits made during the boom period, the appearance of new manufacturers intensifying the competition, and the consequent difficulty in earning a profit weakened the already poor financial condition of this industry. During the period of dull business activity the employers had to cope with several strikes when

they attempted to solve the problem by lowering wages, or when they were unable to pay their employees on time. Since there is no unbridgeable gulf in the social and financial position between employers and employees of medium- and small-scale factories, it is really to their mutual advantage to co-operate in the management. It is only by such concerted action that they can suppress unfair competition, increase profits, build up reserve funds, and compete against the stronger capital power of large-scale industry. Lately, there are factories where the employers have acknowledged the right of the workers to voice their opinions in the management and where the scheme is working out successful means for the co-operation of labour and capital. For example, there is a factory where the employer holds regular conferences with representatives of the employees (i.e. those that have been in employment for six months). These representatives are allowed at any time to negotiate not only with respect to labour conditions, but also with respect to the policy of general management of the factory. Some of the measures for reform suggested by the representatives are reported to have brought about an unanticipated degree of success. Supported by the labour union, they are also doing much in promoting co-operation with the employers; for example, by fighting money-lenders and succeeding in lowering rates of interest, and mediating in the case of disagreements among the directors of the factory.

vi. *Labour conditions*

Wages differ according to the size of the factories and to the type of work performed. In large factories which employ over 200 workers, those who do baking in the kiln (approximately 10 per cent of the total number of the workers in the factory) are generally paid ¥3.50 a day; enamel painters (approximately 10 per cent) from ¥1.70 to ¥2.00; and iron-sheet workers (approximately 10 per cent) from ¥2.00 to ¥3.00. The rates mentioned above are the wages for specialized workmen, and the day wages of unskilled labourers who are in the majority, are from ¥.80 to ¥1.30. The average per worker is therefore about ¥1.70. The wages of the female worker range from ¥.40 to ¥2.00, and her average income is about ¥.90. In medium- and small-scale factories the type of work done by specialized labour in large factories is undertaken by the factory owners themselves, or in the case of labour shortage,

by temporary employees; accordingly, the percentage of specialized labour is very low compared with that in the large-scale factories, and the wages on the whole are correspondingly low. The following is a brief summary of the peculiar characteristics of labour in medium- and small-scale establishments which will help the reader in understanding more clearly the difference between the conditions of these workers and the conditions which exist in large-scale plants or factories.

(a) Medium- and small-scale factory owners have recourse to an extra labour supply by temporarily employing the residents in the immediate vicinity of the factories. As no cost of travelling in coming to work is involved and as the work at the factory is in addition to their real work, these workers can easily be employed at cheaper wages.

(b) Small-scale industries are free from the influence of the Labour Union.

(c) The labour supply in medium- and small-scale factories is adaptable to the demand which fluctuates with conditions.

(d) Employees of medium- and small-scale establishments are comparatively young, and their period of employment is short.

Wages are paid either on a time basis or on the basis of the unit of work accomplished. Recently, the employers have shown a tendency to prefer the latter method. Generally, wages are paid in cash on the 15th and on the last day of the month. There are few instances where commodities are given in exchange for labour.

The working hours in large-scale factories are ordinarily ten a day, but in medium- and small-scale factories working hours are longer; however, while large factories provide for a fixed schedule of recess hours—30 minutes at lunch time, and 15 minutes in the morning and afternoon—the rest periods in small factories are longer and more frequent. Some factories close on Sundays, and others do so two days per month, on the 1st and the 15th, besides the national holidays, namely, the first three days of the New Year, and 'Bon' days (the mid-year days of fast in memory of the dead).

vii. *Recent wages*

An explanation of the recent increase in exports of Japanese enamelled ironware is to be sought in the fall in wages. Table 106

shows that every year from 1929 to 1933 saw a steady fall in wages per hour, with the fall in 1933 a noticeable one. The fall in wages during the depression of 1930-1931 would appear to be a natural phenomenon but the fall in wages from 1932 on, when the condition of business improved, is indeed an apparently abnormal situation. When the boom came there was a rapid increase in the number of workers. But most of them were quite young and almost unskilled, and naturally were low paid. In Japan beginners' wages are surprisingly low, and even at that time of prosperity beginners' wages were just as low as, if not lower than, those at the depth of the depression. Moreover, the situation was made worse by the superfluous supply of labour then existing. This remarkably low standard of wages seems to have lowered the average wage of all workers of this industry. From 1933 the wages gradually rose, and in 1934 all workers, except those newly employed, received an average rise of 10 per cent. The specialized workers received a 20 per cent increase. As the index figure of the general cost of living rose, but at the rate of 7 per cent, it can be said that the real wages of skilled workers were in fact raised.

4. RECENT IMPROVEMENT IN THE ORGANIZATION OF THE INDUSTRY

The necessity of co-operation among the owners of medium- and small-scale factories has been recognized for some time past, but because of the ephemeral existence of many of the factories, which appear and disappear in vast numbers, real co-operation has been very difficult. An institution to bring about better co-operation was established recently, and although it has not shown any noticeable achievement in the field of joint purchases of raw materials or in the sale of products, it has done much to control production.

The sudden decline in purchasing power during the depression of 1930 and 1931 was accompanied by a marked decrease in output and in its export value. Small enterprises were compelled to sell their goods at extremely low prices through the brokers. In 1931 a joint committee of officials and manufacturers was organized to promote the recovery of this industry and published the following resolutions which it promised to enforce immediately.

(a) The determination of specific spheres of production for various factories; the control of the supply in relation to the demand; and if necessary, the fixing of prices and the joint sale of products.

(b) The control of production stated above was to be applied first to goods for exportation, because of the ease in application.

(c) The Enamelled Ironware Manufacturers' Association was to be the executive organ for the administration or enforcement of these resolutions.

Although the agreements for prices and joint sales have not yet been realized, the production control, up to the present, has been enforced without any disagreement among the manufacturers. Other activities of the Association include the inspection of merchandise as well as the common manufacture of enamel glaze.

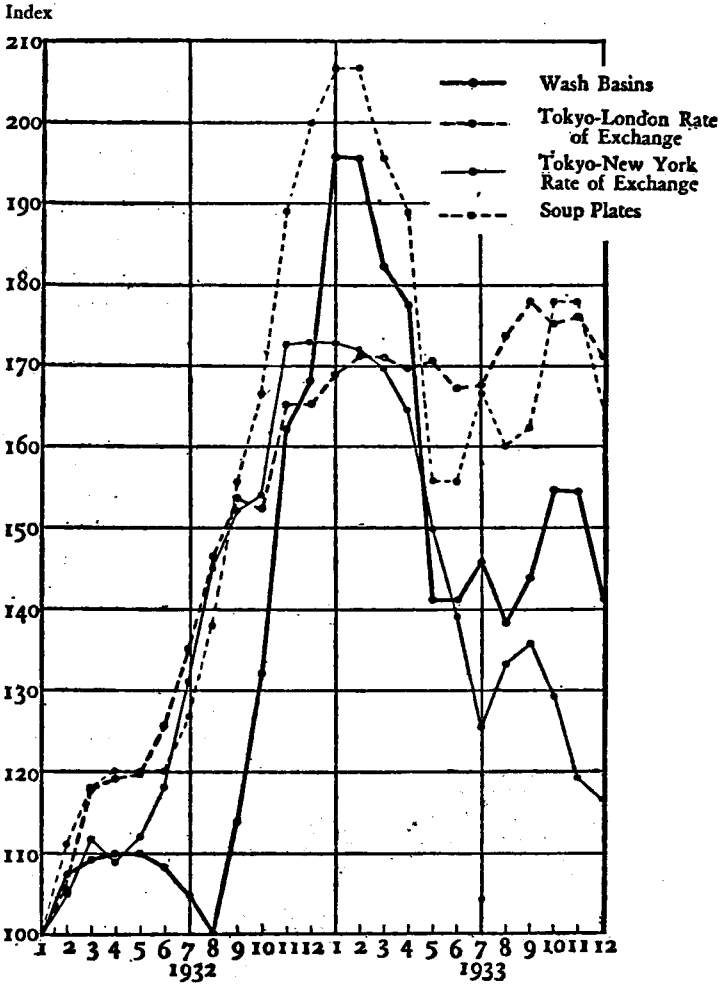
Results of production control

After the application of production control, the surplus accumulation of stocks diminished to a great extent, decreasing within two months from 5,000 packages to approximately 700. It may be said, thus, that control finally solved the problem of overproduction.

This control of production also freed manufacturers from the yoke of wholesalers who had hitherto occupied an important position in the disposal of goods. Until this time the wholesalers had taken advantage of the predicament of small manufacturers with surplus stock on hand and in need of working capital. They had furnished these manufacturers with orders from exporters, keeping the amount secret, had made purchases at prices below cost, and thus gained an immense profit. But, since the enforcement of control, the excess accumulation of finished goods has decreased, and even those manufacturers who had to resort to the sale of products for their working capital have come into possession of a certain amount of reserve capital. Exploitation by the wholesalers has been further minimized by the manufacturers' dealing direct with exporters.

Before production control, a standard price of enamelled ironware did not exist—prices were subject to the financial condition of the manufacturers, who were in turn dependent on wholesalers in this matter; but under the newly adopted control system a standard price has been established and the market price stabilized.

DIAGRAM 65. INDEX NUMBERS OF PRICES OF ENAMELLED IRON GOODS AND OF FOREIGN EXCHANGES (1932-1933)



Price indices are based on the figures of the Japan Federation of Enamelled Ironware Manufacturers' Associations. In the years 1934-36 no great changes occurred in the yen-dollar or yen-sterling exchange rates or in the prices of enamelled ironware.

5. RECENT INCREASE IN EXPORTATION AND ITS FACTORS

As stated in the previous section, exports of enamelled ironware increased immensely after the re-imposition of the gold embargo, due to the fact that production costs in the main remained almost the same while the exchange value of the yen was falling. The price of sheet iron, which accounts for 40 per cent of production costs, rose nearly 30 per cent, but other expenses, such as the costs of those materials which are chiefly produced in Japan, labour and motive power, and other miscellaneous expenses did not change. On the other hand, the market price of enamelled iron-goods, stimulated by production control, went up at the same rate as the value of the yen fell (see Diagram 65). Direct transactions with exporters, however, enabled the manufacturers to gain sufficient profits by doing away with a considerable part of the costs of exportation even in the face of a rising market.

We may say in conclusion that the increase in enamelled ironware exports is due, on the one hand, to the favourable condition of the exchange rate, and, on the other, to the success in production control and hence the improvement in organization in the industry.

CHAPTER VIII

THE ELECTRIC LAMP INDUSTRY¹

I. INTRODUCTION

THE first electric lamp manufacturing company in Japan, Hakunetsu-sha, was established in 1890 in Tokyo with a capital of ¥ 50,000. In those days almost the entire Japanese demand for electric lamps was met by imports from Germany.

In 1905, the General Electric Company in America, which was seeking a new market in the Far East, absorbed the above-mentioned establishment as its initial step in organizing a new company, the Tokyo Electric Company, Ltd. (Mazda Lamp). The next year it succeeded in placing the Osaka Electric Lamp Company under its control. Thus it made its debut in the lamp manufacturing field of Japan with its large capital and superior technique, and, on the other hand, gave an impetus to the electric lamp industry in the country. But before the World War the demand remained amply covered by the German-made lamps. With the outbreak of the World War imports from Germany ceased completely, and there occurred a sudden increase in the demand for home-made articles. In addition, foreign orders, especially Russian orders, poured into Japan. The electric lamp manufacturing industry has since made rapid strides. The Tokyo Electric Company was enlarged and brought up to date, and many manufacturers began to make so-called 'home-made' electric lamps. (The term 'home-made' is not generally applied to the manufactures of the Tokyo Electric Company, which is chiefly controlled by the capital of the General Electric Company.)

The Tokyo Electric Company accumulated enormous profits, increasing its capital continually in the course of the war boom; and

¹ No thorough-going survey has yet been made of the electric lamp manufacturing industry in Japan. The available materials for the study of this industry, especially for the smaller-scale factories, are therefore very meagre. Furthermore, the highly complicated organization of this industry adds to the difficulty of making a comprehensive detailed examination of the whole field. We are, therefore, given no choice except to confine our endeavours to indicating merely the bare outlines and tendencies of the industry.

when the post-war depression came on, it seized the opportunity for bringing under its control many other electric lamp manufacturing companies. It is now the outstanding concern in this industry with capital of ¥39,500,000 and assets of ¥130,000,000, and exercises a strong influence on a large number of affiliated or subsidiary companies. At the same time, the increase in the Japanese demand and of the export trade afforded a chance for the 'home-made' lamp manufacturers to make notable progress. Their progress was especially remarkable after 1927 when the General Electric Company's patent on the tungsten filament expired. And after the re-imposition of the gold embargo in 1931, the export of electric lamps increased so rapidly that it attracted world-wide attention. At present they are one of the principal exports of Japan.

TABLE 107. RECENT EXPORTS OF JAPANESE ELECTRIC LAMPS (1928-1936)

	Miniature Lamps				House Lamps and others		Total	
	For Decoration		For automobiles, etc.		Quantity	Value	Quantity	Value
	Quantity	Value	Quantity	Value				
	gross	yen	gross	yen	gross	yen	gross	yen
1928	—	—	—	—	—	—	460,475	4,532,561
1929	—	—	—	—	—	—	671,938	5,399,977
1930	—	—	—	—	—	—	705,527	5,316,098
1931	—	—	—	—	—	—	1,051,895	5,874,996
1932	—	—	—	—	—	—	1,898,995	10,187,497
1933	—	—	—	—	—	—	1,891,842	10,167,105
1934	359,609	1,559,750	729,499	1,874,403	482,968	5,507,906	1,572,076	8,942,058
1935	407,522	2,185,024	655,539	1,840,286	283,893	3,611,242	1,346,954	7,636,522
1936 ¹	952,890	3,867,281	894,125	2,113,221	334,721	3,866,904	2,181,736	9,847,406

¹ The sudden increase in 1936 is due chiefly to the increased exports of decoration lamps to Great Britain for the Coronations, and partly to the increased exports of Christmas decoration lamps to the United States owing to favourable business conditions.

Based on *Monthly Returns of Japan's Foreign Trade*.

2. MAIN CLASSES OF MANUFACTURERS

The electric lamp manufacturing industry in Japan consists of the Tokyo Electric Company on the one hand and the so-called 'home-made' electric lamp manufacturers on the other. The latter group can be subdivided into two classes, namely, the 'standard'

electric lamp manufacturing companies (large-scale) and the 'town manufacturers' (small-scale).

i. *The Tokyo Electric Company, Limited*

The Tokyo Electric Company, with its numerous patents and highly mechanized up-to-date factories, manufactures almost all materials and makes the complete lamps within its own factories. In other words, it carries on its manufacturing on a self-sufficient scale. It has, moreover, a modern laboratory where the manufactures are being constantly improved, and hence its lamps excel the 'home-made' articles in quality. It manufactures high quality articles such as high-class house lamps, röntgen tubes, radio vacuum tubes, etc. By agreement with the General Electric Company of America, the Tokyo Electric Company does not export its manufactures to overseas markets, except Manchoukuo, China, and the South Sea countries. Its manufactures are mainly sold to electric lighting companies and government offices in Japan.

ii. *'Home-made' electric lamp manufacturers*

The capital of the 'home-made' lamp manufacturers is generally small. Processes of manufacturing are divided among different factories, all of which are absolutely independent of each other, and possess their own capital.

(a) *'Standard' electric lamp companies*

Of the 'homemade' electric lamp manufacturers, eleven large companies are generally known as the 'standard' electric lamp companies. Their combined capital amounts to ¥ 8,280,000. They have organized a cartel, and each company manufactures standardized articles in accordance with a specification adopted by the cartel. Hence, the appellation 'standard' companies. The 'home-made' electric lamp manufacturing, especially the 'standard' lamp manufacturing, has, as mentioned above, made remarkable progress following the expiration of the patent held by the General Electric on the tungsten filament. The factories of 'standard' companies have now been mechanized to a great extent and the method of production has been highly improved, so much so that we meet with such statements as the following:

From the technical standpoint, although the buildings are of wood and modest in appearance, the factory is well organized and the conditions of work of its 223 workers (50 men and 173 women) are equal to Western conditions.²

Their main product is the house lamp, but most of them are already manufacturing higher grade articles, such as radio vacuum tubes, etc. The market for these 'standard' electric lamps is mainly in Japan Proper. The greater percentage of this home demand is from electric lighting companies; government offices, and large business houses. Therefore, the competition with the Tokyo Electric Company is very keen.

(b) *'Town' electric lamp manufacturers*

By 'town' lamp manufacturers, we mean the manufacturers with small-scale factories or workshops, scattered in the working districts of large industrial towns. The equipment employed is still in a very primitive stage, falling far behind the above-mentioned two groups of manufacturers. The Tokyo Electric Company and many of the 'standard' companies have mechanized their whole process of production; in the case of the small-scale 'town' manufacturers only a few processes are carried on by second-hand machines and the rest entirely by hand. These manufacturers have no laboratories, and in extreme cases there are manufacturers who have no equipment for conditioning the lamps produced. They are engaged in manufacturing solely on their own experience. It is natural that their products should lack uniformity and often be found to be of inferior quality.

Of late years, they have manufactured articles almost solely for overseas markets, though some of them are engaged in manufacturing for the home market. The better small-scale factories receive orders direct from electric lighting companies, but they usually sell their goods to merchants. Due to the rapid increase in the demand for ornamental lamps for temporary use, a considerable number of these cheap electric lamps made by small manufacturers have lately appeared on the market.

The products of these small factories are chiefly miniature lamps such as flashlight bulbs, automobile light bulbs, and Christmas decoration lamps. Thus the goods produced by the small-scale 'town' manufacturers and the large companies are different.

² F. Maurette, *Social Aspects of Industrial Development in Japan*, 1934, p. 17.

The Tokyo Electric Company manufactures almost all the materials and parts, such as bulbs, leading wires, bases, filaments, paper boxes, and chemicals in its own factories. The 'home-made' manufacturers, including most of the 'standard' companies as well as small-scale manufacturers, buy these parts from other factories.

The number of factories manufacturing materials and parts for electric lamps in Tokyo in 1933 is shown in Table 108.

TABLE 108. TOKYO LAMP FACTORIES PRODUCING MATERIALS AND PARTS (1933)

	Number of factories	Number of workers	Female workers: percentage of all workers
Bulb-glass factories	25	1,800	25
Base factories	20	400	30
Filament factories	4	300	60
Leading wires factories	7	200	95
Wooden box and paper box factories	23	600	—

3. MAIN FEATURES OF SMALL-SCALE MANUFACTURING

Most electric lamps exported are produced in small factories and workshops. Although, as already observed, the factories of the Tokyo Electric Company and the 'standard' lamp companies are equal to any factory in Europe or America, the conditions of the small factories and workshops, which form the basis for the recent export increase, are by no means satisfactory. Let us now examine the conditions of these small-scale factories and workshops.

There are two types of 'town' electric lamp manufacturers. Some manufacturers carry on their work in their homes either by themselves or with the help of members of their families, while others do it under the factory system, even though on a very small scale. Domestic lamp production was started as a subsidiary occupation before the World War and it has grown more and more prosperous till it has become what it is to-day. Nevertheless it still remains a handicraft. The 'town factories', so-called to distinguish them from the large-scale producers, appeared after the World War, and have made rapid progress since the termination of the General Electric Company's patent on tungsten filaments. At first their

chief business was to meet home consumption, but with the recent growth of the demand from abroad one manufacturer after another has changed to manufacturing for export purposes.

Most of the small 'town' electric lamp manufacturers are skilled labourers thrown out of work by the introduction of automatic machines into the factories of the Tokyo Electric Company and the other large 'standard' manufacturing companies during the war boom. These small-scale factories and workshops, therefore, have sprung up mainly in the southwestern part of the city of Tokyo, the district where most of the factory workers of the above-mentioned electric lamp companies live. Before the World War there had existed a number of factories in this part of the city as so-called 'outside' factories of the Tokyo Electric Company, engaged in the manufacture of materials and parts of electric lamps. After the World War, the Tokyo Electric Company completed its programme of supplying its own materials, and these small factories lost their connections with the Tokyo Electric Company. They began to supply materials and parts to the small manufacturers who were just beginning to spring up. Thus this section of the city came to be an electric lamp manufacturing quarter, including every branch of lamp manufacturing. Since then, this quarter of the city has always been prosperous, with the advantages of abundant cheap labour, a convenient supply of gas, and proximity to Yokohama. Now more than 90 per cent of the electric lamps for export purposes are manufactured in this quarter, although a few small 'town' electric lamp manufacturers for export are to be found in Osaka, and of late years in Korea.

Except for a few of the larger and better 'town factories', these small manufacturers produce only the small-sized lamps, such as fancy bulbs, flashlight bulbs, automobile lamps, etc., and do not manufacture house lamps. Automobile bulbs and those for decoration are chiefly produced in 'town factories,' and a large number of family manufacturers are generally engaged in making miniature lamps such as flashlight bulbs, miniature fancy bulbs, etc. In the matter of equipment and of technique, these 'town factories' and family workshops are much inferior to the large factories. The process of flashlight bulb manufacture especially is so simple that no machine is needed and a few makers are manufacturing bulbs by hand with only one gas-burner in their kitchens.

TABLE 109. NUMBER OF FACTORIES AND WORKERS IN THE ELECTRIC LAMP INDUSTRY ACCORDING TO NUMBER OF WORKERS PER FACTORY (1928-1935)

Factories according to number of workers employed		1928	1929	1930	1931	1932	1933	1934	1935	1932 (A)
5-9 Workers	(a) Number of factories	32	40	38	52	77	87	106	84	63
	(b) Workers	220	243	251	340	518	536	550	522	401(101)
	(c) of which women	97	107	90	120	185	206	208	209	158 (40)
10-14	(a)	13	16	26	31	84	83	69	69	62
	(b)	170	192	300	344	1,026	948	742	763	731(130)
	(c)	54	74	126	135	405	372	306	334	316 (52)
15-29	(a)	25	22	34	50	83	83	73	93	91
	(b)	496	452	688	1,000	1,570	1,626	1,365	1,755	1,770(158)
	(c)	266	225	335	494	725	740	660	856	851 (70)
30-49	(a)	15	12	16	16	28	30	25	13	42
	(b)	542	467	654	633	1,086	1,129	881	481	1,575 (61)
	(c)	292	229	355	360	572	647	503	279	734 (27)
50-99	(a)	9	13	9	10	19	15	7	9	23
	(b)	672	977	643	712	1,405	1,006	477	607	1,445 (7)
	(c)	379	521	404	391	847	622	313	432	748 (3)
Total: 5 and under 100 workers	(a)	94	103	123	159	291	298	280	268	281
	(b)	2,100	2,331	2,536	3,029	5,605	5,245	4,015	4,128	5,922(457)
	(c)	1,088	1,156	1,310	1,500	2,734	2,587	1,990	2,110	2,807(192)
100-499	(a)	10	6	4	6	9	11	12	10	* 16
	(b)	1,600	1,056	601	919	1,300	1,523	1,406	1,443	4,521 (2)
	(c)	898	738	417	603	767	1,027	983	1,027	2,167 (-)
500 and over	(a)	1	1	1	1	1	1	1	1	include
	(b)	1,355	1,405	1,622	1,828	2,218	2,947	3,546	3,406	in *
	(c)	573	551	716	856	1,002	1,295	1,412	1,450	above
Total	(a)	105	110	128	166	301	310	293	279	297
	(b)	5,055	4,792	4,759	5,776	9,123	9,715	8,967	8,977	10,443(459)
	(c)	2,559	2,445	2,443	2,959	4,503	4,909	4,385	4,587	4,974(192)

Based on *Factory Statistics*. Column (A) calculated from the Ministry of Commerce and Industry's *Survey of the Business Conditions of Industry*, Vol. 5, The Electric Lamp Industry. *Factory Statistics* includes factories with five and more workers, and so it shows fairly well the development of the group of 'Town factories' if we exclude factories with 100 and more workers, which are entirely 'standard' or 'Tokyo Electric' factories (See: Total, five and under 100 workers). Column (A) includes factories with three and more workers. Figures in parentheses show family workers.

The pivot of the small-scale 'town' electric lamp manufacturing system is the middleman or merchant employer. The small-scale 'town factories' or family workshops are in fact nothing but workshops under the direct or indirect control of these merchants. The merchants, accepting orders from the exporters in Yokohama, buy the materials from the manufacturers and put them out to these small factories or workshops. When the articles are completed they are again collected by the merchants and sent to the exporters. The relation between the merchant employers and these small 'town factories' is sometimes nothing but that of buyer and seller, but usually the latter may be called mere outworkers who receive piece-wages for working for the former. Small 'town' manufacturers very often get advances from the merchants, and thus fall under their control. Some of them are entirely dependent on the merchants, who provide them with their living expenses, factories, machines, materials and workers' wages. Of late years, there has been a tendency among the comparatively large 'town factories' to come into direct contact with the exporters, discarding the intermediate merchants. But these factories have not enough productive capacity to meet orders with their own equipment; hence orders are again put out to the smaller manufacturers round them. It cannot be denied that these factories are to some extent under the financial control of the exporters, or that the smaller producers are apt to be under the control of the larger ones. The relation between the domestic manufacturers of flashlight bulbs and merchant employers is much more intimate. These manufacturers are financially as well as morally under the control of the merchants, often borrowing money from them in case of birth, death, illness, etc.

No dependable survey of the number of these small-scale 'town' manufacturers has yet been made. In fact, their rise and fall are so frequent that it is almost impossible to know the precise number at any given time. It is said, however, that the number of 'town factories' with five or more workers is about 300, and that they employ between 6,000 and 7,000 persons. Female workers form 50 to 60 per cent of this total. Most of the small-scale 'town factories' employ fewer than 30 workers, and the factories with fewer than 15 workers form 50 per cent of the factories. If we add the number of factories with 15 to 29 workers, the percentage rises as high as 90 (Table 109). If we classify the factories according to the amount

of their capital, factories with a capital of less than ¥ 1,000 form 22 per cent of the total. Factories with less than ¥5,000 capital constitute 64 per cent of the total (Table 110).

TABLE 110. NUMBER OF FACTORIES CLASSIFIED ACCORDING TO THEIR CAPITAL (1932)

Factories classified according to their capital	Under ¥500	¥500 & under ¥1,000	¥1,000 & under ¥2,000	¥2,000 & under ¥3,000	¥3,000 & under ¥5,000	¥5,000 & under ¥10,000	¥10,000 & under ¥30,000	¥30,000 & upwards
Number	25	40	68	33	26	34	36	35
Percentage of total number	8.4	13.5	22.9	11.1	8.8	11.4	12.1	11.8

Based on *Survey of Business Conditions of Industry*, Vol. 5.

The foregoing figures are of 'town factories' with five or more workers. But, as mentioned above, there are numerous family manufacturers engaged in miniature lamp manufacturing. Most of them have no capital, or equipment of any notable kind; so that it is almost impossible to calculate their precise number. The estimated number of family workshops, however, is about 1,500 in Tokyo alone. According to estimates of the Tokyo Export Electric Lamp Manufacturers' Association in 1932 the number of their workers was approximately 5,500. These family manufacturers are of two kinds: (a) small workshops with members of the family and sometimes one or two workers living in, (b) manufacturing carried on by only one or two persons as a supplementary occupation.

According to the calculations of the Tokyo Export Electric Lamp Manufacturers' Association, the output of lamps of the small-scale 'town factories' in 1932 amounted to 93,500,000 pieces (mainly bulbs for decoration and automobiles), and that of the family manufacturers to 160 million pieces (miniature lamps, such as flashlight bulbs and miniature fancy bulbs for Christmas decoration).

4. BUSINESS CONDITIONS OF SMALL-SCALE MANUFACTURERS

The 'town' or small-scale electric lamp manufacturing industry owes its existence almost entirely to the export trade; and fluctuations in the export trade quickly affect its business conditions. Since

the re-imposition of the gold embargo in December, 1931, the export of electric lamps has increased enormously and therefore new 'town factories' were established in vast numbers (see Table 109). Far more noteworthy was the increase in the number of family or domestic manufacturers. Such a sudden, unsound increase in the number of small manufacturers naturally brought about keen competition among them and resulted in the abnormal cutting of lamp prices. During the winter months of each year, from November to February, exports of electric lamps are usually very dull. In this period small manufacturers are usually compelled to make drastic efforts to secure whatever orders they can possibly get, and the inevitable result is the extremely low price of their goods. Under conditions of keen competition the price, once lowered, cannot easily be raised to the earlier level, and accordingly, the price has become lower and lower, as is shown in Table III. The fall in the index number is partly due to the relative increase of the numbers of miniature bulbs exported.

For instance, the price of flashlight bulbs, which form the bulk of lamp exports, dropped from 5.0 to 5.6 *sen* to 1.0 to 1.1 *sen* per piece in the course of five years, 1930 to 1934. During the same period the price of house lamps was reduced by 40 to 50 per cent, the wholesale price of ordinary 'town' house lamps of 100 *v.* being as low as six *sen*, that of gas-lamps about eight to ten *sen*; all of them about one-third of the prices of the same kind of manufactures produced by the Tokyo Electric Company.

TABLE III. INDEX NUMBER OF THE AVERAGE EXPORT PRICE OF ELECTRIC LAMPS (1929-1936) (1929 = 100)

	1929	1930	1931	1932	1933	1934	1935	1936
Index . . .	100.0	93.7	69.5	66.9	65.8	62.8	70.3	45.1

Based on *Monthly Returns of Japan's Foreign Trade*.

Such reduction in the price was partly due to the marked improvement of technique and the increased efficiency coming from the mechanization of factories, but the chief factor was the rapid and unreasonable increase in the number of small manufacturers and their cut-throat competition. Small-scale lamp manufacturing,

TABLE 112. CLASSIFICATION OF AVERAGE INCOME, EXPENDITURES
AND PROFIT PER FACTORY (1932)

Factories according to number of workers	Number of factories	(A) Income	(B) Expenditure	Percentages of Total Expenditure								(C) profit (A-B)	Rate of profit C B	
				Raw material	Light & power	Wage	Taxes	Repairs and depreciation	Rent	Pay for outside piece-workers	Other expenditure			
		yen	yen	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	yen	per cent
Domestic	4	1,449	844	71.1	16.3	1.8	0.4	0.9	—	2.2	7.3	605	71.7	
3-4 Workers	5	4,485	3,943	51.7	5.4	22.5	0.5	1.0	—	12.9	6.0	532	13.5	
5-6 "	21	5,611	5,024	54.0	7.0	18.7	0.6	3.1	2.0	6.2	8.4	587	11.7	
7-9 "	33	6,645	5,674	54.4	7.2	27.1	0.8	3.0	0.5	1.1	5.9	971	17.1	
10-14 "	62	12,192	10,975	63.9	5.9	24.3	0.5	1.1	0.2	0.8	3.3	1,217	11.1	
15-29 "	91	21,213	19,555	61.4	5.9	23.6	0.5	1.5	0.4	2.6	4.1	1,658	8.5	
30-49 "	42	55,330	52,149	58.3	6.0	20.1	0.3	1.6	0.4	3.6	9.7	3,181	6.1	
50-99 "	23	138,460	129,592	57.0	5.5	19.9	0.4	4.1	1.8	1.7	9.6	8,868	6.8	
100 & upwards	16	221,424	216,859	66.3	2.5	8.6	0.2	0.8	2.9	9.0	9.7	4,565	2.1	

Based on the Ministry of Commerce and Industry's *Survey of the Business Conditions of Industry*, Vol. 5. The Electric Lamp Industry, 1934.

especially miniature lamp manufacturing, can be started with an extremely small capital, or sometimes with practically none at all, for the merchant employers will advance the necessary funds, and the requisite knowledge and technique for opening a small workshop are also so simple that they can easily be acquired in a very short time. In the case of flashlight bulbs, as mentioned in the last section, they can be manufactured with no other equipment and technique than a single gas-burner in the man's own kitchen. Hence, whenever business shows any slight sign of prosperity, there arises the abnormal increase of small workshops and accordingly extreme over-production, which inevitably cuts down the price so much as to cause trouble for the Japan-made electric lamps in some overseas markets. Such abuses have been eliminated to some extent during recent years by the control measures which will be described later.

Let us now examine the business conditions of these small manufacturers, especially the conditions of cut-throat competition. It is a very difficult task to analyse their business conditions precisely, for most of them do not keep books. In 1932, the Ministry of Commerce and Industry made a general survey of the actual conditions of the electric lamp manufacturing industry in Japan. Its results are shown in Table 112, which indicates the items of production costs, annual income, and the balance between profit and loss in various factories classified according to the number of workers employed. Judging from results, the smaller workshops seem to be the more profitable, but the item 'expenditure' in this table does not include labour costs or living expenses of family workers. The 'profit' is therefore not a profit in the strict sense of the word, as it includes the living expenses of the workshop-owner and his family. Taking this fact into consideration, the so-called 'profit' in small workshops barely covers the owners' minimum living expenses.

The foregoing depicts the conditions of this manufacturing industry somewhere about 1932, when trade was still increasing. After 1933, when the export of electric lamps came to a standstill, competition among manufacturers grew keener, and all the small manufacturers found themselves in extreme difficulties with very little prospect of improvement. It is interesting, however, to notice that most of the factories that closed down were chiefly medium-scale 'town factories,' especially the bulb-glass manufacturing plants with

comparatively large fixed capital. Very few of the small-scale and family workshops actually went out of business, for the greater number of them were able to tide themselves over the difficult straits by reducing wages and living expenses to the utmost minimum. The competitive strength of small manufacturers in times of business depression is indeed a matter for amazement, and their elasticity, flexibility, and adaptability to changing conditions are far beyond anything that we could imagine.

In short, 'town' electric lamp manufacturing, whether in a 'town factory' or family workshop, is far from being a modern capitalist enterprise, seeking capitalist profit, but is merely an occupation for earning minimum family living expenses. Consequently, small manufacturers are compelled to reduce their elastic living expenses to the utmost so long as they do not wish to change their occupation. This is the chief reason why they are able to make and, sometimes, increase their 'profit' even in times of serious depression. The continual reduction of the price of lamps, which rose to some extent in 1935 owing to control measures, is also to be explained by this characteristic of small manufacturers.

The constituents in the cost of electric lamps are as set forth in Table 113.

TABLE 113. CONSTITUENTS IN THE COST OF ELECTRIC LAMPS (1932)

(House lamp. 120 v. 60 w., per 100 pieces)

	Raw materials						Overhead charges				Other costs			
	Bulb-glass	Filaments	Base	Leading wires	Other materials	Total	Wage	Electric light & power	Depreciation	Total	Packing	Freight	Selling expenses	Total
Value (<i>sen</i>)	120	65	60	64	20	329	70	27	16	113	58	5	23	86
Per cent	22.9	12.3	11.4	12.2	3.8	62.6	13.5	5.1	3.1	21.7	11.2	0.1	4.4	15.7

Based on calculations made by the Tokyo Electric Lamp Manufacturers' Association for Export.

5. LABOUR CONDITIONS

Perhaps clever readers may have already seen through the mass of detail to the working conditions in these small-scale factories or workshops. The conditions of workers in the 'town' electric lamp manufacturing industry, we fear, represent the darkest side of the Japanese industrial labour situation.

The conditions of the workers in small factories or workshops are quite different from those in an up-to-date, modern factory. As regards domestic workshops, the workers are usually members of the family, and even if there are some non-family workers, they live in the employers' houses and are treated like members of the family. Also in the 'town factories,' which are more or less under the factory system, the interests of workers seldom conflict with those of their employers, contrary to the usual case in larger factories. The workers stand generally in the same position as their employers—against the merchant employers. Under such circumstances, depression always forces the workers to lower their own standard of living, rather than threatening them in the form of unemployment. The reasons are as follows:

Owing to the lack of organization among the numerous small manufacturers and their extremely weak position with the merchants, they cannot raise the prices of their products by means of regulating their volume of production. On the contrary, they always strive, competing against each other, to increase their production in order to make up for their diminished income due to the lowered price of their manufactures. With this end in view, those small manufacturers whose technical level is exceedingly low, have no other means than resorting to lengthening their hours of work and lowering the workers' wages as well as their own standard of living. In such cases the workers, instead of struggling against their employers, are usually obliged to acquiesce in the lowering of their own wages and consequently of their standard of living in order to maintain their livelihood. A typical instance was seen at the time of the depression in 1934, when about 1,200 workers engaged in bulb-glass manufacturing were faced with unemployment. The labour union at that time, instead of going on strike, proposed a lowering of the wages of its own accord.

The workers in the 'town factories' come into the trade generally through family connections or through personal acquaintances.

Their educational standard is usually low. In the Tokyo Electric Company and the 'standard' companies, most of the workers are graduates of senior primary schools (eight year course), while the workers in small factories are usually graduates of the ordinary primary school (six year course). Female workers have greatly increased of late years; and their proportion of the total is as high as 50 per cent. The commonest ages of workers are 15 to 19 years, accounting for 50 per cent of all workers in lamp factories in Tokyo (Table 114). In the domestic manufacture of flashlight bulbs there are few wage-workers, and in this phase of manufacturing the number of Korean manufacturers has recently begun to increase on account of the cheapness of their labour.

TABLE 114. AGES OF WORKERS IN ELECTRIC LAMP FACTORIES, TOKYO (1933)

		Workers in Age Groups of:										60	
		11-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	years	
		years	years	years	years	years	years	years	years	years	years	and	
												over	
Per cent	M.	12.8	43.1	21.5	10.2	7.0	2.0	1.4	1.0	0.6	0.3	0.1	100.0
	F.	19.3	53.7	19.1	3.9	1.8	1.0	0.6	0.4	0.1	0.1	—	100.0

Total number of males, 1,257; total number of females, 1,809.

Survey of Labour Statistics, Tokyo City. Includes only factories with 30 workers and upwards.

Working hours in 'town factories' are usually longer than in larger ones. In the Tokyo Electric Company and other 'standard' factories an eight or nine hour system is adopted. The usual practice in 'town factories' is to employ a ten hour system, including a recess of about 45 minutes; and the first and third Sundays in every month are holidays. But in those 'town factories,' which owe their output entirely to orders from merchants, the above-mentioned practice is occasionally broken when an excess amount of orders suddenly falls to them. Working hours in domestic manufacture are extremely irregular, and it therefore has an amazing elasticity according to changing conditions.

Among the 'town factories' the form of wages differs. It is, however, a common practice to apply both a time-wage and piece-wage, side by side. Most of the 'standard' factories and the Tokyo Electric Company usually apply the time-wage system. In 1934, average daily earnings per worker were as follows:

TABLE 115. DAILY WAGES OF WORKERS IN ELECTRIC LAMP FACTORIES, (1934)

		'Town factory'	Standard factory	Tokyo Electric Company
Male	Apprentice	35- 40 sen	55- 65 sen	Kawasaki factory <i>Average of all Workers—106 sen.</i>
	Ordinary worker	70-100 sen	80-120 sen	
	Skilled worker	110-130 sen	130-150 sen (Maximum 300 sen)	Himeji factory Male workers <i>Averaged—86 sen</i>
Female	Apprentice	30- 40 sen	40- 50 sen	Female workers <i>Averaged—56 sen.</i>
	Skilled worker	70- 90 sen	80-100 sen (Maximum 140 sen)	

Earnings classified according to the scale of factories are shown in Table 116.

TABLE 116. AVERAGE ANNUAL EARNINGS PER WORKER (1932)

Earnings in yen	Factories Employing:						
	3-4 workers	5-6 workers	7-9 workers	10-14 workers	15-29 workers	30-49 workers	50-99 workers
	276.9	231.7	242.4	270.8	256.4	287.7	368.4

Based on *Survey of Business Conditions of Industry*, Vol. 5.

Workers in the domestic manufacturing of flashlight bulbs generally receive piece-wages. An ordinary family worker receives 60-70 *sen* per 1,000 pieces of flashlight bulbs from the merchant employer, and a skilled worker who manufactures 1,500 pieces a day, earns 120-130 *sen*. Apprentices who live in are given pocket-money of ¥ 5 to ¥ 7 a month. The above are the wages of 1934 and 1935. Compared with those of 1929, the wages of skilled workers in the 'standard' factories have fallen from ¥ 2.50-¥ 3.00 to ¥ 1.30-¥ 1.50 per day, and the piece-wages of domestic manufacturers of 15 mm. flashlight bulbs from 4 *sen* to 0.95 *sen* per piece. Table 117 shows

the index numbers of wages and working hours in the 'town factories' in Tokyo. In its first stage, in 1929-1930, the increase of production was chiefly the result of the lengthening of working hours and later, after 1931, of the increased number of workers. Meantime, the wages per worker as well as per hour had continued to fall on account of the ever keener competition among manufacturers. But since 1934 the tendency of working conditions has been checked, chiefly by the control measures which have begun to prevail to some extent among manufactures.

TABLE 117. INDEX NUMBERS OF WORKING HOURS AND WAGES IN TOKYO LAMP FACTORIES (1929-1935)

	Aggregates for whole year			Per worker		Per working hour
	Working hours	Wages	Average number of workers	Working hours	Wages	Wages
	(A)	(B)	(C)	$\frac{A}{C}$	$\frac{B}{C}$	$\frac{B}{A}$
1929	100.0	100.0	100.0	100.0	100.0	100.0
1930	101.3	52.6	93.5	108.3	56.3	51.9
1931	113.2	49.8	125.7	90.1	39.6	44.0
1932	219.8	74.7	224.3	98.0	33.3	34.0
1933	230.1	73.1	222.8	103.3	32.8	31.8
1934	197.5	70.8	168.6	117.1	42.0	35.8
1935	197.6	64.7	178.9	110.5	36.2	32.7

Based on *Factory Statistics*.

'Town factories' seldom pay extra allowances for night work, and very few of them have anything like the retiring allowance system which is to be found in the larger factories. Only a few excellent 'town factories' have an arrangement for their workers to lay aside part of their wages, so that they may be paid back when they retire, with an addition of a special bonus in cases of regular attendance. According to the traditional custom in Japan, however, every small factory or family workshop usually allows a bonus twice a year, viz., in June and December. Few other arrangements to promote the welfare of the workers are found as yet.

For lack of available material, we cannot go into detail with regard to the factories that produce other lamp-parts. We are told, however, that their conditions are about the same as those of the foregoing 'town factories.'

6. CONTROL IN SMALL-SCALE ELECTRIC LAMP MANUFACTURING

The foregoing survey of small-scale electric lamp manufacturing in Japan gives rise to a serious problem which may deserve further consideration, that is, the problem of the extreme lack of organization in this field. Nominally speaking, there are several organizations in this industry. The merchant employers or middlemen form the Electric Lamp Manufacturers' Association for Export, which with the association of the 'standard' electric lamp companies forms the Japanese Federation of Electric Lamp Manufacturers' Associations. The 'town factory' owners are organized into the Home-made Electric Lamp Manufacturing Association, and over these various associations presides the Japanese Electric Lamp Society. Thus the 'town' electric lamp manufacturing industry is apparently highly organized over the whole field.

But the fact is, as we have already observed, that competition among the small manufacturers is extremely keen, on account of their entire dependence upon a comparatively smaller number of merchant employers. In 'town' manufacture moreover, every process of manufacturing is carried on quite independently by different factories or workshops, so that there is perpetual friction between these different branches of the industry.

Similar friction is seen between the exporters and the merchants or middlemen, and it has become all the more keen since direct transactions between manufacturers and exporters began to prevail. The result has been more serious competition among merchants in lowering the selling price of electric lamps, which in turn has lowered the conditions of small manufacturers. The control, therefore, of 'town' electric lamp manufacturing is extremely difficult.

The Electric Lamp Manufacturers' Association for Export, which is the predominant organization in 'town' lamp manufacturing and which is organized exclusively by merchants or middlemen, sought to avoid these evils from their own standpoint. At first, it attempted to make an agreement on the selling price of electric lamps. This attempt, however, proved far from successful owing to the constant violations of the contract not only by those manufacturers who traded direct with exporters, but also sometimes by the merchants themselves. The association then set up an inspection system for

export lamps in December of 1932, which also turned out to be inefficient because of the lack of coercive authority; the exporters soon beginning to purchase uninspected articles at cheap prices.

At length, in order to release the industry from such chaos the Japanese Ministry of Commerce and Industry granted the Japanese Union of Electric Lamp Manufacturers' Associations the right of compelling the inspection of all electric lamps for export, pursuant to Article VIII of the Manufacturers' Association Act in November, 1933. The union then fixed an inspection fee of 0.3 *sen* for an ordinary house lamp, and 0.05 *sen* per piece for flashlight bulbs, etc. It also tried to reduce the number of outsiders by forcing them to pay an inspection charge eight times the above. Further, it decided to raise the selling price by 30 per cent. Violators, however, still continued to appear for some time till at last, in October of 1934, the Ministry of Commerce and Industry invested the above union with the exclusive selling right of electric lamps for export in Japan Proper. This privilege meant the actual monopoly of the selling right by the merchants and destroyed the direct connections between manufacturers and exporters, which had already prevailed to some extent. As the union on which the exclusive selling right was bestowed was that of the merchants and 'standard' companies and excluded the small manufacturers, the small manufacturers began to export their articles via Korea. Some of them ventured to move their factories to Korea, which is outside the sphere of the union's rights of inspection and exclusive sales. Meanwhile, they did the best they could in protesting against this new arrangement. Most of them organized themselves under the name of the Kwanto Electric Lamp Manufacturing Association and proposed joining the Japanese Union of Electric Lamp Manufacturers' Associations as an independent body. The merchants, however, opposed this proposal as they feared a diminution in their assigned share of exports. At length, after a great deal of struggle, the members of the Electric Lamp Manufacturing Association secured the right of having their manufactures inspected at a charge of 1.2 times, instead of eight times, as much as the members of this union.

The above description gives a bird's-eye-view of the control which is now exercised over the small-scale electric lamp manufacturing field. It is as yet far from perfect or satisfactory, although a great deal of improvement has been made as contrasted with the situation

of a few years ago. The weakness lies, we believe, in the fact that control is now exercised exclusively among the merchants, and not on a co-operative basis with small manufacturers.

A very interesting and instructive development in this respect is an effective controlling measure in the bulb-glass manufacturing field—a branch of the electric lamp manufacturing industry—recently taken up by the labour union. The bulb-glass manufacturing workers are wholly controlled by the Kwanto Electric Bulb-Glass Manufacturing Labour Union, a member of the 'Sodomei', the largest labour union in Japan. The Kwanto Electric Bulb-Glass Manufacturing Labour Union made an agreement in February of 1934 with the Tokyo Electric Bulb Society, the association of the owners of small-scale electric bulb-glass factories, and began to lend positive help to the control of this branch of industry. The two associations of workers and owners exchange advisers with each other and have lately established the Co-operative Committee on Electric Bulb-Glass Manufacture between the two bodies. Since then, this Committee has come to be the pivot of control and supervision over this field of industry.

Above all, it has stipulated the price rates of electric bulb-glass and on the other hand has decided to refuse to supply labour to any factory ignoring the agreement stipulated by the Committee; and workers who leave any factory not observing the agreement are to be safeguarded from unemployment by being entirely employed among the other factories. This arrangement is a very effective one, for electric bulb-glass manufacturing requires highly skilled labour, as contrasted with other branches of the electric lamp manufacturing industry. Thus the agreement on the sales price, which had never succeeded before, has come to be effective. The Committee also established standardization of the products, fixed standard wage rates, and further established a mutual relief association for the benefit of workers in September of 1935. Moreover, the Committee adopted in principle in the summer of 1935 the labour union's plan for a month's paid vacation in summer with a view to promoting the health of workers on one hand, and to avoiding severe over-production on the other, but the plan has never been realized, for the factories are so small that they cannot afford it. The Committee is also planning a joint purchase of raw materials and a joint sale of the manufactured articles.

The Mutual Relief Association aims, first of all, to safeguard the working class from being reduced to extreme poverty in case of financial need. For this purpose, it collects an equal amount in monthly instalments from every worker and employer. The employer, however, may be exempted from paying an instalment for any worker who attends the factory less than 25 days in any given month. The sum so collected is paid back to the worker whenever he retires, becomes ill, or is injured. In case of his death it is paid to his family. Of late years, the Association's reserve funds have grown to some extent, and therefore it has begun to make use of them when necessary to advance money to small factory owners.

The aforesaid labour union, which takes the lead in the Co-operative Committee, has been making the best efforts to improve conditions in the electric bulb-glass manufacturing industry as a whole. Backed up by the eager aid of 'Sodomei,' it has established an experimental factory at a great sacrifice for the purpose of studying how to rationalize factory managements as well as with a view to fixing various kinds of adequate standard wage rates suited to various processes of manufacturing. It also gives useful guidance to ignorant small factory owners as regards technical or legal matters in their factory management, and sometimes acts even as an employment agency for the workers. Thus the labour union has the actual leadership in controlling and improving this industry. The result has hitherto been most hopeful and promising.

Such thorough-going control of production and labour conditions by the positive assistance of the labour union is being carried out nowhere at present except in the electric bulb-glass manufacturing industry; while in the other phases of electric lamp manufacturing, workers as well as manufacturers remain almost disorganized. The experiment is of great importance, for it indicates the direction of future control not only in 'town' electric lamp manufacturing, but in the whole field of small-scale manufacturing industries which still prevail throughout Japan. On the basis of this valuable experiment, the 'Sodomei' has taken a new step in organizing the other small-scale industries. It is difficult to organize small-scale industries, but we believe that the experience gained in electric bulb-glass manufacturing will serve greatly as a guide for this purpose.

APPENDIX
COST OF LIVING AND REAL WAGES IN JAPAN,

1914-1936

I. INTRODUCTION

THE object of this appendix is to present some statistical materials on one important aspect of the Japanese population problem. An increase of population need not cause serious social difficulties even though the rate of growth is high or the density of population is great in proportion to the area of the country. Anxiety need only arise when the growth seems likely to force a lowering of the standard of living of the people or seriously check its rise.

If the standard of living continues to rise, an increasing population may be a blessing, but if it tends to force down standards, it will become a menace to the peace of society. Of course, we must guard against placing undue importance on the effects of changes in population on standards of living, and we have to consider not only the number of inhabitants but also the growth of industries giving employment to them. In a completely industrialized country general commercial and financial conditions play a large part in determining the standard of living of the people, and changes in the size of the population may be relatively much less important. Nevertheless, in a country like Japan, where about half of the entire population is engaged in agriculture of a traditional kind and where the average farming household subsists on some two and a half acres of land, a rapid increase in the rural population must have an unfavourable effect on their standard of living, unless it is accompanied by an expansion of employment in towns, or a development of new rural industries. In fact, a continuous migration of young men and women from rural to urban districts in search of employment is an outstanding feature of Japan. If the industries of the towns are expanding, such a flow of population goes on smoothly, but, if this is not the case, people must remain at home and tend to overcrowd rural occupations. The available land becomes insufficient to employ

each 'pair of hands'. Thus, in villages, overpopulation in a Malthusian sense occurs and must have a depressing influence upon the standard of living both in town and country.

It is generally believed by those who have observed the economic development of Japan during the last sixty years that the standard of living of the people was steadily rising for many years before the Great War, that it made a striking upward jump during the war-boom years, and that, in more recent times, it has become difficult to maintain this higher level. So far, however, we have not been able to prove this observation by statistics. There have long existed in some other countries, calculations which clearly show fluctuations in real incomes over a very long period, e.g. Sir William Beveridge, in discussing the relations between unemployment and the increase of population in England, has estimated changes in the real wages of the English working classes since 1860.¹ The following study of the real wages of industrial workers in Japan has been attempted with the aim of presenting some materials of a similar kind. The scope of our inquiry is limited to industrial workers. For the conditions of agricultural workers, we must refer to Dr. Nasu's latest (Japanese) work.² These two inquiries should give a fairly complete picture of conditions in the country as a whole. However, we believe that the conditions of industrial workers also reflect, to a considerable extent, the conditions of the people in general.

The method of estimating changes in real wages that we have adopted in this study is to divide the actual earnings in each year by the cost of living index number of that year, and compare the results thus obtained from year to year. For the latest years such figures are not difficult to obtain, as the Bank of Japan has published an index number of wages since 1926, while the *Asahi* newspaper has compiled a cost of living index going back to 1931. The Bank of Japan's index number of retail prices, going back to 1922, is also to some extent a substitute for the cost of living index number. But as we want to show changes over a longer period going back at least to the beginning of the Great War, we are faced with difficulties. We have the wage index number compiled by the

¹ *Unemployment*, 1930.

² *Nōsanbutu Kakākuhendō to Nōkōkōnyūhin Kakākuhendō to no HikākuKentō* (Comparison between price fluctuations of agricultural products and manufactures for agricultural use).

Ministry of Commerce and Industry covering the whole period of twenty years, but we had to compute a fresh cost of living index number for this period, based upon family budget statistics and the index number of commodity prices. Further, we found the available materials defective in many points. The family budget figures which we used were those published by the Cabinet Bureau of Statistics in 1926-1927. We must, however, be content if we can reach conclusions giving a fair, general idea of the violent changes in real wages which took place during this eventful period in national history.

For the years following the re-imposition of the gold embargo in 1931, the Bank of Japan and *Asahi* index numbers have enabled us to make a separate and more complete study. The fact that, since the departure from gold and the depreciation of the yen, real wages have been going down in spite of the prosperity of a considerable number of industries is a phenomenon which has very serious political repercussions.

2. THE 'STANDARD OF LIVING' AND METHODS OF ESTIMATING ITS FLUCTUATIONS

By 'standard of living', we mean the sum total of goods and services which people think essential for their accustomed way of living. For instance, every Japanese industrial worker has a general idea of the conditions under which he can satisfy those needs and desires of himself and his family which are regarded as proper to the class to which he belongs. These might include the provision of meals consisting of rice, fish, and vegetables; neat cotton clothing; of two- to three-roomed house; frequent baths; a certain amount of recreation, etc. In order to obtain these things he must have sufficient income and leisure, for without them he will feel discontented. If he is contemplating marriage, consultation among family members concerned will be focussed on the question of the sufficiency of his income for maintaining a home at that level of comfort. The 'standard of living' is not simply inherited, but changes with the current conditions of society. Prosperous industry will mean better pay and, if it continues for a time, a rise in the standard of living; the luxuries of yesterday become the necessities of to-day. Over a long period, people are not so much concerned whether their standard is high or low, but they feel happy when it is rising.

Depressed industry makes it difficult to live up to the accustomed standard, and, if it continues, will enforce a fall in standards; what were considered necessities previously now have to be looked on as luxuries. This process of degradation naturally breeds discontent.

The standard of living itself is not a definite thing, which can be expressed numerically, but we can obtain the statistics of family budgets of workers, which may be taken to contain figures of their expenditure on all the usual goods and services which they consume. If their wages are sufficient to pay for these at current prices, it may be said that their standard is being maintained.

From figures collected by the Cabinet Bureau of Statistics, we can learn the amount of money spent by the families of industrial workers in Japan on rent, clothing, rice and other food. When changes in the prices of commodities make it necessary to spend more money to maintain standards, their living conditions become hard. With rising prices, a family will have to economise or perhaps run into debt, and consequently lower its standard, at least for the time being; falling prices of commodities mean higher standards, with the same money income. The indicator of the purchasing power of money to be used in connection with this problem should not, however, be one of general prices but of the cost of living.

Of course, there are other methods of studying changes in the standard of living. For instance, from the figures of national consumption of rice, wheat, sugar, fish, meat, vegetables, cotton, wool, silk, tobacco, drinks, etc., the annual consumption per head of the population can be calculated. We have therefore tried to do this with certain important commodities, and our results are shown in the Note on page 308. Unfortunately, however, figures of national consumption are generally incomplete.

3. COMPUTATION OF THE COST OF LIVING INDEX NUMBER

Before proceeding further, it is necessary to explain the methods by which our cost of living index number has been obtained so that its real significance may be made clear.

i. *Family budgets*

Our index number is to be based upon the prices of the various goods and services, which enter the workers' daily consumption. But, as each of these items has a different degree of importance in

the total expenditure of a household, we must weight them according to the individual importance before we make an average for the purpose of forming a single index. There are many ways of determining the weights, but the best is to study the family budgets of consumers.

We are able to do this, as the Cabinet Bureau of Statistics has published a reliable report on the family budgets of various social classes, every year since 1926-1927. It may not be exactly correct to use 1926-1927 as a base year in calculating the cost of living as far back as 1914, for there may have been changes in the mode of life of these classes between the two dates. We were unable, however, to find any suitable material compiled at an earlier date, and also, we know from general observation that our results are not likely to be unreasonably inaccurate if based on that year's budgets.

The report of the Bureau of Statistics divides families into three groups, those of (a) salaried men, (b) industrial workers, and (c) farmers. Each of these are sub-divided into nine classes according to the size of their incomes. The lowest class contains those with monthly incomes of 60 yen and under and the highest those with over 200 yen. The intermediate classes are spaced at 20 yen intervals. For each class is calculated the average monthly expenditure per family and the proportion of money spent on each item of consumption. For our study we have used the family budgets of industrial workers living in Tokyo, with incomes of from 60 to 100 yen a month, because this class may be taken as representative of the whole wage-earning population of the country. According to the wage statistics of the Bank of Japan and the Ministry of Commerce and Industry which include various kinds of factory workers, the average adult male worker receives about 75 yen a month when in full work.

ii. *Price changes in family budget items*

In order to measure changes in the prices of the various kinds of goods and services contained in the family budgets shown above, it is essential to obtain the necessary price index numbers. But here also figures covering the twenty years since 1914 are not obtainable. For the want of something better for our purpose we have used the Bank of Japan's retail prices for the period after 1922

and the retail price statistics prepared by the Ministry of Finance, for the earlier years. This arrangement leaves a gap between the two price indices at 1922, but we believe that it will not prevent us from getting a general idea of changes that have taken place over the twenty years.

However, a general price index number is not sufficient to enable us to measure changes in all the items appearing in family budgets, as it does not include charges for 'services', house-rents and certain other indispensable items. We have had therefore to make our own inquiries into house rents, barber's and bath-house charges, school fees, prices of school text books, amusement expenses and tram fares for each year since 1914. With these we have figures covering 81 items for the years after 1922, and 27 between 1914 and 1922.

As will be seen from Table 118, the two most important items of domestic expenditure in Japan are rice and house rent. Inquiries concerning house rents are extremely difficult to undertake and it is almost impossible to get any reliable materials on the subject for no large-scale investigation into rents has ever been undertaken in Tokyo. We managed to obtain a number of out-of-date records from private owners of rented houses, but they were all found to be incomplete. Some of the houses had been burnt in the great earthquake, and accordingly their records stop at that time. Our inquiries were further complicated as we were interested particularly in houses usually rented by the working classes. All the useful results of our inquiries are contained in the following four groups of scanty materials. 1. Rents for 1914-1934 of eleven houses for industrial workers at Toyōke-Machi, Shiba-ku, Tokyo. 2. Rents for 1931-1934 of 1,500 houses collected by the Dojunkai Building Society. 3. Rents for 1924-1934 of 48 houses belonging to an individual owner in Fukagawa, Tokyo. 4. Rents for 1924-1934 of 500 houses near Oshima, Mukojima-ku, belonging to a firm in Nihonbashi, Tokyo.

As we wanted figures covering a period of twenty years, No. 1 alone contained materials fully suited for our purpose, but as it deals only with eleven houses it cannot be considered representative of fluctuations of Tokyo house rents. We have, however, compared it with the other three groups and found that since 1924 all groups have moved together fairly closely. We can only hope that our

conclusions, though very tentative, may be of some use in showing the trend of fluctuations in Tokyo generally.

It should also be noted that our index numbers only refer to houses built in and before 1914. These houses by now are old and much repaired, and the fall in their rents is largely due to the effects of wear and tear, and does not necessarily represent the trend of house rents in general. This is particularly true in Japan where houses are made of wood and plaster and are considered to be old after they have been standing for comparatively few years. The rents of these older houses will therefore not be so sensitive to external economic conditions as those of newer ones. In order to eliminate this weakness in the index numbers it would be necessary to re-select from time to time the houses examined. This weakness applies not only to our present study; the doubtful accuracy of house rent figures in Japan must be taken into consideration in all works of this kind. We are fully aware of the inadequacy of this part of our materials and shall welcome the appearance of more trustworthy figures.

iii. *The calculation of the index*

The classification of goods and services in the price statistics is not the same as that used in the family budgets; nor do the items relating to price changes gathered from the various sources perfectly cover all the items appearing in such budgets. Further, as the price statistics between 1914 and 1922 contained fewer items than those for the years after 1922, it was necessary to make separate lists for the two periods. Nevertheless, it has been possible to provide price indices of the goods and services fairly representative of the items given in the family budget. Accordingly, we proceeded to weight each of these price indices according to its importance in the workers' household expenditure as shown by the budget and tried to make a single index of the cost of living for our representative class of industrial workers, i.e. those with monthly incomes of from 60 to 100 yen.

It should be mentioned here that we had to revise the weight table shown in the official family budget.

Minor items such as taxes, social expenses including presents, entertainment of friends, club fees, etc., travelling expenses, servants' pay, and others incompletely recorded were excluded from the list.

These tend to fluctuate in the same way as the general cost of living. Prepared food delivered at the house and lunches taken outside were also removed from the list as their prices cannot be ascertained and they may be taken to change in the same way as prices of food in general. The total weight of food expenses was left as it was and the proportion of sub-items in food expenses was revised.

After weighting and adding together the individual items, the total was divided by the weights. The year 1914 was chosen as base, as we wanted to show the remarkable changes that took place during the Great War, the years of the war boom, the post-war crisis, the years of partial recovery, the return of Japan to the gold standard and her second departure from gold. There is some discrepancy between the figures for 1914-1922 and those for 1922-1933 for the reasons already stated, but it was thought better to leave them as they were rather than to attempt any revision. The results are seen in Diagram 66.

iv. *The results*

Our diagram shows that during the first two years of the Great War, the cost of living fell below its pre-war level. This was mainly due to declining prices of rice. But after 1916, as the war boom began to affect every part of economic life, there was a very sudden and sharp jump. Between 1917 and 1919, there was an acute rise which led in 1918 to rice riots. In 1921 as a result of the post-war reaction, the index dropped abruptly, and it fell gradually and continuously until 1931, with the exception of 1923-1925 when the great earthquake led to a temporary rise of prices. Between 1930 and 1931, after the removal of the gold embargo at the beginning of the world depression, there was a sharp fall. Since the re-imposition of the embargo in December, 1931, there has been a gradual rise.

The movements in the index numbers of the separate items may be summed up as follows. That for food moved together with the general index, which is natural, since the index for food represents the most important and therefore most heavily weighted of the items of expenditure. Its fluctuations were, however, more marked. The index-number for clothing also moved in the same direction but with still greater fluctuations owing perhaps to the greater elasticity of demand for these products and to the fact that they are largely international in character. On the other hand, house rents and

miscellaneous expenses remained comparatively stable, and their movements lagged behind those of the general index. During the War, while all other items reached exceptional heights, the house rent index remained low and to some extent prevented the upward movement of the general index. More recently, however, while commodity prices fell, house rents kept stable, and checked the fall in the general index number. The difference between the general index and food index is chiefly due to the stabilizing effects of house rent figures. The light and heat index made an abrupt rise during the War and stayed at that height until it began to fall in 1928.

A comparison of our general cost of living index number, since 1922, with that of retail prices (Diagram 67) shows perhaps a very slight tendency of retail prices to fall faster than the cost of living. This tendency also is dependent upon the slower movements of house rents, services, and miscellaneous expenses.

The retail price index of the Bank of Japan is made by means of a simple arithmetic average, using no system of weighting, but its choice and its method of grouping of commodities appear to give special emphasis to the main articles. For instance, under the heading 'rice', we find four kinds of rice, Japanese rice, Japanese glutinous rice, Korean and Formosan rice, and foreign rice. Thus, as rice is given four points whereas most other articles have only one, any change in the price of rice must have correspondingly strong influence on the general index. Again, 'foodstuffs' include 51 items out of the hundred chosen by the Bank; and thus, food is made by far the most important group in the whole, being given actually a weight similar to that in our own index (46.26 per cent). We therefore believe that the risk involved in using the Bank of Japan's retail price-index number as a substitute for the cost of living index is not very large, provided that the importance of house rent is borne in mind.

4. INDEX NUMBER OF THE WAGES OF INDUSTRIAL WORKERS

Our next business is to examine how workers' wages have changed in comparison with the cost of living index number. There are various sets of wage statistics in Japan, including those of the Bank of Japan, the Ministry of Commerce and Industry, the Bureau of Statistics, and *Asahi* newspaper, but those of the Bank of Japan and

the Ministry of Commerce and Industry are most generally used. The Bank of Japan's index number of wages is the most reliable and, as it represents the wages of factory workers, seems best suited for our purpose. However, as it goes back only to 1926, we had to use the index of the Ministry of Commerce and Industry for the years before that date, *i.e.* for the larger part of our study.

TABLE 120. TOKYO COST OF LIVING INDEX NUMBERS (1914-1933)

	General index number	Food & drink	Housing	Lighting & heating	Clothing	Other expenses
1914	100.0	100.0	100.0	100.0	100.0	100.0
1915	92.5	85.0	100.8	99.1	93.1	100.0
1916	100.6	91.9	101.8	98.9	112.2	119.7
1917	123.7	123.6	103.1	135.1	160.3	127.5
1918	174.3	194.2	107.3	202.0	244.6	159.2
1919	216.9	256.3	115.4	239.6	306.8	183.3
1920	235.2	273.8	132.4	303.6	288.0	213.1
1921	208.3	213.9	144.3	314.3	238.2	230.3
1922	222.7	239.8	157.5	322.6	222.0	233.1
	215.4	224.9	160.1	291.9	233.1	231.2
1923	205.3	208.7	160.9	289.4	221.1	220.8
1924	208.0	215.2	158.6	301.0	220.5	218.1
1925	214.4	224.3	171.1	282.6	221.9	219.5
1926	207.6	210.8	183.6	272.2	194.2	219.1
1927	204.4	203.0	193.5	293.3	168.5	214.0
1928	199.0	191.7	194.6	290.6	167.5	213.4
1929	193.1	186.0	193.3	263.7	161.5	208.2
1930	174.5	165.5	186.7	215.9	133.4	195.7
1931	155.6	139.5	182.6	191.9	113.7	177.6
1932	156.5	145.2	179.0	165.4	115.8	181.8
1933	161.1	147.7	177.4	205.2	125.9	183.8

Author's estimate.

The Bank of Japan's index is based on investigations into the wages paid by a number of representative factories in different industries employing more than 40 or 50 workers, with which the Bank had arranged for the collection of reports. The Bank publishes an index number for (a) wage rates and (b) actual earnings. The 'wage rates' are obtained by taking an average of the 'average wages' reported from different factories. The average wages paid by each of the reporting factories on the last day of the month are added up and divided by the number of such factories. The 'actual

earnings' are obtained by dividing the total payments made to workers during the month by the total number of working days of all the workers employed there. In it are included ordinary wages, over-time pay, and all allowances other than the bonuses paid twice a year according to long established Japanese custom. 'Actual earnings' are better suited for our purpose.

The wage index of the Ministry of Commerce and Industry is based on monthly reports from the Chambers of Commerce in the thirteen large cities, dealing with the average daily earnings of skilled workers, and includes besides regular wages, over-time and all other allowances. The value of payments in kind is also calculated and added to the total earnings. It is important to note that the index includes the wages of handicraft artisans such as carpenters and masons. This index has undergone three changes in the course of its history, and we have to-day three different sets of index numbers with different base years: A. 1900, B. 1921-1923, and C. April 1934-March 1935. Index A includes 28 kinds of workers, index B, 52, and index C, 73. A represents mainly the wages of handicraft artisans, B and C include those of factory workers as well.

The A index of the Ministry of Commerce and Industry is the only one that covers the whole period we are trying to study, but other indices may be useful for the investigation for more recent years. Diagram 68 shows first the trend of wage movements for the whole period, based solely upon index A; and second, three lines showing movements in the years after 1928, based upon (a) the Bank of Japan's index of 'actual earnings', (b) index A, and (c) index B, of the Ministry of Commerce and Industry. The conclusions to be drawn from this diagram seem, briefly, to be as follows:

First, from the graph for the whole period, we find that the wages of industrial workers, particularly of those belonging to the artisan group, rose sharply during the World War and held up fairly well until 1924, when they began to fall gradually. It may be mentioned here that the fall in the general level of prices during 1921 and 1922 affected wages to a very small extent, and that the great earthquake of 1923 must have had some influence in keeping them on a higher level in the years immediately following. With the setting in of the world depression and the return of Japan to the gold standard a very steep fall took place between 1929 and

1931. This downward movement was somewhat checked after the second gold embargo in December, 1931, and between 1933 and 1934 the index became stationary. However, by this time, the cost of living had already begun to rise again.

Second, when we look at the three lines for recent years at the foot of the diagram, we find a similar fall during the years before 1931 as in the first line, with more or less stationary conditions after 1932. Nevertheless, the three lines, being based upon three different materials, show some discrepancies. The two indices of the Ministry of Commerce and Industry have slightly sharper drops than the Bank of Japan's index. This is probably because wages of handicraft workers are more liable to fluctuations than those of factory employees.

Realization of this difference between the wage movements of craftsmen and factory workers may be useful in helping us to interpret our index for the whole period, and tends to show that Index A of the Ministry of Commerce and Industry gives a somewhat exaggerated impression of the fluctuations of wages in general, as it represents mainly the wages of traditional craftsmen. We believe, however, that these exaggerations are only slight.

On comparing Diagram 68 with Diagrams 66 and 67, it will be clearly seen that the wage index followed about the same course as the movements of commodity prices and the general cost of living, but with considerable time lag. At a time when business was improving and prices had already begun to rise considerably, wages had only slowly moved upwards. On the other hand, wages remained stationary after prices and the cost of living had started to fall. This matter must be left for consideration in later pages.

5. INDEX NUMBER OF REAL WAGES

With the index numbers of the cost of living and money wages available, the remainder of our calculations are rather simple. We divide the wage index of each year by the cost of living index and thus obtain an index of real wages. This may be said to indicate changes in the physical volume of goods and services which could be bought with the wages received. The index is charted in Diagram 69.

The index of real wages in Japan after a small rise showed a fall during the first three years of the Great War, to below the pre-war

TABLE 121. REAL WAGE INDEX NUMBERS (1914-1933)

	Ministry of Commerce and Industry wage index		Real wage index		Bank of Japan actual earnings index		Cost of living index ¹ 1926=100	Real wage index	
	Whole country	Tokyo	Whole country	Tokyo	Whole country	Tokyo & Yokohama		Whole country	Tokyo & Yokohama
1914	100.0	100.0	100.0	100.0					
1915	100.1	98.5	108.2	106.5					
1916	105.7	106.7	105.1	106.1					
1917	121.7	128.7	98.4	104.0					
1918	161.0	164.0	92.3	94.1					
1919	221.8	218.2	102.3	100.6					
1920	288.1	292.2	122.5	124.2					
1921	287.1	297.3	137.8	142.7					
1922	309.3	322.0	143.6	149.5					
			138.9	142.6					
1923	308.0	328.2	150.0	159.9					
1924	316.3	356.1	152.1	171.2					
1925	311.9	346.0	145.5	161.4					
1926	310.1	347.7	149.1	167.5	100.0	100.0	100.0	100.0	100.0
1927	303.9	343.8	148.7	168.2	102.1	104.6	98.4	103.7	106.3
1928	303.4	333.4	152.4	167.5	105.3	108.3	95.9	109.8	113.0
1929	299.8	331.1	155.2	171.4	103.9	107.6	93.0	111.7	115.7
1930	274.6	301.1	157.3	172.5	98.7	102.8	84.1	117.4	122.3
1931	246.7	295.8	158.6	190.2	90.7	97.1	74.9	121.0	129.6
1932	236.4	286.4	151.0	182.9	88.1	96.3	75.4	117.5	127.7
1933	236.7	289.6	147.0	179.8	89.2	98.8	77.6	115.0	127.4

¹ Calculated from author's cost of living index number.

TABLE 122. REAL WAGE INDEX NUMBERS IN VARIOUS MANUFACTURING INDUSTRIES (1926-1933)

	¹ Spinning	¹ Silk reeling	¹ Weaving	¹ Knitting	Machine manuf.	Ship- building	Vehicle manuf.	Total manuf.	Metal manuf.
1926	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1927	101.4	97.6	99.8	101.1	102.5	97.7	103.4	101.9	102.1
1928	105.5	100.0	102.6	100.3	108.1	104.6	104.9	104.4	108.0
1929	103.6	101.3	102.6	100.4	110.0	109.2	103.9	104.7	111.5
1930	103.2	98.4	99.7	99.3	112.9	111.9	106.9	106.5	116.1
1931	99.4	90.5	99.2	101.8	119.3	115.6	113.4	114.9	125.1
1932	87.4	81.6	90.8	97.2	127.7	120.2	113.9	116.4	124.9
1933	80.6	79.5	85.7	90.5	129.7	125.2	115.4	115.1	124.1
	Cement, pottery, glass, etc.	Paper	Medicine	Rubber	Artificial fertilizer	Food & drink	Printing & binding	Furniture & wood manufacture	Dyeing
1926	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1927	103.1	102.2	102.3	103.2	103.5	103.7	104.0	102.0	100.0
1928	104.9	106.8	105.0	107.9	105.5	105.5	107.1	103.1	102.3
1929	106.2	110.2	109.2	112.5	109.3	109.3	107.0	103.8	102.5
1930	109.3	121.0	116.2	114.8	120.5	117.3	114.0	104.6	109.0
1931	113.0	126.4	126.7	123.0	126.0	126.1	123.8	105.3	118.0
1932	109.8	119.9	121.1	117.1	125.9	122.5	121.2	99.6	114.6
1933	107.8	119.1	106.6	111.2	123.0	119.2	116.4	94.4	107.4

¹ Women's wages. The remaining columns show men's wages only.

Based on the Bank of Japan's *Statistics of Factory and Mining Labour*; Actual Earnings indices for various industries.

level. This was because wage rates rose much more slowly than the cost of living. The low level in 1918 provides an explanation for the rice riots which broke out in the summer of that year.

This was the lowest point of the whole period. In the following year, business suddenly began to climb steeply, and both the cost of living and wage rates showed a tremendous rise. But since wages rose much faster than the cost of living, the workers, who had been suffering hardship for several years in the past, began to enjoy some of the good things of life.

Later, though the rate of increase slackened, real wages continued to rise until 1924, the year following the earthquake, for in spite of the sudden drop of commodity prices directly after the War and the stationary condition of trade in the following years, money wages remained fairly high.

Through the seven years from 1924 to 1931, both the cost of living and wages fell, but as the fall in wages was less marked, real wages continued to rise slightly. Even the heavy drop of money wages in 1930-1931 did not check this rise, as prices were falling still faster.

However, for the two years following the re-imposition of the gold embargo in 1931, wages sank sufficiently to reduce real wages sharply, as in the early days of the War, while the cost of living rose slightly. This helps to explain the social unrest of 1932-1933.

On the whole, the standard of living of industrial workers, after having been raised substantially after the War, has not made any progress since that time, and to-day the position is not as good as that in 1924. This is exactly what general observation leads us to expect.

These statements apply only to industrial workers in fairly large factories, and not to farmers and workers in small industries. Nor do they take account of unemployment or under-employment. During the War and for some years after, a large stream of people flowed into the cities and obtained work which provided them with a much higher standard of living than that of the farmers whom they had left behind. The post-war world depression, and perhaps the reorganization of some larger industries on a more efficient basis, tended to lower the demand for labour. This influence seemed at its worst in 1930-1931. An added trouble is that the number of young people seeking a livelihood has been rapidly

increasing over the whole period and these have provided a huge labour reserve. Although the index of real wages of industrial workers was slowly rising between 1925 and 1931, the number of people absorbed into industry increased very little. Money wages were falling faster. Against the higher real wages of the employed have to be set the lowered standards of those for whom industry had no opening. Statistics are frequently liable to present a false picture of actual conditions. During the boom, when more women and children and fewer skilled workers were employed, average wages did not rise but may even have fallen, simply because there was a large number of inefficient workers. Therefore, although average wages may show a stationary or downward tendency, the actual wages of each grade may be rising. On the contrary, when business is shrinking, those likely to be discharged first are the unskilled workers who receive low wages, and the average of the remaining more skilled workers tends to make the index number unreasonably high. The figures produced here are not free from this defect, but we have not yet discovered any method of correcting them. This limitation is said to be especially true of the Bank of Japan's wage report, where the differences of skill, age and sex of workers are ignored; averages being taken of all workers in each factory, and the general index made by simply averaging these averages. The Bank, however, publishes separate figures of average wages for various industries employing different types of workers, as well as the number of people employed in each. These materials should be utilized in any comprehensive examination of the problem.

6. CONDITIONS SINCE 1931

Recent developments, especially since the re-imposition of the gold embargo in December, 1931, may be appropriately made the subject of our concluding section, because a study of this period may be useful in helping towards the solution of some practical problems of to-day. With the aid of the Bank of Japan's wage reports and the cost of living index of the *Asahi* newspaper we have constructed a few diagrams differing from those for the earlier years.

Diagram 70 shows the monthly changes since October, 1931, of (a) money wages (actual earnings), (b) cost of living, (c) employment, and (d) real wages. The last line, (d) real wages, was

prepared by dividing (a) by (b). The figure for October, 1931, has been used as a base. We find that actual monthly earnings have been more or less stationary over the whole period, although since January, 1934, the index has not gone below the base line. On the other hand, the cost of living has been steadily rising from the beginning, though not very rapidly. Accordingly, the real wage index has shown a continuous downward tendency and is now some ten per cent below the base level. Industrial workers, on the whole, have received about the same sums of money in wages, but, as the goods and services they require for daily life have become more expensive, they have not only been unable to improve their standards but on the contrary have been obliged to economize in household consumption. Such a state of affairs has seemed to some unnatural in view of the rapid recovery in business after the summer of 1932, and many attempts have been made to explain these figures.

One explanation has been that the results are due to the fact that changes in wages always lag behind those in business conditions and commodity prices, as was seen in the years immediately following the outbreak of the World War. This view is quite correct as far as it goes and it must be taken into consideration, but, as at least five years have already passed since prices began to rise, it seems hardly sufficient to explain the situation fully.

Another explanation is concerned with statistical technique. Since business started to recover, industrial employment has greatly increased. When new-comers are recruited in large numbers, average wages are likely to fall even though skilled workers are getting better pay, and in fact, there are many cases in which higher grade workers' wages have improved during this period. This explanation seems also true as far as it goes, as the employment index (Diagram 70) rose continuously until the middle of 1935. We must, as in the earlier part of this chapter, again admit this defect in our present statistical method. At the same time, it would be impossible for anybody who has observed the actual facts to say that the living conditions of workers are improving in all industries, and that the unsatisfactory tendency shown by the figures is non-existent. It is true that employment vastly increased in the industries covered by the figures, and thus certainly somewhat alleviated the lot of working-class families. It is also true that earnings have not

increased sufficiently to compensate for the rising cost of living, and that real wages, therefore, are on the average definitely falling.

One of the characteristic features of the economic condition of Japan to-day is the one-sidedness of the 'boom.' Good conditions prevail in one industry side by side with distress in others. For our analysis, therefore, it is necessary to study various industries separately. For this purpose we have constructed separate diagrams (71, 12 and 73) of real wages for certain individual industries. The results of this study may be summed up as follows:

1. Women's real wages show the most marked downward tendency. In the spinning, weaving, knitting, and silk-reeling industries, which are worked almost completely with female labour, real wages have steadily declined since 1928 and show a heavy drop after 1931. It is remarkable that the spinning and weaving industries which have made such an advance since the second gold embargo should have such low wage levels. This tendency is still continuing, though the reeling industry, which had suffered most, improved somewhat in the second half of 1934 owing to the recovery of the silk trade.

One explanation for the fact that cotton operatives' money wages do not rise with the rise in the cost of living is that these female workers live in dormitories attached to the factories; all of their housing and a part of their food expenses are met by their employers. It is, therefore, only a rise in the cost of other necessaries and comforts that affects their living conditions. When, however, girls as a usual practice send a part of their wages to their parents or relations in the country, changes in the purchasing power of money must to that extent affect the life of those people more strongly.

2. In those industries where most workers are men, movements in real wages have been very different. Before the second gold embargo, the real wages of men had, on the whole, been rising for some years. Their money wages dropped a little soon after the restoration of the gold standard at the beginning of 1930, but the cost of living also fell. Even in the furniture and wood manufacturing industries, which were exceptions, the fall was not as great as in the textile industries. After 1932, when the cost of living was beginning to rise real wages in many of these industries showed a fall but, here also, the drop was not as great as that of women's wages. In some instances, particularly in metal working, shipbuilding, and

industries manufacturing tools, machinery, and vehicles, real wages went up throughout the whole period.

There are broadly two groups of industries showing divergent movements in men's wages. The first group, containing industries producing artificial fertilizer, paper, pottery, rubber manufactures, chemicals, and foods and drinks, as well as the printing and book-binding, dyeing, and furniture and wood manufacturing industries, has experienced a rather sharp fall since 1932. The second group includes the heavier industries mentioned above, and has the benefit of encouragement from both the depreciation of the currency and extension of expenditure on armaments. Moreover, these industries require workmen with special skill, whose supply cannot be quickly increased. Most of the industries belonging to the first group do not require such degree of skill, and additional working forces, therefore, can easily be obtained from the country districts. When a large number of farming households are in a distressed condition, such abundant supplies of unskilled men force wages in these industries to a low level.

The fall in the real wages of women can also be partly explained in the same way. Most of the girls working in textile mills come from farming families, and their wages are always influenced by economic conditions in their home provinces. The low prices of the two outstanding rural products, rice and cocoons, have therefore been reflected in the wages of these girl workers. On the other hand, reorganization schemes, which have been carried furthest in cotton spinning and weaving under the pressure of deflation, have succeeded in economizing labour power to such an extent that the demands for female labour have not greatly increased in spite of the large expansion of production. Diagram 74 shows how small the increase in employment in spinning was as compared with other industries.

When we see the divergent movements in the real wages of men workers and women workers, and between the various groups of men, the conclusion arrived at is that the wage situation in Japan is by no means satisfactory. Notwithstanding the growth of industrial production during the past few years, most of the two million factory workers, apart from the minority employed in heavy industries, are still reaping little of the harvest of the 'boom'. To look into the cause of this state of affairs is outside the scope of

this chapter. Personally, the authors' connection with this and other studies leads them to the conclusion that the rapidly growing population, and especially that section belonging to productive ages (15-59 years), is of considerable importance in any explanation, though there are other influences of at least equal strength at work.

NOTE:

PER CAPITA CONSUMPTION OF SOME
IMPORTANT COMMODITIES

One possible method of measuring the living standards of a nation is to calculate the per capita consumption of various commodities used in the daily life of the people.

Though we cannot measure accurately the total annual consumption of some commodities we can make reasonable estimates from existing materials on figures of exports, imports, and production. The total figures thus obtained, when divided by the population, may, if the results are used with discretion, provide some indication of per capita consumption and be some guide to changes in living standards.

Since such a device ignores, amongst other things, the differences between the income of the various classes of people, each of which has varying habits of consumption, it is defective in many respects. It may, however, be useful as a secondary guide when used side by side with a better method. For such a purpose it is, of course, very important to select suitable types of goods, including things widely used by ordinary households, and particularly those whose demand increases and decreases in proportion to rises and falls in the incomes of wage-earners. Table 123 and Diagram 75 have been constructed with these considerations in view.

The consumption of all the articles selected, apart from rice, vegetables, and cotton (which is not likely to alter much except in exceptional times) increased greatly during the war-boom years, but it has on the whole remained at about the same level since then. This tendency agrees with the result of our main study as well as with general observation. There are, however, features of individual items which are worth examination.

Among foodstuffs, the statistics of sugar consumption are the least defective, owing to the existence of import and excise duties. These show that sugar consumption increased rapidly between 1914 and 1923, but in later years made only slow progress. The figures for consumption of eggs, meat and fish followed, on the whole, a similar course, but with greater fluctuations, probably owing to a defect in statistical materials. After 1930 the figures for egg consumption showed a rapid rise owing to the growth of poultry-keeping in Japan. Meat, which has never been part of the main diet of the people, is now³ consumed in smaller quantities than in 1923. It should be noted that pork has become of much greater relative importance than beef. An exception to the general trend is seen in the figures of fruit consumption, which has risen some 30 per cent since 1923, but did not show a great increase during or immediately after the War.

Among clothing materials, wool has shown an enormous increase, being now nearly four times as high as before the War, while cotton has stayed at almost the same level from the beginning. The increase of wool consumption is probably due to a change in fashion.

Postal services and the consumption of electric light and gas steadily increased until the coming of the world depression.

³ 1937.

TABLE 123. INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME
IMPORTANT COMMODITIES (1914-1933). (A)
(1914 = 100)

	Cereals	Vegetables	Fruit	Meat	Fish (including shellfish)	Rice	Wheat	Beef
1914	100.0	100.0	100.0	100.0	100.0	100	100	100
1915	111.9	—	104.4	110.9	135.2	117	109	115
1916	107.2	—	117.3	125.0	144.6	114	108	132
1917	111.9	88.6	98.1	119.2	130.5	118	121	115
1918	114.2	—	93.5	121.6	107.8	120	155	95
1919	115.6	—	109.5	122.9	122.7	118	183	109
1920	110.8	99.2	114.1	143.7	163.2	116	139	133
1921	116.9	—	109.6	162.0	172.6	120	209	152
1922	109.8	92.6	119.5	162.5	196.5	115	163	164
1923	112.6	90.2	104.6	168.9	208.3	120	198	168
1924	107.0	87.7	117.3	180.7	184.5	117	144	161
1925	113.7	90.0	125.0	185.4	202.8	117	193	146
1926	110.0	88.8	140.2	175.3	215.1	117	153	155
1927	106.8	93.8	136.2	163.6	214.0	114	179	148
1928	109.2	89.5	140.2	176.4	218.9	117	167	149
1929	104.3	89.8	136.1	186.3	222.8	114	151	146
1930	102.5	93.9	147.5	171.8	204.6	112	158	133
1931	107.6	91.2	135.8	172.2	231.0	117	178	148
1932	—	—	—	—	—	—	—	—
1933	—	—	—	—	—	—	—	—

Based on the Report of Prof. Kaneo Inouye of the Fukushima Higher Commercial School.

INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME
IMPORTANT COMMODITIES (1914-1933). (B)

	Pork	Wool	Raw ¹ cotton	Apples	Oranges	Bananas (1925 =100)	Eggs	Sugar
1914	100	100	100	100	100	—	100	100
1915	129	139	111	71	104	—	107	101
1916	134	109	117	104	144	25	120	107
1917	126	117	102	110	60	40	132	120
1918	169	117	117	73	96	34	134	141
1919	165	147	117	66	115	34	139	141
1920	192	177	115	88	126	10	155	152
1921	261	116	104	87	127	31	209	166
1922	221	256	136	201	129	69	214	191
1923	181	276	118	94	118	87	225	201
1924	257	296	108	125	113	125	217	200
1925	334	269	105	170	160	100	201	207
1926	244	233	115	283	118	124	204	209
1927	206	272	122	204	149	99	219	215
1928	257	277	121	255	139	100	233	216
1929	304	229	113	266	114	81	248	223
1930	261	225	115	273	171	99	253	230
1931	252	345	132	216	173	117	286	—
1932	—	357	134	—	—	94	315	—
1933	—	387	—	—	—	—	296	—

¹ Consumption for domestic use.

INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME
 IMPORTANT COMMODITIES (1914-1933). (C)

	Green tea	Coffee	Saké	Uncut tobacco	Cigarettes ¹ with mouth- pieces	Other cigarettes	Cigars	Cut tobacco
1914	100	100	100	100	100	100	100	100
1915	98	103	86	99	103	106	91	92
1916	96	136	89	91	119	119	124	89
1917	101	178	105	95	147	143	188	94
1918	114	237	115	105	198	159	226	95
1919	131	243	111	105	256	164	281	99
1920	146	302	130	117	314	203	165	95
1921	139	344	93	123	345	191	142	93
1922	136	411	119	121	351	208	129	89
1923	130	537	118	102	376	304	193	86
1924	134	627	115	123	375	384	154	82
1925	135	758	107	117	327	423	147	80
1926	134	865	105	114	295	494	113	79
1927	137	996	97	115	297	566	99	78
1928	140	1,176	89	119	294	639	99	74
1929	144	1,323	91	115	281	694	108	75
1930	141	1,543	81	112	228	766	62	74
1931	138	1,769	73	107	186	835	54	71
1932	137	1,884	61	103	177	959	70	71
1933	—	2,021	70	—	—	—	—	—

¹ Similar to Russian cigarettes with long paper mouthpieces.

INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME
IMPORTANT COMMODITIES (1914-1933). (D)

	Wireless sets per thousand persons	Postal services ¹	Electric light candle power	Gas cubic metres	Post Office insurance yen	Telephones per thousand persons
1914	—	34.5	1.3	2.90	—	4.1
1915	—	35.7	1.3	2.92	—	4.2
1916	—	37.7	1.8	3.46	0.5	4.3
1917	—	43.5	2.3	4.14	1.1	4.6
1918	—	50.7	2.7	4.78	1.9	4.9
1919	—	42.7	3.3	5.06	2.8	5.0
1920	—	68.0	3.9	5.26	4.0	5.8
1921	—	70.4	4.5	5.41	5.8	6.6
1922	—	71.9	5.4	6.01	8.3	7.2
1923	—	63.9	5.8	5.62	10.5	7.4
1924	0.1	70.0	6.9	6.00	14.0	7.5
1925	4.3	71.4	7.7	6.84	17.6	8.3
1926	5.9	65.4	9.0	6.98	21.2	9.1
1927	6.2	78.8	9.8	7.89	24.1	9.9
1928	9.0	76.1	10.5	9.24	27.8	10.5
1929	10.2	80.3	11.1	10.30	30.7	10.9
1930	12.1	68.4	11.3	10.87	32.6	11.1
1931	16.2	68.7	12.0	11.32	34.5	11.1
1932	21.4	64.2	12.1	10.75	36.4	11.5
1933	25.5	—	—	—	—	—

¹ Number of letters and parcels carried.

DIAGRAM 66. TOKYO COST OF LIVING INDEX NUMBERS (1914-1933)

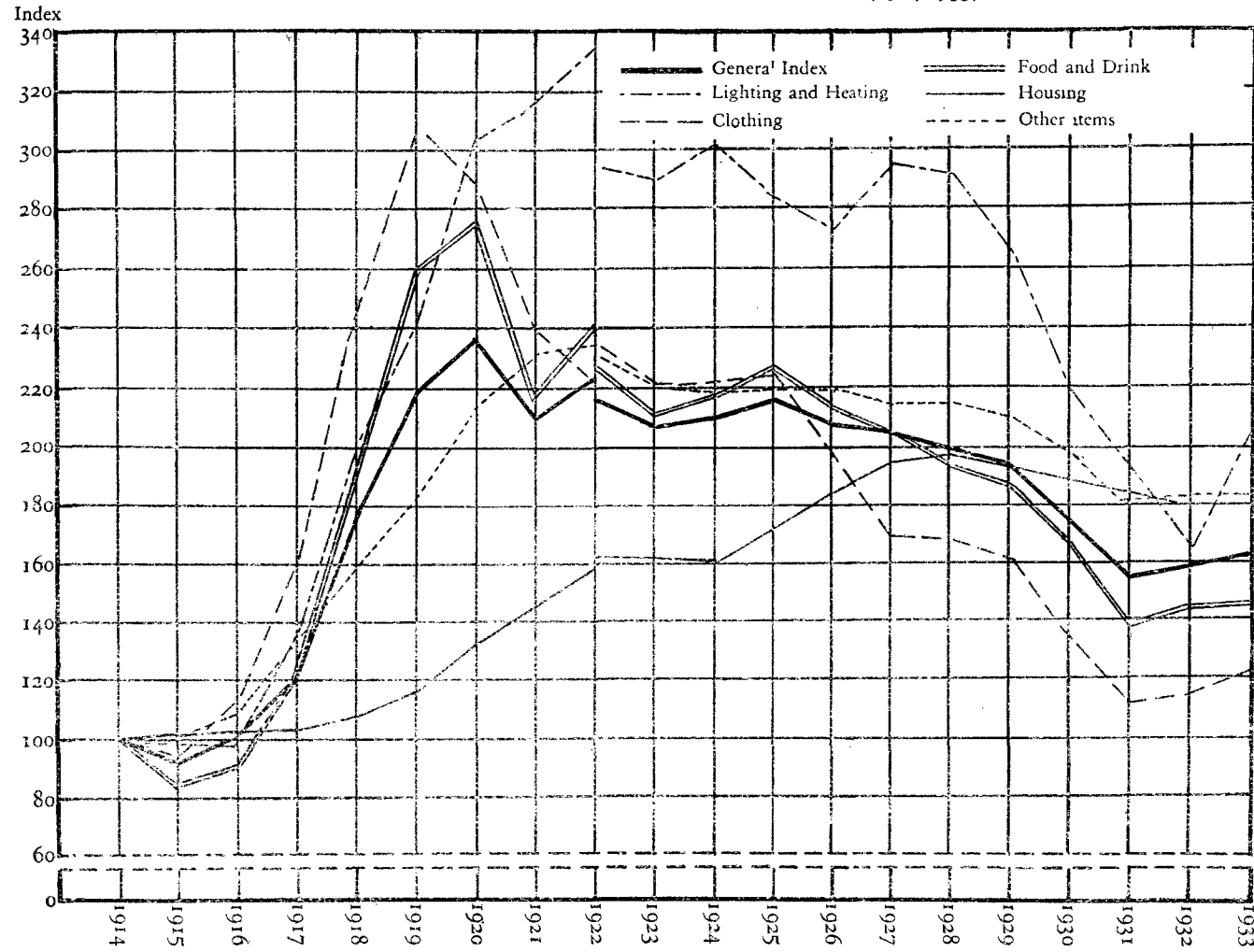


DIAGRAM 67. TOKYO COST OF LIVING AND RETAIL PRICE INDEX NUMBERS (1914-1933)

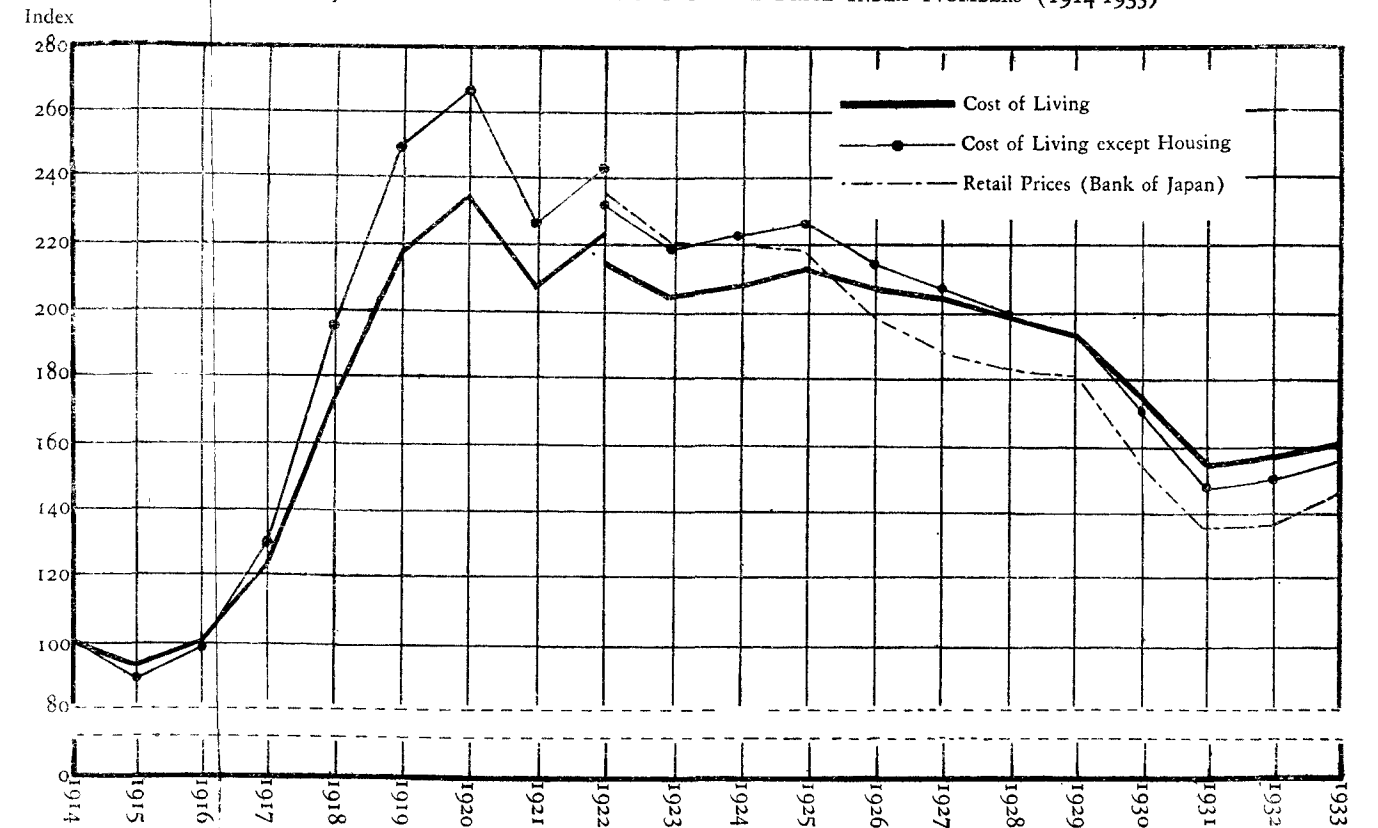


DIAGRAM 68. INDEX NUMBERS OF MONEY WAGES IN JAPAN (1914-1933)

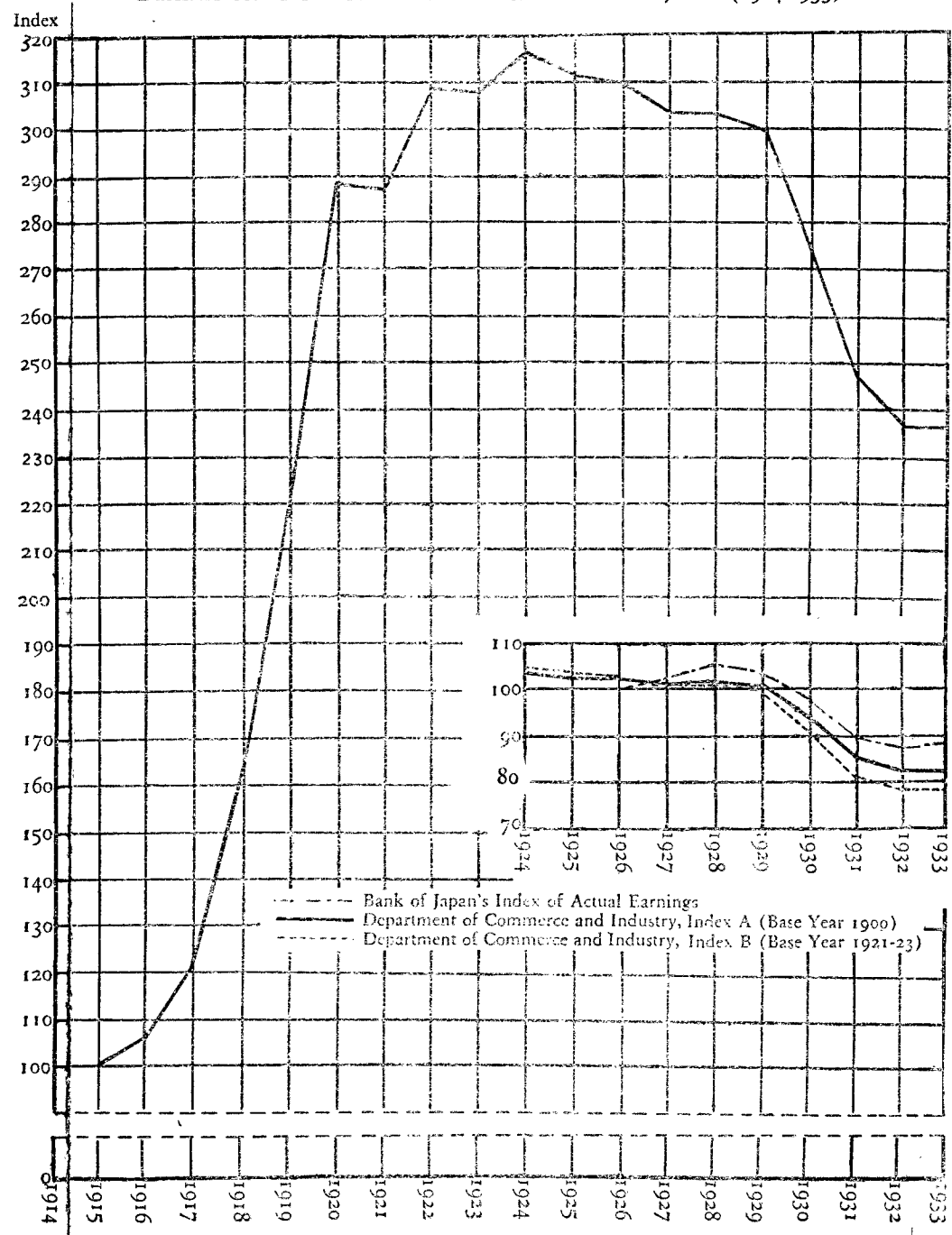


DIAGRAM 69. INDEX OF REAL WAGES, TOKYO AND WHOLE COUNTRY (1914-1933)

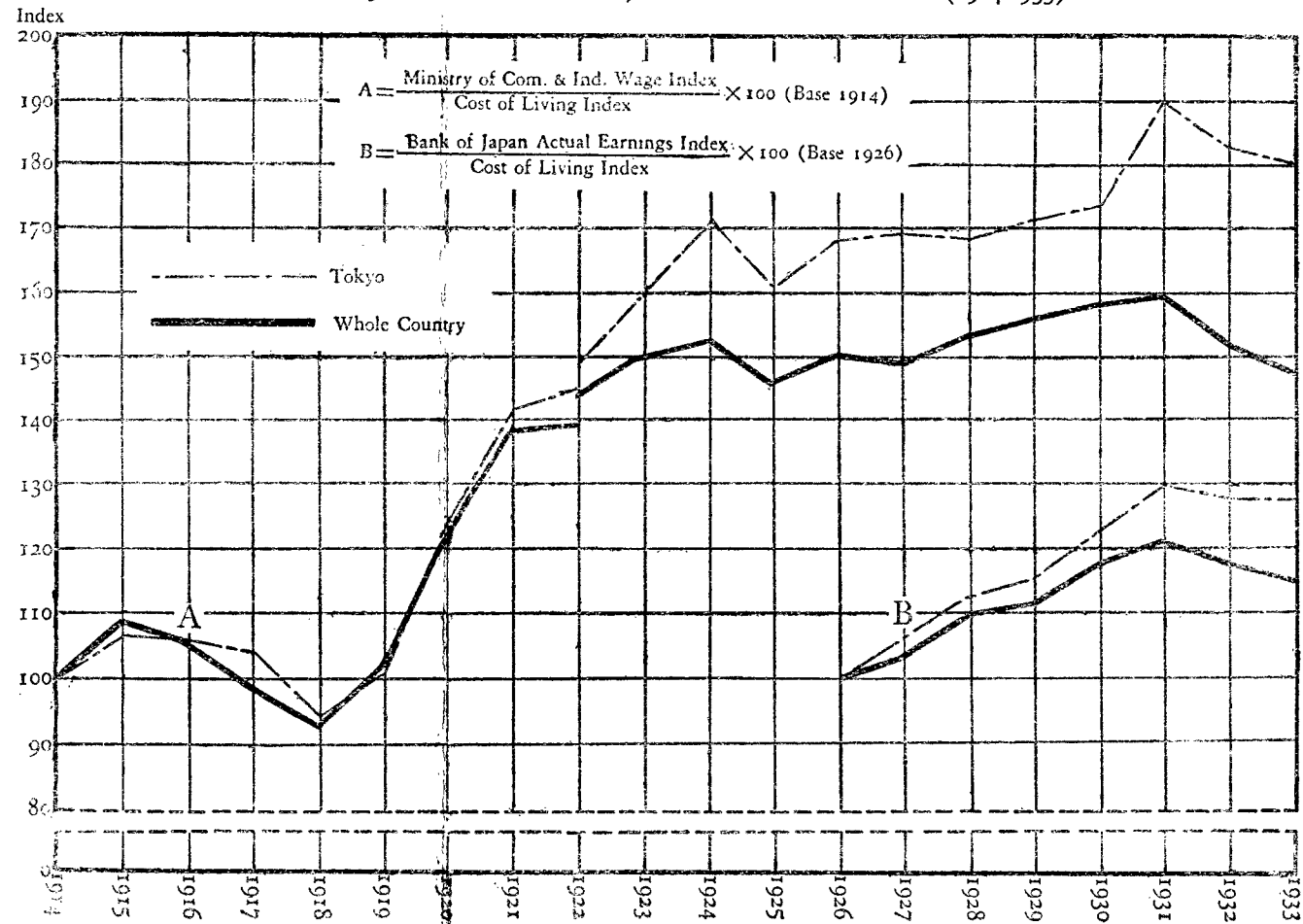


DIAGRAM 70. REAL WAGE INDEX BEFORE AND AFTER THE SECOND (DECEMBER, 1931) GOLD EMBARGO IN JAPAN (OCTOBER, 1931—JUNE, 1937)
(OCTOBER, 1931 = 100)

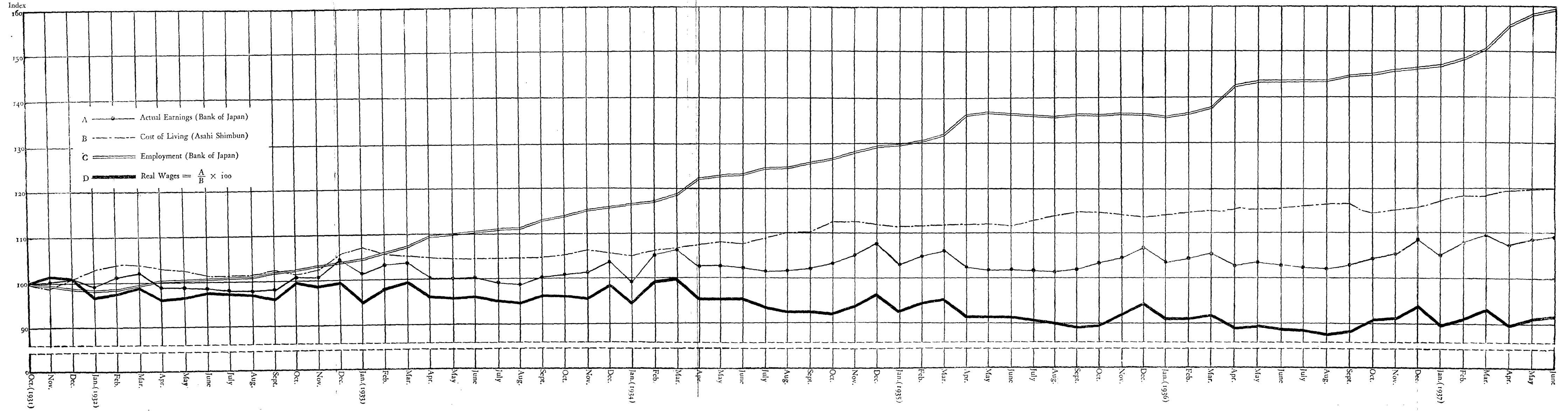


DIAGRAM 74. INDEX NUMBERS OF REAL WAGES AND EMPLOYMENT IN JAPAN (OCTOBER, 1931—JUNE, 1937)

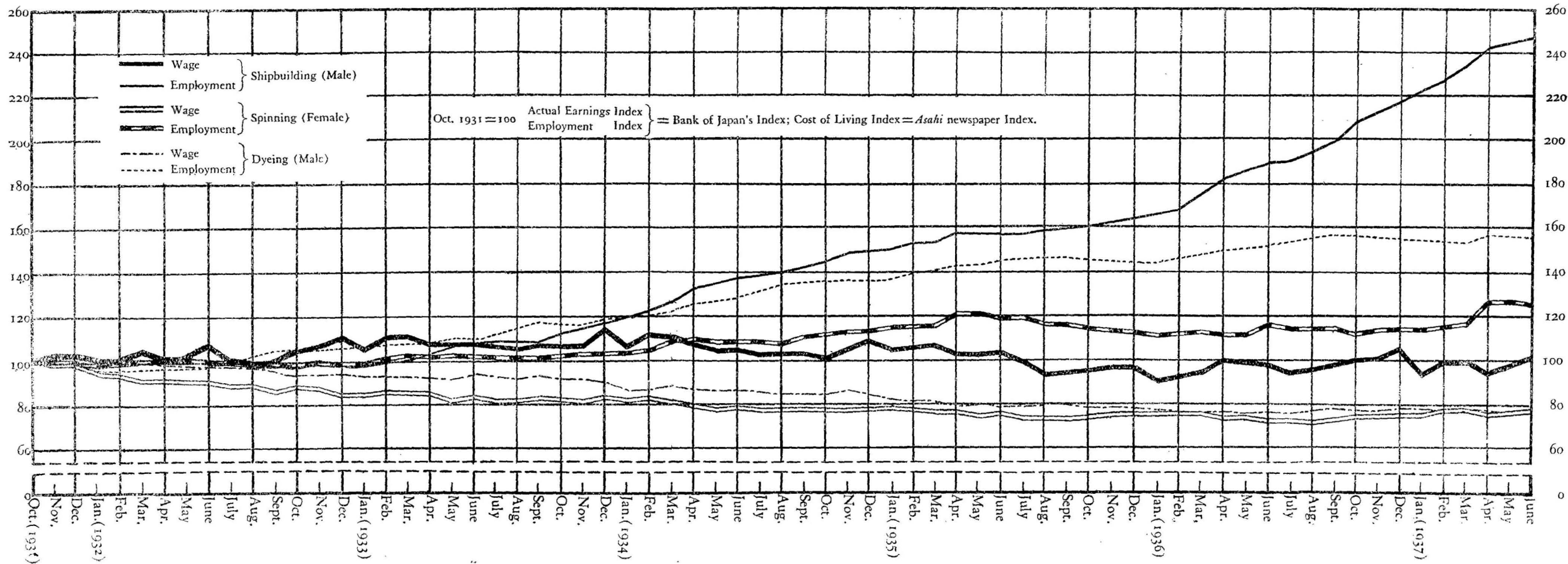


DIAGRAM 75. INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME IMPORTANT COMMODITIES (1914-1931). A (1914 = 100)

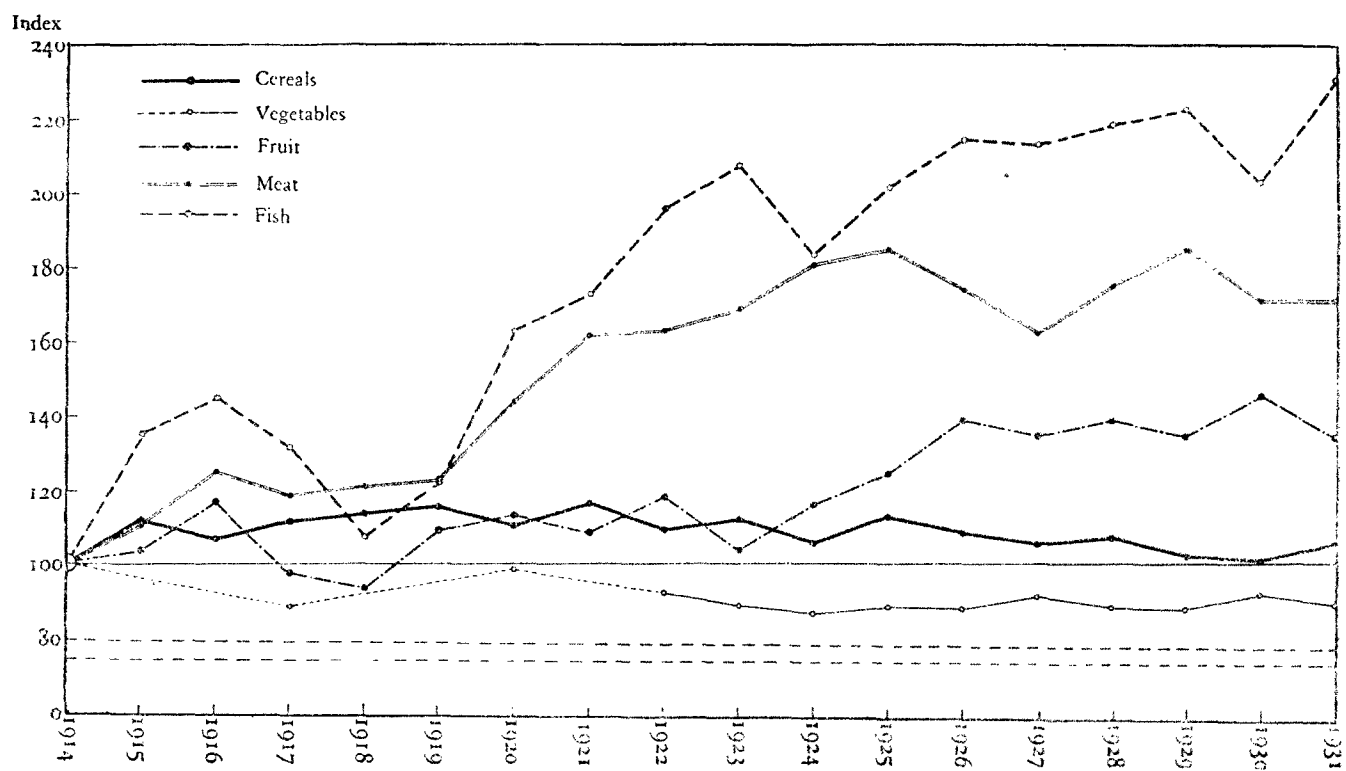


DIAGRAM 75. INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME IMPORTANT COMMODITIES (1914-1933). B (1914 = 100)

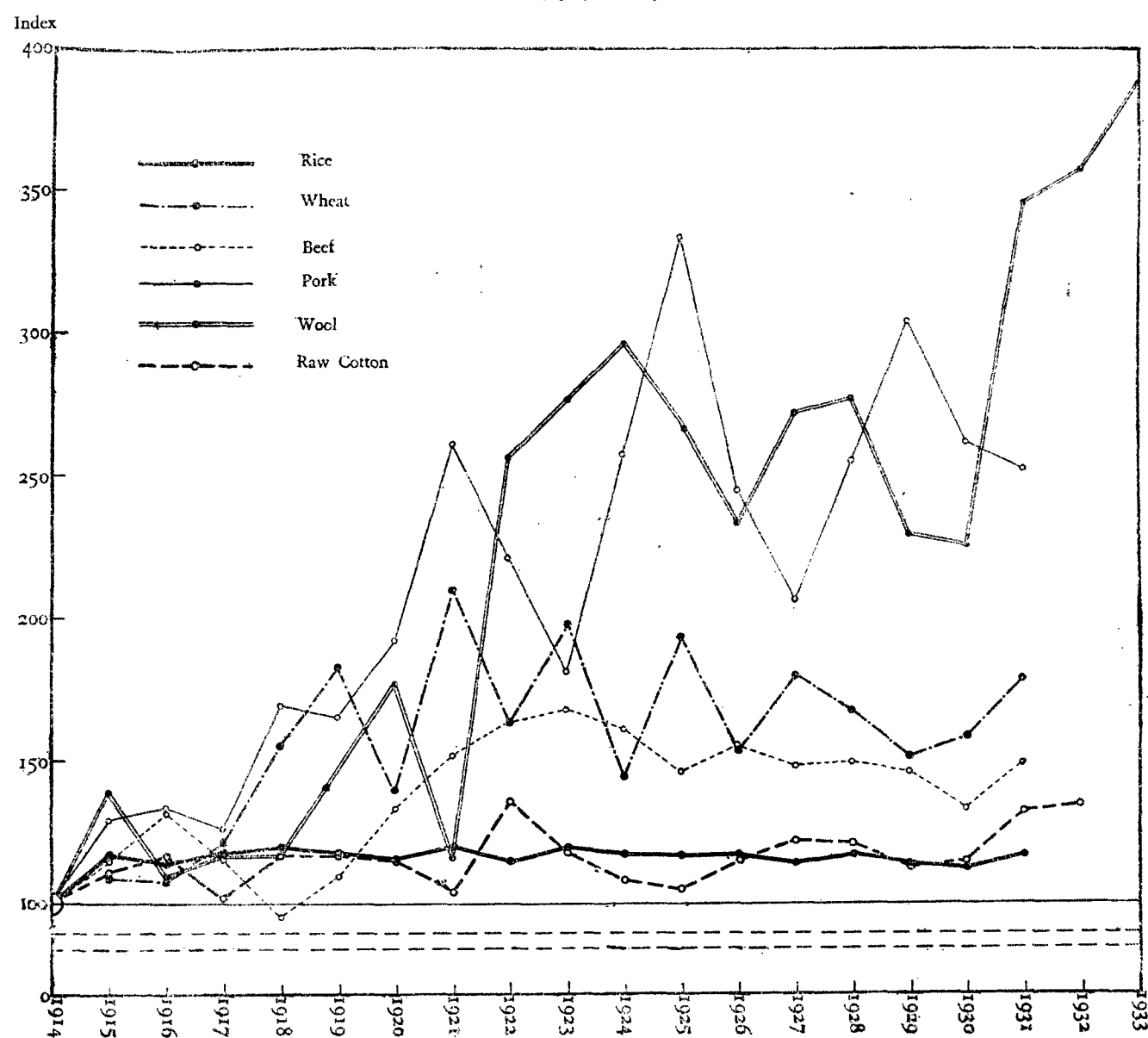


DIAGRAM 75. INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME IMPORTANT COMMODITIES (1914-1933). C (1914 = 100)

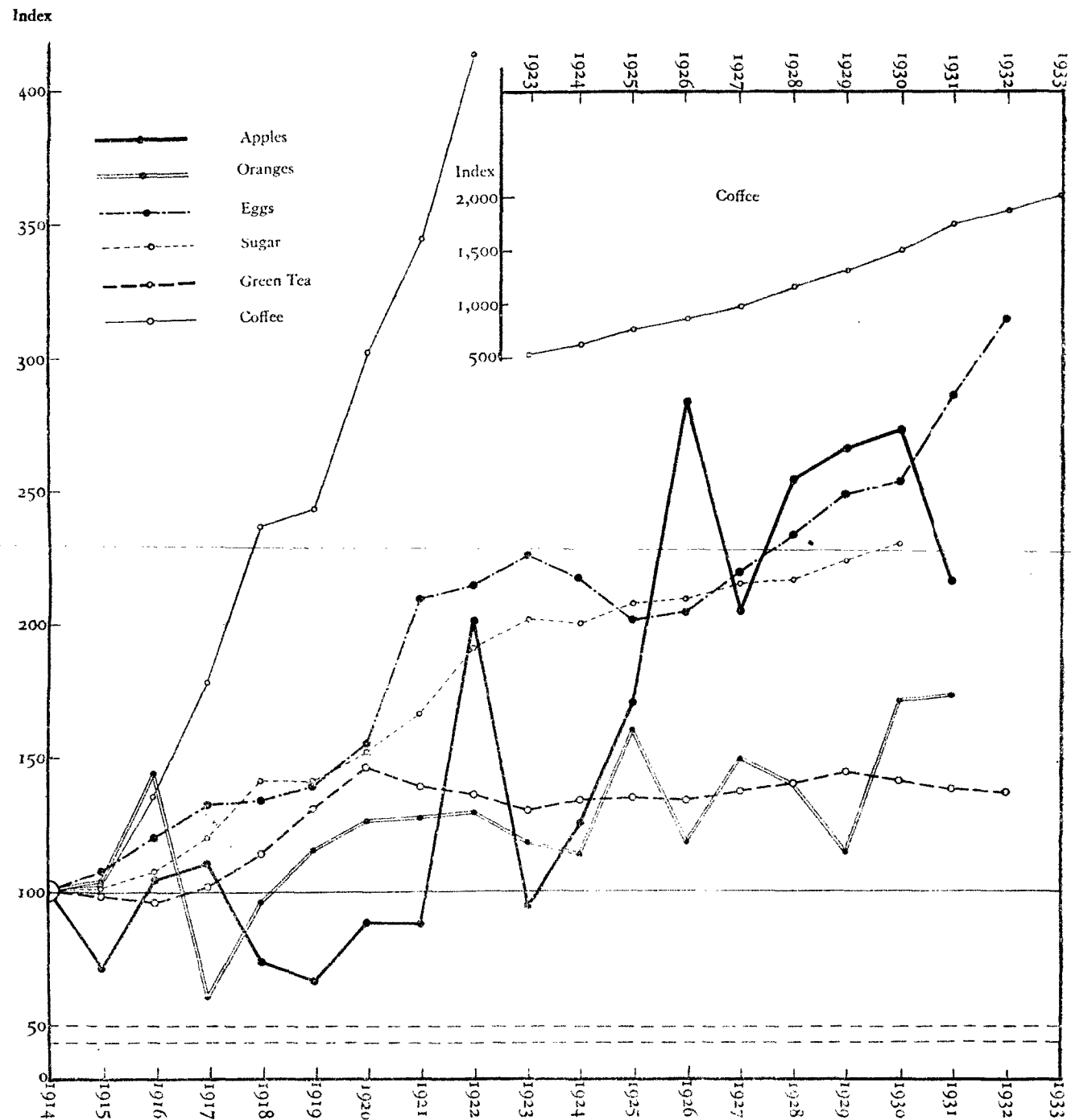


DIAGRAM 75. INDEX NUMBERS OF PER CAPITA CONSUMPTION OF SOME IMPORTANT COMMODITIES (1914-1932). D (1914 = 100)

