Report

OF THE

Indian Productivity Delegation

TO

Japan

(REPORT AND APPENDICES)

MINISTRY OF COMMERCE AND INDUSTRY

GOVERNMENT OF INDIA

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PREFACE

In presenting the report of the Indian Productivity Delegation to Japan, of which we had the privilege of being members, we are conscious of the great bulk which the report has assumed. We have seriously considered whether the report cannot be drastically abridged but have been disinclined to do so because of the following reasons.

Our terms of reference cover a wide area. They principally relate to a study of the productivity movement in Japan and of the climate in which Japanese industry has achieved such remarkable progress in the past. As our study proceeded, we became increasingly conscious that the achievements of an organisation, or indeed of a nation, could hardly be attributed to the operation of a few simple causes. They result from a variety of factors which make up the overall climate. We have, therefore, attempted to probe as far into these various factors as opportunity permitted us. We have gathered a large amount of information, much of which is not easily accessible in a collected form. Having gone to this length, we have considered it appropriate to record at least the salient features of the diverse fields which we have had occasion to study.

The report is divided into six parts covering:

1. Terms of Reference and Methodology
2. Background Information
3. Productivity Movement
4. Management in Private Industry
5. Recommendations concerning the organisation of a Productivity Movement in India, and
6. A summary of observations in Japan.

A set of appendices to the report covers further details and gives some of the sources of our information.

On our return to India we have frequently been asked to indicate how India can benefit from the experience of Japan in the field of increasing productivity and of improvement of management. On the first point, we have ventured to suggest in our recommendations a procedure for the organisation of a National Productivity Movement. Effective action in this direction can, in our opinion, play a significant role towards the achievement of some of the targets of our Second Five Year Plan. On the question of Management practices, recommendations are hard to make, since their success depends essentially on a philosophy of management and the attitudes of those at the top. The numerous well-established techniques can achieve little by themselves. Perhaps the most important experience which we have gained during the tour of the delegation is that an organised study by a group

involving observations, discussions and the collation of experiences, is a highly educative process. We feel that similar studies by a large number of independent groups would be one of the most potent ways of developing an overall awareness and a compelling need for improvement in the state of our own industry.

Vikram A. Sarabhai.
S. N. Bhaduri.
Kamla Chowdhury.
N. Majumder.
N. S. Mankiker.
Navnitlal Shodhan.
H. D. Shourie.
K. Sreenivasan.
E. R. Subram.

March 1, 1957.

CHAPTER I

Terms of Reference and Composition of the Indian Productivity Delegation to Japan

1:1. *Terms of reference*:

In conveying an invitation to the members of the delegation, the Government of India have stated as follows:

(a) "Since it is felt that industry in India and Japan can benefit by the sharing of experiences in the field of Management, the Government of India proposes to send a delegation to Japan. In the past, a number of Indian industrial organisations have sent technical personnel to study Japanese methods of production. However, the implementation of methods which were considered useful and capable of application in India has not been possible to any large degree. It is believed that one of the principal reasons for this is the neglect of factors which create the industrial climate under which the technological changes can succeed. Some of the most important of these concern the relation of productivity to problems of organisation and management practices. The present delegation, therefore, will lay particular emphasis on the study of this specific area.

The delegation will attempt to study the following main areas in the large scale industries of Japan dealing with Iron, Steel and Engineering, Chemicals, and Textiles.

(i) Organisation Structures & Management Practices.

(ii) Selection and training functions.

(iii) Collective bargaining.

(iv) Control techniques.

(v) Research in industry.

(b) "The delegation will study the constitution, the organisation, the programme of work and the mode of operation of the Japan Productivity Centre. The delegation should recommend to Government steps necessary to establish in India work of similar nature on a continuing basis and for an Indian counterpart of the Japan Productivity Centre and the European Productivity Council."

1:2. *The composition of the Delegation*:

Dr. Vikram A. Sarabhai, Leader	President, Ahmedabad Management Association; Managing Director, Sarabhai Chemicals, Ahmedabad.
Shri S. N. Bhaduri, Member-Secretary	Liaison Officer, Ahmedabad Textile Industry's Research Association, Ahmedabad.

Dr. Kamla Choudhry, Member	Head of Division of Human Relations, Assistant Director, Ahmedabad Textile Industry's Research Association, Ahmedabad.
Shri S. N. Majumder, Member	Industrial Adviser (Textile Production), Government of India, Bombay.
Shri N. S. Mankiker, Member	Chief Adviser, Factories, Ministry of Labour, Government of India, New Delhi, Director Productivity Centre, Bombay.
Shri Navnitlal Shodhan, Member	Director, The Sarangpur Cotton Mfg. Co. Ltd., Ahmedabad.
Shri H. D. Shourie, Member	Director of Industries, Government of Punjab, Chandigarh.
Shri K. Sreenivasan, Member	Honorary Director, South India Textile Research Association, Coimbatore.
Shri E. R. Subram	President, Textile Association, Ahmedabad; General Superintendent, Shree Ambica Mills, Ahmedabad.

A leading trade uninionist was invited to join the delegation, but unfortunately due to other pre-occupations it was not possible for him to accept the invitation of Goverr.ment. Shri N. S. Mankiker joined the delegation on October 26, 1956, in Japan.

March 1, 1957.

CHAPTER 2

Procedure of Study

2:1. *Programme in India prior to departure for Japan:*

The members of the delegation drawn from Ahmedabad met on several occasions during August and September 1956 to exchange views on how the delegation should organise its work. It was felt that the study of individual organisations would require practice and experience amongst the members of the delegation if the most effective use was to be made of the necessarily restricted contact which would be possible with each organisation. Shri Bhaduri, Dr. Kamla Chowdhury, Shri Navnitlal Shodhan and Shri Subram paid visits to the Jupiter Mills and the Ahmedabad Commercial Mills, two textile mills in Ahmedabad, and interviewed members of management down to departmental heads. All levels were not interviewed by all members of the team, and since the perception of management practices and organisational structure differs at the different levels within an organisation, the collation of the experiences offered some difficulty.

All the members of the delegation with the exception of Shri Mankiker and Shri Shourie assembled at Ahmedabad on 30th September and 1st October for detailed consideration of the mode of study which should be adopted. The available background information on Japan and some reports of the Anglo-American Productivity Council were studied by the members. Taking into consideration the special experience of individual members of the delegation in particular areas that were to be studied, broad allocation of responsibilities amongst the members of the delegation for detailed study and reporting was decided upon.

In order to gain further experience in the methodology of the study, the delegation visited the Ahmedabad Electricity Company at Sabarmati Power Station and held discussions with members of management from the Resident General Manager down to departmental heads. It was felt that the work of the delegation could be conducted more effectively if the organisation which is visited has prior knowledge of the type of study that is proposed and the individuals within the organisation whom the delegation would like to contact. It was also realised that a considerable time was spent in collecting background information about the organisation which could, with advantage, be prepared in advance by the organisation visited to be studied by the delegation prior to the visit to the organisation. Accordingly, the delegation decided that organisations to be visited in Japan should be addressed a letter on behalf of the delegation explaining the areas of interest and the object of the delegation and seeking replies to a questionnaire prior to the visit to the organisations.

All members of the delegation excepting Shri Mankiker met in Bombay on the 3rd and 4th of October. A visit was paid to the Lever Brothers' organisation where discussions were held with the Managing Director and his senior colleagues. A visit was also paid to the Productivity Centre which will form part of the Central Labour Institute which is being set up by the Union Ministry of Labour. The members of the delegation were acquainted with the work of the Centre and its programme for the future. Members of the delegation called on the Consul-General for Japan in Bombay prior to their departure for Tokyo on the afternoon of the 4th October.

2:2. *Programme in Japan*:

The delegation reached Tokyo on the 5th October 1956. The Japan Productivity Centre, which was organising the tour of the delegation in Japan, had earlier prepared a programme which had been formulated in great detailed after extensive consultations with the Regional Productivity Centres in the industrial areas round Nagoya, Osaka and Fukuoka. The unexpected delay in the arrival of the delegation to Japan, as well as the uncertainty of the precise date of arrival involved a complete recasting of the programme. This made heavy demands on the organisation of the Centre, but a revised schedule extending from the 5th of October to the 15th of November was drawn up and put into immediate effect with commendable efficiency. The details of the programme are given in Appendix I of this report.

Broadly, the programme consisted of orientation lectures, discussions with individuals and organisations, visits to the Japan Productivity Centre, Regional Productivity Centres, research laboratories and private companies. The noteworthy features were:

2:2:1. *Orientation Lectures*:

29 orientation lectures delivered by scholars, leaders of industry and of labour and officials of Government and public organisations covered diverse fields and formed an invaluable basis for the study of the delegation. Details are given in Appendix II. Some of the lectures are reproduced in Appendix III.

2:2:2. *Discussions with Individuals and Organisations*:

Number of Round Table meetings were organised for discussion and clarification of attitudes amongst the different sectors of the nation towards productivity and the economic reconstruction of Japan. Special mention may be made of the Round Table meeting with directors of the four economic organisations in Tokyo, with the directors of the Productivity Centres and with representatives of labour unions. Details are given in Appendix IV.

2:2:3. *Visits to Institutions*:

Visits were made to the Japan Productivity Centre and the Regional Productivity Centres in the Chubu, the Kansai and the Kyushu areas. Visits were also paid to some industrial laboratories at the National, Prefectural and the city levels set up for

assistance to industry. Management associations and specialised agencies concerned with productivity increases were also contacted. A list of these is given in Appendix V.

2:2:4. *Visits to Industry*:

The delegation visited 35 industrial companies engaged in diverse fields of manufacture. These included:

5	engaged in	Iron and Steel manufacture,
3	„	manufacture of automobiles and locomotives,
2	„	shipbuilding,
6	„	manufacture of electric machinery and appliances,
6	„	manufacture of machinery,
4	„	manufacture of pharmaceuticals and chemicals,
3	„	manufacture of ceramics,
5	„	textile manufacture, and
1	„	manufacture of plywood.

Details of the companies visited are given in Appendix VI.

2:3. *Methodology*:

2:3:1. *Study of Industry*:

A letter and a questionnaire (Appendix VII) were addressed by the Japan Productivity Centre on behalf of the Indian Productivity Delegation to the Presidents of all the companies which were visited. Without exception, all companies responded by filling up almost all the data that was requested. Much of this was considered by the companies as of a confidential nature, but nevertheless the organisations cooperated with the delegation in not only providing the information requested but in freely discussing further details.

In most cases, the replies to the questionnaire were available to the members of the delegation prior to the visit that was paid to the organisation. This, along with the published information about the company which was supplied by the Japan Productivity Centre was of material assistance in organising the discussions which took place with members of the organisations visited. In some instances, companies had taken great pains to prepare special exhaustive memoranda of management practices and the organisation of the company in respect of several functions which were being actively studied by the delegation.

A typical visit to a company started with a welcome address by the President or the senior managing director of the company. This was followed by a general discussion with senior members of management on aspects of general organisation of the company. Thereafter the delegation would break up into two or three groups. The first group usually cosisting of Dr. Sarabhai, Shri Majumder, Shri Shourie and Shri Shodhan would conduct discussions concerning the ownership and control of the company, its organisation and policies. The second group consisting of Dr. Kamla Chowdhury, Shri Mankiker, and Shri Subram would conduct separate discussions on selection and training functions and on labour relations in the company. The third group consisting of Shri Bhaduri and Shri Sreenivasan would conduct discussions on control techniques and the organisation of research. The visit also included a brief

visit to the manufacturing plants. However, plant visits were mainly to get a feel of the general climate and working conditions within the industry rather than to gather information of a technological nature concerning the industry.

2:3:2. *Study by members of the Delegation*:

Visits to industry and round table meetings frequently brought about a realisation of the necessity to gather more information on some specific points not so far adequately covered. This necessitated the arrangement of special appointments and programmes for some members of the delegation during the few hours which were not already taken up by the official programme. Consequently, there was unfortunately no opportunity from Mondays to Fridays of the group meeting by itself and discussing the experiences gained. However, extensive discussions were held on every Saturday. During these discussions, the plan of the study and the report were decided, and responsibilities allocated to individual members of the delegation for specific sections of the report. Observations on each aspect of the report were then discussed, and in many cases the draft of some sections was prepared and discussed by the members.

2.3.3. ***Preparation of Report*:**

On return to India, the delegation assembled at Ahmedabad on the 7th, 8th and 9th of January 1957, and finalised the report as well as the unanimous recommendations to Government for steps necessary to promote the productivity movement in India.

2.4 *Scope and limitations of study*:

2.4.1. *The Sample*:

(i) *Institutions.*—The delegation had an opportunity of studying intensively the working of the Japan Productivity Centre. However, the research programme of the Centre is conducted through a number of agencies, and in the limited time that was available, it was not possible to contact the active research workers or to evaluate the results of research so far undertaken.

Representatives of management and of labour actively participating in the productivity movement were extensively contacted and various aspects connected with the productivity movement were freely discussed. The productivity movement receives strong support from largescale industry and consequently our sample was representative of management of large enterprises. The vast majority of labour representatives that we contacted had affiliations with Zenro or neutral unions which collaborate in the productivity movement. Sohyo unions officially oppose the movement, but the delegation nevertheless contacted some members of the company unions favourably disposed towards productivity and a leader of the national Sohyo organisation. The attitude of Sohyo towards productivity and the general economic development of the country is well defined in statements and resolutions, and the absence of extensive personal contact has probably not affected seriously, understanding of their attitude by the delegation.

A large number of private and semi-official organisations such as management associations are undertaking extensive work in

fields related to productivity, but only a very superficial contact was possible with these bodies. In the study of research for industry, while company organisations were visited in a number of cases, the organisation of research at the city, the prefectural and the national levels is based on a very limited sample which can perhaps hardly be considered as representative.

(ii) *Industry.*—The organisations of private industry studied by us were by no means selected randomly from industry in Japan The organisations which we visited were those which were already taking interest in one or other activity of the Productivity Centres. Most of the organisations were therefore introduced to the principles of scientific management and its terminology. Many had sent at least one member from their organisation in one of the 36 separate teams sent by the Japan Productivity Centre to the U.S.A. during the past 18 months.

The companies had been selected in many cases for their outstanding features in relation to some aspects of their management practices. Most of the companies were amongst leaders in their respective fields in Japan. Some of the other characteristics of the companies which we visited may be analysed as follows.

(a) Majority of the companies were in the category of large companies.

In Table I are indicated the number of companies, their average subscribed capital and the average number of their employees for companies classified into groups according to the number of personnel employed. The average capital and the average number of employees of companies engaged in the 9 groups according to the type of industry are indicated in Table II.

TABLE I

Number of employees	Number of companies	Average employees	Average Capital
Less than 1,000	5	409	·18 M. Yen.
Betewen 1,000 & 10,000	19	4,811	1·44 M. Yen.
Between 10,000 & 20,000	4	15,241	3·40 M. Yen.
Greater than 20,000	7	26,201	5·53 M. Yen.

TABLE II

Industry	No .of units	Average capital	Average Employees	Capital per employee
		Yen		
Iron & Steel	5	5,360 M.	21,460	250,000 Y.
Automobiles & Locomotives	3	1,171 M.	6,012	194,000 Y.
Shipbuilding	2	4,380 M.	17,819	246,000 Y.
Electric Machinery & Appliances	6	3,320 M.	15,199	218,000 Y.
Machinery	6	1,300 M.	4,224	308,000 Y.
Pharmaceuticals & Chemicals	4	2,083 M.	4,995	417,000 Y.
Ceramics	3	433 M.	1,661	259,000 Y.
Textiles	5	1,676 M.	10,495	160,000 Y.
Plywood	1	50 M.	1,482	34,000 Y.

(b) Most companies were old and well established.
2 were established prior to 1850.
6 were established between 1850 and 1900.
15 were established between 1900 and 1920.
9 were established between 1920 and 1940.
3 were established after 1940.

(c) There was a much greater emphasis on metal and engineering industries than on chemicals or textiles which were the other two industries of special significance to the study of the delegation. 22 out of the 35 companies were connected with iron and steel making and engineering. Of the 4 companies engaged in chemical manufacture, 1 was engaged in the pharmaceutical industry, 2 in heavy chemicals and 1 in heavy chemicals including dyestuffs. A number of steel companies had plants for chemical by-products, but these were not specifically studied. In the 5 units of the textile industry, we visited 1 composite cotton spinning and weaving mill, 1 cotton spinning mill, 1 rayon spinning plant, 1 medium size textile finishing plant and 1 specialised handloom weaving plant.

2.4.2. *Limitations of Study*:

The delegation had an extremely crowded programme. On a majority of days, more than one organisation was visited. There was thus insufficient time to make a study in depth in any organisation that was visited. Some companies have been studied in more detail than others because of the adequacy of time that could be devoted to them, or because the organisation concerned had prepared beforehand an exhaustive memorandum covering the points of special interest to the delegation. Our study is based mainly on interviews at the level of top and middle management of the organisations visited by us. There was little opportunity to study the impact of management practices at different levels within an organisation. It was also not possible to evaluate the extent to which various advanced techniques of scientific management were in fact operative and assimilated in the organisations.

The study, in view of all the above considerations, must in general, be taken as representing not the cross section of Japanese industry or of the average conditions obtaining in it. It brings out practices and policies in vogue in the institutions visited and as reported by top management. Certain common features emerge in many instances amongst the different organisations, and they reflect, in our opinion, the nature of top management thinking and the trend set by leaders in industry. We are told that several significant features which strike us as contributing to the high level of the industry in the organisations we have visited, are also common to industry at large. We believe that this must undoubtedly be an important factor in the industrial development of the country as a whole.

PART II

Background Information

CHAPTER 3

Geographical and Administrative Divisions

3:1. *Geographical Divisions*

The parent country of modern Japan encompassed parts of the two islands of Honshu and Kyushu, the smaller island of Shikoku and the southern tip of Chosen (Korea).

During the last one hundred years or so, Japan extended and consolidated her empire. The Kurile islands were wrested from Russia in 1875 by the Treaty of St. Petersburg. The Treaty of Shimonoseki of 1895 with China got for Japan, Formosa and the Pescadores. The Treaty of Portsmouth (1905) which terminated the war with Russia gave her Southern Sakhalin. Korea was annexed in 1910. The empire-expansion programme was completed with the annexation of the North-Eastern Provinces of China and the setting up of the independent state of Manchuria under the aegis of Japan (1932-35).

Japan's defeat in the second World War stripped the island empire of her territorial possessions. The Potsdam declaration of July 26, 1945 stated that "the terms of the Cairo Declaration shall be carried out and Japanese sovereignty limited to the islands of Honshu, Hokaido, Kyushu, Shikoku and such minor islands as we determine." Accordingly, Japanese sovereignty was reduced to these four islands and the future life of Japan was controlled by the Occupation authorities from the time of surrender (September, 1945) to the signing of the Peace Treaty in September, 1951.

Present day Japan consists of the four islands mentioned above with a total area of 141,529 sq. miles and a population of 83 million, with a density of 587:8 persons per sq. mile. Northernmost Hokkaido (30,332 sq. miles), the most recently settled part of Japan, is separated to the south from Honshu (88,976 sq. miles) the largest and most populous island, Southernmost Kyushu (16,247 sq. miles) and smaller Shikoku (7,248 sq. miles) face Honshu across the inland sea. Many smaller islands are scattered along the coasts of these four main islands.

Geographically the Japanese archipelago is but a single component of a sequence of island festoons that stretch north and south between the southern tip of Kamchatka Peninsula in Siberia and South-East Asia. The insular character of the country has had a dominant influence on the outlook of its people. The Japanese coastline with its length and variety has been primarily responsible for the emergence of Japan as a leading fishing and maritime power. It is stated that for each square mile of land surface, there are nine miles of coastline. This, together with the concentration of the Japanese people in coastal alluvial plains meant that the most productive and densely settled parts of Japan had "one foot in the

sea". Land deficiencies have to be made up by a reliance on the surrounding seas.

Mountains dominate the Japanese landscape. Only about 15% of the land surface is level or of modest enough scope to permit agriculture. In addition to the difficult terrain, volcanic chains embrace the islands which lie within the confines of a continuous zone of crestal instability which has been named the "Circum-Pacific rir.g of fire". Inevitably life has had to centre round a large number of smaller, dispersed coastal low lands and interior basins whose total size is only one-fifth of the land surface. On the plains are concentrated the bulk of Japan's agricultural land, the major industrial centres, leading cities and ports and the principal segments of the transportation system. The pressure on the land and the natural resources of the country is formidable.

3:2. *Administrative Divisions*

Japan's defeat in World War II and the occupation of the country brought about great changes in the structure of Governmental and administrative agencies. Most of the changes were directed towards greater decentralization in Government and in administration. A new constitution was inaugurated in May, 1947. The new constitution stated that "sovereign power resides with the people". The Emperor became a constitutional monarch. All effective control over the executive branch of the Government was centred in the Prime Minister and members of the Cabinet and their collective responsibility to the Diet was established.

The function of legislation centred round a two-chambered Diet or Parliament. The Lower House is called the House of Representatives and the Upper House is known as House of Councillors. Theoretically the members of the House of Representatives hold their seats for four years but the Prime Minister is empowered to dissolve this Chamber and call a new election any time he is faced with a vote of no confidence. The constitution has granted a number of civil rights to the "individual including that of life, liberty and the pursuit of happiness", but only "to the extent that it does not interfere with the public welfare".

By common consent the country is divided now into eight major parts according to its geographical aspects. For administrative purpose however, it is divided into 47 prefectures each with a prefectural Government under a Governor. The regions and prefectures are as under:—

Hokkaido Region	1 prefecture
Tohaku (North-eastern) Region	6 prefectures
Kanto (Eastern) Region	6 prefectures
Chubu (Central) Region	9 prefectures
Kinki (Metropolitan) Region	7 prefectures
Chugoku (Middle Province)	5 prefectures
Shikoku (Four Provinces)	4 prefectures
Kyushu (Nine Provinces)	7 prefectures

CHAPTER 4

Economic Growth

4:1. *Economic Growth prior to World War II*

4:1:1. *The Pre-Restoration Period*

Before the Meiji Restoration in 1868, the pattern of Japanese society was feudalistic in character with clearly defined class distinctions. At the top were the Lords who could be compared with the Indian Princes before partition, ruling over small territories; then came the Shamurais or the aristocrats followed by the common people and the untouchables. There was little freedom of occupation or trade for individuals who had to follow hereditary traditions.

Upto about 200 years prior to the Restoration, the entry of foreigners in Japan was not banned and taking advantage of this open door policy, the Portuguese made a determined effort to infiltrate through the activities of their Missionaries which were ostensibly directed towards the propagation of Christianity. It was, however, one of the many incursions of the Western nations at that time for acquiring new colonies or expanding existing ones. In Japan this resulted in the Catholic mutiny in 1634 and in consequence, Japan closed her doors to foreigners. Only the port of Nagasoki was kept open, and this was the only means of communication between Japan and the rest of the world. The slogan during this period was "reverence for the Emperor and expulsion of the foreigners".

4:1:2. *The Meiji Restoration*

The Restoration, which can be compared to the French Revolution, brought about radical changes in the set-up of society. It abolished the caste system and, therefore, the privileges of the aristocracy, threw open new avenues of occupation and gave freedom to the untouchables. One of the effects of the Restoration was centralisation in politics and economy. This was achieved through the abolition of the inner barriers between the small territories ruled over by the Lords, through improvement in the means of communication and by the introduction of an unified currency. This resulted in an awakening of the spirit of nationalism in the country.

At the same time, the anti-foreigner feeling which had led to the closure of doors to aliens underwent a change and it was realised by the Government that in order to profit by the advanced technological knowledge of the West, free intercourse with these nations would be necessary. This realisation was brought home rather forcefully by the great superiority of the British Navy. The importance of acquiring advance technique and modern scientific knowledge for the defence of the country made it necessary for

Japan to follow an open door policy. Despite a very strong spirit of nationalism, Japan has ever since profited by learning from other countries and absorbing in her political, social, economic and industrial structure all special characteristics that she considered good for her.

Soon after the Restoration, with a view to rapid industrialisation of the country, Government started to import mechanical means of production, transport and shipping from Western Countries. These new industries were started as Government enterprises not much for want of capital on the part of private interests as for the absence of a pioneering spirit in the field of industry. There was no basic ideological reason for starting State enterprises and, therefore, as soon as each new industry started to run economically and successfully, the projects were taken over by private capitalists. In many cases, such industrial establishments were transferred at a financial assessment lower than the correct valuation at the time.

The introduction of modern industry in Japan through direct action of the Government brought in its wake important modifications in society and in trade and commerce. It marked the entry of the Shamurai class into business with the slogan, "Shamurai in spirit and merchant in talent". It broke the social distinction which classed merchants as even lower than the commoner and thus gave them much needed freedom, and fostered the establishment of a modern banking system and a stock exchange.

4:1:3: *The Industrial Revolution*

When Japanese enterprise was initiated into the modern practices of industrial production and commerce, the advantages thereof were appreciated on all hands. Thereafter the growth of industrialisation in the country was rapid. What took the Western countries something like 70 to 100 years, was achieved in the comparatively short duration of only about 20 years in Japan. Great emphasis was laid during this time on training of Japanese engineers and technicians, either by sending them abroad or by bringing foreign experts to Japan. However, this industrial development was not by any means steady throughout the period. It was characterised by three cycles of about 10 years each, each with a peak period of about 3 years when the rate of advancement of the industry was maximum. The peak periods generally corresponded with general prosperity of the country. The first of these peaks was reached in 1895 when railways, banking, the textile industry, general commerce, the stock exchange and joint stock companies were established. The second peak which came about in 1905 marked the development of mining, general engineering and electrical machinery industries, paper making etc. The most important achievements were in the third stage in 1916 *i.e.*, immediately after the beginning of World War I. The vacuum created in the markets of importing countries as also in Japan by the withdrawal of Western sources of supply during the war, gave a great fillip to Japanese industry. It expanded and multiplied its activities with a view to not only meet her domestic needs but also to cater to the needs of other Eastern countries.

Thus came about the establishment of such industries as chemicals, sheet glass, iron and steel, coal, shipbuilding, heavy machinery etc. At the end of the World War I, Japan had almost achieved her objective of self-sufficiency in industrial machinery. The steep rise of Japanese industrial expansion during the third cycle was reflected in capital investment which increased 20 times during the period 1914 to 1920. It could indeed be called an industrial revolution.

One of the important factors which contributed in a large measure to this extraordinarily rapid industrial development was the high rate of capital accumulation which in its turn was made possible because of Japan's ability to combine an Asian standard of consumer livelihood with the highly developed production technique of Western countries. The maintenance of internal law and order by a strong government and at the same time, the absence of any labour laws or trade union movement might also be contributory factors.

The end of the World War I saw Japan with plentiful supply of cheap electric power. Small engines were also in abundance. This enabled dispersal of industries, and small and medium scale industries grew up like mushrooms and operated mostly as complementary to large industries and only sometimes in competition with them. So far as the large industries were concerned, the philosophy of subcontracting was mainly for the conservation of investment by spreading production, and reducing risk. This was especially so in the engineering industries where the larger units utilised the services of small operators for the supply of small component parts.

Soon after the War, there was a gradual trend to a system of monopolistic capitalism. Japanese industry also imported from the West the concept of industrial rationalisation *viz.*, rationalisation of production by formation of cartels and trusts. About this time (1930), Japan embarked on an ambitious project of territorial expansion with what was then termed the "Manchurian Incident" as a starting point. With a view to strengthening and controlling her national economy, the Japanese Government supported the formation of cartels and trusts which extended to a large sector of major industries such as textiles, cement, iron and steel, paper, chemicals, etc.

The effect of intensive monopolistic capitalism was reflected in the lowering of food grain prices which brought misery in its wake to the framers and led ultimately to class struggle in rural areas. The disparity in the fortunes of industrial labour and peasants was great. This accentuated the agony of the latter and made for continual shifts of population, from village to city during periods of prosperity and from city to village during depressions. With small holdings of land and with 5 or 6 dependants to maintain, Japanese farmers found it impossible to effect any improvement in the methods of agriculture. Government, therefore, took initiative to ameliorate the condition of the peasantry and to increase the agricultural yield, and as a result of sustained effort succeeded in raising the productivity considerably.

In the period immediately prior to World War II, the concentration of industry and commerce had reached a point where a few at the very top of the industry were in virtual control of the major industries of the country through holding majority shares of com-

panies. They were in control of banking and insurance as also of trade and commerce, both national and international, and were thus in a dominant position with respect to the entire economy of the nation. The power wielded by these few was not limited only to the fields of industry and trade but pervaded politics also and particularly over Government and its officials. "Zaibatsu" is a term which is used vaguely to denote these few groups of comprehensive business organisation, each controlled by a holding company that had been built up by the investment of huge capital funds of some important families. The most influential of these Zaibatsu families were Mitsui, Mitsubishi, Sumitomo and Yashida. There were in addition some medium and small Zaibatsus such as Furukawa, Nomura, Yamashita, Tatsuma, Okazaki etc. It is interesting to note that most of these families had in early days received great assistance from Government in one form or another. For instance, Government owned enterprises were almost all disposed of to them during the later part of the last century. It is believed that even upto their dissolution after the end of World War II, they had enjoyed a privileged position in their relation with the Government officials and, therefore, received concessions and information which helped them considerably in their growth.

4.2. *Economic Growth during the Post-War Period.*

4.2.1. *General Features:*

During World War II, the entire national resources of the country in men, material and money were completely mobilised towards the effective prosecution of War. In the industrial field the emphasis shifted from commercial production to the production of munitions. Thus for instance, "Cotton spinning and weaving equipment in good condition were scrapped in order to be thrown into open hearth furnaces", for the production of implements of war. In the circumstances, defeat was a shattering blow to Japan. She lost over 40% of her former territories and almost all her foreign trade. Her population rose alarmingly, partially because of the large number of repatriates who returned from abroad and partially because of a mounting birth rate, while her industry was reduced to a mere fraction of what it was before the war. With the occupation of Japan by the Allied Forces, some of the industries were completely disbanded and others allowed to operate with restriction on capacity. To add to the political and economic turmoil which followed the cessation of hostilities, commodity prices soared up sharply because of a combination of causes such as the release of purchasing power of the people, big disbursement of money by Government as well as by private concerns. This started the first of a series of inflationary cycles after the war, with wages chasing prices.

The main object of the Allied Powers in the immediate post-war days was the complete demilitarisation and democratisation of Japan and not so much the reconstruction or rehabilitation of the shattered economy of Japan. To this end, certain laws were enacted disbanding certain industries which were considered to be the means of production of war materials. Laws were also promulgated for the dissolution of Zaibatsu concerns, the elimination of excessive concentration of economic power, and the prohibition of private monopolies and measures for safeguarding fair trade. Measures were also taken to introduce land reforms, to legalise the formation of trade unions and to change the system of education. These

enactments and ordinances did not in any way help economic recovery; on the contrary, if anything, they led to a greater confusion in the beginning.

The Japanese Government initially laid great emphasis on increasing industrial activity without giving adequate consideration to its monetary system. This directly and indirectly helped in the creation of a climate most suited for inflationary conditions. As a result, even after substantial recovery of industrial production, inflationary tendency continued. In fact, in the short period of about 3 years from August 1945 to 1948, the cost of living index went up about 10 times.

About this time, deterioration in the relationship between the former allies, the U.S.S.R. and the Western Democracies, gave rise to mutual distrust and suspicion. The allied policy towards Japan took a new orientation entirely different from the previous one. The need for bringing economic stability to the country without any further loss of time was fully appreciated. At the same time, it was realised that the policy of demilitarisation and democratisation had brought about what then seemed to be certain undesirable effects. The new policy of positive economic aid was then adopted by the central authority. War reparation terms were relaxed and measures were taken to stimulate productivity, to open ways for imports of raw material and generally to put Japan on the road to economic self-support. The "Dodge Plan" was drafted for the stabilisation of her economy. The main objects of this plan were to arrest the increase in currency by securing balanced national finance and curtailment of all unnecessary expenditure for stabilising the value of Yen. For controlling inflation it was essential to stabilise commodity prices and the latter could be secured through the stabilisation of the value of the Yen.

All these measures helped considerably to create a stable condition in which industrial capacity and industrial productivity steadily rose. By 1950, when the Korean War broke out, Japan's industry had reached a stage which made it possible for her to meet the heavy demand for industrial goods generated by the war. The extra spurt enabled her to accelerate the pace of development considerably, and soon she had not only recovered her pre-war strength in many of the major industries, but actually exceeded pre-war levels. The rate of improvement continued despite a minor setback at the conclusion of the Korean War and by 1954 remarkable recovery had been made in the industrial field.

Particular aspects of economic growth during the postwar period are discussed in the following sections. Papers on "Japan's Industrial Policy", on "Japan's steel industry and its problems", on on "Present condition of the chemical industry in Japan", on "The present status of Japan's chemical fibre industry" and on the "Present status of the textile industry" are given in Appendix III to this report.

4.2.2. *Population*:

Japan has, after the war, an area of about 142,000 sq. miles with a population of about 90 million people, that is, its area is about one-ninth that of India and its population about one-fourth. Its population density is the second highest in the world being next only to Belgium's.

Japan's population increase over the last few years is shown in table No. 3. After the war, 6 million japanese were repatriated

from overseas territories. During the past few years, due to the practice of birth control, there has been a sharp decrease in the birth rate. Thus in 1954 the birth rate stood at 20 per 1,000, a drop almost to the birth rate in Western countries. On the other hand, improvement of medical facilities and public hygiene have brought the mortality rate down to 9 per 1,000. In the light of this tendency Japan's population is expected to exceed 100,000,000 by 1970, but the rate of increase after that year is expected to slow down markedly, thus stabilising the population. Nevertheless in view of the fact that persons born during the period when the birth rate was high are expected to join the labour force during the next 20 years, Japan has to plan to provide suitable employment to this increased population.

4.2.3 *Employment and Occupation*:

The position regarding employment is summarised in the following table.

TABLE 10

JAPAN'S LABOUR FORCE AND EMPLOYMENT STATISTICS

(in thousands)*

Year	1951	1952	1953	1954	1955
Total population . . .	84,330	85,580	86,680	88,030	89,100
Pop. 14 year old & over .	56,270	57,450	58,310	59,280	61,280
(A) Employed Agriculture and Forestry . . .	16,170	16,370	17,130	16,670	17,250
Others . . .	20,050	20,920	22,120	22,910	24,240
(B) Totally unemployed . .	390	470	450	580	690
In Labour Force (A+B) .	36,610	37,760	39,700	40,160	42,180
Not in Labour Force . .	19,660	19,690	18,610	1,920	19,100

The completely unemployed population is thus slightly more than 1.5 per cent. of the labour force.

The figures of unemployed however do not truly represent the situation. In the small scale industries' and agricultural sector, people are reconciling themselves to very low wages for want of anything better to do. Owing to Japan's family system which emphasises mutual assistance amongst family members the Japanese usually extended help to kinsmen in need.

The overwhelming majority of Japan's enterprise are on small or medium scale in which the status of the employees can hardly be distinguished from family members.

Therefore unemployment in Japan tends to be latent. The figures for latent unemployment at present are estimated at about 6.5 million including about 3 million among farm workers.

The general structure of occupations is indicated by the following table which pertains to 1950.

*Based on Labour Force Survey compiled by bureau of Statistics, Prime Minister's office.

TABLE

Occupational Structure

Total population		83,200,000
Employed persons :		35,575,000
Percentage Employed in	Agriculture	45·3
	Forestry & Fishing	3·0
	Mining	1·6
	Construction	3·9
	Manufacture	15·9
	Wholesale & Retail Trade	10·8
	Finance & Insurance	1·0
	Transport & Communications	5·1
	Services	8·9
	Government	4·2
	Others	0·3

Source: Official Census Reports.

This general structure has remained practically unchanged during the last few years. Some other interesting features are the following:

In manufacturing industry 94·4% of the total number of industrial firms employ less than 30 people, 4·3% of the firms employ between 30 and 99 people and 1·3% of the firms employ 100 or more persons. The first category (small scale industry) employs 41:3% of the total industrial workers and accounts for 21·7% of the value of industrial goods produced. The second category (medium scale industry) employs 17:1%, of the total industrial workers and accounts for 15·9% of the value of all industrial goods. The corresponding figures for the third category (large scale industry) are 41:3% and 62:4%.

In agriculture and forestry about 31% of the agricultural working population are self-employed, 3% are employees and 60% are family workers. (1955 figures). In manufacturing industry about 22% of the working population are self-employed, 11% are family workers and 67%, are employees.

4.2.4. *Food Agriculture*:

Till about 1920 Japan was self-sufficient in food, but the increase in population gradually brought about a shortage and she was obliged to import foodgrains mainly from her colonial possessions of Korea and Formosa. Now Japan has to buy grains, sugar, fats and oils etc. from South-East Asian and other countries to the value of about 600 million U.S. dollars or almost a third of her total imports.

Only 16% of Japan's total area is arable. The arable land per capita in Japan is only 0·15 acres as compared to 0·88 acres in India. (Year Book of Food and Agricultural Statistics, 1953, FAO). Since the beginning of the Meiji Area to the outbreak of World War II the agricultural population in Japan remained almost constant. due mainly to the fact that the increase in population was steadily absorbed by secondary and tertiary industry. Since the war the farm population has increased by about 20% with the result that the average area of farm under cultivation per farm household is now

no more than 2 acres. The percentage of the Japanese people dependent on agriculture for the last five years is about 45% and there is little further room for an increase in this figure. Though the per acreage production of rice and other crops has risen steadily, the per capita agricultural productivity in 1954 was only 90% of the pre-war level due to an increase in the farming population.

In view of the above facts, industrialisation is universally accepted in Japan to be the only solution to her problem of providing employment to her people and raising the standard of living. But since Japan's indigenous production of raw materials is rather limited, she must rely to a great extent on imports of raw materials from abroad. In order to pay for these imports of raw materials and also of food, Japan must increase her export trade. And for this purpose she must be in a position to manufacture finished goods which can compete in world markets in price and quality. This is a basic fact regarding the Japanese economy.

4.2.5. *Industrial Development*:

Until the beginning of 1930s, light industry especially textile industry made up an overwhelmingly large percentage of Japanese industry as a whole. Except for the part protected and fostered by government in view of defence requirements, heavy industry remained in a comparatively undeveloped form during the above period. It was in the course of instituting a war economy in later years that the development of heavy industry was energetically pushed forward. Industrial production however came to a standsteel after World War II. The recovery in the following years has been remarkable particularly in the chemical, metal and machine industries. The following tables bring this out clearly.

TABLE 1

JAPAN'S MANUFACTURING PRODUCTION INDEX

1934—36 average = 100

Year	Production Index
1935	99·1
1940	149·3
1945	59·1
1946	28·9
1947	35·1
1948	52·5
1949	68·9
1950	82·0
1951	115·1
1952	128·2
1953	159·7
1954	171·9
1955	190·0 (approx.).

Source: Economic Counsel Board.

TABLE 1A

INDEX OF MINING AND MANUFACTURING PRODUCTION IN JAPAN

Selected Industries

1934-36=100

Industry	Year 1949	1950	1951	1952	1953	1954
Mining . .	92·2	96·9	110·8	114·2	122·6	116·6
Manufacturing average . .	68·9	82·0	115·1	128·2	159·7	171·9
Metals . .	..	..	144·0	154·2	183·5	192·2
Machinery . .	..	..	197·1	205·1	266·5	257·1
Textiles . .	..	..	58·0	66·2	76·5	81·9
Chemcials . .	..	..	140·7	168·5	216·6	266·7

Source : Economic Council Board.

The rapid transformation of Japan from a country of light industries, mainly textiles, to one of heavy industries is indicated in Table 1A. It can also be seen from the fact that while in 1934-1935, 69% of Japanese exports by value were of textiles and only 15:5% comprised iron and steel, metals, machinery and ships; in 1954 textiles accounted for 36:8% by value of exports while iron and steel, metals, machinery and ships accounted for 43:5% by value of exports. (Source Monthly Return of Foreign Trade of Japan, as quoted in A Charted Survey of Japan, 1955, The Tsuneta Yano Memorial Society).

Thus after the war Japan's industrial production has been rising steadily and spectacular advances were made between 1947-1953. The increase in production now continues, though at a slower rate.

Even during the period preceding the last war, Japan's rate of industrial development was among the highest in the world. The annual average rate of Japan's industrial development during the period 1870-1936 was about 9%, compared with 5% of U.S.A. and 2% of U.K. over similar periods during their industrial expansion. One of the important factors in this speady industrial development was the high rate of capital accumulation.

4.2.6. *Productivity*:

Together with an increase in industrial production there has been a steady increase in productivity in manufacturing industries.

TABLE 2

LABOUR PRODUCTIVITY INDEX

1934-36=100

	1949	1950	1951	1952	1953	1954
Production Index						
Mining . .	92·2	96·9	110·8	114·2	122·6	116·6
Manufacture .	68·9	82·0	115·1	128·2	159·7	171·9
Employment Index						
Mining . .	214·9	193·6	184·8	189·2	177·4	160·1
Manufacture . .	141·2	133·9	142·2	141·0	142·5	143·3
Productivity Index						
Mining . .	45·5	53·1	63·6	64·0	73·3	77·2
Manufacture .	54·4	68·3	90·3	101·3	124·9	133·2

Source : Economic Counsel Board and Ministry of Labour.

While figures for 1955 are not available, it is estimated that Productivity in manufacturing industries in 1955 has increased by about 15 per cent. over 1954. (Guide Book for Productivity Drive—Japan Productivity Centre).

In mininig it will be noticed that while production has increased 16 per cent. over the pre-war level, the productivity is still much lower than during 1934-36 because of the increased employment in the sector.

4.2.7. *National Income*:

Parallel with the rapid expansion of industrial production the increase in the national income since the war has also been rapid. During the 70 years prior to World War II the net national income increased at the rate of over 4 per cent. a year or 3 per cent. a year *per capita*. Post-war national income has also recovered rapidly and now stands higher than the pre-war level (Table 3). In 1955 it stood at about 205 U.S. dollars *per capita* per year. Though this is much smaller than of the U.S. and many European countries, it is still about 3·75 times that of India. The high ratio of capital accumulation has been probably one of the main reasons for the rapid increase in national income. In the post-war years upto 1954 about 25 per cent. of the gross national expenditure constituted the combined private and public capital formation. From 1954 this ratio has probably decreased and it is expected that the future rate of increase in national income will be somewhat slower than before.

TABLE 3

NATIONAL INCOME OF JAPAN

Calendar year	Population (1,000)	Nominal National Income (1000 million yen)	Nominal per capita income (Yen)	Real per capita income converted to 1934-36 value
1935	68,662	14·4	208	208
1946	75,800	360·9	4,791	110
1947	78,101	968·0	12,413	113
1948	80,010	1961·6	24,543	129
1949	81,780	2737·3	33,472	145
1950	83,200	3361·0	40,413	169
1951	84,600	4353·2	51,456	182
1952	85,900	5091·3	59,270	203
1953	86,700	5878·2	67,800	223
1954	88,080	6062·8	68,830	215
1955	89,100	6574·5	73,790	233

NOTE 1—Population figures upto 1953 obtained from Bureau of Statistics, Office of the Prime Minister, as quoted on page 18 of 'Nippon' A Charted Survey of Japan.

(2) Population figures for 1954, 1955 obtained from 'Economic Survey of Japan (1955-56)' Economic Planning Board, Tokyo, Annex 73.

(3) Nominal National Income, till 1953 obtained from National Income Section Economic Counsel Board.

(4) Nominal National Income, 1954, 1955, obtained from 'Economic Survey of Japan 1955-56' Economic Planning Board, Tokyo, Annex 2.

(5) Real per capital income calculated by dividing nominal income by consumer Price Index based on 1935 = 100.

4.2.8. *Wages*:

The average monthly wage levels in various occupations apart from agriculture are given below:

TABLE 4

AVERAGE MONTHLY EARNINGS IN VARIOUS OCCUPATIONS

Overall average	16,741 Yen
Mining	17,165 „
Manufacture	15,322 „
Wholesale & retail trade	17,643 „
Financial and Insurance	22,687 „
Transport and Utilities	19,372 „
Construction	12,568 „

Source : Ministry of Labour—Figures relate to 1953.

While we have no exact figures for average monthly earnings in agriculture, it is of interest to note that in 1955 primary industry comprising agriculture, forestry and fishing on which 48·3% of the population depended for livelihood contributed 21·7% to the total national income while secondary industry comprising mining, construction and manufacture on which 21·4%, of the population depended contributed 30·3%, to the national income and tertiary industry (Trade, Finance, Services, Utilities) on which 30:3%, of the population depended contributed 48·4%, to the national income.

The average wages paid in small and medium industries (employing less than 100 people) is much lower than in large scale industry. In 1954, for example, taking the average wage level in establishments employing 1000 people or more as 100, the indices for males and females were 53·3 and 61·5 respectively, in establishments employing less than 30 people, and 62·7 and 66·9 respectively in establishments employing 50 to 100 people. (Source: Economic Planning Board).

4.2.9. *Cost of Living*:

A real comparison of the cost of living between pre-war and present times is hardly possible in terms of commodity prices since there has been enormous inflation with corresponding depreciation in the value of the yen. Compared to 1934-36 = 100, for example, the Tokyo wholesale price index stood at about 35,150 in 1953. In June 1955 the commodity price index was about 350 times that of 1937 while the currency in circulation was about 300 times. Immediately after the war, there was a steady rise in prices.

The following table gives the trend of consumer Price Index as compiled by Bank of Japan.

TABLE 5

CONSUMER PRICE INDEX
June 1948=100

January 1947	33·8
December 1947	78·2
June 1948	100·0
December 1948	124·6
June 1949	142·5
December 1949	132·5
December 1950	121·2

Source : Bank of Japan.

Since then there has been some rise in prices, but not to the same extent as up to 1949.

The Consumer Price Indices (all cities of Japan) is given below:

TABLE 6

CONSUMER PRICE INDEX

1951—100

1950	85·9
1951	100·0
1952	105·0
1953	111·9
1954	119·1
1955	117·8

Source Bureau of Statistics, Office of the Prime Minister.

The circulation of Bank of Japan currency notes is shown below

TABLE 7

CIRCULATION OF CURRENCY NOTES

End of year	Circulation (Millions of Yen)
1937	2,305
1945	55,421
1946	93,398
1947	219,142
1948	355,280
1949	355,312
1950	422,063
1951	506,384
1952	570,431
1953	629,891
1954	622,061

Source : Bank of Japan.

4.2.10. *Standard of Living*:

As reflected in the steady increase of real national income, the standard of living during the past few years has been steadily rising and has now surpassed the pre-war standards in urban as well as agricultural sectors. The contents of consumption have also been elevated to higher classes (*e.g.* people are buying better type of goods, and going in for more education, entertainment, travel radios, television, cameras, washing machines etc.). The standard of living as judged by consumption levels is shown in the following tables.

TABLE 8

Consumption Level in Urban Population

	Expenditure in Yen per household/ month	(A) Adjusted expenditure for household size	(B) Index of A	(C) Consumer index (cities)	Consumption Level B/C	*Pre-war Basic Index
1951 . . .	14,410	14,991	100·0	100·0	100·0	68·9
1952 . . .	17,862	18,166	121·2	105·0	115·4	80·2
1953 . . .	21,381	21,688	147·2	111·9	131·5	94·0
1954 . . .	22,678	23,065	156·7	119·1	131·6	100·0
1955 . . .	23,211	23,961	162·7	117·8	138·1	106·5

*Consumption level based on index of household expenses of workers in Tokyo in 1934-36.

TABLE 9

Consumption Level in Farm Population

1951—100

Year	Expenditure per household per year (Yen)	(A) Adjusted expenditure	(B) Index of A	(C) Consumer Price (Rural)	Consumption Level B/C	*Pre-war Basic Index
1951 . . .	217,049	215,905	100·0	100·0	100·0	109·4
1952 . . .	254,930	255,183	118·2	105·7	111·8	122·3
1953 . . .	285,619	287,611	133·2	113·2	118·9	127·9
1954 . . .	304,510	310,430	143·08	122·4	117·5	128·5
1955 . . .	325,574	323,858	150·0	123·9	121·1	132·5

*Consumption level based on index of household expenses of farm population in Japan in 1934-36.

Source: *Economic Planning Board. Economic Survey of Japan 1955-56*

Thus in 1955 the standard of living in urban areas which was greatly affected by the war was 6·4% higher than in 1934-1936 and in rural areas was 32·5% higher. The rate of recovery has however been much faster in urban areas.

4.2.11. *Foreign Trade and Balance of Payments*:

The improvement of standard of living in Japan has been attained mainly through industrialisation. About 30%, of her national income comes directly from mining and manufacturing industries. In order to develop these she has to import many important raw materials besides a considerable amount of foodstuff. It is therefore necessary to increase exports to earn foreign exchange. Japan at present produces only 90% of her rice requirements 55% of wheat, nothing of cotton or wool about 90%, of coal requirements, only 6%, of crude oil, 20%, of iron are requirements and

20%, of salt. Foreign trade holds the key to the Japanese economy. Nevertheless, her foreign trade, particularly export trade, though it has made much progress in 1954 and 1955, is still not in a satisfactory state. Taken as a percentage of gross national production, the value of exported goods for Japan in 1954 was 13%, as compared to 49% for Holland, 30% for Denmark, 22% for West Germany and 20% for Great Britain, countries which, like Japan, are very much dependent on foreign trade. This 13% however includes special procurements which will be mentioned later and the ratio when limited to ordinary exports is only 8·5%.

On account of the drastic change in the value of the yen, it is difficult to make a long range comparison of yearly amounts of her foreign trade. Table 12 shows the amount of trade in U.S. dollars at the existing exchange rates of those years.

TABLE 12

VALUE OF JAPAN'S TRADE IN U.S. DOLLARS

Unit: Million Dollars

Year	*Export*	*Import*	*Balance*
1926-37 average	752	811	—99
1949	509	904	—305
1950	920	974	—154
1951	1354	1995	—640
1952	1272	2026	—755
1953	1274	2409	—1134
1954	1629	2399	—770
1955	2011	2471	—460

*All figures in Foreign Trade and Balance of Payments section taken from the pamphlet 'Japan Foreign Trade' issued by the Ministry of Foreign Affairs, 1956.

One of the characteristics features of Japan's overseas trade is the excess of imports over exports. The exports have been increased considerably in 1954 and 1955 while the import level has been held nearly constant leading to an improvement in the balance of payments. A rough comparison of the volume of foreign trade corrected for change in the value of the dollar is made in Table 13 by deflating the amount of trade in dollars at the effective exchange rate, by the wholesale price index of U.S.

TABLE 13

JAPAN TRADE IN VALUE OF U.S. DOLLARS IN 1926

Unit: Million Dollars

Year	*Export*	*Import*	*Balance*
1926-37 average	889·1	953·6	—64·5
1945	334·6	593·3	—258·7
1950	517·6	613·6	—96·0
1951	758·0	1158·5	—390·5
1952	742·1	1182·3	—440·2
1953	753·9	1425·0	—671·1
1954	984·7	1450·1	—465·4
1955	1215·6	1493·7	—278·1

Thus exports rose above the pre-war level in 1954 and were 36%, higher in 1955. Imports reached the pre-war level in 1951 and were 56%, higher in 1955.

The total excess of imports over exports in the period 1949 to 1955 in terms of 1926 dollar, was about 2600 million dollars or about 370 million dollars a year which is about 5·7 times the yearly average deficit before the war.

Apart from trade in goods, Japan has also a deficit in trading of services in postwar years. The total deficit in trade of goods and services has been covered through dollars attained through Special Procurement Fund. This includes demands for goods and services for military operations in Korea, or for rear supplies of U.N. forces, demand for relief and rehabilitation of Koreans, demand of U.S. and allied forces stationed in Japan and/or for military constructions etc. To meet these demands goods and services were procured from Japan and a big amount of dollars was paid in return. During 1950-1954 this amounted to 2,907 million dollars (which is equivalent to 1,750 million dollars in 1926 dollars value). On top of this, an aid of 1863 million dollars was given by the U.S. between 1945 and 1950 (an equivalent of 1208 million dollars in 1926 value). This total sum was used to set off the big adverse balance in foreign trade.

As is seen in the above tables, the volume of trade in exports and imports has now exceeded the pre-war level. However, the rate of increase has not kept pace with the rate of increase of world trade as a whole. While the average share of Japan in world export and import trade during 1926-37 was respectively 4·26% and 4·34%, postwar highs of 3·19%, for import (1953 and 2·24%, for export (1955) are both substantially lower than the pre-war level. Japan's share in exports can reach its pre-war level when it increases to about double its present level. This is the crux of the problem facing Japan. Japan is hoping that industrial development in South East Asia would afford her an opportunity of boosting her exports to these countries, particularly of machinery, and iron and steel.

The following tables give the relative proportion by value of exports and imports of various commodities in the years 1951-1954 as also of 1924-1936. The actual levels of the trade in monetary terms has already been described earlier. As has been stated earlier, whereas Japan has been a country of light industries and particularly textile fabrics, it is now rapidly turning more and more towards heavy machinery and iron and steel.

TABLE 14

JAPAN'S PRINCIPAL EXPORTS

PERCENT BY VALUE OF DIFFERENT ITEMS

	1933-36 average	1951	1952	1953	1954
Cotton Fabrics & Yarn	33.3	32·6	21.0	20.3	23·1
Silk Fabrics & Silk	27.4	5.9	5.8	5.3	5·1
Synthetic staple and textiles	8.3	8.2	6.7	7.5	8.6
Porcelain	2.7	3.2	3.0	2.9	2·9
Iron and Steel	3.7	19.2	26.5	11.2	11·5
Non-ferrous metals	1.3	3.7	4.3	1.8	3.5
Optical goods	—	0.6	1.0	1.4	1·3
Machinery	10.2	14.8	16.8	25.1	24·2
Ships	0.3	1.5	1.1	9·9	4·3
Toys	2.2	1.2	1.6	2.4	2.6
Fish	4.5	3.3	4.7	6·3	6·2
Others	6.1	5.6	7·5	5·9	6.7

TABLE 15

JAPAN'S PRINCIPAL IMPORTS PERCENT BY VALUE OF DIFFERENT ITEMS

	1934-36 average	1951	1952	1953	1954
Grain & Food stuff	8.4	31.1	35·9	34.0	37·1
Cotton	44.1	21.8	26.1	20.6	22·5
Wool	11.3	11.2	7.8	11.7	8.1
Petrol	8.1	4.0	6.3	10.4	10.7
Coal	2.9	3·0	5.2	4.1	3.5
Ores	2.4	3.5	5·7	3·4	3.6
Steel scrap	4.4	0.5	1·7	3.5	2.4
Others	18.4	17.4	11·3	12·3	12.1

Before the War, China (including Manchuria) had been Japan's greatest export market followed by the U.S. The latter has now become the most important export market with Indonesia and Brazil coming next. In imports U.S. had been supplying about one third of the imports before the war and China and India came next, but today except the U.S. which still supplies about 1/3 of imports, the other sources of import are many and diverse. It will be noticed that though textiles still form the biggest single group of exports, this premier position is being increasingly challenged by iron and steel and machinery.

4.3. *Organisations of commerce and industry and their role in promoting industrial development.*

Japan has a large number of organisations and associations of commerce and industry. Generally, every trade and industry has its own association. In addition, almost every important town and trade centre has got a Chamber of Commerce and numerous associations. These bodies have played an important role in the economic development of the country often by directly sponsoring activities calculated to promote the welfare of an industry or a region.

The following five are the principal economic organisations in Japan:

1. The Japan Chamber of Commerce & Industry (NISSHO) organised by local Chambers of Commerce & Industry is a representative body of local Chambers and makes representation to the competent authorities on the coordinated views of its members.

2. The Japan Federation of Economic Organisations (Keidanren) has its functions centred on major industries and also conducts research work.

3. The Japan Management Association (Nikkeiren) deals with labour problems. It is the "brain-trust" of management, the membership chiefly consisting of major industries, though other industries have recently started joining the Association. Employers' representatives to I.L.O. are sent by this Association.

4. The Japan Federation of Employers Association (Keizai Doya Kai) is composed of individual members who discuss views and ideas and represent them to competent authorities.

5. Chusho-Kigyo Dantai Rengokai is an organisation of small and medium sized enterprises.

Amongst the industrywise associations, one of the oldest and perhaps the most developed organisation is the All Japan Cotton Spinners' Association (Nihon Boseki Kyokai). This was founded in 1882 at Osaka and now has offices at Tokyo and Nagoya as well.

Its scope of activity and the extent of the services rendered by it are described here as they illustrate the important role that an

association of its kind can play. In the postwar period this Association has the following amongst its principal activities.

1. The Association maintains contact and is consulted by Government on matters connected with the textile industry. While foreign trade is under Government control, this Association makes recommendations to the proper Ministry for allocation of foreign exchange. The Association also negotiates for credit to be obtained from American Banks through Japanese Banks for purchasing cotton. Before the war, the Association frequently instituted a voluntary control on the installed production capacity to bring about a balance between production and demand for textiles. Since the war, such action is illegal and the Association has advised Government and accepted the enactment of a measure to provide statutory control. The Association assists Government in maintaining the quality of exported textiles. For this purpose, it has sponsored an institute for inspection for issuing certificates of quality of all textiles that are exported. These certificates are accepted for the purpose of the official export control. Details of the inspection scheme for textiles and the organisation set up to undertake it are given in Appendix.

2. The Association sends representatives to various international conferences and participates in trades negotiations.

3. This year the Association has started a sales promotion programme.

4. The Association has started a centre for the registration of designs and trade marks.

5. Except on certain general questions such as hours of work etc., the Association does not undertake collective bargaining with labour on behalf of industry. Individual companies carry on negotiations and settle their own labour problems. However, whenever required, the Association guides them in doing so.

6. The Association undertakes a programme of joint technological studies. Different technical problems concerning members are handled by the Association. Visits and study groups are arranged for the personnel working in member companies and exchange of ideas is encouraged 62 mills have been visited by groups under the auspices of this Association.

7. The Association sponsors research connected with the textile industry.

CHAPTER 5

THE GROWTH OF THE TRADE UNION MOVEMENT AND ORGANISATIONS OF LABOUR

5. 1. *The Growth of the Trade Union Movement.*

The early economy of Japan after the Meiji Restoration in 1868, was mainly geared to military needs, so that even with the growth of industrialisation there was no significant improvement in the standard of living of the workers. Attempts by the workers to unionise and improve their condition were thwarted, and measures were adopted which made it difficult for the workers to unionise. In 1938, the Greater Japan Patriotic Association of Labour was formed by military pressure. The object of this Association was to increase the war effort, and any act of workers to improve working conditions or wages was construed as an unpatriotic demand, and severely condemned. During World War II, the workers' union, known was the Japan Federation of Labour, was forced to shut down completely.

The development of Trade Unions from 1912 to 1953 is shown in the table below*.

Year	*No. of Unions*	*Affiliation*
1912	Japan Federation of Labour was established as the first labour organisation	
1920	273	—
1925	457	254,262
1930	712	354,312

*Labour Unions in Japan, Japan Productivity Centre, Tokyo.

Regress after Manchurian Event (1931)

1935	993	408,662

(Industry Patriotic Association was formed by military pressure in 1938)

1940	49	9,455

(Japan Federation of Labour was forced to close 1941 to 1945.)

Progress after World War II

Year	*No, of Unions*	*Affiliation*	*Percentage of organisation*
1945 (August)	Nil	Nil	Nil
1946 (June)	12,006	3,679,971	40.0%
1950	29,144	5,773,908	45·9%
1953	30,129	5,842,678	40·9%

In August 1945, World War II came to an end and Japan was placed under the control of the Allied Forces. Measures were taken to change Japan from a war-time to a peace-time economy. Drastic reforms were undertaken in the political, economic, social and cultural spheres, through numerous and successive directives issued by the Supreme Commander of the Allied Powers (SCAP).

One of the policies of the SCAP was to encourage the growth of the Trade Union Movement. The phenomenal growth of the Unions can be seen from the fact that four and a half months after the termination of the war, organised labour totalled 600,000 persons, by the end of 1946, membership had reached 3,000,000 and at the end of 1953 it was 5,84,000.

The post-war development has been roughly divided in three periods based on the transaction of social and economic conditions.

First Period: August 1945—December 1949.

This is the period from the end of the war to the announcement of the Nine Point Economic Stabilisation Programme, and has been termed as the revival period of the Japanese Labour Union Movement.

The first step in the revival was the dissolution of the Greater Japan Patriotic Association of Industries, and the Greater Japan Patriotic Association of Labour on September 1945. Also, by the order of the SCAP, the Peace Preservation Law and the National Defence Safety Law, which had been instrumental in suppressing labour movement, were annulled, bringing about the immediate release of political prisoners.

The Supreme Commander of the Allied Powers expressed himself in favour of the speedy organisation of labour unions, and the Government thereupon enacted the Trade Union Law in March 1946. Furthermore, in the new Japanese Constitution promulgated the same year, the right to organise and the right to conduct collective action were assured as fundamental rights for workers. Thus, not only restrictions on the development of the Trade Union Movement were removed, but active steps were taken for its protection and encouragement.

During this time, however, the general economic situation of the country was very bad indeed. The industrial facilities were largely destroyed during the war, and there was consequently little production and little foreign trade. There was acute shortage of foodstuffs, and the numbers of already unemployed were further swelled by the repatriation of armed forces from abroad.

In order to curb the galloping inflation due to the above factors, the Shide-hara Cabinet issued a Finance Emergency Measures Decree in February 1946 which, in effect, authorised monthly cash payment of workers' wages upto the limit of 500 yen and blocked any amount in excess of this in a special bank account. By September, however, the average household maintenance expenses had reached 1817 yen, whereas the allowance was only 500 yen. With these political and economic factors in the background, the workers started active labour union movements and demanded wage rises, funds to avert hunger,

subsidies for household budgets and bonuses. The methods used in the disputes were mainly sit-down strikes, street demonstrations, slow down strikes and ordinary strikes.

In 1947, a group of powerful labour unions launched a joint struggle on a scale unprecedented in the annals of the Japanese labour union movement. The Government and the public works' union assumed a leading role in the fight, and demanded wage increases, establishment of a minimum wage system, year-end allowances, and opposition to dismissals. A strike of unprecedented magnitude mobilising 2,600,000 participants was imminent. The situation was so serious that the Supreme Commander ordered the strike called off, and subsequently issued an injunction on general strikes. It is believed that this ban on general strikes was the turning point in the labour policy of the Occupation Authorities.

The building up of the national economy was thereafter the primary goal of the country, and the Government realised that the economic recovery could not be achieved without labour's cooperation. They set up an Economic Recovery Conference with representatives from Labour, Government and neutral interests with a view to bringing about peace between labour and management. In order to satisfy some of the labour demands, legislation such as the Labour Standards Law, the Accident Indemnity and Insurance Law, the Employment Security Law, the Unemployment Insurance Law, the Seamen's Law and amendments to the Health Insurance Law and the Welfare Pension Law were passed. Also in September 1947, the Ministry of Labour was established to specifically look after the welfare of the workers.

In February 1948, the Katayama Cabinet from which labour had expected a great deal resigned, and the Ashida Cabinet composed mainly of Democrats and Socialists came into power. But the workers' misgivings and dissatisfactions kept on increasing with the Government, especially in view of the reduction of real wages and the threat of unemployment which was brought about by inflation. The Labour Unions resumed their offensive. The Government and public workers' union conducted dispersed localised strikes for the establishment of a minimum wage system based on theoretical living expenses. These strikes paralysed the Government's work, and finally in July, General MacArthur sent a letter to Prime Minister Ashida demanding that the Public Service Law be revised so as to include a provision forbidding Government and public workers from striking. This law was another significant point in the history of the Japanese Labour Movement, for it compelled the Government worker who were till then taking a leading role in the Labour Union Movement, to retreat in the background. This Act has been considered as a reversal of the Occupation Policy in regard to the support of Labour Union Movement. This reversal was also associated in the international scene with a deterioration of relations between the U.S.A. and U.S.S.R.

It is believed that the reversal of labour policy which was partly aimed at weakening the communist influence on Labour unions actually back-fired. It provided a basis for propaganda against the Occupation Forces that they were antilabour and did not really desire

the welfare of the workers. This accentuated an anti-American feeling, especially in some important sections of the Labour Union Movement.

At the end of the first period, therefore, the protection and fostering of labour unions came to an end, and Government began to concentrate its energies to the stabilisation of the national economy.

Second Period: January 1949—April 1953.

The second period covers four and a half years from the enforcement of the Nine Point Economic Stabilisation Programme or more commonly known as the Dodge Line, in early 1949 to the coming into force of the Peace Treaty in April 1953. This period has been characterised by the revival of the Japanese economy.

In order to formulate policies to stabilise the economy of the country, the SCAP invited a number of experts from the U.S.A. Mr. Joseph Dodge came to advise on the national budget, Dr. Carl Shoup on the taxation system, and Mr. Logan on foreign trade policy. All policies formulated in line with their recommendations are generally known as the Dodge Line. Broadly, the recommendations were as follows:

(1) To achieve a true balance in the consolidated budget at the earliest possible date by stringent curtailing of expenditure and maximum expansion in total government revenues including such new revenue as may be necessary and appropriate.

(2) To accelerate and strengthen the programme of tax collection and insure prompt, widespread and vigorous criminal prosecution of tax evaders.

(3) To assure that credit extension is vigorously limited to those projects contributing to economic recovery of Japan.

(4) To establish an effective programme to achieve wage stability.

(5) To strengthen and, if necessary, expand the coverage of existing price control programmes.

(6) To improve the operation of foreign trade controls and tighten existing foreign exchange controls to the extent that such measures can appropriately be delegated to Japanese agencies.

(7) To improve the effectiveness of the existing allocation and rationing system, particularly to the end of maximizing exports.

(8) To increase production of all essential indigenous raw material and manufactured products.

(9) To improve efficiency of the food collection programme.

The stabilisation programme thus aimed at a sound balance of national finance and an expansion of foreign trade.

Although, the Nine Point Programme helped in bringing the inflationary trend under control, it also resulted in the liquidation of many small and week enterprises, impoverishment of the agrarian population, an increase in unemployment and drop in the purchas-

ing power of the people. Retrenchment was carried out on a large scale in both Government organisations and private industries. A total of approximately 206,500 employees were dismissed from the postal and telecommunication Ministries, 26,000 from other Central Government offices, and 59,000 from local public offices. In private enterprises, 8,800 organisations dismissed 435,000 workers. This large scale retrenchment in private and public enterprises provided a rallying point for the various labour unions, and they launched an extensive movement for the overthrow of the Yoshida Cabinet. The movement started off with a number of strikes; there were a total of 511 strikes involving about one million workers. But due to the firm attitude on the part of the employers and the Government in enforcing the retrenchment policies, the labour offensive was defeatd.

On June 25, 1950 the Korean War broke out. This had a significant influence on Japan—politically and economically. The emphasis of the Occupation Policy shifted to strengthening Japan's defensive power and expediting the conclusion of the Peace Treaty. The strengthening of the defence power of Japan further necessitated the intensification of the anti-communist policy stated earlier. In July 1950, General MacArthur ordered the establishment of a National Police Reserves and an increase in the Maritime Safety Board. At the same time, the Soviet Union also began to make active moves for a peace settlement. The Soviet Union proposed to the United States that a conference be held for the conclusion of an 'ovrall' peace treaty with Japan.

The rivalry between the two worlds relating to the peace treaty with Japan was quickly reflected in the domestic political situation. The question of whether an 'overall treaty' or 'an early majority treaty' should be concluded became an important issue not only in politics, but also in the labour union movement. Finally, Japan signed a peace treaty as worked out mainly by the United States and Britain. The Peace Treaty as well as the Security Treaty were severely criticised by the labour unions, because they believed that America was turning Japan into a military base.

During this period, the economic situation improved considerably due to the outbreak of the Korean war. The improved situation, however, did not last very long because of the suspension of hostilities by the U. N. forces in 1951.

Third Period: April 1953 onwards.

The Japanese Peace Treaty came into force in 1952 bringing to an end the Allied Occupation and control of Japan.

With the sudden cease-fire in Korea, the economic situation showed a downward trend again. Employment decreased and the consumption levels declined. There were many cases of bankruptcy and delay in payment of wages, especially among the small and medium scale enterprises. The effect of the worsening economic situation after the Korean war can be seen from the following retrenchment figures. In the coal mining industry, 126 mines were closed and 29,100 workers dismissed, and default wages totalled about 1,670 million yen. In 17 steel works, 6,500 workers were dismissed, and in ship-building industry, 4,000 workers were dismissed.

Furthermore, owing to the reduction of the American Security Forces in Japan, 25,000 Japanese employees of the American Security Forces were dismissed.

The growing unemployment resulted in a growing uneasiness on the part of workers. In 1952, the General Council of Trade Unions of Japan (SOHYO) started a wage struggle. It demanded a 25,000 yen average monthly wage for workers. The existing average at that time was 13,560 yen. It also organised a Peace Movement against rearmament, military bases and the Japan-U.S. Security Treaty. Many strikes took place through-out the country. There were 16 successive days of power supply strikes, and a strike by the coal miners' union which continued for 63 days. The Government thereupon, passed a bill concerning "regulation of the means of strikes in the electric and coal mining industries."

This great economic and political unrest was reflected in the number of labour disputes in the country. In 1952, there were 725 labour disputes involving a total of 1,845,000 workers. Among these 576 cases developed into strikes. In 1953, there were disputes involving 1,305,000 workers, out of which 546 cases developed into strikes and lockouts.

In this period, the strikes and struggles of labour did not achieve much. The management supported by the Government's austerity budget as outlined in the Dodge line, took a strong stand against the aggressive policies of labour and strengthened their solidarity. In small and medium scale industries, the labour actually co-operated with management in spite of contrary policies at the national level, to prevent a whole-sale collapse of the enterprises concerned.

5.2. *Special Characteristics of the Japanese Trade Union Movement.*

The special feature of the Japanese Labour Movement is a prevalance of the enterprise union' which includes all regular employees of the factory, or mine, or shop, or of a company which owns several establishments. The plant or company is usually the basic unit of local organisation. An enterprise union may be affiliated with the national union or some other larger group, but it usually retains a large measure of control and jurisdiction over matters in its own enterprise.

Since unions have been largerly in the enterprise of plant-wide unit form, there seldom is a craft union such as the A F L in the United States. The national industrial unions which are composed of plant or enterprise-wide unions are affiliated with such larger bodies as the SOHYO or ZENRO according to their respective ideologies. Since most of the locals retain their individual bargaining rights and administrative autonomy within themselves, the national bodies rarely deal with problems of collective bargaining. The national unions chiefly concentrate their energy into political activities and into guiding locals regarding tactics of collective bargaining. As a result of 'enterprise' unions, local autonomy is firmly established throughout the Japanese Labour Movement. The national unions have often tried to take the initiative in local contract bargaining, but they have not succeeded in getting control because the workers are afraid that a third body would disturb the corporate enterprise

from which they secure their daily bread. In other words, the workers believe that they know their company best, and that negotiation by or in conjunction with a third body which does not know intimately the pecularities of the particular enterprise, is actually apt to develop into an impracticable argument over political ideology and lead to unnecessary conflict. It sometimes happens, therefore, that local unions follow a policy which does not necessarily adhere to the policies of the national union with which they are affiliated.

5.3. *Major National Labour Organisations*

In this section, the major trade unions of Japan and their national affiliations are given.* The development and policy of the two largest, that is, the SOHYO and the ZENRO, are given in some detail.

Names of Union	*Number of Union Members*
GENERAL COUNCIL OF TRADE UNIONS OF JAPAN (SOHYO) ORGANISED JULY 12, 1950.	3,025,565
Japan Federation of Coal Miners' Unions (Tanro)	217,620
*Japan's Labour Problems, Ichiro Nakayama, Ministry of Foreign Affairs, Japan, 1956	
Japan Federation of Steel Industry Workers' Unions (Tekko Roren)	116,846
Japan Teachers' Union (Nikkyoso)	565,355
National Railways Workers' Union (Kokutetsu.	369,317
COUNCIL OF ALL TRADE UNIONS OF JAPAN (ZENRO) ORGANISED APRIL 23, 1954	762,986
General Federation of Trade Unions (Sodomei)	341,600
National Federation of Textile Industry Worker's Union (Zensen)	320,000
All Japan Seamen's Union (Kai-in)	79,855
POLITICALLY NEUTRAL UNIONS (roughly)	1,150,000
National Council of Bank Employee's Unions (Zenkinyu)	214,646
National Council of Electric Machine and Tool Workers' Union (Denki Roren)	114,760
Federation of Tokyo Metropolitan Workrs' Unions (Tororen)	83,500
National Federation of Electric Workers' Unions (Denroren)	81,028
All Japan Federation of Free Labourers' Unions (Zennichi Jiro)	95,739
OTHERS	
National Federation of Industrial Organisations (Shin Sambetsu)	42,241
National Congress of Industrial Unions (Sambetsu)	11,12

5.3.1. *General Council of Trade Unions of Japan (SOHYO).*

After the war, in March 1947, the Liaison Council of all Trade Unions of Japan was established as the first united front organisation in the Japanese Labour Union Movement. It had 4,500,000 workers as members. However, due to communist leanings of certain trade union groups, inner dissensions arose and a number of important trade unions seceded from the Council, reducing the strength of the Council to 2,000,000 workers. The democratic and neutral trade unions organised a unification conference in November 1949, and in July 1950 the General Council of Trade Unions of Japan was inaugurated. It was started by representatives from 19 labour unions, including Japan General Federation of Trade Unions (SODOMEI), the National Federation of Industrial Labour Organisations (SHINSANBETSU), the National Federation of Textile Industry Workers' Union, and the National Railway Workers' Union.

In the early stages, the SOHYO's official policy was anti-communist, but because of the Peace Treaty and the Security Treaty, its policy shifted. At its second convention in 1951, it adopted the four peace principles, *i.e.*, (i) to struggle against rearmament, (ii) to maintain neutrality, (iii) to fight against the militarisation of Japan, and (iv) to struggle for an overall peace treaty.

With the adoption of the four peace principles, the SOHYO became increasingly anti-American and anti-Government in policy. The anti-American tendency became stronger year by year, and at its 4th convention in 1953, it set forth the so-called Peace Forces Theory, the Peace Forces including the communist camp. This theory was criticised even by some of the left wing socialists on the ground that "SOHYO" in its eagerness to label America as a war force has ignored the fact that the Soviet Union was another war force".

The shift in policy of SOHYO was also evident from its attitude towards the International Federation of Free Trade Unions. At the time of its formation, Sohyo had supported ICFTU, but in its 3rd convention it criticised the ICFTU and refused to affiliate with it. This attitude caused a split among the members, and the All Japan Seamen's Union, the National Federation of Textile Industry Workers' Union, and the National Steel and Cement Workers' Union withdrew from the Sohyo membership and embarked on the formation of a new labour union.

Politically, the Sohyo supports both the left wing and the right wing Socialist parties, and the Labour-Farmer party. It does not support or participate in joint struggles led by the Japan Communist Party.

The Sohyo's activities are especially directed in working for and giving support to the unemployed, small and medium entrepreneurs, merchants, the intelligensia and the masses. They oppose the participation of workers in management, because they believe that under the present relations existing between labour and capital, there is danger of labour unions being bought over by the employers.

5.3.2. *Congress of Trade Unions of Japan (Zenro-Kaigi).*

Four Unions, the All Japan Seamen's Union, the National Federation of Textile Industrial Workers' Union, the Japan Broadcasting

Workers' Union and the National Stage and Seamen Workers' Union, were critical of the strikes that the SOHYO had organised in opposition to the revision of labour laws, and openly attacked SOHYO for what they believed was its biassed political leadings. They were also opposed to SOHYO's policy of supporting an overall peace treaty instead of a majority treaty. At the fourth convention of SOHYO held in 1953, these Unions seceded on the question of international affiliation with ICFTU, and formed a union on their own and called it the Congress of Trade Unions of Japan.

The Congress of Trade Unions of Japan (ZENRO) opposed the deflation policy of the Government as strongly as did the SOHYO. The ZENRO's policy was to get away from political matters and to emphasise more on economic struggles. It opposed SOHYO's policy of wage struggles during the inflationary period and presented wage demands based on the three factors of labour productivity, the capacity of the enterprises, and living expenses, instead of solely on living expenses without regard to the problem of labour productivity and the capacity of the enterprises. Politically it endeavoured to keep away from politics, but had sympathies with the democratic and socialistic parties.

As opposed to the SOHYO's policy, ZENRO believed that workers should participate in management. Today SOHYO is by far the largest organisation of labour in Japan, but a great deal of its membership is derived from Government servants and teachers. In the field of industrial labour alone, its position is not equally dominant, and ZENRO along with the Neutral Unions exercise an important influence.

CHAPTER 6

GOVERNMENT MEASURES AFFECTING INDUSTRIAL DEVELOPMENT.

6.1. *Economic Self-support Five-Year Plan.*

Before the war, Government had a planning agency whose object was mainly to mobilise production for defence purposes. In 1947, an Economic Rehabilitation Board was set up to work out a five-year rehabilitation plan and to advise Government in implementing it. The powers of this body were, however, gradually curtailed and in 1952 it was renamed Economic Counsel Board, primarily concerned with the collection and analysis of economic statistics. The new Government in 1954 reconstituted this body into the Economic Planning Board, and the latter was asked to prepare a draft five-year plan for economic recovery. This was prepared in January 1955 and was finally approved after modifications in December 1955.

According to the plan, "economic self-support and total employment are to be attained without jeopardising the economic stability". It is explained that:—

> "It is essential for the present Japanese economy to attain economic self-support and to provide the increasing labour force with sufficient opportunities for employment. In order to attain these aims through maintaining the economic stability, a co-ordinated and long-range economic plan should be established. In carrying out the plan, the system of free economy based on the initiatives of private persons and enterprises should be maintained but government controls will be introduced so long as they are necessary.
>
> It is for this purpose that the Economic Self support 5-year plan which is designed to start from FY 1956 and to terminate in FY 1960 has been worked out.
>
> Japan's economy, however, involves many problems which can hardly be expected to be solved within this plan period of five years. Therefore, these problems should be coped with from longer-range point of view. The target figures in this Plan are not to be considered definitely fixed; they should be treated more flexibly in the light of the economic situations from time to time."

Some of the premises on which the plan is based are:—

(1) No basic change will take place in the international political situation.

(2) The production and trade in the world will increase gradually.

(3) The trade restrictions in the world will be mitigated gradually, but free convertibility of currencies cannot be expected to be completely recovered. The export competition in the world market will be intensified.

(4) Japan's entry into GATT will conduce considerably to remove the customs barriers against this country, but the policies taken in various countries to protect their domestic industries will still be maintained to a considerable extent.

(5) All reparation negotiations will come to an end during the first half of program-years, and the aid extended to the South-east countries by advanced nations is expected to continue; as a result, Japan's trade with this region will become active.

(6) The political restriction on the trade with China Mainland and USSR will be relaxed gradually and consequently the economic relations with these countries will be improved.

(7) Special procurement by United States forces is not expected in the terminal program-year (FY 1960).

(8) The present exchange rate will remain unchanged.

(9) Much effort will be made to lower the price level in order to strengthen competitive power in export market.

About employment, the plan states:—

"The employment policy should be fundamentally directed along such a line that the economic activity will be enlarged as much as possible so as to make more employment opportunities and that the latent unemployment will be reduced through increasing their income. The expansion of the economy as programmed in the Plan will not be enough to cope with the employment problem, and it is therefore necessary to expand at the same time public works, unemployment relief and social security system.

"While the aim of making more employment will be partly accomplished as a result of the increase of producion in export and other key industries, no big increase in employment as proportionate to the production expansion can be expected in these fields because of a postulate of improving their productivity. Other industries, especially the small enterprises, are expected to make more contribution to the absorption of labour. It is, therefore, necessary to strengthen and foster the small enterprises."

On economic stability, it is stated:—

"In order to give jobs to increasing labour forces, the economic activity should be expanded. However, if such expansion is to be attained without damaging the

balance of international payments, maintenance of economic stability is the first requisite. That is, if economic expansion gives rise to an inflation, the import inevitably swells, the export contracts, and the balance of payments deteriorates. Therefore, in this Plan the rate of economic growth has been set at such a level that the aimed economic expansion can be attained without giving rise to inflation."

"Excessively sharp expansion of the economy may jeopardize the stability of currency. Therefore, the Plan places its emphasis on the preparation of basis for industrial development in the first half period and for economic expansion and total employment in the latter half."

The Japanese plan is different from the Indian plan in the sense that there is little Government participation in establishing or promoting industries. Except for a few industries like tobacco, camphor etc., all industry is in the private sector. The plan seeks to give the economic targets which are desirable in the context of broad national objectives. Government measures designed to create a climate for national endeavour to be directed towards the achievement of the goals are discussed in the plan. The following have been specifically considered.

(1) Provision of funds to strengthen the industrial foundation.

(2) Promotion of foreign trade.

(3) Improvement of self-sufficiency and economised payments of foreign exchange.

(4) Conservation of national land and its development.

(5) Technical improvements.

(6) Fostering of small enterprises.

(7) Enlargement of Employment and Promotion of Social Welfare.

(8) Continuance of sound Fiscal Policy and Normalisation of credit situation.

(9) Price stabilisation.

(10) Stabilisation of National living and Economisation of Consumption.

The official attitude on some aspects of the plan are noteworthy. Regarding technical improvement, it is stated:—

"The level of Japan's technical know-how is very low as compared with that in advanced nations. In order not be left behind them, to develop new techniques, and to improve her economic conditions, it is inevitable that a series of effective measures be pushed forth vigorously in this field. For this purpose, it is necessary that not only the initiative and independence of

scholars should be repected in each stage of fundamental, applying, and industrialising research, but also the system should be firmly established in which organised and efficient research can be undertaken on a planned basis. At the same time, the achieved results of research should be smoothly turned to account by commercial enterprises and such new techniques should be widely spread. Other necessary measures for this purpose are (1) the early and correct acquisition of information, domestic as well as overseas, concerning the techniques, (2) the expansion and strengthening of research institutes, (3) fostering of excellent experiment and research works, (4) establishment of an organised joint-research system, (5) establishment of organisation for industrial research, (6) smooth financing for the industrialisation of new techniques, (7) establishment of a structure for the propagation and guidance of results of the research.

It is also necessary that the standardisation in industries which does much to elevate productivity should be promoted, that various managing techniques should be bettered and widely propagated, and that the quality of such key materials as metals and chemicals which have great effects on other industries should be improved."

On the question of fostering small enterprises, it is stated:—

"In view of the importance of small enterprises in Japan's economy especially in the aspect of export and employment, it is necessary to organise and stabilise them through effective and proper administration of the Small Enterprise Co-operation Law and the Small Enterprise Stabilisation Law. It is also important that measures are to be taken for fostering small enterprises and protecting them from falling a victim to business depression. Among these measures are readjustment of tax burdens upon them, improvement of their financial situation (including governmental financing). As to the relation between big and small enterprises, a pertinent policy should be established for each industrial group in the form of bringing about the overall harmony on the one hand and of promoting the specialization of their products on the other. The operation of the Anti-trust Law is to be so directed as not to have bad effects on the small enterprises."

It has been emphasised that the economic programme should provide for necessary economic regulation without stifling private initiative.

Some specific targets of the plan are:—

(1) In the first three years (1955-56-57), the primary emphasis is placed on normalisation of economy, particularly

balancing international payments through normal transactions of foreign trade, without depending on Special Procurement Fund.

(2) In the second three-year period, the emphasis is to be placed on expansion of economy and attainment of full employment and all steps will be co-ordinated towards this goal. Full economic self sustenance is expected to be achieved by 1960 and the number of totally unemployed will be reduced from the average figure of 580,000 in 1954 to 425,000 in spite of an anticipated increase of about four million in the labour force during the period of the plan. This will be achieved without further increase of employment in agriculture and fishery.

During the period of the plan, the gross national income is expected to rise by 34%, per capita consumption level 23%, industrial production 53%, agricultural production 20% and exports 60%. With about an 8% increase in population during the period, the per capita national income is expected to rise by 24%. Actually these targets may be exceeded in many cases.

(3) Throughout the whole period covered by the plan, economic stability is sought to be strictly maintained without resorting to inflationary policies.

6.2. *Government Control over Industry.*

The pattern of Japanese economy being essentially one of free enterprise, there are only a vey few industries which are today state owned. In some fields, Government took the first initiative to set up factories, but after the new industry was established it was transferred to private ownership. At present state ownership covers the manufacture of salt, camphor and tobacco, as well as fisheries and breweries. Government also operates tele-communication and railway services, but while the fields of production mentioned earlier are strictly reserved for the State, there are private operators in Tele-communication and Railway business operating parallel with Government. There is strict government control over the manufacture of aircrafts and their parts and of munitions and other equipments of war.

As far as private enterprise is concerned, there is little direct governmental control over industry. However, most industry is largely dependent on imported raw materials and the exports of finished goods, and it appears to be therefore subject to appreciable indirect Government influence, since the latter administers strict control on imports and on foreign exchange. Import control is often utilised to foster industrial development by restricting and even in some cases totally banning the import of articles which are easily procurable from indigenous sources.

As for regulation of prices of distribution of industrial products, there is at present no law which empowers Government in this behalf. However, some basic industries which supply raw materials

necessary for other industries are induced by negotiation with Government to fix prices conducive to general economic growth. For instance, the price of pig iron and steel is fixed by the industry in consultation with Government.

Government has recently enacted legislation for direct control of specific spheres of industry. Such control is designed to prevent excessive and uneconomic development of industry or to afford protection to small and medium sized enterprises. The following examples illustrate the operation of these laws.

6.2.1. *Control of the Textile Industry*:

The post-war recovery in the textile industry had been rapid and a stage had come by 1955 when it was feared that unless expansion of the industry and of its production was put under effective control, there was every danger of over-production. The entire requirement of raw cotton having to be imported also weighed heavily against further indiscriminate expansion of the industry. It was, therefore, considered desirable to halt any further expansion by legislative enactment. Simultaneously efforts were directed towards a greater utilisation of rayon and other synthetic fibres which require much less import of raw materials.

The Textile Industry Equipment Adjustment Law was passed in June 1956, after consultation with the Textile Industry General Policy Deliberation Council consisting of representative from various textile interests including machinery manufacturers and consumers. This Committee was required to recommend on the scope and size of the textile industry in the next five year period. After the problem had been viewed from all angles, a decision was taken to peg the capacity of the spinning section of the industry at the existing level and to reduce the weaving capacity by about 12,000 looms. Any change in the individual capacity could be decided on the basis of the target for the entire industry, the existing capacity of the industry and that of the individual unit. In order to compensate to some extent the small weaving establishments, i.e., establishment with a share capital of less than 10 million yen and employing less than 300 workers, for the loss of equipment resulting from scrapping of looms etc. when they have to reduce their capacity, Government has decided to subsidise a part of the loss. Large spinning establishments who are not covered by this scheme, have themselves created a fund from out of which compensation is to be paid to units who are required to reduce their capacity. There is nothing to prevent strong units acquiring the installation rights of weaker units in order to preserve their own capacity to present level.

6.2.2. *Control on Export Commodities*:

Rigid control is exercised over the quality of goods exported from Japan. For this purpose, a special law called "Law Covering Control of Export Commodities" was enacted with the object of enhancing the reputation of Japanese goods and developing sound export trade. It empowers the Government through the various Ministers to designate classes of commodities which would come within the orbit of this law. Before export of any such commodity could be

effected, goods have to be pre-inspected and only if they satisfy the minimum standard laid down for them, are they allowed to be shipped. Goods which have successfully passed the inspection, are graded according to quality. There are two points for inspection: the first is by the manufacturers or exporters themselves who are required to mark the goods after inspection. The second is by the Government Inspectors whose duty it is to see that the required grade indications have been properly made by the Manufacturers or Exporters. For this purpose, the Government has established a State operated inspection organisation. Moreover, in order to make the inspection system sufficiently authoritative, a high powered body called the "Export Inspection Council" has been set up to determine the standards. Many types of machinery and tools, some items of ferrous and non-ferrous metals, rubber goods, glass and chinaware, textile and textile products and many other sundry goods have been covered under this law.

6.2.3. *Control on Department Stores*:

This control is mainly for the benefit of small shops which have to face severe competition from large department stores operating in their vicinity. Thus under the existing law, a Department Store seeking to expand its business activities is required to apply to Government for sanction of such expansion and only if it is not considered to be harmful to the interests of small shops in the locality, is a sanction accorded. Control is, however, not exercised directly by Government but through independent committees in each bureau of the Ministry of International Trade and Industry. No uniform policy is fixed for the country as a whole for the operation of this control, but decisions are taken with the primary objective of being acceptable to the local regions wherever problems arise.

6.2.4. *Other Controls*:

Certain minor controls are exercised by Government with the principal objective of fostering under-developed industries or industries which due to forces beyond their control, find themselves in difficult circumstances. In this category, fall the following:

(a) Machinery Industry Promotion Act, enacted in June 1956 which seeks to provide certain relaxations to the industries coming under its orbit from the jurisdiction of the Anti-Trust Law. For instance, after the new enactment, it is now possible for these industries to reserve fields of production for individual units without coming under the scope of the Anti-Trust Law. It also provides for financial assistance from banks to needy units through Government recommendations for the purpose of rationalisation of methods of production and for improving overall efficiency. Eighteen types of machine making industries which were placed in an embarrassing situation owing to the continued disinclination on the part of the users of these machines to purchase indigenous machine have been scheduled to come under this Act.

(b) Coal Mine Rationalisation Act which provides for the setting up by Government of a body to facilitate the winding up and closure of inefficient mines after payment of some compensation, the finance required for the purpose being provided by mineowners in general.

6.3. *Taxation.*

The Taxation in Japan is of two main categories. One is the National Tax levied by the Central Japanese Government, and the other is the Regional Tax levied by the respective Prefectural and Local Authorities. In each case, there are direct as well as indirect taxes.

The National Income Tax is charged on the total amount of each person's annual income, the rates varying from 15 per cent. for an annual income of 30,00 Yen to 65 per cent. on an annual income of 5,000,000 Yen. A number of allowances is made in respect of wage income, labour sustenance, social and life insurance, medical expenses and petty losses, in addition to special allowances to old men, widows, students, dividends etc. The National Corporation Tax is charged on incomes in each business year. In case of a family partnership, Corporation Tax is levied on Reserve Funds as well. The rates are:

35 per cent. for annual income less then 500,000 Yen, and 40 per cent. for annual income exceeding 500,000 Yen. There is a rate of 10 per cent. for a reserve fund of family partnership exceeding whichever is higher of 25 per cent. of the capital or of the amount of 1,000,000 Yen.

Prefectural and local taxes on income of companies are about 10 per cent., but a deduction for the national corporation tax is allowed before computing the taxable income for local taxes.

Other National taxes are a Succession Tax and a revaluation Tax. The Succession tax is levied on succession, legacy and donation. The rate varies from 10 per cent. to 15 per cent., and from 45 per cent. and 70 per cent. on amounts of 200,000 Yen to 30,000,000 Yen received by way of succession and donations respectively.

National Indirect Taxes are levied in the case of Liquor, Sugar (Excise), Games, Sales, Gasoline and Oil Fuels, Stocks, Shares, all transactions by way of stamp-duty, exchange Institutions, Stocks and other like institutions, Registration Taxes, Tariffs etc., Entertainment tax, Road tax etc.

6.4. *Labour Legislation.*

Though most of the labour legislation is of very recent origin and that too adopted from a country having a high standard of living, it was indeed a refreshing experience that during our many discussions and meetings with top management, trade associations and others concerned with trade and industry, not even once was any reference made to labour legislation acting as a deterrent to the development of industries. We had, however, no opportunity of studying how effectively the legislation was being enforced.

The labour legislation in Japan is very comprehensive in its scope and many of the enactments, particularly the Labour Standards Law, apply almost to all establishments and enterprises where men are employed on wages. In the following brief summary of the various labour laws, mention is made only of the provisions in so far as they apply to factories.

6.4.1. *Labour Standards Law*:

The Labour Standards Law covers working conditions in general, health, welfare and safety, payment of wages, regulation of hours of work, holidays and annual leave with wages, protection of women and young persons, standing orders relating to conditions of service, training of apprentices, dormitories and organisation of inspection services. The enforcement order issued under the Labour Standards Law lays down the detailed regulations which include provisions such as those covered in this country by the rules framed under the various enactments, such as the Factories Act, Boilers' Act and Petroleum Act. Factories employing 500 or more workers are required to appoint a safety supervisor whose responsibility it is to regularly inspect all safety devices, protective appliances and such other equipment provided for ensuring the safety of the workers. Pre-employment medical examination is required in certain specified occupations and processes. Factories employing as small a number as 50 workers are required to appoint Health Supervisors on a graded scale; factories employing less than 200 workers have to employ two Health Supervisors, one of whom must be a physician; and factories employing 3,000 or more have to appoint 6 Health Supervisors, of which 2 must be physicians. In case a worker is injured while at work or contracts on occupational disease, the employed has to provide necessary medical treatment or bear the expenses for such treatment and pay a non-duty compensation equivalent to 60 per cent of the worker's wages. Ordinarily, workers can be employed only for 8 hours a day or forty-eight hours a week, but the employer may extend the working hours if he reaches an agreement with the trade union when there is a union which is composed of the majority of the workers employed in the unit, or with the persons representing the majority of the workers when no such union exists.

6.4.2. *Workmen's Accident Compensation Insurance Law*:

The Workmen's Accident Compensation Insurance is administered by the Government and all factories employing five workers or more are required to insure their workers. The obligation of the employers under the Labour Standards Law with regard to the provision of medical treatment and payment of non-duty compensation to a worker in case he is injured while at work or contracts an occupational disease is taken care of by the insurance schemes so far as these factories are concerned. The benefits cover (i) cost of medical treatment for a week; (ii) compensation for absence from work equivalent to 60 per cent. of average wage in case the injury is not cured within seven days; (iii) compensation for resulting disability; (iv) compensation for bereaved family (1,000 times the average daily wage); and (v) compensation for funeral rites (60 times the average wage).

6.4.3. *Employment Security Law*:

This law is designed to contribute to the security of employment by providing such services as employment exchange, vocational guidance and vocational training.

6.4.4. *Unemployment Insurance Law.*

Under the Unemployment Insurance Law, all workers in factories employing 5 workers or more have compulsorily to join the unemployment insurance scheme. The National Treasury bears the expenditure incurred on administration of the scheme and also one-third of the amount paid as insurance benefits. The premium payable is 1:6 per cent. of the total wage bill shared equally between the employers and the workers. The qualifying period is 6 months and to receive unemployment insurance benefits the insured person must present himself to the Public Employment Security Office to apply for a job and receive recognition of his unemployment.

6.4.5. *Emergency Unemployment Counter-measure Law*:

When there is large scale unemployment or when there is fear of widespread unemployment, the law provides for the setting up of a programme to absorb as many unemployed as possible in Relief Works and Public Works projects.

6.4.6. *Health Insurance Law*:

Health Insurance provides for benefits to insured persons and their dependents in case of sickness, injury or death attributable to causes outside of their employment or maternity. The insurance schemes apply to establishments in which five or more workers are employed. The insurer under the Health Insurance Law can be either the Government or a Health Insurance Society. The benefits include medical examination, supply of medicines, medical treatment and when the insurer considers it necessary, hospitalisation, nursing and transportation. The National Treasury bears the administrative expenses for Health Insurance. The Government also gives a subsidy for meeting the administrative expenses incurred when the scheme is run by a Health Insurance Society. The contribution rate of Government-managed Health Insurance is 6 per cent. of the wage of the insured worker and the contribution rate of Society-managed Health Insurance is fixed within the limits of 3 per cent. to 8 per cent. Contributions are shared equally between the insured persons and their employers.

6.4.7. *The Trade Union Law*:

The main object of the Trade Union Law is to put the workers on equal standing with their employers in the matter of bargaining with the employers, to protect the workers' right to organise and associate with labour unions, and to encourage collective bargaining resulting in trade agreements governing industrial relations between employers and workers.

6.4.8. *The Labour Relations Adjustment Law*:

The Labour Relations Adjustment Law is intented to promote a fair adjustment of labour relations and to prevent or settle labour

disputes and thus contribute to the maintenance of industrial peace. These enactments and the enforcement orders issued thereunder also provide for the setting up of a Central Labour Relations Commission and Prefectural Labour Relations Commissions to deal with matters such as those concerning unfair labour practices, conciliation, mediation, arbitration of labour disputes and examination of qualifications of trade unions.

6.5. *Labour Relations Commissions.*

The law relating to industrial relations is simple and the machinery for settlement of disputes can be invoked without going through elaborate formalities. It is accepted as a matter of policy that all problems concerning labour relations should be settled after negotiations between the employers and employees themselves and that even in case of lack of agreement the parties themselves should arrange for necessary adjustments to be made. Law is intended only to serve as an instrument to bring the two parties together with a view to encouraging them to negotiate rationally and on equal terms.

6.5.1. *Central and Prefectural Commission for Private Industry*:

The Central Labour Relations Commission as an administrative organ is a constituent part of the Ministry of Labour. It is, however, an independent body and exercises its authority without being subject to the control and supervision of the Ministry of Labour. The Commission is composed of 21 members—7 members representing workers, 7 members representing employers and 7 members representing public interest. The Minister of Labour nominates the labour representatives on the recommendations of the trade unions, the employers' representatives on the recommendations of the the employers' organisations and the members representing public interest with the agreement of the workers' and employers' representatives. The Commission has its own Executive office for carrying out the administrative functions entrusted to it.

The Prefectural Labour Relations Commission, which is an administrative organ of the Prefectural Government, is constituted on similar lines with the functions exercised by the Minister of Labour in regard to the Central Commission being in this case vested in the Prefectural Governor.

The Central Labour Relations Commission and the Prefectural Labour Relations Commissions function independently of each other, though as regards procedures for dealing with cases, the rules in common are laid down by the Central Labour Relations Commission. Matters relating to industrial relations in any individual Prefecture are dealt with by the Prefectural Labour Relations Commissions concerned, while matters which concern two or more Prefectures come within the jurisdiction of the Central Labour Relations Commission. Disputes which are considered important from a national point of view and disputes which the Prime Minister may decide as requiring prompt settlement because of the threat to economic activities also come within the jurisdiction of the Central Labour Relations Commission.

The Labour Relations Commission undertakes mediation in a dispute (1) when both parties concerned request for mediation; (2) when both or either of the parties requests mediation in accordance with the provisions of a trade agreement; (3) when in a case involving public welfare work either party makes a request for mediation or when the Labour Relations Commission itself considers it necessary to mediate or when the Labour Minister or the Prefectural Governor requests mediation because of the important issues involved.

The mediation is carried out by setting up a Mediation Committee consisting of equal number of members representing employers, workers and public interest drawn from members of the Labour Relations Commission and members of the Special Adjustment Committee. The members are nominated by the Chairman of the Labour Relations Commission. The Committee selects its own Chairman from amongst the members representing public interest. The Committee fixes a date and requests the presence of the parties concerned to present their views. The Committee then presents a proposal for settlement. To ensure speedy disposal of cases the law lays down that the Mediation Committee shall make proposal for settlement within 15 days from the date of application for mediation and that the proposal must be accepted or rejected by the parties concerned within 10 days of such recommendation. If after a proposal for settlement is accepted, there arises any disagreement over interpretation or implementation of the terms of settlement, the matter is referred to the same Committee. The Committee is required to clarify or answer the points raised within 15 days from the date the reference is made and during this period, no party can take independent action on the points under dispute.

The Labour Relations Commission can undertake settlement of a dispute by arbitration only when both parties concerned with the dispute request for arbitration or when either or both of the parties request for arbitration in accordance with the provisions of a trade agreement. Arbitration is carried out by setting up an Arbitration Committee of 3 members drawn from members of the Labour Relations Commission or from the members of the Special Adjustment Committee representing public interest. The members are nominated by the Chairman of the Labour Relations Commission.

6.5.2. *Commissions for Public and National Enterprises*:

There is a separate organisation for settling labour disputes and grievances in public corporations and national enterprises.

The employees of the three State-owned corporations viz., Japanese National Railways, Nippon Telegraph and Telephone Public Corporation and Japan Monopoly Public Corporation, and the five national enterprises, viz., postal services, administration of State-owned forests and public lands, security printing, mint, and alcohol monopoly have the right to organise and bargain collectively, but are prohibited under the Public Corporation and National Enterprise Labour Relation Law from going on strike. The Law, however, provides for suitable industrial relations machinery to encourage

collective bargaining for amicable settlement of grievances or disputes over wages and working conditions. To conduct conciliation and mediation in disputes, Public Corporation and National Enterprise Mediation Commissions—one central commission and nine local commissions throughout the country—have been set up in the Ministry of Labour. The Mediation Commission is composed of 9 members appointed by the Prime Minister—3 members representing the public corporation and national enterprise, 3 members representing the employees thereof and 3 members representing public interest. In addition, there is also a special agency in the Ministry of Labour, the Arbitration Commission, to arbitrate in cases of failure to settle disputes by conciliation or mediation. The Arbitration Commission consists of 3 members appointed by the Prime Minister from a list of names submitted by a Selection committee composed of members representing the labour and management of the public corporations and national enterprises. Decisions of the Arbitration Commission are final and binding upon both the corporation and national enterprise and the employees.

So far as the machinery for settling industrial disputes in public enterprises is concerned, it is interesting to note that though the Mediation Commission and Arbitration Commission are established in the Ministry of Labour, the members are nominated by the Prime Minister whereas in the corresponding organisation dealing with industrial relations in private industry the members are nominated by the Minister of Labour or the Prefectural Governor.

6.6. *Vocational, Apprentice and Supervisory Training.*

The role of training in promoting the rapid industrialisation of the country was recognised early by Government. The training programmes are centred round vocational education in schools and universities, vocational training for employment, apprenticeship and training of supervisors.

6.6.1. *Vocational Education*:

The Ministry of Education is responsible for vocational education in schools and colleges, and courses of instruction are offered at 3 levels:

1. Junior High School (Vocational Course).
2. Senior High School (Vocational Course).
3. University (Short-term Vocational Course).

At the University level, the short-term course aims at giving semi-professional and vocational education as distinct from the 4-year system which aims at imparting education at an academically higher level. The Vocational Education Promotion Law lays down that the educational institutions imparting vocational training should have the necessary facilities and equipment and that they must co-operate with the industrial circles in giving vocational training.

The following table, which shows the movement of Senior High School graduates as on July 1956, seems to indicate that vocational training is tuned to meet the specific requirements of the various employing agencies.

	No. of Graduates	Those who enter higher grade schools	Gainfully employed persons	Un-employed	Others
General .	432,043	116,021	154,630	138,517	23,488
Agricultural .	51,916	3,488	39,364	6,465	1,169
Fishery . .	2,734	205	2,157	215	157
Industrial . .	56,906	4,170	47,859	4,145	1,293
Commercial .	85,208	6,993	66,877	9,720	2,483
Household . .	50,251	2,657	18,531	23,901	2,082

6.6.2. *Vocational Training for Employment*:

In the pre-war period, vocational training for employment had been provided by various public and private agencies, mainly as a social welfare measure to increase employment opportunities and to help the unemployed. It was only during the war that a systematic programme of training came to be organised, though this was with the specific purpose of mobilising labour for the war effort. However, after the war, vocational training received a fresh impetus as a measure for mitigating the problem of unemployment. With the promulgation of the Employment Security Law in 1947, a law "designed to supply necessary man-power for industries and to contribute to the economic prosperity of the country by giving everyone an opportunity to obtain employment suitable for his ability", vocational training developed as an important function of the employment security administration. A large number of Public Vocational Training Centres (about 300) have since been established all over the country. Though vocational training is under the responsibility of the Vocational Training for Employment Section of the Employment Security Bureau, Ministry of Labour, the actual operation of the Public Vocational Training Centres is decentralised. Under the provisions of the Employment Security Law, the Minister of Labour can require the Prefectural Governor to establish and operate a Public Vocational Training Centre to give vocational training for employment, but the Prefectural Governor may entrust the operation of the Training Centre to public bodies, which may include local bodies of cities, towns and villages, schools and town-and-village unions. The Public Employment Security Office which is the first-line organisation of the Employment Security Bureau at the local level is, however, responsible for selecting candidates for training and for placing in employment those who have finished the course of training in the centre. It is stated that the unified direction, supervision and assistance of the Central Government in the enforcement of the provision relating to vocational training under the

Employment Security Law has helped in making a rational adjustment of the demand and supply of skilled labour, so much so in one of the reports published in 1955 by the Ministry of Labour, it is claimed that the placement rate of trainees is almost cent per cent.

In addition to these Public Vocational Training Centres, a number of "all-round" Public Vocational Training Centres have been established by appropriating a part of the income yielded by the reserve fund of a special account of the Unemployment Insurance. These Centres have been established for promoting the skill of insured persons and for the re-training of those who have become unemployed with a view to facilitating their placement by increasing their employment opportunities.

6.6.3. *Apprenticeship*:

Under the traditional system which existed upto the end of the 19th Century, teen-agers were employed as apprentices for 7 to 10 years by minor employers who had professional skills. No systematic training was imparted and the apprentices had to learn and acquire the skill themselves. The Factory Law of 1911 was originally enacted to prevent the exploitation of young persons employed as apprentices. The Law, however, applied to factories employing more than 15 workers. More positive steps to institute training of apprentices were taken by the enforcement of the Apprentice Ordinance of 1939, which made it obligatory for certain specified employers to organise training. After the war, the Ordinance was done away with, because it originally aimed at mobilisation and training of workers for the effort. The Labour Standards Law enacted in 1947, however, prescribes detailed measures for regulating apprenticeship with the dual object in view, on the one hand to prevent the exploitation of the apprentices through administrative supervision, and on the other hand to promote training for skilled jobs which require training on the job for relatively longer periods. Under the Apprenticeship Ordinance issued under the Labour Standards Law, the employer who wants to train apprentices must submit a detailed scheme to the administrative office for approval, indicating the number of apprentices to be trained, the method of training, period of contract, working hours, wage standards and the method of payment. The Ordinance further stipulates that the training of the apprentices shall be in charge of a person who has passed the qualifying examination for instructors conducted by the Ministry of Labour and has received a licence from the Chief of the Prefectural Labour Standards Office. The training has to conform to standards laid down by the Ministry of Labour.

Small-scale units which find it difficult to give apprentice training by themselves have organised cooperative apprentice training programmes. They jointly employ qualified instructors to give group instruction in civics and other subjects relating to apprentice training, the practical training naturally being conducted in the individual establishments. The available figures indicate that as at the end of 1954, over 28,000 establishments had apprentice training programmes in operation with 65,000 apprentices. Out of the

28,000 establishments, 87.4 per cent. were small-scale units employing less than 10 workers, and establishments employing 100 or more workers were 1.6 per cent. This appears to be positive indication of the value attached to systematic training even by small-scale industries.

6.6.4. *Supervisory Training*:

The Government has sponsored the Training-Within-Industry programme for supervisors in industry. The Ministry of Labour has since 1950 been organising institutes for the training of trainers under the guidance of institute leaders of the Ministry, or Prefectural Governments.

The Ministry of Labour has also been providing to industries the Programme Development Institute since 1954. The Programme Development Institute is intended to train directors or staff-members in order to make them fully aware of the importance of training and to help them in turn to formulate and put into operation training programmes in their own establishments.

6.7. *Industrial Research*:

6.7.1. *Research at the National Level*:

The Bureau of Industrial and Technological Research is primarily responsible for the establishment and maintenance of National Research Laboratories in Japan. The chief of the bureau is directly responsible to the Minister for International Trade and Industry. The following eleven laboratories have been established by the bureau.

1. Central Science Testing Laboratory—Tokyo.
2. Mechanical Engineering Research Laboratory—Tokyo.
3. Chemical Research Laboratory—Tokyo.
4. Chemical Research Laboratory—Osaka.
5. Comprehensive Research Laboratory—Nagoya.
6. Brewary Research Laboratory—Tokyo.
7. Textile Research Laboratory—Karagawa.
8. Mineral Research Laboratory—Tokyo.
9. Electrical Research Laboratory—Tokyo.
10. Industries Research Laboratory—Tokyo.
11. National Research Laboratory—Tokyo.

The last one is concerned mainly with research in petroleum. Besides the eleven laboratories, there are others such as the Aviation Research Laboratory, the Civil Engineering Laboratory etc., which are run by the respective ministries concerned with special problems.

These national laboratories are mainly devoted to research of a fundamental nature. Special attention is paid by the National Laboratories to problems such as development of electronic computors and of atomic energy. Coordination of the work of these laboratories is the responsibility of the chief of the bureau of Industrial and Technological Research. In certain circumstances, he allots

problems to the various laboratories for their solution. These laboratories also give direct service to industries in the form of evaluation and testing of both imports and exports.

Each of the national laboratories have branch laboratories in various parts of the country. The number and location of these branches seem to depend upon the location of the industries which the laboratory is intended to serve rather than on any definite pre-arranged pattern. The function of the branches seem to be mainly dissemination of information regarding research and forwarding the problems of the industry to the main laboratory. Research on minor problems specific to the area are also dealt with in the branch laboratories.

The central laboratories have a staff approximately three hundred each and are financed entirely by the Government.

6.7.2. *Research at the Prefectural Level*:

Every prefecture in Japan has its own laboratory. In some highly industrialised prefectures, there is one laboratory for each industry in the prefecture. In the Aichi Prefecture in which the main industries are ceramics, engineering and textiles, there are four laboratories, one for each industry and one general laboratory.

These laboratories are run by the Prefectural Governments. The Central Government seems to give a nominal contribution and takes no part in the control or management of these laboratories. For services rendered to individual companies, a small charge is levied. But it does not cover the expenditure that the laboratory may incur for that purpose. There is no fixed scale of charges for different types of services, and the actual amount in each individual case is left to the discretion of the head of the laboratory. But those charges are so adjusted as to collect 10 per cent of the total expenditure from the industry.

The technological laboratory of the Aichi Prefecture which we visited has an annual budget of about 30 million Yen per year. There are 78 research workers of whom 15 are university graduates. They do not undertake any fundamental research, but confine themselves mainly to operational research for the benefit of the large number of medium and small scale industries located in that area. A special feature of the work carried out by these laboratories seems to be the importance attached to industrial design. Though they do not undertake training of a routine nature, companies can depute their staff to the laboratory for short periods for specialised training in specific projects.

There seems to be no established procedure for coordinating the work of the various Prefectural laboratories either within the Prefecture or on a national scale. But frequent meetings and conferences of the heads of the laboratories are held when specific subjects of common interest are discussed. Reports of the work done at the laboratories are made available to other laboratories. There are also meetings within the Prefecture to discuss common research as well as administrative problems. A national conference of all prefectural laboratories is held once a year.

6.7.3. *Research at the Municipal Level.*

Besides the large number of national and prefectural laboratories, there is a municipal laboratory in every major city in Japan. The type of laboratory depends upon the major industry within the Municipality. The primary object of these laboratories is direct assistance to medium and small scale industries. The Nagoya Municipal Industrial Research Institute seems to us to be an excellent example of this type of laboratory.

Expensive equipment and expert knowledge on latest techniques are generally available to large scale industries while medium and small scale industries are at a disadvantage in that respect.

Realising the importance of medium and small scale enterprises, the authorities of Nagoya City have shown keen interest in solving their problems. One of the outcomes of their interest in the development of medium and small scale enterprises was the establishment of the Nagoya Municipal Industrial Research Institute, whose object is the development of technique, and the improvement of the quality of products.

The Institute was originally sponsored by the Nagoya Industrial Research Association, but at present it is run by the Nagoya Municipality. There is a committee of three advisers consisting of the former President of the Research Institute, the Dean of the School of Industry and a Professor from Nagoya University. This committee is consulted in preparing the budget and in the planning of new projects. There is a staff of 98 persons composed of 72 engineers, of whom 57 are university graduates, 9 clerks and 17 machine operators. Besides, there are generally about 20 to 30 persons belonging to various plants working at the Institute on their own respective problems.

The functions of the Institute are five-fold:

1. Technical consultations and directions. Direction or instruction offered when manufacturers apply to the Institute in regard to matters about which they have no knowledge, or are in doubt. The Institute also takes it upon itself to give instructions for the improvement of the manufacturing processes in various plants.
2. Tests, analysis, judging. The proper use of materials is a pre-requisite to the manufacture of products that are reasonable in price and of good quality. The Institute undertakes tests on materials before they are purchased, and also tests on the finished products.
3. Requests for processing. No single plant can keep every variety of equipment, this is especially the case with plants engaged in medium and small-scale industry, where only such equipment is kept as is used constantly, for obvious economic reasons. The institute acts as a common facility for such manufacturers and they are able to use the equipments kept at the institute. Moreover, they can request the institute to perform certain processes for them.

4. Instruction of manfacturers. This is one of the most important functions of the Institute, and its aim is the introduction of new and better techniques to various manufacturers. It holds all kinds of lecture meetings, research groups, and publishes and circulates printed matter to attain this object.

5. Research. Technique is undergoing continual changes and improvement. The Institute is always carrying on various researches in order to create new techniques, and put new theories on an industrial basis. The results of its researches are widely publicized and put into practice.

It is significant that the medium and small scale industries are able to make use of the equipment at the Institute for processing on a commercial scale. This help is invaluable not only in furthering the object of the Institute, namely "the development of technique and improvement of the quality of the products", but also in reducing the cost of production in that the small enterprises are able to make use of equipment at a concessional rate, that is normally available only to large scale industries.

The Institute holds frequent meetings at which there is very good attendance. Results of research are explained at these meetings and also through publication of reports. For the purpose of sending their publications, notices of meetings etc., a mailing list is kept for which a nominal sum of 1,000 Yen per year is charged. Problems which this Institute is not in a position to investigate are referred to National Research Laboratories for solution.

The budget for the year 1956 is 69 million Yen. Just as in the case of prefectural laboratories, about 10 per cent. of the total expenditure is collected for services to individual companies. While no charges are levied for consultation or for the use of equipment for a day or two, use for longer periods is charged on the basis of machinery, space and supervision. If, however, the experiment is unsuccessful, charges are levied only for the use of machinery and space, and not for supervision. In either case, the charges are less than the cost incurred by the institute for the services. The total capital expenditure on the Institute so far is about 200 million Yen and this year it is proposed to spend another 30 million Yen. Of this amount, about 10 million Yen have been received as voluntary donations from the industry.

The number of requests received from the industry during 1955 is indicative of the type and manner in which the services of the institute have been utilised by the industry. The breakdown of the total number of requests according to the kind of service is given below:

Large scale Industry	1,502
Small & Medium	7,108
Government	1,224
Trading Firms	1,160
Miscellaneous	888
Total	11,882
Direction & Consultation	1,484
Teasts and Analysis	8,615
Processing	1,411
Installation and loan of machinery	196
Others	144
Total	11,850

It is noteworthy that while the institute has been mainly concerned with requests from small and medium scale industries, requests from other sources, particularly the large scale industry have not been refused. Also, the bulk of the requests are for testing, both of raw materials and finished products which is a sign of the importance attached to the quality of products.

PART III

Productivity Movement

CHAPTER 7

Genesis of the Productivity Movement

In Japan, considerable stress has been laid in the past few years on increasing industrial productivity. The productivity or the average production per worker, in the Japanese industry, though high in comparison with other Asian countries, is low compared to that in U.S.A., U.K., or West Germany. This is reflected in lower wages and lower *per capita* national income in Japan than in those western countries. The figures given below afford comparison between the productivity in Japanese industry and national income with corresponding figures of other industrially advanced countries.

TABLE 1

Productivity and Income

Name of the Country	Productivity (England = 100) (Production per capita in Manufacturing Industries)	Wages per hour (U.S.$ 1953) (Manufacturing Industries)	National Income per capita (U.S.$ 1954)
1	2	3	4
Japan	34	21	193
U.S.	250	177	1,845
Canada	165	—	1,301
Switzerland	—	—	1,038
England	100	55	849
France	—	35	768
Belgium	—	—	748
West Germany	81	39	567
Holland	85	—	523
Italy	—	27	324

Though a more rapid advance is being achieved in Japan in increasing productivity than in other countries as shown in the following table, the increase in productivity over pre war levels is still much lower in Japan than in the U.S.A., Sweden or Italy.

TABLE 2

Rate of Productivity

Name of the Country	Productivity Index 1937 = 100		Percentage increase in Productivity in 1953 over 1952
	1952	1953	
Japan	101	123	21
U. S.	149	155	4
England	117	124	6
Canada	118	112	—
West Germany	108	114	5
Italy	150	166	10
Sweden	133	140	5
Denmark	107	106	—

Source : "Guide book for Productivity Drive" published by J. P C

The improvement in the standard of living in Japan since the war has been closely inter-linked with the increase in productivity. The continuous rise in the real wages since 1947 is co-related with the increase in labour productivity. The standard of living has also shown a continuous upward trend corresponding to the increase in labour productivity. The following figures bear out the relationship between labour productivity, real wages, and standard of living.

TABLE 3

LABOUR PRODUCTIVITY AND REAL WAGES IN MANUFACTURING INDUSTRIES AND NATIONAL STANDARD OF LIVING

Year	Labour Productivity	Real Wage	Standard of living consumption level
1947	100	100	100
1948	145	167	110
1949	186	212	120
1950	231	273	130
1951	294	300	139
1952	316	342	159
1953	370	368	178
1954	376	375	181
1955	428	398	187

Source: "Guide book for Productivity Drive" published by J.P.C.

The Productivity movement gained strength in Japan as a result of the joint efforts of Government and industry. It was increasingly realised during the post-war years that for increasing the national *per capita* income and for improving the standard of living, it was indispensable to increase productivity. The Ministry of International Trade and Industry (MITI) and the Labour Ministry started studying the productivity movements launched in other countries. Simultaneously, important economic organisations of Japan turned their attention to the problem of increasing productivity. The movement started taking concrete shape in the latter half of 1953 when the four principal economic organisations of the country, namely, the Federation of Economic Organisations, the Japan Federation of Employers' Associations, the Japan Chamber of Commerce and Industry, and the Japan Management Association, collectively sponsored a round table conference of 19 different organisations of trade and industry. This conference deliberated on the establishment of a Japan—U.S. Productivity Advancement Committee, in collaboration with the U.S. mission which had by then sponsored the productivity movement in many other countries.

The Japan—U.S. Productivity Advancement Committee was established in March 1954. This Committee was renamed "Japan Productivity Council" in June 1954. Discussions were held by the Council with the representatives of the MITI, and the position in regard to the assistance forthcoming from the U.S. mission was clarified. A conference with the representatives of the MITI, the Finance Ministry, and the Foreign Affairs Ministry was held, and the outlines for launching a centre for the advancement of productivity were decided upon. The Minister of Finance and the

Minister of MITI were approached by the Council to hold negotiations with the U.S. Government regarding assistance for starting such a centre. At the end of 1954, concrete proposals of assistance from the U.S.A. were received.

Even though the movement was started on a non-official basis, it was considered indispensable for its success to give it a national character. The increase of productivity in industry was accordingly adopted by the national government as a major policy in September 1954. The decision of the national government contained such basic acts as to dissolve the Japan Productivity Council with a view to create the more powerful Japan Productivity Centre. In December 1954, the Japan Productivity Council was dissolved for facilitating the establishment of the Japan Productivity Centre (J.P.C.) as a statutory body. A formal meeting for the establishment of the J.P.C. was held in February 1955 and the J.P.C. was officially started on 1st March 1955. In order to encourage the activities of the J.P.C., the Government established the Japan Productivity Liaison Council as a link between the J.P.C. and the Government for deliberating on and deciding the major policies relating to the activities of the Centre. The Government decision also facilitated the receipt of aid from the International Cooperation Administration (I.C.A.) for the Centre.

Before the J. P. C. came into existence, work relating to the increase of productivity in industry was being carried out in specific fields by the Ministry of International Trade and Industry through the Rationalisation Committee for industries, and by the Ministry of Transport through the Rationalisation Committee for the ship-building industry. It was also being carried out through the diverse activities of the Japan Management Association, the Japan Office Management Association, the Japan Management Consultants Association, the Research Institute of Management in the Hitotsubashi University, the Research Institute for Science and Labour, and the Osaka Efficiency Institute. The ground for launching an integrated productivity movement through the J.P.C., therefore, had been prepared by these various government and private bodies.

CHAPTER 8

THE JAPAN PRODUCTIVITY CENTRE

8·1 *Objectives and Principles*

The J. P. C. aims at broad-basing the productivity movement as a national movement. It was felt by the J. P. C. from the very beginning that the movement should not be restricted only to the management and labour directly engaged in industry, but should get the full support of all sections of society. It was considered necessary also to differentiate this movement from the pre-war movements of rationalisation and efficiency increase. The programme of productivity increase was sought to be taken up as an instrument of betterment of national economy, and it needed to be developed as a national movement with full understanding and support of every citizen. It was also desired to extend the movement to fields of transport, commerce, agriculture, forestry etc. In consonance with these objectives the J. P. C. set before itself the following three guiding principles for intensive propagation of the idea of productivity in the country.

"In order to attain independence of Japan's economy and to raise the people's standard of living, improvement of the productivity of industries is most urgent. The Productivity movement should be developed as a national movement with deep understanding and support of the people. Therefore, the basic philosophy of the movement should be understood as follows:

1. Increased productitvity ultimately increases employment, but as to the transitional surplus employment, pertinent measure should be taken to prevent possible subsequent unemployment as much as possible by the joint efforts of the government and people standing on the viewpoint of the national economy, by means of transposition etc.
2. The actual system for the increase of productivity based on each industry should be studied and consulted, by the joint efforts of management and labour.
3. The results of productivity increase should be fairly distributed according to the actual conditions of the national economy, among capital, labour and consumers."

The enunciation of these principles was epoch-making in the history of development of the productivity movement. It set the pace for the acceptance of the productivity movement by a substantial section of labour. It evoked the enunciation of similar principles by important labour unions, wherein they incorporated their acceptance of the productivity movement and at the same time urged the management and the Government to accept their suggestions in order to enable them to give whole-hearted support to the movement. The Japan Federation of Labour Unions (SODOMEI) enunciated its eight principles at the Central Committee meetings held in June and July 1955. It emphasised that these

principles were fundamental for the increase of productivity. These eight principles are:

"1. The productivity drive is different from the individual rationalisation movement and efficiency progress movement, but is a movement which is founded on an integrated policy aiming at independence of the Japanese economy and improvement of the nation's standard of living.

2. The productivity movement is not such as to aim at increasing profit of industry by intensification of labour's burden, but on the contrary, it aims at bringing about the improvement of labour conditions and real wages.

3. The productivity drive should realise the increase and development of industry through expansion and development of the economy. Therefore, the employers and the government should devise effective measures to avoid the danger of unemployment and to provide security of employment.

4. The productivity drive is not such as to bring about the accumulation of capital, but aims at the stabilisation of small and medium industry and the improvement of the life of labourers.

5. All the results achieved through the productivity drive should be properly used for the reduction of prices, the improvement of labour conditions, and the renewal of equipment.

6. It is indispensable for success of the productivity drive that industrial democracy and rational labour relations should be established.

7. As to the actual activities for the increase of productivity, labour agreements are to be concluded between labour and management for smooth progress of the movement.

8. The Japan Productivity Centre, considering particular situations in Japan, should promote the productivity movement with a sincere attitude, fully adopting the opinions of labour unions interested."

These eight principles clarifying the attitude of SODOMEI accord with the principles enunciated by I.L.O. in relation to the productivity movement. These principles were accepted by the J.P.C. as supplementing its own three principles, and on this acceptance the SODOMEI joined the productivity movement and associated itself with the J.P.C. in September, 1955. Simultaneously, another influential and important organisation of labour viz. The Japan Trade Union Congress (ZENRO) enunciated its five principles outlining its attitude toward the productivity movement. With the enunciation of these principles ZENRO joined the movement and gave its whole-hearted support to it. These five principles are given below:

"1. The productivity drive is a movement to be conducted aiming at economic independence by developing industries on the basis of our national economy. We make it definitely clear that it differs from a mere efficiency

improvement movement and rationalisation of individual enterprise which had been conducted primarily by capitalists and were aimed at increase of private profits.

2. It aims at raising the national standard of living and at improvement in labour conditions and real wages by increasing productivity and expanding employment through expansion of economy. We definitely object if the productivity increase be tied with intensification of labour and be used as means of personnel cut.

3. In order to obviate the possibility of unemployment which may partially arise as a transitional phase of the productivity movement, and of changes in working places as the result of reorganisation of enterprises, Government and the management should take measures for all-round employment stabilisation, and in each individual enterprise employment should be maintained by shortening working hours and without lowering labour conditions.

4. One of the main causes of unstable management and hardships lies in low productivity in medium and small enterprises. Therefore, in the process of increasing productivity efforts must be made to find and promote measures for establishing a firm basis for the management of small and medium sized enterprises.

5. Increase of productivity cannot obtain sufficient results without the support and cooperation of labour unions. Therefore, in order to carry on this movement smoothly proper discussions and mutual understanding must be assured in each industry and trade and in each individual enterprise. Also it should positively recognise proposals of labour unions with regard to industrial policy and management."

Upon the announcement of the support to the productivity movement by SODOMEI and ZENRO, various politically neutral labour unions and local industrial unions, who sympathise with the above principles, have given their support to the movement. The All Japan Seamen's Union joined the J.P.C. in October, 1955. The Federation of National Electric Workers' Union, the Federation of National Electrical Appliances Labour Unions, the Japan Railway Locomotive Drivers' Union, the National Special Bureau Workers' Union, the Japan Construction Industry's Office Workers' Union, and many other neutral unions have since joined the movement or expressed sympathy with its objectives. The one big body of labour unions which in principle has withheld its support from productivity movement is the SOHYO. Even though this important national body of labour is opposed to the movement, its constituent labour unions at the factory level or in some regions have, in many cases, associated themselves with the productivity drive. The attitude of SOHYO and other labour unions towards the movement will be discussed at greater length at a later stage in this chapter.

3.2. *Constitution*.

The J.P.C. is a non-official body, having statutory authority. It has been set up under a constitution which lays down its objectives, the powers and functions of the Board of Directors, the financial authority of the centre, the provision for appointment of administrative personnel as well as for the appointment of Advisers and Councillors. Its establishment was facilitated by the advancement of financial assistance by the national government and by the assistance forthcoming from the International Cooperation Administration (I.C.A.) of the U.S. Government.

The activities and projects to be undertaken by J.P.C. have been outlined in article IV of its constitution, which is as follows:

ARTICLE IV:

The Centre shall carry out the following projects in order to attain its objects:

1. Sending overseas study groups for the purpose of applying the knowledge so gained to further productivity in Japan.
2. Inviting foreign specialists on productivity.
3. Studying, investigating and disseminating information on scientific administration regarding production, sales, labour and management problems.
4. Implementing training programmes in respect of production, sales, labour and management.
5. Diagnosing and practical guidance of enterprise practices for the purpose of increasing productivity.
6. Studying, introducing and disseminating information on advanced foreign techniques.
7. Carrying out publicity for the purpose of increasing productivity.
8. Collecting materials and data concerning productivity.
9. Implementing other projects necessary to accomplish the object of the Centre.

Under the constitution, the J.P.C. has a President, Vice-Presidents whose number is not fixed, an Executive Director, forty to sixty directors and two auditors. The Directorate of the centre is drawn from management, labour and progressive intellectuals interested in productivity. The President is elected by the Board of Directors. The Vice-President and the Executive Director are appointed by the President with the approval of the Board of Directors. The Directors and Auditors are appointed by the President. The Executive Director administers the centre under the guidance of the President and Vice-Presidents. In addition to the Board of Directors, the centre also has Councillors and two Advisers. The Advisers advise on administrative policy matters whereas the Councillors make suggestions on implementation of the policies. The Advisers are nominated by the President, with the approval of the Board of Directors, from among those who have rendered meritorious service to the productivity movement as well as from among scholars and specialists. The Councillors are nominated by the President from among scholars and specialists. The Articles of constitution of the J.P.C. are given in Appendix I.

In consonance with the objective of spreading the productivity movement on a national basis, productivity centres are being set up

at regional level in the country. Regional Centres have so far been established in four regions out of eight, and it is expected that centres will be established in the remaining four regions during the next few months. At the prefectural level too the productivity drive is being encouraged by the establishment of Prefectural Productivity Councils in some prefectures.

8.3. *Membership and Fees.*

In securing affiliation of industrial concerns and labour unions, the J.P.C. generally avoids reference to them as 'members', as it is anxious to retain the national character of the movement and not restrict its benefits and activities only to members. The subscriptions paid by the affiliating industrial concerns and labour unions etc. are not termed 'fees' or 'dues', but are generally called 'donations' in order to retain the character of voluntary payment to the Centre. With the progress of the movement, however, the rigidity in the non-use of the words 'members' and 'fees' is decreasing. Lists of affiliating units are maintained for communicating to them literature produced by the J.P.C. and for facilitating the collection of 'donations' from them. For the 'donations', a scale has been laid down which is related to the invested capital and labour potential of the affiliating concerns. The scale prescribes the annual 'donation' of 6,000 yen for units with less than 10 million yen capital, and it goes up to an annual donation of 8,40,000 yen for units with capital of over 10 billion yen. In general, not much difficulty is being experienced by the J.P.C. in collecting donations from the affiliating units. In the case of some industrial concerns the donations are in fact in excess of the amount assessed on the basis of the above scale. For instance, in the case of one industrial concern, the annual donation received by the Centre is 1,200,000 yen.

8.4. *Finance and Budget.*

The sources of revenue of the J.P.C. comprise

(i) donations from the industrial concerns and other bodies affiliated to it;

(ii) a subsidy from the national government;

(iii) contributions from I.C.A. through financial aid to various programmes initiated by J.P.C.; and

(iv) collections made by the levy of fees for seminars and training courses and from the sale of various publications of the J.P.C.

Under the terms of the constitution and the stipulations made with the national government, the budget of the J.P.C. is approved by a top-level Liaison Council which has been established to facilitate communication between the national government and the J.P.C. It has then to be approved by the Minister in charge of the MITI. This procedure provides an indirect control over the expenditure of the J.P.C. by Government. With the exception of this and of consultations which take place with Government in regard to selection of the productivity teams for being sent abroad, the J.P.C. is given a free hand in its day to day administration. A substantial portion of the funds of the J.P.C. are contributed by the I.C.A.

The budget of J.P.C. for the year 1956 amounts to 1,072,000 dollars (about 450 million yen), and in the fiscal year 1957 the budget is expected to go up to 1,899,000 dollars (790 million yen).

Brief particulars of the estimated income and expenditure for the fiscal years 1956 and 1957 are given below:

Income and Expenditure (in dollars) Fiscal Years 1956 and 1957

	Income 1956	Income 1957	Expenditure 1956	Expenditure 1957
1. General Administration	..	..	200,000	324,000
2. Operation of J.P.C.	..	..	809,000	1,454,000
3. Reserve Fund	..	..	63,000	121,000
4. Governments' subsidy	208,000	569,000	..	..
5. *Profit from PL480 investment	69,000	69,000	..	..
6. Recoveries from participants productivity teams	355,000	566,000	..	..
7. Recoveries from subscriptions & fees	398,000	695,000	..	..
8. Miscellaneous	42,000	..	..	..
Dollars	1,072,000	1,899,000	1,072,000	1,899,000

*Profit from PL 480 investment means the difference between the rate of interest (at 4 per cent. per annum) the J.P.C. pays to Government for the loan of one billion yen transferred to the J.P.C. from a U.S.A. Fund Account and the interest it receives (at 6·5 per cent. per annum) for lending this money to the Commercial Co-operative Bank.

In addition to the estimated expenditure of the J.P.C. of about 1,072,000 dollars in the fiscal year 1956, the expenditure by the U.S. Government aggregates to 1,480,000 dollers. The major portion of the expenditure by the U.S. Government is on the productivity teams sent by the J.P.C. to U.S.A. An arrangement has been arrived at by the J.P.C. with the big industrial concerns whereunder the J.P.C. levies charges on those companies from which members of productivity teams to U.S.A. are drawn. The recoveries thus made from the participants of the big companies go to the funds of the J.P.C. though the expenditure on the participants is actually incurred by the U.S. Government. Corresponding to the increased budget of J.P.C. in the fiscal year 1957, the provision of expenditure by the U.S. Government will substantially increase.

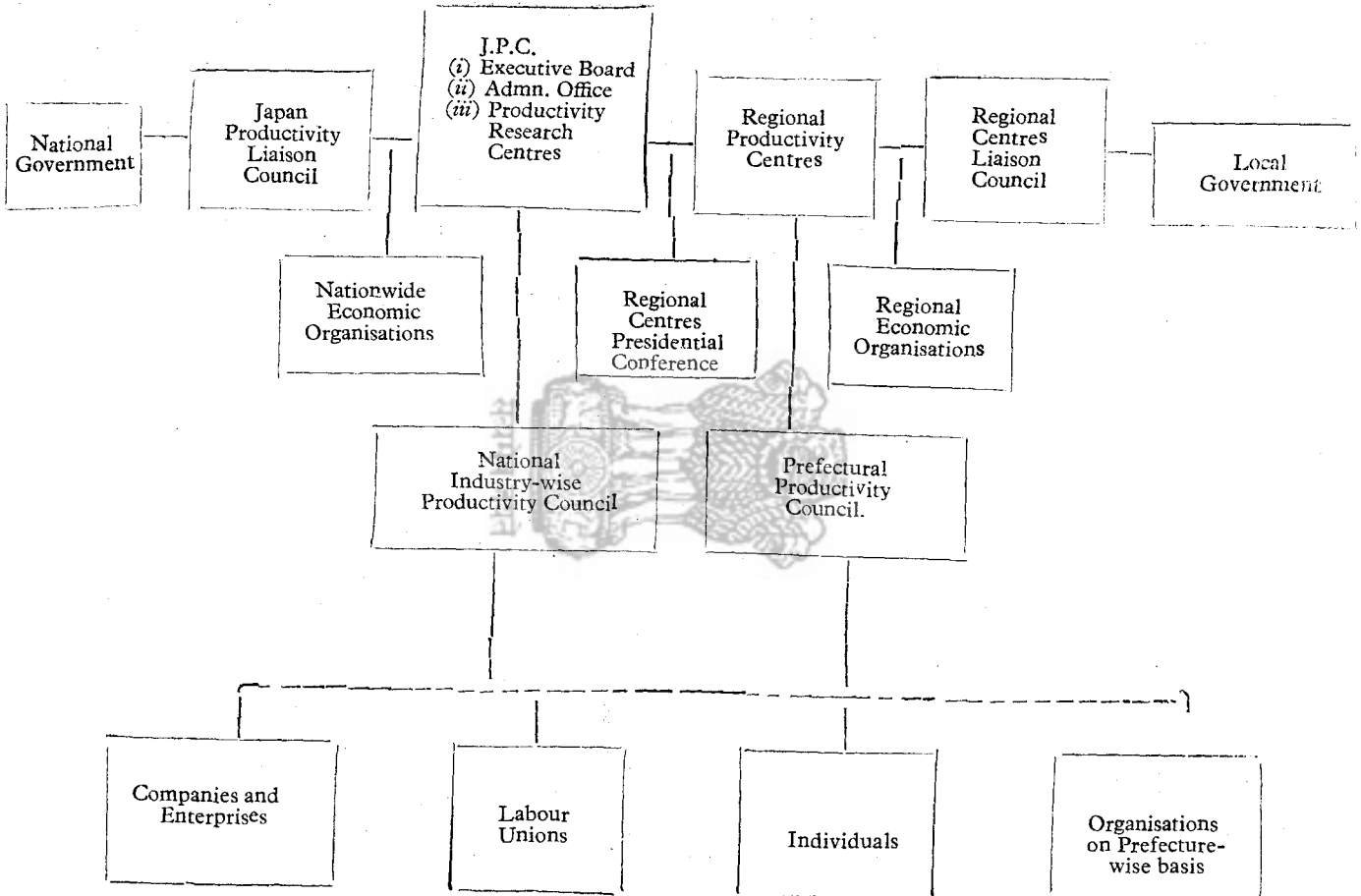
In Appendix is given the budget of the current financial year as drawn up by J.P.C. In the Appendix are also given the details of the provisions made by the I.C.A. for the technical cooperation programme in Japan for the fiscal years 1955 and 1956.

8.5. *Organisation.*

8.5.1. *Relationship with Government and Regional Centres*:

The Japan Productivity Liaison Council, which is the instrument of liaison at the highest level between the national Government and the J.P.C., decides the general policies of the productivity movement. This Council consists of twelve vice-ministers representing all the ministries of the Government with the exception of the Defence Ministry, and twelve Directors of the J.P.C. The President of the J.P.C. is the President of this Council. The Council lays down policies for the guidance of the J.P.C. and approves its budget. It meets once a quarter.

There is a smaller Liaison Committee of four national Government Ministries and J.P.C. The Ministries represented on this committee are: MITI, including the Small and Medium Industries Board, Labour Ministry, Agricuture and Fisheries Ministry, and the Economic Planning Board. The J.P.C. is represented by the


National Government
Japan Productivity Liaison Council
J.P.C.
(i) Executive Board
(ii) Admn. Office
(iii) Productivity Research Centres
Regional Productivity Centres
Regional Centres Liaison Council
Local Government
Nationwide Economic Organisations
Regional Centres Presidential Conference
Regional Economic Organisations
National Industry-wise Productivity Council
Prefectural Productivity Council.
Companies and Enterprises
Labour Unions
Individuals
Organisations on Prefecture-wise basis

General Manager and concerned staff. In addition, there are separate Liaison Committees of the J.P.C. with (a) the MITI and (b) the Labour Ministry. The J.P.C. is represented on these committees by the general Manager, and the Ministries are represented by the officers dealing with the productivity movement. For maintaining liaison with the four important economic organisations of the country there is a separate Liaison Committee.

The chart illustrates the liason envisaged by J.P.C. and the Regional Productivity Centres with the national government and the local governments, respectively, and also with the industries, labour unions, individuals, and Prefectual Productivity Councils.

All the stages of liaison in this chart are not yet active, as all Regional Productivity Centres have not yet been established, nor have Prefectural Councils come about in all Prefectures. It is envisaged, however, that through liaison councils at the level of the Regional Centres and the Prefectures, the J.P.C. will be able to maintain very close contact with all elements in industry, labour and economic organisations in pursuing the productivity drive.

8.5. 2. *organisational structure of the J.P.C.*

The Board of directors of the J.P.C. consists of persons drawn from Management, Labour and Scholars. The present Board of Directors comprises mainly of those who initiated the movement and helped in the establishment of the J.P.C. Under the constitution, the Directors of the Board as also the Advisers and Councillors hold office only for one year, but since the establishment of J.P.C. in March 1955 there has not yet been any regular election of Directors. Originally when the J.P.C. was established, Mr. Taizo Ishizaka, President of the Tokyo Shibaura Electric Manufacturing Co. Ltd., was elected as President of J.P.C. Since then, a new President has been elected, and now Mr. Tadashi Adachi, President of Radio Tokyo, holds this office. There are three vice-presidents, out of whom one is representative of Management, one is representative of Labour, and the third is a professor of a University who also happens to be the Chairman of the Central Labour Relations Committee of the national government. Under the constitution, the number of Directors of the Board is laid down as forty to sixty. At present, the number is twenty-four including the Executive Director and excluding the President and Vice-Presidents. The representatives of management in this Board are men holding eminent positions in industry. The important economic organisations of the country are represented on the Board through their Chairman. Representatives of the labour unions who have accepted the productivity movement are also on the Board. Some university professors are on the Board and constitute the third important element besides the representatives of management and labour.

The constitution provides for the nomination of Advisers and Councillors by the President. Advisers are generally men of eminence who may only occasionally find time to attend meetings and to tender advice. They are picked from among the top men in industry and economic organisations. The Councillors are generally the executives in industry and economic organisations who may be more easily available to the Centre for attending meetings and for holding consultations. The meetings of the Advisers and Councillors

are held only seldom. but their association with the Centre makes for a wider area of support to it. The list of Advisers of the J.P.C. contains ninety five names and that of Councillors thirty one.

The Board of Directors is excepted to meet once a quarter but generally the Board has so far been meeting once a month. It lays down broad policies which are executed by the permanent administrative staff of the Centre under the directions of the Executive Director and the General Manager who are wholetime officers of the Centre. The Directors besides attending the meetings of the Board are also associated with various Committees of the Centre. The administration of the Centre is organised into six departments. The responsibilities and functions entrusted to these departments are given below.

(*i*) *General Affairs Department* (*Personnel*: 20)

It deals with the personnel of the entire Centre. It handles the receipt and despatch of communications of all the departments. It arranges conferences, liaison between the departments and with the Regional Centres.

(*ii*) *Finance and Accounts Control Department* (*Personnel*: 12)

It deals with the budget, cash receipts and payments and accounts.

(*iii*) *Internal Operation Department* (*Personnel*: 12)

It deals with domestic technical exchange, arranges seminars, lectures and discussions on matters relating to management, training, labour, follow-up, technical consultants, management techniques, production techniques, model factory (not yet selected), cooperation between management and labour, programmes of labour unions, and liaison with government administrative organisations.

(*iv*) *International Department* (*Personnel*: 19)

This department deals with international technical exchange such as of study teams, the holding of seminars with foreign experts or foreign consultants, and interpretation and communication with foreign countries.

(*v*) *Public Information Department* (*Personnel*: 24)

It collects and disseminates information, undertakes the editing of reports of the Centre and editing and distribution of various pamphlets. It invites experts on public relations, and holds conferences relating to public relations work. This department has the responsibility of printing and issue of various publications including the publication of reports of the teams sent abroad, reports of seminars, preparation and publication of periodicals, audio-visual activities such as preparation and distribution of movies, slides, filmstrips, broadcasts, television programmes, posters etc. This department arranges exhibitions for propagating the idea and activities relating to productivity.

(*vi*) *Research for Library Department* (*Personnel*: 14)

It coordinates and sponsors research relating to productivity problems. It also invites technical consultants for advice. The Library Section is manned by three persons. It acquires and maintains books, periodicals etc.

Each department is subdivided into two or three sub-sections which have definite allocation of duties and responsibilities. A chart showing the organisational set up of the Centre and the details of the functions of the respective departments appears in Appendix.

8.6. *Activities*:

The primary objective of the J.P.C. is to awaken productivity consciousness in the country and to offer opportunities to the industry to benefit by the interchange of technical information in the international as well as domestic spheres. According to the J.P.C., its function is "education and information", as is the case with the British counterpart, and "cooperation and interchange" as in West Germany. In the brief period of its existence, the J.P.C. has helped many sections of the indigenous industry in securing information regarding many techniques and processes pursued in America. The publication of the reports of the study by various teams from Japanese industry which have been sent abroad and the follow-up through lectures, meetings etc. in industrial centres, has helped to propagate productivity techniques in specific industries. Similar visits of specialists and consultants from abroad and the opportunities offered to industry to have technical interchange of information in the domestic field have helped the productivity drive. Training courses, seminars and lectures on various subjects connected with the productivity movement have been sponsored and arranged by the J.P.C. The J.P.C. is also publishing a weekly productivity newspaper. In addition, the J.P.C. has been coordinating and sponsoring research in various fields connected with productivity. These activities of the J.P.C. are described below in detail under the four broad categories of (i) International technical Exchange, (ii) Domestic Technical Exchange including productivity education, (iii) productivity research, and (iv) public relations, information and propaganda. This account of the activities of the centre covers the period of eighteen months from its inspection to August 1956.

8.6.1. International Technical Exchange:

(a) *Teams sent overseas*:

Among the important achievements of the J.P.C. is that of technical exchange in the international field. By now 36 teams, comprising 324 participants, have been sent from Japan, mainly to U.S.A., to study various aspects of the productivity drive and technological processes in specific industries. Most of these teams were of specialists. Recently a team consisting of nine members of the Diet, including Socialists and Liberal Democrats, and four officers of the national Government, was sent to U.S.A. to acquaint them with aspects of productivity. Whereas some of the teams went for studying special technical problems connected with specific industries, other teams went for studying practices in the spheres of top management, labour relations, marketing techniques, materials handling, office management, industrial designs, distribution techniques, etc. Teams were also

sent in the fields of labour, agriculture, and fishery, besides industry. The following table gives the number of teams and participants sent to U.S.A.

	Teams	*Participants*
Industry	23	245
Labour	2	23
Agriculture and Fishery	9	49
Peaceful uses of atomic energy	2	7

More detailed particulars of the teams appear in the Appendix. On the basis of experience gained by sending productivity teams abroad, the J.P.C. has evolved a set procedure in the field of international exchange. The main points of this procedure are given below.

(i) Participants of each individual team are selected from as wide a field as possible in the industry, and attempt is made to put in each team the representatives of management, labour, and the technical staff. The selection is made by the J.P.C. and is finalised in consultation with the I.C.A. and the national government.

(ii) A considerable and systematic initial preparation is made by the teams before they proceed abroad. Generally a period of about three months is devoted to intensive preparation and during this period the participants acquaint themselves with the problems of industry in their own country on a wide basis in order to study these in the host country. They prepare questionnaires on the basis of which they collect relevant information from the indigenous industry and subsequently inform the host country about their requirements well in advance of the visit. Their itinerary of the visit is prepared in consultation with the I.C.A. A top management study team which recently returned from U.S.A. devoted three months to initial preparation before it left Japan, and during this period meetings of the team were held twice a week. These meetings lasted three to four hours and sometimes for the entire day.

(iii) Each team contains generally ten to twelve participants. Expenditure on the journey to and from U.S.A. is incurred by the J.P.C., whereas the expenditure in U.S.A. is incurred by the U.S. Government. In the case of participants drawn from big industries, the J.P.C. charges the entire expenditure of each participant to the enterprise. The amount thus recovered from the representatives of big industries including the expenditure incurred on them in the host country by the U.S. Government, is utilised by the J.P.C. for its other activities. The representatives of the small industries and labour unions are not required to pay any contribution towards the expenditure incurred on them.

(iv) The total period of the stay abroad in the case of each team is about six weeks. The teams visit plants, laboratories and universities in the host country and hold consultations with U.S. Experts. Each team is provided the assistance of the interpreters while in U.S.A. For this purpose, the J.P.C. maintains an interpreters' pool in U.S.A. This pool has at present five interpreters. This number is proving very inadequate in view of the large number of teams visiting U.S.A., and is proposed to be increased to ten in the immediate future. On conclusion of their visit, the teams submit their reports which are published by the J.P.C.

(v) A very important part of this programme comprises the follow-up lectures which are arranged by J.P.C. in Japan on the return of these teams. A series of lectures are arranged in various industrial centres and at these the participants of the teams give their observations and stimulate discussion.

The programme of sending teams abroad has been greatly stepped up by the J.P.C. in the current year. In 1955 only eleven teams went to U.S.A. These teams included eight from industry and three from agriculture. In the next year it is envisaged that this programme will be very substantially expanded and may cover nearly sixty teams in the fields of industry, labour and agriculture.

There is a general feeling in the industries of Japan, which we had occasion to visit, that this programme of the J.P.C. in the field of international technical exchange has contributed substantially to improvements in various spheres including management, labour-management relations and industrial techniques. In appraising this contribution to the Japanese industry, the I.C.A. has listed specific benefits accruing in these fields and in the fields of marketing and labour welfare.

(b) *Visits of foreign experts*:

So far thirteen American experts including business executive consultants and technicians have been brought to Japan to conduct seminars on subjects such as industrial management, cost control, human relations in industry, marketing techniques and industrial engineering. By the end of the first quarter of fiscal year 1957, another thirteen experts including technicians, specialists and consultants for specific industries, will have been brought to Japan on short term assignments.

Two teams, comprising ten participants, were invited to Japan to hold seminars at Tokyo, Osaka, Nagoya and Fakuoka. Top management seminars were held by one team and marketing seminars by the other.

One consultant was brought from U.S.A. during this period. He stayed in Japan for six months, and conducted observations in twenty-two plants, diagnosis in seven plants, and held round table meetings at eight places.

Three trainers were brought from U.S.A. during this period. They stayed in Japan for six months and held training courses at Tokyo, Osaka, Nagoya and Hokkaido.

(c) *Sending trainees abroad*:

The J.P.C. has a programme of sending young persons abroad for training. The persons are selected from among those who have practical experience in industry of not less than four to five years. Their studies include subjects such as engineering, cost control, industrial engineering etc.

(d) *Exchange of professors between Japanese and U.S. universities*:

Through the I.C.A., Michigan University of U.S.A. and Waseda University of Japan have reached an agreement on an exchange of professors for the purpose of developing a research programme to improve industrial productivity. Under the agreement, the Waseda Faculty Members will study modern practices in industrial fields in U.S.A., and U.S. experts will visit Waseda University. Sixteen professors of Waseda University are expected to go to U.S.A., and two professors of Michigan University will come to Japan. Similar negotiations are afoot between other universities.

8.6.2 *Domestic technical exchange and productivity education*:

(a) *Circuit Consultation*:

The J.P.C. organises circuit consultation groups of specialists and technicians drawn from indigenous industry, who give guidance on management practices, human relations and control techniques. So far the centre has conducted circuit consultations twice in the Tokyo area.

(b) *Productivity Courses*:

The object of these courses is to promote understanding of new ideas on management, development of control techniques and rational functioning of labour unions. The course is divided into an executive class, a labour class, and a productivity class, and is held in major cities.

(c) *Middle Management Staff Course*:

The contents of this course are: enterprise organisation, human relations, employment, wages, marketing, distribution, financial affairs, manufacturing, office management and the three S's (simplifications, standardisation and specialisation). Lecturers are recruited from specialists from universities and industries. Term of the course varies from 3 to 6 months. Universities are encouraged to organise these courses.

(d) *Follow-up Courses*:

As mentioned earlier, an important part of the programme of sending teams overseas is that of follow-up lectures which are organised in important industrial centres to enable the returning teams to impart their observations and experiences to others.

8.6.3. *Productivity Research*

The Productivity Research Section in the Centre was started in April, 1956. The activities of the section are broadly: research through committees established by the J.P.C., "Situation Survey", sponsored research, and "Model Factory".

(a) *Research through committees*:

With the help of experts from outside, including universities, the Research Section sponsors and co-ordinates research through various committees. These committees have started work only recently and have not yet submitted any reports. The following committees for research on specific problems have so far been created.

(i) *Productivity Measurement Committee*:

The Chairman of this committee is from the Planning Board of the National Government. This committee studies the methods of measurement of productivity increase, including the data on this subject relating to foreign countries. The method of sharing profits is also studied by this committee.

(ii) *Employment Committee*:

This committee is headed by a professor of Tokyo University, and studies problems of productivity increase in relation to unemployment and over-population.

(iii) *Distribution Committee*:

This committee studies all problems relating to processes intermediate between the manufacturer and the consumer. This committee is at present engaged in a study in relation to washing machines, particularly in the matter of instalment purchase system. This committee too is headed by a University professor.

(iv) *Market Analysis Committee*:

This committee studies the relationship between Japanese export markets and future export possibilities. It is headed by a professor of University.

(v) *Enhancement of Precision of Machine Tools Committee*:

This committee studies methods for improving the standard of machines and of precision machine-tools, particularly in relation to medium and small scale industry. It is headed by a University Professor.

(vi) *Labour Relations Committee*:

This committee is under the chairmanship of a University Professor. In cooperation with some labour unions it has undertaken the preparation of a standard form of labour agreement.

(vii) 3 *S Committee*:

This committee has undertaken research on the three S's—simplification, standardisation and specialisation—in relation to the iron and steel industry, automobiles, shipbuilding and architecture.

(b) *"Situation Survey"*:

The Productivity Research Section has conducted a "Situation Survey" which includes the following:

(i) Collection of information from foremen by questionnaire. Till now 1,700 enterprises in Japan have been surveyed.

(ii) Interview of foremen. 18 factories have been surveyed in the Tokyo area.

(iii) A survey has been undertaken on the sales of electrical home appliances and distribution conditions relating to them. This has been conducted amongst manufacturers, wholesalers and retailers in Osaka, Tokyo and Nagoya.

(c) *Sponsored Research*:

The research centre has sponsored research on the following fields at various institutes and universities

(i) Study of analysis of Japan's economy after the war (Research Institute for Japan's Economic Analysis).

(ii) Research on analysis of fluctuating elements of labour productivity and its effects (Statistics Research Institute).

(iii) Plan for making labour productivity index (Statistics Research Institute).

(iv) Study of relationship between productivity and labour and management (Rikkyo University).

(v) Study of shipbuilding and allied industries (National Congress of Regional Research Organisation).

(vi) Study of adaptability of office clerical work (Labour Science Research Institute).

(vii) Basic research in the enhancement of precision of machines and machine tools.

(viii) Study of the system of instalment purchase.

(ix) Research on three S's in relation to agricultural tools (Japan Standards Society).

In sponsored research emphasis has also been laid on determining the causes of low productivity in small and medium industries.

(d) *Model Factory for Research*:

It is proposed to take up two factories as models for preparation of a draft code of practices. The plan is to select two factories in the Tokyo area, preferably assembly plants of medium size, and give them guidance for one year. The J.P.C. will send consultants to each factory for 90 days in the year. Thereafter it is proposed to publish a report after taking approval of the selected factories. It has not so far been possible to start this work as there has been some difficulty in selecting model factories on account of hesitation of the factories to volunteer as experimental units.

In the field of small and medium industries it is proposed to select 400/500 plants out of those which have adopted the principles of 3-S movement and which have adopted cost control and quality control techniques. The J.P.C. will tender advice to these plants for affecting further improvements and will utilise them for imparting knowledge of techniques and processes to other factories under the programme of technical exchange in domestic field.

The Research Section of J.P.C. is manned by nineteen persons. It is headed by a university professor who works part-time for the centre. It has six members of research staff, six research assistants who are economists, four librarians and two part-time workers. The library section is attached to the Research Section. The library has

now 6,000 books, including 4,000 foreign books, and subscribes to 850 journals (500 foreign and 350 Japanese). All the American books have been given by the I.C.A.

For sponsoring research the Research Section of the J.P.C. selects the subjects and the research is financed by the J.P.C. The various committees set up for research have different numbers of members. For facilitating the work of the individual committees, each committee is encouraged to set up an operation sub-committtee consisting of three members including one member of the staff of the Research Section of the J.P.C. The staff member of J.P.C. mainly helps co-ordination of the work of the committee with the Research section of the J.P.C. When field surveys require to be conducted in connection with the work of any committee, this task is performed either by committee members themselves or the committee engages students of universities or part-time assistants.

8.6.4. *Public Information and Public Relations*

The Public Information Section of the Centre undertakes the collection and dissemination of information and material useful for the productivity movement. In this Section it is now proposed to open a Technical Consultation Branch which will receive queries and give replies after referring them to experts. If any technical queries require reference to foreign countries, including U.S.A., they will be processed through I.C.A.

The function of the Public Information and Public Relations Section is summarised below:

(i) *Books and Translations:*

This section helps in the building up of the library. It undertakes translation into Japanese of a large number of books, pamphlets and reports which are secured from the U.S.A. and European countries. Till August, 1956, 87 different publications of U.K., U.S.S.R., West Germany, East Germany, Yugoslavia and Holland were translated.

(ii) *Publications*:

The J.P.C. publishes a weekly Productivity Newspaper. It publishes a bi-monthly Productivity Improvement News, and a Productivity Improvement Series thrice a month. The latter uses material from the monthly Technical Digest issued by the U.S. Department of Commerce and from publications of the European Productivity Centres. By now a considerable number of pamphlets and reports have been published by the Centre. Some of these are listed in Appendix.

(iii) *Films*:

The J.P.C. is also undertaking the preparation of movie films on productivity subjects. A colour film entitled "Hope for Tomorrow" is at present under production. Five films on Industrial Training are projected.

(iv) *Exhibitions*:

Productivity propaganda exhibitions are arranged by the Centre from time to time. The first productivity improvement exhibition was held from October to December, 1955 at Nogoya, Osaka, Fukuoka and Tokyo. It was held at each place for six days, and was attended by 32,000 persons. The second exhibition is now being held at various places.

(v) *Price Contests*:

The Centre has instituted a prize contest for sponsoring propaganda of productivity movement and has invited contributions of essays, slogans, and posters on the movement.

8.7. *Support Gained*:

Considerable productivity consciousness now exists in Japan. Teams returning from overseas and the ideas disseminated by the J.P.C. through its newspaper, pamphlets, reports, exhibitions, lectures and seminars have produced the leaven for the movement to gain strength. This consciousness is evidenced by the fact that various aspects of and the problems connected with productivity form the subject of frequent discussions in the press and are commented upon in the editorials of leading newspapers. The follow-up lectures which are organised by the J.P.C. for enabling the members of study teams to impart their experiences and observations, are well attended. The weekly productivity newspaper which is published by the J.P.C. commands substantial circulation in the industry. Through its columns productivity consciousness is being created. For instance, letters from house wives appear in "Productivity Promotion in Home" columns of the weekly newspaper, wherein they discuss matters of productivity in relation to housekeeping, cooking, sewing and living.

Evidence of growing productivity consciousness in Japan is furnished by the recent constitution of a Productivity Council of two hundred members of the national Diet. The Socialists and the Liberal Democrats are represented on this Council. The initiative for the constitution of this Council was taken by the Diet members themselves for giving momentum to the productivity drive.

The attitude of management towards the productivity drive is evidenced by the fact that the initiative in launching the drive was taken by persons drawn from top management. Management recognises the need of productivity increase in the interest of the welfare of the industry and the nation, and it feels that the J.P.C. is fulfilling an important objective in propagating this movement. So far the drive has mainly been in the hands of people from big industries who initiated the movement and are on the Board of Directors of the J.P.C. as well as of the Regional Centres. It is now being increasingly realised in all spheres that it is necessary to spread the movement to the sector or medium and small industries which constitute more than 90 per cent. of the industrial concerns in the country. Increasing attention is now being paid by the J.P.C. to carry the movement to this important sector of the industry.

The attitude of the Government towards the productivity drive has been positive and enthusiastic. The national government encouraged and helped the establishment of the J.P.C. A substantial portion of the funds of the J.P.C. is derived from the subsidy it gets from the national government. At the Prefectural level and the Municipal level, every possible assistance is being given by the government and the local authorities to the productivity drive. In some prefectures, the prefectural governments have actively co-operated in setting up the Prefectural Productivity Councils.

Among the labour unions, as understanding of the implications and policy of the productivity drive is gradually growing, there is an increasingly wide acceptance of and participation in the movement. In the guiding principles of the J.P.C., it was laid down that productivity increase must not adversely affect the interests of labour, and that its profits must be shared between management, labour and consumers. With the enunciation of these principles, as supplemented by the principles of ZENRO and SODOMEI, a large number of labour unions have shown willingness to participate in the drive. The exception is that of the extreme leftists among the labour unions. As mentioned earlier SOHYO has expressed its opposition to the movement. Within this important body of labour there are two sections which are not completed united in the degree of their opposition to the productivity drive. It also seems that though SOHYO, at the national level, is opposed to the movement, its constituents at the regional and company levels are not all opposed to the movement and some of them lend their cooperation to it. The National Federation of Industries' Organisation (SHIN—SANBETSU), with a membership of 40,000, has expressed the opinion that whereas it believes in a fair productivity movement, it is opposed to the functioning of the J.P.C. as it is too much management ridden.

In enunciating the three principles the J.P.C. had laid down the objective that the profits of increased productivity should be shared between management, labour and consumers. It has not so far been possible for the J.P.C. to prescribe any definite formula for the sharing of profits, and it has been left mainly to collective bargaining to determine the increase in wages to labour. No system has been evolved wherein the wages automatically increase corresponding to the increase of productivity.

The productivity movement in Japan organised round the productivity centres is rapidly gaining momentum. The immediate task appears to be the securing of greater support and participation of labour and of the large numbers of medium and small enterprises of Japan which can benefit very significantly by the impact of the new movement. The sharing of experiences with other countries besides U.S.A. augurs well for the future.

CHAPTER 9

Regional Productivity Centres

9.1 *History of Development*

The initiative for the establishment of Regional Centres was taken by progressive local industrialists encouraged by the J.P.C. Excepting in the Chubu region, where the initiative for the setting up of a Regional Centre was taken even while the establishment of the J.P.C. was in deliberative stages, in the other regions the initiative was taken after the establishment of the J.P.C. in March 1955. In the Kansai area the stimulus was provided by five important economic organisations of Osaka, namely, Kansai Employers Association, Kansai Federation of Economic Organizations, Kansai Management Association, Osaka Industrial Association and the Chamber of Commerce and Industry. The move in the Kyushu region for the establishment of a Regional Centre started six months after the establishment of the J.P.C.

The prefectural and municipal governments have given their support to the move for setting up Regional Centres. Initially Productivity Councils were organised in each of the regions by industrialists, and through these they conducted negotiations with the J.P.C. In the earlier stages of the deliberations for constituting Regional Centres the representatives of labour were not taken on the Productivity Councils, but they were associated with the drive when the constitution of Regional Centres was being prepared. Before the establishment of Regional Centres the Productivity Councils in the regions mainly performed the activities of the J.P.C. in their areas, for which the expenditure was incurred by the J.P.C. The Regional Centres in the four regions were established in April 1956.

The relationship of the Regional Centres with the J.P.C. is yet in formative stages. In general the creation of Regional Centres has been encouraged on an independent basis by utilising local initiative and with the maintenance of liaison with the J.P.C. These centres have mainly originated from the regions and have not been imposed from the top, and accordingly they do not consider themselves subordinate to the J.P.C. They accept the nation-wide character of the J.P.C. for its liaison with the national government and the I.C.A.

For giving a nation-wide character to the movement, it has been envisioned by the J.P.C. that there should be Regional Centres in the eight regions of the country, and that eventually there should be organisations for promoting productivity work at the prefectural level too. It is planned to set up a Regional Productivity Centres' Liaison Conference for proper coordination of the work of the Regional Centres with that of the J.P.C. At the Prefectural level some Prefectures have already gone ahead with the establishment of Productivity Councils and the functioning of these, within the region, will be coordinated by the establishment of a liaison con-

ference of the Prefectural Councils. Eventually it is intended also to encourage the establishment of organisations for doing Productivity work on an industry-wise basis, so that the knowledge and experience of each industry can be pooled together for increase of productivity.

Out of the eight regions the proposal at present is to establish Regional Centres in the seven regions other than the KANTO area which comprises the Tokyo Region. In the latter it is considered that the J.P.C. will carry on the work, but in case it is found necessary, a separate office will be started for meeting local requirements. The position in regard to the establishment of centres and branches in the regions is as follows:

(i) *KANTO AREA.*

A Productivity Council at the Prefectural level has been set up in the Kanagawa Prefecture. Four more Prefectural Councils are proposed to be set up next year in this area.

(ii) *CHUBU AREA.*

A Regional Centre has been set up in this region, with headquarters at Nagoya. No Prefectural Councils have been set up. It is proposed to encourage the early establishment of Prefectural Councils.

(iii) *KANSAI AREA.*

A Regional Centre has been set up with headquarters at Osaka which is the second largest industrial centre in Japan after Tokyo. No Prefectural Councils have yet been created.

(iv) *SHIKOKU AREA.*

In this region the Regional Centre has been set up with headquarters at MARUGAME. In this area activity in regard to Productivity has gained a considerable momentum at the Prefectural level. In each Prefecture there is a Branch of the Regional Productivity Centre. It is not contemplated to set up independent Prefectural Productivity organizations in this area.

(v) *KYUSHU AREA.*

Regional Centre has been set up with headquarters at FUKUOKA. At the Prefectural level only a branch office has yet been opened at Nagasaki. No Prefectural Councils have been established, nor is it intended at this stage to encourage the establishment of such Councils.

In the remaining three regions the Regional Centres have not yet been established, but Branch Offices have been set up in these regions by the J.P.C. When the Regional Centres are established in these regions in the next year, the Branch offices of the J.P.C. will be withdrawn or merged in the Regional Centres. These Regional Centres will be established at the following places:

Chugoku Area at Hiroshima
Tohoku Area at Sendai
Hokkaido Area at Sapporo

In Chugoku area, though the Regional Centre has not yet been established a Prefectural Council has been set up in the Okayama Prefecture. In Tohoku area there is a plan also of setting up

Prefectural Organizations. In the case of Hokkaido area there is no definite decision yet in regard to the set-up at the prefectural level.

In the establishment of these Regional Centres and the Branches of the J.P.C., the local Chambers of Commerce have rendered considerable assistance. Excepting in the case of the Kansai area, the Regional Centres and the Branches are in fact located in the offices of the Chambers of Commerce, and the Secretary General and other staff of the Chambers of Commerce supervise the work of the centres and the branches. In the Kansai area the office of the Regional Centre is located in the office of the Osaka Industrial Association, and some members of the staff, including the Secretary General of the organization, assist in the work of the centre. At the places where the Regional Centres have not yet been created, some officials of the Chambers of Commerce have generally been given the additional work of Productivity movement and the expenses of this work are paid to them by the J.P.C. Three to seven full-time officials are currently employed in the Regional Centre and Regional Branches.

The degree of allegiance of these Regional Centres to the J.P.C. varies from one to the other, and there is no set pattern for it. Flexibility has been maintained in the relationship. For instance, whereas the Chubu Centre claims itself to be totally independent of the J.P.C., maintaining contact with the J.P.C. only through the Liaison Conference of Presidents of the Regional Centres and through the President of the Regional Centre who is also a Director of the J.P.C., the Kansai Regional Centre is more closely associated organizationally with the J.P.C. The Kansai region accepts the principle laid down by the J.P.C. that the Regional Centres collect the subscriptions and contributions from their constituents on behalf of the J.P.C., and in conformity with that principle it transacts a formal transfer of the collections to the J.P.C., though all the collected amount is refunded to it by the J.P.C., for its activities. The amount does not in fact pass to the J.P.C., but the formal transaction is recorded. The Kyushu Regional Centre does not effect any formal transfer of the collected amount to the J.P.C., but it only informs the J.P.C. about the collections.

9.2. *Constitution.*

The constitution of each Regional Centre follows the same broad pattern, and similar objectives and principles have been laid down in the Articles of the Constitution of each as for the J.P.C. In the case of Kyushu Regional Centre it has been provided in the constitution that its aim will also be to encourage and assist the development of medium and small industries in its area, where the development of industries is comparatively less than in other regions. All the Regional Centres have provision in the constitution, however, to pay special attention to the requirements of the medium and small industries in the promotion of the productivity movement, as it is realised that these enterprises have generally lagged behind in productivity and there is a great scope of its increase.

In the constitution of each Regional Centre provision has been made for the appointment of a Board of Directors, comprising 30 to 80 Directors, headed by a President and 2 or 3 Vice-Presidents. In

addition, there is also provision for the appointment of Councillors and Advisers. As the Regional Centres have come into being only recently, the Directors of their respective Boards are mainly those who initiated the movement in the regions. The Board of Directors consists of people drawn from management, labour, and from scholars. The economic organizations in the regions, including the Chambers of Commerce, management associations, and industrial associations of the region are represented on these Boards. Among the Advisers of the Regional Centres are eminent men from industry, labour and universities. The association of these persons with the Regional Centre facilitates its operation and enables it to secure cooperation in a wide field. The Councillors of the Regional Centres are generally the General Secretaries, Managing Directors and Executives of the various corporations and organizations whose Presidents are either Directors or Advisers. As the Presidents cannot always afford time for the work of the Regional Centres the officers below them in their organizations are kept on the list of Councillors as they are more readily available.

9.3. *Membership and Finances.*

In general the finances of the Regional Centres comprise the contirbutions or donations which they secure from the institutions affiliated to them and the contributions which they secure from the J.P.C. for the implementation of specific projects of the J.P.C. in their areas. Mostly the Regional Centres avoid restricting their operation only to the members enlisted by them. On this account, for instance, the words 'membership' and 'fees' are avoided by the CHUBU Regional Centre. As in the case of the J.P.C., the CHUBU Regional Centre, and to a lesser degree the KANSAI and KYUSHU Regional Centres, call their members 'donors' and the subscriptions paid by them are termed 'donations'.

The four Regional Centres came into existence only in April 1956, and their constituents are not yet large in number. The Chubu Regional Centre, for instance, has hitherto been able to enlist only about one hundred donors, majority of them being large concerns. It is now proposed in all the regions to enlist also as many medium and small industries as possible. The Chubu regional centre expects to increase the list of its donors to three hundred this year, out of which as many as one hundred are expected to be medium and one hundred small concerns.

The Kansai Regional Centre has enlisted 210 constituents. They include large, medium and small industries, as also the economic organizations and labour unions, though the majority at present are large industries. They expect to increase the number to about seven hundred by the end of the year.

The Kyushu Regional Centre has so far got 274 constituents, including 144 companies, 62 trade unions and 68 individual members who are either scholars or specialists. The 144 companies include 65 big factories, 60 medium factories and rest are all small factories. The Centre expects to increase the membership to 500 in the near future.

Despite the fact that these Regional centres generally refer to the subscriptions of the members as 'donations', they have laid down schedules which determine the amount of subscription payable by a company. These schedules are based on invested capital and labour force employed, and they are generally of the pattern adopted

by the J.P.C. Individual members or labour unions are either not expected to pay any subscription or at the discretion of the Board of Directors, they are exempted.

The budget of the respective Regional Centres are given below:

Chubu Centre has a budget of 10 million yen this year. 80% of this comprises the contributions received from the 'donors', and 20% is the amount coming from the J.P.C. to this Regional Centre for the implementation of specific projects of the J.P.C. in its area.

The budget of the Kansai Regional Centre is estimated at 3·6 million yen this year. It is quite likely that, considering the speed at which the enlistment of constituents is taking place, the income may reach the figure of 4 million yen this year. This amount is utilised mainly on the administrative staff of the Centre and their travelling allowance and correspondence etc. The expenditure incurred by the Centre on activities sponsored in its area by the J.P.C. is paid by the latter. That amount is additional to the budget of 3·6 million yen.

The budget of the Kyushu Regional Centre is 8·5 million to 9 million yen for this year. The membership 'fees' are expected to aggregate to 6 million yen. In addition, an amount of one million yen is expected from other voluntary 'donations'. In the budget a provision of 4·8 million yen has been made for office expenditure and on personnel. The balance amount is for implementation of the various projects of the Centre.

9.4. *Organization.*

None of the Regional Centres has yet assumed statutory authority. It is expected, however, that before long they will secure this authority. The number of Directors, Advisers and Councillors varies in the Centres. The Chubu Centre has 33 Directors. Kansai Centre has as many as 76 Directors. Kyushu Centre has 39 Directors. In the case of the Kansai Centre an Executive Committee of 28 Directors has been constituted for monthly meetings. This committee controls the day-to-day administration of the Centre. In the Boards as well as amongst the Advisers and Councillors there is no specified proportion of the representation of management, labour and of scholars. In the Chubu Centre the 33 Directors of the Board include 20 representatives of management and economic organisations, 7 representatives of labour organizations and 6 scholars. The Kansai Centre has 11 representatives of labour, 11 scholars and 54 representatives of management on the Board of 76 Directors. The Executive Committee of this Board has 19 representatives of management, 4 representatives of labour and 5 scholars. Among the Vice-Presidents, the Centres, in general, have one representative each of management, labour and scholars.

Advisers and Councillors are associated with Regional Centres as in the J.P.C.

9.5. *Activities.*

Only very recently have the Regional Centres started their own activities as distinct from those which were initiated in their areas by the J.P.C. The scope of these activities is gradually increasing and as the membership of the Regional Centres enlarges and they secure more funds, they expect to expand their activities. The general experience of the Regional Centres in the brief period of their existence has, however, been that there is considerable and encouraging response to the drive of productivity increase.

All the Regional Centres have rendered active cooperation and facilities for the organization of lectures and group discussions in their areas with the help of specialists and the members of the Study Teams returned from overseas. All the centres have been holding seminars and meetings for the study of problems of management, labour, control techniques, engineering techniques etc. They have disseminated literature and have held exhibitions and film shows for propagating the idea of productivity. So far activities of the Regional Centres have been mainly of the nature of disseminating information and of education but it is envisaged that in the course of time they will expand their activities to include a programme of giving technical and specialist assistance. These activities are carried out along the same general lines as the J.P.C.

The Kansai Regional Centre proposes to shortly institute a technical consultant service to deal with the technical queries submitted by the medium and small industries. These queries will be passed on to industrial institutes and universities etc., for obtaining replies. The Centre has a plan to conduct research on the problems of productivity in relation to the medium and small industries. Another research programme proposed to be undertaken by the Centre is on the problem of unemployment in relation to the technological improvement in the field of medium and small industries.

The Kyushu Centre envisages that besides the work of productivity increase, the Centre should concern itself also with the actual development of industries, as the industrial development in this area has lagged behind that of others. Simultaneously the Centre proposes to give special consideration to the problem of low productivity in medium and small industries. This problem is proposed to be tackled by sending consultants to the medium and small industries, by sending study teams overseas and to efficient plants within the country and by facilitating the procurement of financial assistance for them. In this sector of the industry the Centre proposes to select initially 100 factories for intensive assistance. By now 36 factories have already been selected. Consultants will be invited from big industries to the selected factories for giving advice. This service will be made available free of cost to the factories. Specialists and scholars will also be engaged by the Centre for giving the technical advice to these factories. The factories selected for such intensive technical assistance are within the capital investment range of 5 million yen and 100 million yen, employing between 100 workers and 400 workers. At present it is not proposed to carry this service to the sector below the level of capital of 5 million yen and employment capacity of 100 workers.

For promoting technical training the Regional Centres have established liaison between the industries and universities. A procedure has been evolved whereby professors and specialists from universities are made available to the industries for training, and simultaneously men from industries are sent to the universities for attending lectures and training courses.

In the field of labour relations the Kyushu Regional Centre has achieved conspicuous success by setting up a committee of trade

union representatives of the region. Even though SOHYO is opposed to the productivity movement, the Regional representatives of this union have participated in this committee. This committee has been organised on a permanent basis. Its office is located in the office of the Regional Centre. It has attained a membership of 100 trade unions. It holds monthly meetings.

For the development of the Kyushu region a Council for economic development has been organised. This scope of this Council is not restricted to industries but it also includes problems of transportation, water-works, highways, etc. The primary objective of this Council is to create the climate for the expansion of these various facilities in the region and to create conditions for increase of productivity. This Council is receiving wholehearted support from the Government as well as industry.

The establishment of regional and prefectural productivity centres, working through local initiative and with no formal control from the central productivity organization, is a remarkable feature of the productivity movement in Japan. It appears to provide a most effective means of developing the productivity movement on a truly national scale, capable of making a significant impact on the national economy.

PART IV

Management in Private Industry

CHAPTER 10

MANAGEMENT IN PRIVATE INDUSTRY

10.1. *Ownership and Management.*

The majority of companies have started in a small way with major ownership of the promoter who was in most cases also the Manager. The family of the promoter often helped in the business which was in some cases started in the home. The enterprises were in the nature of private firms, but with expansion were converted into joint stock companies since this conferred advantages in taxation and also an enhanced prestige with the public and banks. At this stage, part ownership was offered to the staff and/or the public.

At present, ownership in most cases has been fragmented because of one or more of the following causes.

(a) The enterprise required extra capital which had to be obtained from outside the family circle.

(b) After World War II, drastic economic measures were imposed to democratise ownership of largescale industry. Zaibatsu liquidation law forced the sale of stock exceeding 10% with the holding families. A capital tax on individuals made demands for funds which could only be secured by the sale of private shareholdings to the public. Anti-trust act prevented an individual or organisation from having a controlling influence on a major portion of the production capacity of an industry.

In the majority of large enterprises, no individual today holds more than a few per cent of the shares. However, groups of banks and insurance companies and friendly business interests do hold between themselves a large portion of the shares of some large companies. The primary interest of these groups is as investors and they therefore ensure stability of management as long as the business is conducted efficiently. The groups do not generally appear to exercise any great influence on the management of the companies. They are sometimes consulted on financial matters and on the half-yearly accounts prior to the General Meeting of the stockholders. Sometimes, they also exercise an influence in the appointment of the President from amongst the directors. Business generally has been prosperous in the past few years, but where companies have run into difficulty, there have been instances of the appointment of financial controllers by the major shareholders.

The Management of all companies is vested in the Boards of Directors which are almost exclusively composed of full-time top executives, the majority of whom have no significant ownership of stock. The directors are appointed by shareholders, but this is generally done on the recommendations of the existing board whose members obtain proxies for controlling the majority vote at meetings. Most directors rise from within the organisation which they join immediately after completing education.

The President of the company is elected by the Board. He has supreme executive powers in relation to the conduct of the company's affairs. Sometimes, the President is the promoter of the company or a descendant of his, but the hereditary element is now not predominant in large enterprises.

The fragmentation of ownership of companies has strengthened the move towards professional management. In the majority of large companies, ownership and management are vested in separate groups.

10.2. *Organisation Structure.*

The ultimate responsibility for the management of a company is with the Board of Directors which delegates executive functions to the President assisted by a small management committee of Vice-Presidents or representative directors or managing directors. The Board of Directors is composed generally of 10 to 20 members, of whom 2 or 3 are auditors and the remaining are full time executives in charge of divisions or departments of the company at the Head Office or are managers or heads of technical departments at the plants. In rare instances, there are one or two outside directors drawn from affiliated companies or from retired senior executives of the company. The Board usually meets once a month, but sometimes quarterly. In most cases, the board functions as a supreme body of management, and therefore the board undertakes detailed review of company operations and of policies and plans for the future. Meetings therefore extend from half a day to 2 or 3 days.

There is generally the level of Vice-Presidents and Managing Directors between the President and Managers. The President and the second level which forms the management committee of the company usually meets at least once a week and sometimes daily on an informal basis. In many companies, a planning board is attached to the management committee. This performs an advisory staff function and assists the committee in general coordination and planning of the diverse activities of the company.

Most large companies and even the small ones visited by the delegation in Japan have a number of plants scattered over the country. These plants are engaged in the manufacture of diverse products. The organisation structure therefore involves a central organisation to which are attached a number of plants. At the Head Office, there are usually the President and Managing or representative Directors and managers in charge of departments, such as those dealing with general affairs, finance, production planning, technical, marketing, personnel, research and in charge of staff functions. At the plant level, there is either a Managing Director, a Director or a Manager controlling production and one or more staff departments as they exist at the Head Office. Commercial affairs are generally dealt with from the Head Office. A noteworthy feature is the relatively modest organisation for sales and marketing within Japanese industrial companies as compared to their counterparts in the U.S.A. This is probably because large efficient trading companies have, since early times, looked after very effectively the sales end of the business. Often the trading companies were members of Zaibatsus and were therefore, sister companies of manufacturing companies. With

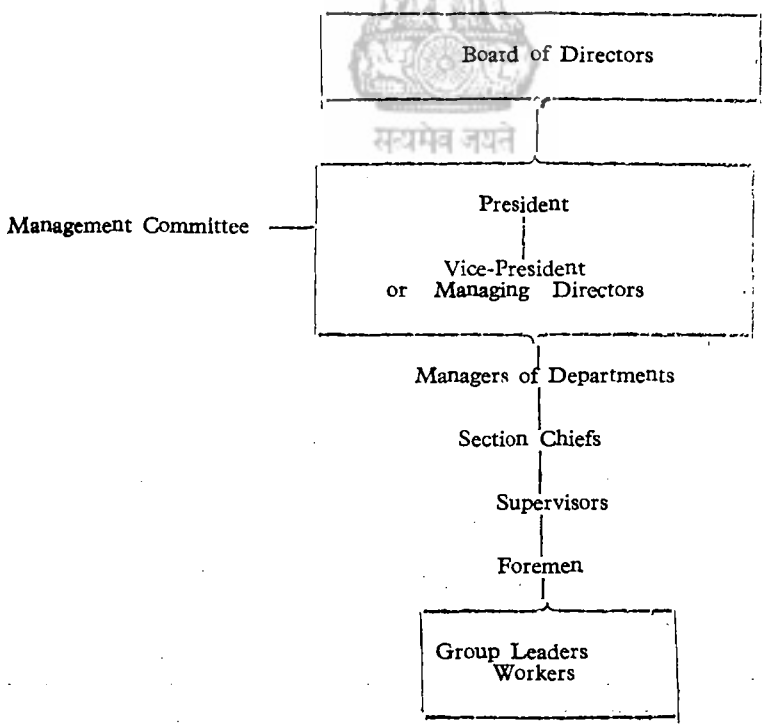
the dissolution of the Ziabatsus, a post-war trend is the growing realisation for a more effective development than hitherto of marketing functions within each company.

Two examples of typical organisations are given later in this chapter. The grouping of activities under managing directors or managers at the Head Office is sometimes on the basis of functions, such as commercial, personnel, research, technical etc., or sometimes on products such as home appliances, heavy machinery, lamps etc. There are in the organisation few purely staff functions. The Head Office departments generally exercise line responsibility with respect to corresponding functions at the plant. In some industries, such as the cotton textile industry, the management of plants has mainly responsibility for operations only, and all planning and technical details are decided at the Head Office. In the Iron & Steel industry, the more specialised technical staff appears to be at the plant level, and the Head Office performs a less important role in technical management than in textiles. There are individual differences in companies in allocating line and staff responsibilities for functions such as training, cost control and quality control.

Specialised outside services are used by largescale industry only in respect of items such as market research, some aspects of basic research, managerial training and organisational studies for management. Medium and small scale industry often makes use of outside agencies for functions such as testing and technical guidance.

10.3. *Levels within an organisation.*

In most companies, the hierarchical levels are as follows:



In many companies, formal organisational charts are prepared and distributed to members of management generally upto the section chief level. In some companies, manuals of functions and responsibilities for each member of management have been prepared. There appears to be general organisational clarity of the role of persons at each level in respect of their authority and responsibilities. Designations and positions are clearly defined.

The scale of emoluments of personnel at various levels differs according to industry and organisations. In the iron and steel industry, engineering and chemicals, workers earn from 20,000 to 28,000 Y per month, while in the textile industry this figure is only about 11,000 to 13,000 Y. The reason for this is that the workers in the textile industry are mostly women. Moreover, they spend from 3 to 5 years in the industry and therefore do not achieve a higher pay on account of seniority and continued service within the company. Supervisors earn from 30,000 to 50,000 Y in most industries except textiles where their emoluments are between 20,000 to 30,000 Y. Departmental heads earn from 50,000 to 70,000 Y except in textiles where they earn between 40,000 and 60,000 Y. The emoluments of managers are generally in excess of 75,000 Y and frequently range 11,000 to 13,000 Y. The reason for this is that the workers in the these figures. It will be observed that in general the managers of the companies are paid about 5 to 6 times the earnings of the workers.

Of the industries visited, iron and steel, machinery, automobiles, chemicals and ceramics have between 15 to 20% of the total personnel engaged in administration. Textile and shipbuilding industries have between 3 to 5% of personnel engaged in administration. In the manufacturing activities, iron and steel and the machinery industries have about 6 to 8% of staff performing supervisory roles while in textiles and the chemical industry 11 to 13% of the total staff performs supervisory functions.

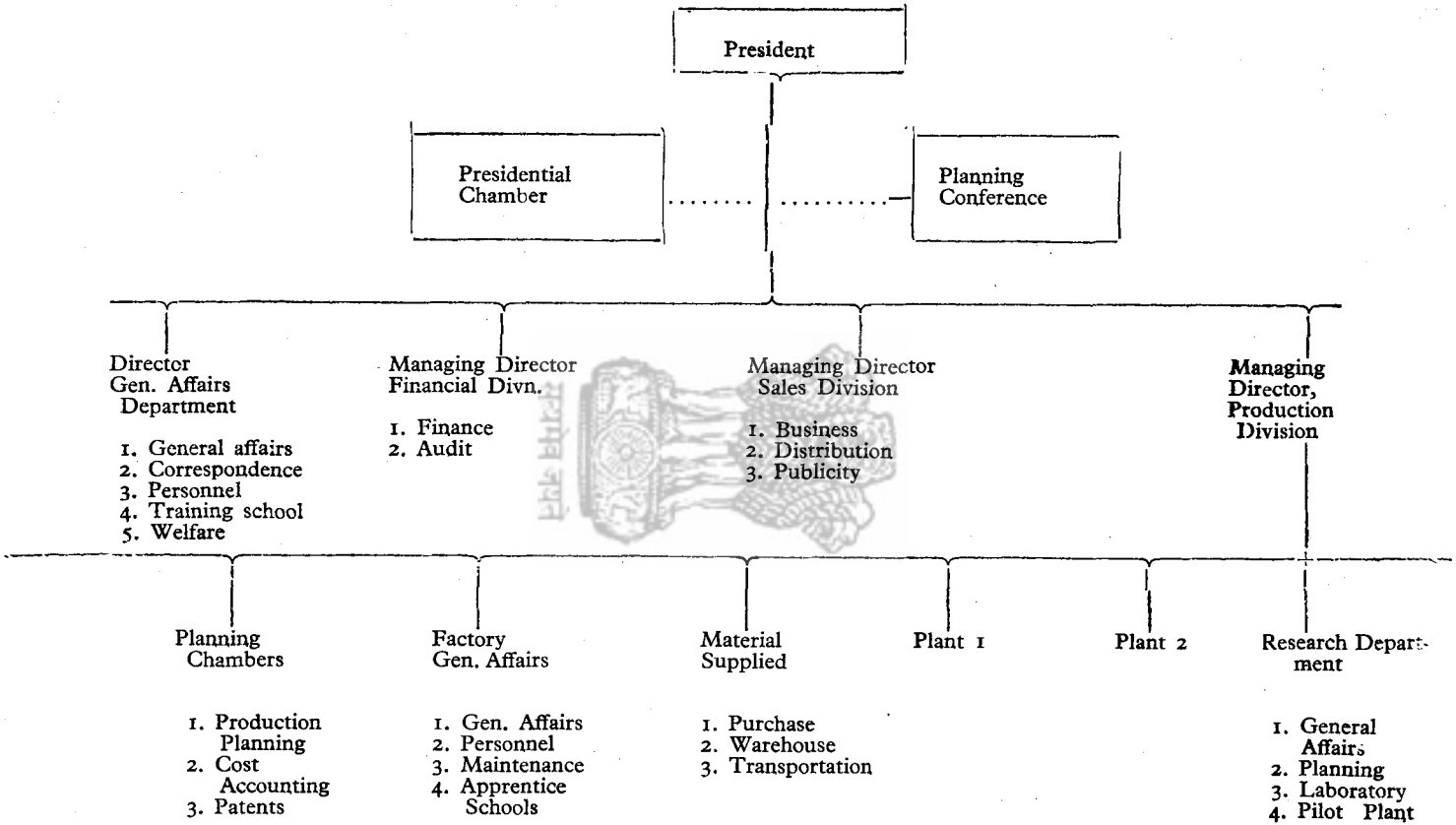
10.4. *Decision making and communications.*

A striking feature of the management of largescale Japanese industry is the wide use made of committees at all levels within the organisation. There are committees which are formed on a functional basis and involve specialists responsible for specific functions at the Head Office and at the various plants. In this category, are committees dealing with personnel matters, research, technical improvements in plant operations etc. These committees meet quarterly and sometimes monthly. They ensure the association of members of management in charge of line responsibility with the policy making of the company in respect of each specific function. They also ensure the communication of company goals and executive decisions to the different plants which bring about a consistency in the company practices in scattered areas of operation. There are, in addition, inter-departmental committees which are formed at the Head Office and in various plants at different levels to ensure coordination of the various company functions.

The association in committees of members of the organisation in line responsibility at different levels of the organisation in respect of decision making appears to be an important factor in the formulation of effective policies, team work and their smooth implementation. In some companies, production programmes are discussed in committees including workers representatives.

10.5. *Two Typical Organisations:*

10.5.1. A company with principal manufacturing plant adjoining the head office.

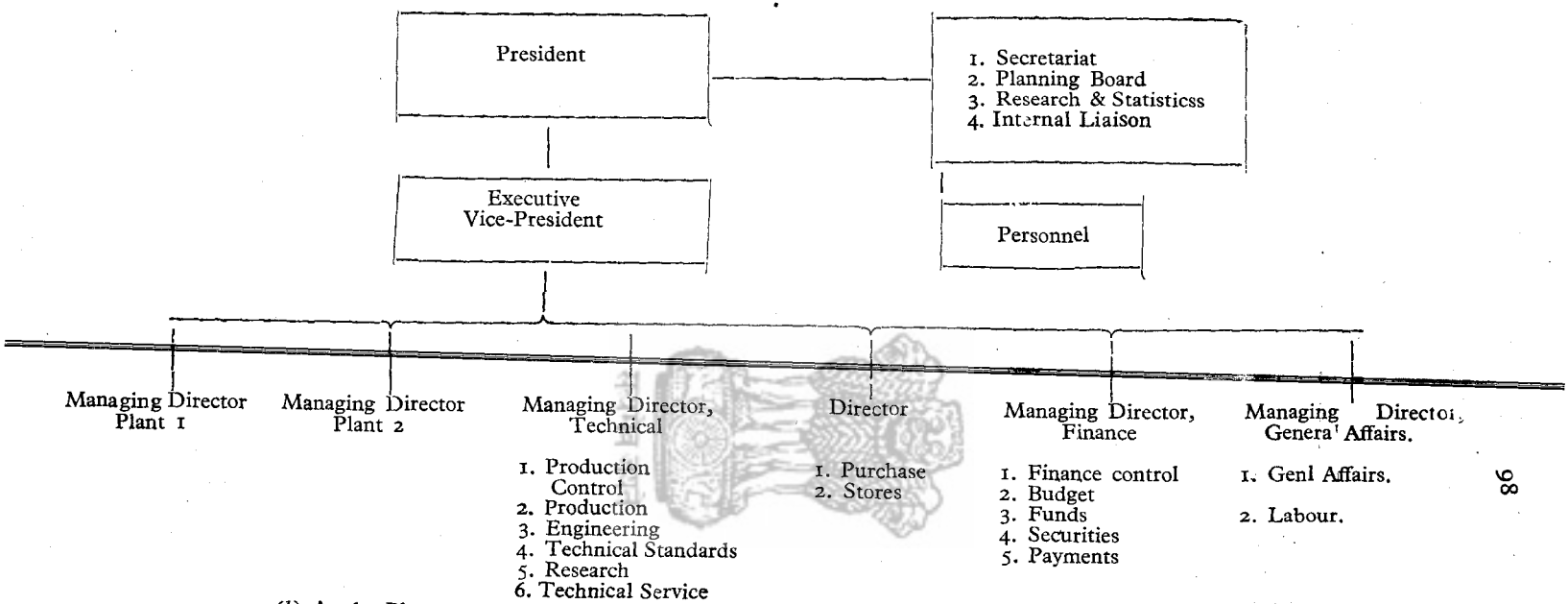


The management committee consists of the President and three Managing Directors. The other principal committees and conference for communication are :—

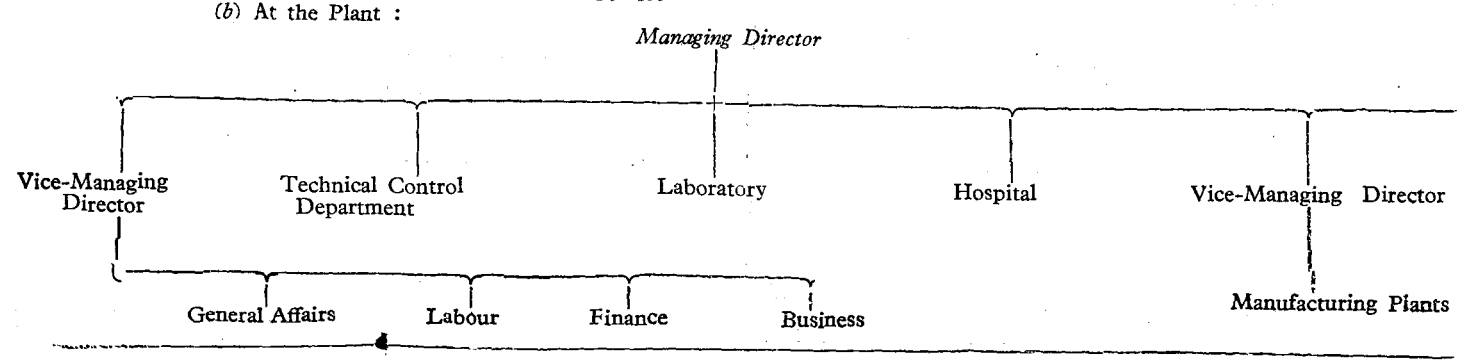
1. The Planning Committee which meets monthly.
2. The inter-divisional committee which meets once in every two months.
3. The inter-factory manager's committee which meets monthly.
4. Committees for engineering, standards, administration, education, etc.

10.5.2. A company with several large plants situated away from the head office:

(a) At the Head Office



(b) At the Plant :



In this company there are quarterly meetings of Board of Directors and of General Managers. These are held in turn at the head office and the plants. The Directors at the head office meet weekly. All departmental managers meet weekly at the head office and the plants. There are committees for production techniques, business improvement, judging of inventions and devices, new marketing and accident investigations.

CHAPTER 11

SELECTION, TRAINING & PROMOTION

11.1. *The Role of the Personnel Department:*

A great deal of emphasis is laid on the selection and training functions in an organisation. The tradition of employing fresh graduates from schools and colleges, of training them and providing stability and security of service and of making promotions within the organisation are factors which are responsible for the establishment of a Personnel Department in every company. Personnel departments today play a significant role in maintaining morale and efficiency within organisations.

The organisation of every company visited, included a Personnel section. Companies which had a number of plants, had a personnel department at the head office as well as at each plant. In some companies, Personnel and Labour sections were not independent departments, but a part of the General Affairs department.

Policy making was formulated at the head office, whereas the operational part of the policies was handled at the plant level. Although the detailed functions of the Personnel department varied in the different companies, broadly they included administration for selection, training and promotion, recreation and welfare, medical and hospital section, labour contract and collective bargaining.

The head of the Personnel department holds a very senior position in the company. In many companies, he is a member of the Board of Directors, and is consequently associated with the policy making of the company. In some companies, it was found that the manager of the plant was formerly the head of the Personnel section or department. The high status of the Personnel Director in the organisation ensured that personnel and labour matters are given due consideration in the overall policy of the company.

In order to give an idea of the size of the Personnel department, examples from a number of companies are given below:

An Electrical Machinery Manufacturing Company.

Production Division	10,339	employees.
Administrative Division	325	,,
Personnel Department	53	,,
Welfare	22	,,
Training section	7	full-time members of
	30	production departments.

A Tyre Plant :

Total employees	2,409
Labour & Personnel Section	109

A Cotton Spinning Mill :

Total employees	650
Personnel Department	32

(In this mill, training was almost entirely a line function)

These figures indicate to some extent the importance attached to personnel function in the organisations.

11.2. *Selection.*

11.2.1. *Some background factors.*—A great deal of importance is laid on the proper selection of personnel, because once the selection is made, the company assumes the responsibility of training, and keeping the employees in the organisation. The employees, on their part, both at the worker and executive level, do not seek employment elsewhere. Promotions are almost entirely from within the organisation. It is, therefore, important for the company to select the right persons from the beginning.

The selection of personnel is generally done from three educational levels—junior high school, senior high school and college graduates. There is compulsory education in the country upto the junior high school level, that is, nine years of schooling. Senior high school means three years of further schooling. The ordinary senior high school offers courses of the usual academic type, but the technical senior high schools offer courses in practical, technical and academic subjects. Workers at the operative level are generally selected from graduates of junior high school, skilled teachnicians from senior high school, and executives from colleges.

Companies have to select their worker apprentices from the National Employment Office, and only in certain cases directly from the high schools. For the selection of executives, most companies consider college graduates recommended by universities. Candidates who want to be considered for a job in the executive cadre have to apply through the university, and with the recommendation of the university.

Some companies discourage the son of the President or senior officers to work in the same organisation. This was not a universal practice, although in several large companies it was found that the President's son was working in other organisations. Companies which were family owned and managed did have members of the family in responsible positions in the organisation. At the worker level, the impression was that the employee's son would stand a better chance of selection provided that in other tests he was as good as other candidates.

11.2.2. *Selection Committee.*

The importance that is given to selection is further evidenced by the high level of the committees which help in the selection procedure. In the case of school graduates, the Committee generally consists of the plant manager, labour department chief, and the head of the department concerned. In the case of college graduates, for executive positions, the President usually makes the final decision, and he is helped by a committee of Directors who have interviewed the candidates. The selection of workers is generally done at the local plant and of executives, at the head office.

11.2.3. *Some representative examples of Selection of Workers and Executives.*

Some representative selection procedures from different companies are outlined here so as to give a more concrete idea of the procedures followed by industry.

A Textile company:

For selection at the worker level, applications are received from the National Employment Office. For every ten applications received, two are on the average called for interview. Written tests of mathematics and general knowledge are given. A test to measure the finger dexterity is also given. Each candidate is medically examined. For every three persons called for interview, two are on the average finally selected.

An Iron and Steel company:

Selection of personnel at the executive cadre is done at the head office. The candidates recommended by universities are tested by the company on their special technical subject, Mathematics, English, Industrial and Labour Relations, Economics and General Knowledge. The candidates are interviewed by a Committee of ten Directors, and a group test is given to evaluate their ability and skill in getting along with people. Each candidate is also medically examined. In this company, there were 260 applications for executive cadre jobs, 50 were interviewed, and only 16 were finally selected.

In many companies, the political leanings of the candidates are thoroughly investigated before they are selected for responsible jobs.

The selection and training functions in the organisation are directed to finding and fitting a person to the organisation as a whole. For example, in the textile industry workers are not selected on the basis of spinning or weaving or mechanical aptitude but for general ability. During training, the trainer decides where the worker would fit best. Similarly, in executive jobs, college graduates are selected and they are rotated in different departments for training. It is during this period that the management decides as to where the candidate would best fit in the organisation.

11.2.4. *Selection for Line and Staff functions:*

For jobs in engineering, chemistry, technology, accounts, etc., candidates trained in those specialisations are selected. But for staff functions, such as personnel management, quality control, training etc., the personnel selected do not have specialised academic training in those functions. For example, the head of the personnel department is generally not a person trained in personnel management or industrial relations, but in accounts, law or economics. The head of the quality control section, or even of the research section dealing with operational research may be an engineer or a technical person promoted or transferred from production departments.

The selection procedures, especially for staff functions seem to lay greater stress on general factors of intelligence and personality than on specific types of training and ability. Generally, persons from line functions are transferred to staff functions. Although

this procedure makes for greater understanding and harmony between line and staff functions, it does not perhaps utilise specialised staff functions to their best advantage. For example, research needs specialised training in research methodology and the best of production workers do not necessarily make the best of research workers.

11.3. *Training:*

11.3.1. *Role of Government, Corporate Associations and Institutions.*

For rapid industrialisation of the country, the role of training was recognised early by Government. In order to encourage apprentice training in industry, the Central and Prefectural governments make some financial allocations to help organisations to start apprentice training programmes. For small industries employing less than 50 workers, Government has helped in organising joint training institutes. About 96 % , of small scale industries participate in these joint training programmes.

The Government has laid certain standards of apprentice training for various types of jobs. The individual companies organise their training programmes so as to fulfil these standards. The Labour standard department of the Ministry of Labour issues certificates to successful trainees. This ensure not only a minimum standard of skill, but also a uniform standard of training. Instructors for apprentice training must also possess certain basic minimum qualifications before they are approved by the Labour Ministry for training jobs.

There are also a number of corporate bodies and associations which contribute to the training functions of an organisation. These are specially concerned with supervisory and management programmes, and attempt to give training suited to the particular requirements of the firms. Special mention may be made of the Nippon Management Association, the Japan Industrial Training Association, and the Japan Productivity Centre.

The Nippon Management Association has a membership of 800 industrial and commercial organisations, and has staff of 73 full-time consultants. The Japanese Industrial Training Association is a non-profit making organisation sponsored by the Japan Federation of Employers' Association. It was established to coordinate the training activities carried out by various agencies and to adapt them to the specific needs of different groups of industry. The Association has a membership of 350 establishments and during its eight months of existence, it has organised a number of conferences and seminars with a view to emphasize the value of training. It provides consultant service on training problems, and makes available qualified instructors on specific requests from industry.

The Japan Productivity Centre plays an important role in training of executives. It has sent 36 teams consisting of 324 executives and technicians to the U.S.A. for a study of technical and management subjects.

11.3.2. *Training Programme of Companies:*

There is a systematic training programme for every person employed in a company. Very rarely indeed, do companies take

skilled and experienced workers or executives on higher pay from another organisation.

The introduction of a new method, new technique, or new machine is generally preceded by a training period. For example, in a steel company, when there were plans for modernisation of equipment, the workers, jobbers and supervisors concerned were trained in the use of new machines.

In another company, when time study techniques were introduced, the jobbers were given training for an understanding of these techniques, so that they could appreciate and collaborate with the time study engineers. The same is true when Quality Control is introduced in an organisation. The foreman and supervisors are given general courses, whereas, senior staff but in charge of Quality Control functions are given specialised training in Institutes.

When employees are ear-marked for promotion, they are first given training in the new functions before they are promoted. In some cases, the training is quite extensive. For example, in a steel plant, the company runs a training school for workers outside working hours. The duration of the course is about eight months, (three times per week, three hours per session), and 300 to 400 workers are trained per year. Foremen and supervisors are selected from this "trained" group of workers.

Some companies provide opportunities to their employees and executives for higher training so that it is possible for them to qualify for better jobs within the organisation.

In one company, it was found that there was a training programme in relation to sales promotion. Farmers from all over the country were given training in the use and maintenance of farm equipment manufactured by the company. There was a three day training programme and consisted of lectures, practical training and actual field training. The company provided free dormitory facilities and subsidised Food upto 50%. The company finds that 50%—60%, of trainees become buyers of their equipment.

11.3.3. *Duration of Training Programmes*:

The length of an apprentice training programme varies, depending on the nature of the job and the skill required. In industries, such as iron and steel, machine manufacture, heavy chemicals, apprentice training programmes were of three years' duration, whereas in textiles, the apprentice training was only of three weeks' duration.

Executive training on the job was generally of one or two years, and independent responsibility was given only after about three to five years of working experience in the organisation.

11.3.4. *Line and Staff Personnel used for Training*:

Each company has some full-time trainers, but the major responsibility for training is on the line staff. The training of the basic academic subjects is generally given by full-time persons from the training section. Orientation lectures and induction are generally given by the head of the department or other senior

executives of the company. On the job, training is given by senior and experienced workers or by the foreman (in the case of a worker), and by the supervisor (in the case of an executive).

Persons in Production departments consider it a part of their responsibility to train people in the organisation. They consider it a recognition of their ability to be assigned some training functions in the organisation; they are not generally given any special allowance or payment for such duties.

Sometimes, outside help from the Labour Ministry, training institutes, or colleges is invited to help in training. This is specially so for supervisory and executive development programmes.

It is interesting to note that there is not much of a gap between the trainer, who trains on the job, and the trainee, in their status in their organisation. Training of workers on the job is done generally by an experienced worker, and of the executive by the supervisor (the lower level of the executive cadre) concerned. In such a system, the trainee acquires not only the technical know how of the job, but also the social norms and codes operating in that job.

The induction and orientation which is given by departmental chiefs and managers lend top management support and participation to these programmes.

11:3. 5. *Some examples of training at the worker and the executive level are given below:*

(*a*) *Apprentice training for workers in a cotton textile factory.*

The operative training is for three weeks.

First week:—Three hours per day in the classroom for general orientation about company history, rules, its policies and procedures and background lectures on textile processes and machines.

Five hours per day in mill assisting operatives.

Second week:—One to one and half hours per day in the classroom for background lectures on textile processes and machines.

Six hours per day training on the machine by the group leader.

Third week:—Eight hours training on the machine.

The orientation and technical lectures in the classroom are given by the departmental heads, and the job training by the 'group leader'. A group leader is an experienced worker of about five years' service who is selected because of the ability and good relations with workers. There is a 'group leader' for about every ten to twelve workers. During the training period, the group leader is relieved of the duties as an operative, and she spends her full time in training new operatives.

Separate machines are allocated for the new trainees. Any subsequent training required is given by the foreman. Machine assignments are gradually increased as the skill and experience of workers increase. There has been no occasion for discharging workers for inefficient work.

The company also runs a senior high school for those who are interested in getting higher education. It also provides training in sewing, tea-ceremony, flower arrangement, and other domestic and cultural activities.

(*b*) *In an Iron and Steel company.*

The apprentice training is for three years.

First year:—Classroom teaching of general and technical subject.

Second year:—50 per cent. time in classroom and 50 per cent. on the job.

Third year:—20 per cent. time in classroom and 80 per cent. on the job.

The training on the job is given by skilled and experienced workers.

For higher grade technicians, persons who have had a minimum of two years' training in technical college are selected. They are trained for about four months by the technical research department.

(*c*) *Executive Training in an Iron & Steel company.*

The training is for one year. The selected candidates have an orientation programme for two weeks in which the company history, policies, rules and regulations etc., are presented. The next three months are called "Induction". In this period, the trainees spend their time in different departments to get an overall picture of the working of the organisation. After this training in special fields is given. Arrangements are also made for trainees to visit other steel mills. The trainees are required to submit monthly reports to the head office about their progress. After one year, they are placed as Assistant Supervisors in a department. After two or three years, they are again rotated to different departments and to different factories of the company. Persons earmarked for senior jobs are transferred to the head office and are given further training there.

One of the essential features of executive training is the rotation of candidates in different departments. The trainee, besides acquiring a general picture of the company, begins to understand the various interactions and relations which influence the decision-making in any particular department. Good relationships are the foundation of effective teamwork and this system provides an opportunity of knowing and fostering relationships.

11.3.6. *Other Measures Contributing to Training*

(a) The practice of having group meetings at various levels in the organisation is widely prevalent and helps in the continuous growth and development.

The Manager holds meetings with Departmental Chiefs, the Departmental Chiefs with their supervisors and section chiefs, and

the foremen with workers, where technical matters, programming of work, targets, quality, grievances, etc., are discussed. Meetings are also held between members of different departments at different levels in the organisation to understand and solve problems jointly.

These meetings which provide continuous communication and consultation help not only in solving technical problems, but in promoting team work.

(b) Other methods are visits to different companies, attendance at technical meetings and management, conferences, and training of senior members abroad.

(c) Training Within Industry (TWI) and the Management Training Programme (MTP) are also widely prevalent in the industry. The TWI is generally used for jobbers and supervisors, and the MTP for section chiefs and senior levels of management.

11.4. *Promotion.*

Broadly, the different levels in the organisation are:

(i) President
(ii) Director
(iii) Department Chief
(iv) Section Chief
(v) Deputy Section Chief, or Supervisor
(vi) Foreman
(vii) Workers.

The employees of an organisation are recruited at two levels—workers and supervisors. The workers are selected from school graduates, and the supervisors from college graduates. The promotion is almost entirely from within the organisation. The workers generally rise upto the foremen, and sometimes to the supervisor level, and the supervisors can rise to the highest position in the organisation. In familyowned organisations also, the son who is a college graduate, is first placed as a supervisor, and in time rises to the senior positions of management. In most organisations, it takes ten to fifteen years for a worker to be promoted as a foreman, and about the same time for a supervisor to rise to a department chief or to a manager's position. In very rare cases indeed are senior and experienced persons brought from outside for senior jobs.

Many companies prepare an evaluation report for each candidate, and these reports are used as a basis for recommending promotions. The promotion to the foreman level is decided by the Plant Manager at the recommendation of the supervisor concerned, and executive promotions are decided by the head office at the recommendation of the plant manager.

The basis for promotion is seniority, performance on the job, and the ability to get along with others. The ability to get along with others is greatly emphasised, both in selection and promotion. In many cases, the candidate has to pass certain selection procedures before he is promoted to the next level. And in most cases the selected candidates are trained for the new responsibility assigned to them.

CHAPTER 12

INDUSTRIAL RELATIONS

12.1. *Scope of Collective Bargaining.*

As has been mentioned earlier, one of the peculiar features of the Japanese Labour Movement is the individual or enterprise union. This implies that workers of a particular plant or a company, regardless of the nature of the job, organise themselves into a plant or a company union. These enterprise unions are often affiliated to industrywise unions which, in turn, are affiliated to national associations of unions, such as the SOHYO or the ZENRO. The basis of the affiliation depends on the political sympathies that a particular industrywise union may have.

Collective bargaining is, generally on a unit or a company basis rather than on an industrywise basis. In some industries, *viz.*, mining, steel and textiles, there is a growing tendency for certain matters to be decided by collective bargaining on an industrywise basis, but this is not always followed. For example, in a recent strike of steel workers for higher wages, the negotiations were not held industrywise.

The Labour Relations Law provides that working conditions shoud be decided by both the parties by collective bargaining. Working conditions refer to hours of work, holidays, vacations and retirement allowance. In general, collective bargaining takes place once every six months for fixing the bonus amount, and once a year for problems dealing with wages, working conditions, fringe benefits, etc.

Some of the important items of collective bargaining are discussed in the following sections.

12.2. *Wage determination*

The wage structure is not dependent so much on concepts of job evaluation as on basic qualifications, seniority and needs of the family.

There are broadly three types of payments: monthly rate, hourly rate and piece rate wages. There is a growing tendency in jobs wherever it is possible to conduct time studies, to convert the system of payment to piece rates. Monthly paid employees are mostly executives and administrative staff above the section chief and some people in the supervisory cadre. Hourly paid employees consist mostly of the maintenance section staff. Piece rates are generally given to employees, who are on production jobs. Piece rates are given either on an individual basis or on a group basis depending on the nature of the job.

The total emoluments consist generally of a basic wage, an incentive wage, allowances and bonus. For employees engaged in production jobs, the basic wage constitutes a smaller proportion of the total emlouments than for workers engaged in non-productive jobs, that is, maintenance and supervisory jobs. The basic wage was thus

found to vary from 35 to 80 per cent. of the total emoluments in different types of jobs and in different companies.

The basic wages of a worker in any particular plant depend largely on educational qualifications. Representative examples of the starting basic salary of three large companies are given below:—

Qualifications	*Iron & Steel*	*Electrical Equipment*	*Textiles*
	Yen	Yen	Yen
Junior High School . . .	7000	6000	4800
Senior High School . . .	9000	8000	
University Graduate . . .	13000	12000	

The Law provides that apprentices cannot be engaged without payment of an allowance or a wage. In some companies, where the apprentice training programme is of three years, it was found that the apprentices in the first year receive 20 per cent less, in the second year 10 per cent less, and in the third year 5 per cent less than the basic minimum wages prevailing in the company. In industries such as textiles, where the training period is about three weeks the workers start with the basic minimum wage prevailing in the company.

Family allowance: During the inflationary period after the war, companies started to give family allowances to workers in order to compensate for the rising cost of living. The allowances refer generally to payment for family dependents. The typical rate of family allowance is as follows:

Allowance for wife	1,000	Yen per month
2 dependents	800	Do.
2 children	500	Do.

Increments: Most companies have a system of annual increments for its employees. The annual increment is decided on the basis of collective bargaining and depends on the financial position of the company and its capacity to pay. The annual increments given to workers were found to vary from 3 per cent to 8 per cent of basic wages. If the worker reaches the maximum level of pay in his grade, there is no further increment given unless he is promoted to the next grade.

Bonus: Bonus, in the earlier years before war, used to be given to employees for sincere and loyal service. These days, bonus is given not only to industrial workers, but to Government employees as well. The bonus given in different companies visited varied from 3 week's to 2¼ month's basic wages for every six months of service. The total amount of bonus payable by the company and also the minimum which each employee should get is decided by collective bargaining. The minimum accounts for about 70-80 per cent of the total amount payable by the company. The balance is distributed at the discretion of the management. Workers recommended by their supervisors are given additional bonus for

either high productivity or for other services rendered to the company.

A number of companies visited had a system of incentive payment, working within the above mentioned structure of wage payment. Incentive schemes, however, were diverse and complicated, and details were difficult to get in the short time available to the delegation.

12.3. *Fringe benefits*

The fringe benefits provide by the company refer to housing facilities, uniforms, medical aid, educational facilities, welfare activities etc. The total amount of expenses incurred by the companies for all these amenities amount to about 10 to 20 per cent of the wages. In addition to what has to be provided by statute, most of the companies conduct welfare activities on an elaborate scale.

Housing.—Most companies provide some housing facilities for their employees. Some companies have a housing fund out of which they give loans to employees at a very low rate of interest to be repayable in 15 to 20 years. Unmarried employees are provided dormitories at very nominal rents. These dormitories have good living and recreational facilities, and food in many dormitories is subsidised.

Food:—Most companies provide canteens for employees. Lunches are subsidised, the subsidy varying from 30 per cent to 100 per cent. Another interesting feature noticed in almost all companies visited was that there were tea-kettles on the stove in almost every department of the plant.

Uniforms:—Some companies provided uniforms to all employees and supervisory staff. This was the practice in the textile mills visited. In industries such as steel, chemicals etc., free uniforms were provided to employees of certain sections only. In certain companies, uniforms of an attractive pattern are sold at cost price at the co-operative stores of the companies. Although there is no compulsion to use these uniforms, all workers do use uniforms. Laundering of uniforms is done at company expense in certain cases, whereas in others, employees assume responibility for keeping uniforms clean. The number of uniforms given per year very from 2 to 4 in different companies.

Medical Aid.—Compulsory minimum medical facilities to be provided to workers are prescribed by the sickness insurance law. Most of the large companies, however, have modern, large and fully equipped hospitals of their own which give many more facilities to employees. These hospitals look after workers as well as the members of their families.

Retirement Allowance.—Employees generally have to retire at the age of 55. We were informed by many companies that employees of exceptional ability and capacity are sometimes re-employed as consultants or trainers. In one company, the President was considering starting a small subsidiary business, wherein he could provide useful employment to his retired personnel.

The Retirement Allowance is generally given in a lump sum. This sum is decided on the basis of collective bargaining and was found to vary in different companies visited. In general, the retirement allowance is based on existing wages, period of service and the reason for retirement. The following gives an idea of the retirement allowance in relation to service:

For 5 years service	..	3 months salary (exclusive of supplementary allowance.
For 10 years service	..	8 months salary.
For 15 years service	..	14 months salary.
For 20 years service	..	22 months salary.
For 30 years service	..	44 months salary.

In the textile industry, young girls join mill service for 4 or 5 years prior to their marriage. The company gives them a marriage allowance of about 10,000 Yen when they leave.

Holidays.—Over and above the weekly holidays, there are about thirteen holidays in the year, of which about seven or eight are paid holidays. Some companies give vacations on a sliding scale depending upon the length of service of the employee. One of the chemical companies is adopting the following procedure:—

Service	*Holidays*
One year service ..	6 days.
Two years service ..	10 days.
Three years service ..	14 days.
Six to ten years service ..	17 days.
Eleven to fourteen years service.	20 days.
Fore more than fifteen years.	One day to be added for every 3 years' service exceeding 14 years.

Educational Facilities

Facilities for higher education and cultural education are provided by many companies free of cost. In textile mills especially, women workers living in dormitories are given training in cooking, sewing, doll making, flower arrangement, etc.

Mutual Aid System

In some companies a fraternal society of employees is formed to provide mutual assistance to the employees and their dependents for occasions such as maternity, sickness, injury, disaster, death, etc.

Recreation

Facilities are provided in many companies for indoor and outdoor games. Some big organisations have provided large auditoriums with equipment for film shows, staging dramas and organising lectures.

Cooperative Stores

Most of the companies have cooperative stores where goods are sold at cost price to employees.

12.4. *Grievance Procedure*

Agreements entered into for collective bargaining between the employer and employee contain clauses, regulating the procedure for settling grievances. To decide on matters of general nature, such as a rise in basic salary, working hours, half-yearly bonus, etc., collective bargaining takes place between the Union and the company. The Employers' Organization of the particular industry gives guidance and help to the individual companies to negotiate. All minor grievances such as fines, suspension and other disciplinary measures are generally settled at the foreman or the section chief level, failing which they are taken to the personnel department.

Many companies have a regular grievance committee comprising an elected representative of workers, employers' nominee, union representative and the particular department's representative. Complaints not solved by the section chief are taken before this committee.

Usually 90 per cent. of the minor grievances are solved at the shop level itself. Problems that cannot be solved on a personal basis or by the Company's Grievance Committee, become subject matters of collective bargaining and if they cannot be settled through the latter process are handled according to the terms of the agreement, by either conciliation, mediation or arbitration as prescribed by the Labour Relations Commissions.

12.5 *Climate of Industrial Relations*

Traditionally there is a paternalistic approach in organizations. This has contributed to respect for authority, security of service, an identification of goals and the acceptance of well understood mutual responsibilities between management and labour. This has undoubtedly been a significant factor for the stability, efficiency and growth of organizations.

However, the paternalistic approach has received a serious challenge with the growth of active trade unionism in the post war period. Large scale U.S. aid and the cold war have complicated industrial relations with the injection of an ideological element. Enligtened management is trying to meet this challenge by emphasizing the social responsibilities of private industrial organizations. The separation of ownership and management in large scale industries and the consequent growth of professional management permits this goal to be proclaimed with greater sincerity than might otherwise have been the case.

The future development of industrial relations will be of crucial importance to the continuing success of efforts being made to improve the efficiency and productivity of the Japanese Industry.

CHAPTER 13

CONTROL TECHNIQUES

13:1. *Emphasis on quality and economy*:

As mentioned elsewhere in this report Japan depends to a large degree on industrial enterprise to raise the standard of living of the nation and to earn foreign exchange through exports of manufactured goods. In the export of manufactured goods she meets with stiff competition from highly developed industrialised countries. The Japanese, particularly the industrialists and executives, realise the vital importance of improving quality and lowering cost of production for promoting exports. In the highly competitive free enterprise system of Japan there is no place for uneconomic processes. Japan needs to regain her lost position in the community of nations and the Japanese people know that they can do so only if they prove themselves to be equal or superior to the western nations in industrial techniques, and in quality and economy of their products. This is a question of national prestige and finds concrete expression in the day to day approach of all sectors of the industry to problems of production and quality. Thus the emphasis on quality products and economic processes is already in existence.

13:2. *Production planning and control*:

All the companies which we visited have generally a number of units manufacturing diverse products. In most cases the production of each of these units has to be integrated with and dovetailed into the requirements of the other units and of the company as a whole. The overall planning of production therefore is always exercised at the head office of the campany. This very important aspect of the work is usually looked after by a senior director or managing director. There are many variations in the actual organisation of this aspect of the work but in general there is a separate department of Production or Technical Administration whose functions comprise that of production planning, and technical control of processing. This department also exercises line responsibility with respect to corresponding departments existing at the plant level. In drawing up the production policy the greatest liaison is maintained with the business department on the one hand in matters relating to cost of raw materials and market conditions, and with plant managers and heads of production and technical control departments of the units on the other in matters relating to execution of these policies. There are special functional committees formed of representatives of these various sections to consider the production policy. This practice of consulation ensures the participation of key people in charge of line responsibility in the formulation of policies. At the plant level the company goals are in turn communicated to lower staff and the implementation thereof discussed between production and technical control departments.

At the plant level there is generally a production control section as a part of the technical control department. This section coordinates the work of the production departments and works out operational details for implementation of company goals. Monthly meetings are usually held between the members of the production control section and the chiefs of sections of various manufacturing departments. The engineers in charge of this section are usually people of long experience in the production departments. In some companies the production policies and targets are also discussed with representatives of labour for their smooth implementation.

After the formulation of production policy by the Production or Technical Department at the head office, it is submitted to the Board of Directors for final approval. Since the Board of Directors itself consists of top executives from various plants and from the head office, many of whom were associated in the formulation of the policy and targets, this practice makes for smoother implementation and adoption of a practical, feasible policy. While it is not possible to make any general statements about production planning, it is quite usual in most companies to plan at least three to six months ahead in every detail and in many industries such as machinery, iron and steel, and shipbuilding, for a much longer period. Every month production achievements are reviewed by inter-departmental committees at the plant level and also at the company level, and minor changes made according to necessity.

In textiles, production is generally planned two to three months in advance. The different plants of a company are generally designed for a narrow range of counts and production is usually planned for three months in advance. Though actual cottons used may change, the quality of blends is kept as constant as possible through scientific blending. Changes in counts are rare, and in sorts of cloth manufactured not very often. According to the President of one of the big ten textile companies, counts and sorts are not changed for five to six months at a time except perhaps on 15 per cent. of spindles and looms respectively, on which occasional changes may be effected. Special sorts which are not produced on a mass scale are very often given to independent weaving and finishing firms.

In textiles and in heavy machinery, shipbuilding, iron and steel, most of the production is currently against orders, while in many other industries such as light engineering, automobiles, optical goods, chemicals, ceramics, glass etc. most of the production is of necessity before orders are received and have to be planned keeping the market conditions in view.

In several industries a great deal of subcontracting of production is undertaken. This is particularly so in the light and heavy engineering industries where many small parts are being supplied on a very large scale by small and medium scale industries. The placing of these orders, the formulation of the specifications of these parts and their inspection is also a part of the job of the Production or Technical Control department.

While the overall planning of production is done at the head office, the execution is left to the different plants. In textiles there appears to be a great deal of control applied from the head office in

matters of technical processing while in other industries these are thrashed out mainly at the plant level between the production departments and the technical control department, and only instructions about very major changes are issued from the head office.

13:3. *Cost Control*:

Systematic cost accounting and cost control is exercised widely in almost all the companies we visited. There is usually a separate cost control section in the accounting department of the Business Division at the head office. The budgetary system is used as a basis of overall managerial control of costs and return on investment. Cost control involves cutting down costs as far as possible; it therefore requires control of materials and maximum utilisation of man power. Cost control is sought to be exercised over processes through the active cooperation of workers and supervisors, the object being to control the activities of a group of people who constitute a cost centre. Authority and responsibility for cost control are delegated to the people in the plant by indicating to them clearly their responsibility in terms of standard costs.

The following are the six steps typically followed by one company as a part of the procedure of cost control:

(1) *Setting standard costs*:

These are set in relation to standard requirements in the form of raw materials, services, man power, depreciation, etc. and are related to budgetary costs. These may be revised from time to time. These standards are discussed by those concerned with implementing them.

(2) *Measures for reaching standard costs*:

Personnel upon whom major burden of responsibility rests are fully informed of what responsibility they have to accept in achieving the goal. The necessary measures to be taken by each group of people are indicated.

(3) *Ascertaining actual costs*:

The volumes of materials, power and services, man hours (staff, line, clerical and overheads) consumed for production of a given volume of goods are calculated and actual costs ascertained.

(4) *Analysing differentials between standard costs and actual costs*:

An analysis of the variances between standard and actual costs by causes is undertaken.

(5) *Reporting Variances*:

The variances thus analysed are reported to each department and supervisor who is responsible. The frequency and content of such reporting varies from echelon to echelon of supervisors.

(6) *Improvement of management*:

Conditions of inefficiency or waste brought to light are corrected as far as possible. Under certain circumstances revision of standards is considered.

13:4. *Quality Control and Inspection*:

13:4.1. *Organisation and functions of the Quality Control Department*:

In all industries which we visited we were struck by the steps being taken for inspection of raw and finished materials and of quality control of processed goods at every stage of manufacture. Systematic quality control including Statistical Quality Control (SQC) methods was introduced in Japan in 1947 and 1948, and most of the manufacturing industries have now in their organisations a separate section devoted to the implementation of Quality Control. However Quality Control does not only mean SQC. It includes everything necessary to promote and maintain quality such as alterations in processes, improvement of techniques and so on.

While the organisation of quality control differs from company to company, we can say that there are in general two broad systems prevailing in Japanese industry. In the light industries, quality control is often a line responsibility of the production departments. However, in industries such as iron and steel, heavy machinery, engineering works, motor cars etc., the quality control section generally forms a part of the Technical Control or Technical Administration or Technical Research Administration department which essentially performs staff functions at the plant level and advises the factory manager in matters relating to inspection, quality control, specification of standards, improvement of techniques and production planning. The work of the Technical Administration Departments of different units of a company is coordinated by a relatively small Technical Administration department at the head office. In industries such as textiles and pharmaceuticals, the organisational set-up of quality control is very much simpler. Quality control is the direct responsibility of the production departments who have separate staff and facilities for collection of necessary data, just as they have for operation and maintenance. In such industries there appears to be a greater degree of control and expert technical advice from the head office of the company in matters relating to production planning, specification of standards, operating standards and improvement of techniques.

In the first category of industries where quality control is organised as a staff function, there are naturally many variations in the actual organisational set-up from company to company. Generally, however, we can state that at the plant level, Quality Control forms one section of a Technical Control department whose other sections may be production planning, inspection and design. The department is in charge of a departmental head who has the same status as the head of any of the Production departments, and who is responsible to the Factory Manager or Managing Director or

a Vice-Director in charge of technical affairs. Each section of the Technical Control department is in charge of a section chief below whom are supervisors and operators. Within the department itself there appears to be the closest possible liaison between the various sections through periodical formal and informal meetings.

The functions of the production planning section have already been indicated. The quality control section deals with process control in manufacturing divisions. For all important characteristics on which control of quality is exercised there are quality checkers or operators who are affiliated to this section and who undertake the collection of the basic data. For every characteristic upper and lower operating standards are fixed by the section keeping in view past performances in the light of SQC charts and the quality requirements of the end products. On the shop floor the data on quality characteristics are immediately transmitted to the section chiefs or foremen of the manufacturing departments. The manufacturing departments are solely responsible for taking any immediate action that may be necessary. The Quality Control engineers collate the information from the shop floors and prepare Quality Control charts and reports, copies of which are sent to section chiefs concerned. Weekly consolidated reports are also sent to section chiefs. The chief work of the Quality Control engineers seems to be that of keeping an integrated record of quality at all processes and to revise these standards and recommend changes in processes as and when necessary. SQC charts are kept on the machines wherever possible.

For all characteristics definite information about current standards of quality are made known to foremen and section chiefs of manufacturing divisions. Every month the Quality Control Section chief meets every section chief of the manufacturing departments and reviews the performances of the section in terms of quality. In addition the Quality Control Section chief also attends the monthly conference of the Technical Control department and the heads of the production departments where all production and quality problems are thrashed out.

The section chief and supervisors in quality control section are usually engineers who have had long experience of production departments and who have been specially trained in statistical and allied techniques at special institutions. Quality checkers are experienced line operatives who have been given special training in testing techniques and a little elementary knowledge of statistics.

The Inspection Section is usually a separate section in the Technical Control department dealing exclusively with inspection of raw materials and finished goods. Rigid specifications of quality are adhered to. Specifications of raw material quality are laid down by the Technical Control department of the head office. These are arrived at after consulting existing standards and top personnel from the company's units. Very strict inspection of finished products is done. The standards are again laid down by the head office in the light of customer specifications or Japanese industrial standards. It should be noted that the Government has laid down for many export items (including textiles) quality standards which are strictly enforced.

The reports of the Inspection Section are regularly submitted to production departments and to the business or general affairs section.

In many companies, particularly engineering works, the design section forms part of the Technical Control department. The function of this section is to design new items and after producing them on a pilot scale hand them over to production departments. Necessary technical guidance is also provided.

The set-up discussed above with some variations is characteristic of many large companies, particularly iron and steel, machinery and engineering concerns. In many plants it was observed that operators on the shop floor are made responsible for actual collection of basic quality characteristics and these are then submitted simultaneously to the Quality Control Section and the Production department. The former specifies operating standards and the latter is responsible for day to day action in the light of these standards. However, any major alteration in processing or operating standards are formulated by the Technical Control department after consultations with the experts at the head office and the chief of the production department of the factory.

A practice in many companies is that elementary courses are held to acquaint foremen on shop floor with rudiments of Statistical Quality Control. These are usually arranged by the education or training section of the personnel department.

13.4.2. *Relationship of Technical Control Department with Head Office*:

At the head office there is a Technical Administration Department or some similar department corresponding to the Technical Control Department of each plant. This department is usually in the charge of a Director of the company. This department is constantly fed by each plant with technical information on quality, production and efficiency. It has the responsibility of planning the overall production of the company, and of coordinating the production schedules of the units. It also advises the Technical Control Department of the different plants through the Factory Manager in matters pertaining to quality, end product specifications, revision of standards, improvement of techniques, quality control procedures, standardization etc. For doing this the Technical Control division of the head office pools the experiences of the technical personnel in various units by setting up special committees for technique improvement, process alteration, quality control, product specifications etc. The recommendations of such committees are often useful in bringing about improvements.

It is interesting to note that while the technical control department is responsible to the Factory Manager, the latter is advised and guided in matters pertaining to this department by the Technical Administration department at the head office.

13.4.3. *Relationship between technical control staff and production staff*:

While the mechanics of liaison between production and control departments were studied by us and have been indicated, it was not easy to study at first hand the overall relationship between the

personnel of these departments. From our conversation with the production and control staff at the section chief or higher levels we would say that in general their relationship appeared to be quite cordial. The production department seemed to understand the role of the control department as well as can be expected. This is not to say that there was sometimes no evidence of tension existing between staff and line personnel. In two or three factories we were given to understand that occasional misunderstandings did arise. For example, production staff in some cases resented "being told about quality and processing techniques" by the Technical Control department.

A practice which is very important from the organisational point of view is that there is not infrequently an interchange of staff at the section chief level between production and control departments. This would promote understanding on the part of each of these two departments of the role of the other, organisationally and functionally, and an appreciation of the other department's difficulties and points of view. This understanding is possible because the senior personnel of these departments have experience of work in the other departments and have the necessary technical qualification. Very active liaison and flow of information are also maintained between the control and production departments.

13.4.4. *Organisation of Quality Control in light industries*:

In pharmaceuticals, textiles and light industries, such as optical industry, pottery and ceramics etc., Quality Control is in general the direct responsibility of the production departments. Quality Control at every stage of processing is practised widely in these industries but organisationally there is generally no separate department for it except usually an Inspection Department for inspection of final products. In textiles, there is often a separate staff for taking observations for implementing quality control and a separate testing laboratory is provided, but this staff is directly under the spinning or weaving master. However, a great deal of guidance and control is exercised on matters relating to quality and processing conditions from the Technical department of the head office and operating standards are broadly laid down by the latter. Similar is the case with pharmaceuticals. In light industries such as pottery, optical goods the line staff itself is responsible for inspection and testing at every stage except the final inspection. Quality Control is organised very effectively and simply in such companies.

CHAPTER 14

Research in Companies

14. 1. *Organisation of Research Department:*

Japanese industry has drawn purely on modern technological developments in the West and the U.S.A. However, most large companies realise that the establishment of well equipped and adequately staffed research and development sections is vital for the future growth of industries. In most of the companies we visited, research forms part of either the production division or the technical administration division. The head of the research department is directly responsible to the managing director in charge of the division. Some times he may also be a member of the board of directors of the company.

There is no uniformity in the pattern of organisation of research in the various companies visited by us. It seems to depend on a number of factors, the most important of which are the way the company has grown and the importance it attaches to research. We have come across the following types of organisation:

1. In many companies having more than one plant, there is a central laboratory which does product development research and solves problems common to all factories. In addition there is a plant laboratory in each of the plants concerned mainly with operational research pertaining to that plant. The plant laboratories are usually under the control of the managers of plants for administrative purposes while research is coordinated by the central laboratory.

2. In some companies there is no central laboratory, but one laboratory is attached to each of their important plants. All of them have equal status, but coordination of research is through the head office.

3. In some others there is a central laboratory and departmental laboratories, each dealing with a particular type of product. In this case there are no plant laboratories. The departmental laboratories are independent of the central laboratory and come under the head of the particular production division who decides on the problem to be referred to the central laboratory.

4. In one or two others there is a central laboratory and no plant laboratories at all.

The head of the research section is generally known as manager of research. But if he happens to be a member of the Board of Directors, he would be known as Research Director. The heads of plant laboratories are known as Assistant Research Managers or Plant Research Managers.

14. 2. *Staff*:

The number of people employed in research varies with different companies according to their size, the type of products they manufacture and the importance they attach to research. In large companies which have very wide interests or manufacture a variety of products, there are large laboratories employing between 400 to 800 research workers. In one company, nearly 10% of their employees were engaged in research and testing, but in general the figure is between 1:5 to 3% of the total number employed. Of these, about 25% only are university graduates, 50% senior high school graduates and the rest are junior school graduates. In pharmaceutical laboratories, however, the proportion of university graduates seems to be very high, being about 60%. There seems to be a wide variation in the salaries of research staff between the companies, the average for university graduates being 30,000 Yen per month in one company and 65,000 Yen per month in another. But a similar difference was not noticeable for high school graduates, the average in most companies being about 25,000 Yen per month. Within a company the salary of the staff seems to depend upon the service and ability of the person rather than whether he is in the production division or in the research division.

14. 3. *Selection of Research Problems*:

The selection of problems for research is generally from the following:

1. Suggestions of research workers.
2. Suggestions of the sales divisions.
3. Suggestions of the production staff.

There are committees both plantwise (where there are plant laboratories) and at the head office to study these suggestions and make specific recommendations.

14. 4. *Implementation of Research Results*:

Implementation of the results of research to production is generally left to the production staff. But occasionally as in the case of one laboratory, the research staff go into the plant to give guidance and advice to the production staff. Implementation seems to be a simple problem in Japanese companies because of the following reasons:

1. The production staff is kept informed of the progress of research at every stage and their opinion is sought through frequent meetings both at the plant level and at the inter-plant level.
2. The transfer of staff from production to research and *vice versa* gives them an insight into the problems of both sections and makes for good cooperation.
3. The initial training given to all staff is sufficiently broad based and tends to eliminate inter-departmental friction.

Reports of research done at the laboratories are circulated to the heads of various departments and sections, engineers and plant managers.

14. 5. *Connection with other research bodies*:

Most of the company laboratories are in touch with national laboratories and get the benefits of basic research from them. They also sponsor research in the university laboratories on specific problems though in one company we were told that they did not like to sponsor research in universities because of the difficulty of securing patent rights.

There is also a government scheme to grant money for specific projects to private company laboratories. The laboratories apply every year to the Ministry for International Trade & Industry for grant, setting out in detail the problems they propose to undertake for the coming year for which the funds are required. The Ministry decides if any of them are of general importance to the nation and if so, government assistance is given. In the case of basic research it is an outright grant, but in the case of applied research it is a long term loan bearing a nominal interest. The money is to be returned on the successful completion of research, and its utilisation in manufacture. But whether the assistance is received in the form of a grant or a loan, the patents that may be developed belong to the company. The eligibility for a grant is decided by MITI on the basis of applications from year to year and there does not seem to be any fixed formula on the basis of which assistance is given. Though the Government assistance to the total amount spent on research by companies is small, it seems to confer some prestige to the laboratory.

In the case of atomic research, the Government have sponsored specific projects in different company laboratories. The entire cost of such project is borne by the Government and the patents also belong to the government. Heads of research of such companies as are doing this research meet periodically under government auspices and discuss common problems and exchange information.

14:6 *Budget*:

While some companies follow a policy of fixing the expenditure on research as a percentage of sales, the majority of the companies do not follow any such principle and allot funds from year to year on the basis of projects proposed by the research section. Generally, a budget is prepared every 6 months and if any additional expenditure becomes necessary, extra allotments are frequently given.

Budget is prepared by the head of the research department in consultation with his immediate assistants. In most cases there are committees composed of production and sales managers to give suggestions. In the case of plant laboratories, the manager of the plant is consulted in preparing the budget which is then forwarded to the manager of research who will prepare a consolidated budget for the approval of the Board of Directors. The estimates are generally made projectwise.

Expenditure on research varies according to the size of the company, the nature of the product and the amount of importance given to research in the company. In a company manufacturing a variety of products, there is greater expenditure on some products than on others. In one laboratory, for example, nearly 5 per cent. of sales is spent on electronics research while only 3 per cent. is spent on other products. The research expenditure in different

companies we have visited varies from a minimum of 0·3 per cent. to a maximum of 3 per cent. on sales. It should be realised however that in large companies employing 20,000 to 30,000 workers and having a turnover of many billions of yen, even 3 per cent. works out to a considerable amount.

14:7 *Three Research Laboratories:*

In order to give an idea of the organisation of research in large companies, a brief outline of the working of three laboratories is given below.

14:7. 1. *A company engaged in manufacture of electrical machinery and equipment.*

This company has always attached considerable importance to research.

It has sixteen sectional laboratories—one in each factory—and two central laboratories. The one we visited has 18,000 sq. yards of building area and it is planned to expand it to 30,000 sq. yards in the near future.

There are two major divisions and ten sections:

Division 1: Fundamental research on electronics:

(a) Research for electron microscope
(b) Analog Computor, Atomic Pile
(c) Microwave communication digital computors
(d) Dynamical gear testing machine
(e) Spectrometer—television relay equipment for industrial use
(f) Thermister
(g) Ultra centrifuge—automation.

Division 2: Research on materials:

(a) Electrical insulator—coloured optics
(b) Chemical research on steel—steel electroplating. Electrolytic grinding
(c) Magnetic substance Materials for vacuum tubes Colloidal compounds.
(d) Fluorescent materials. Transistors.

In the case of microwave communication and electronics, the company has agreements with a manufacturer in the U.S.A.

The budget is prepared by the Director of the Laboratory in consultation with the heads of divisions and sections. Generally speaking, 70% of the budget is for basic research and 30% for research suggested by the production and sales divisions.

The expenditure on research as a percentage of sales works out as follows:

0·7% for this laboratory
1·6% for central research
3% for all research including factory and laboratories.

These figures may vary from year to year. In some special lines like electronics, expenditure may be as high as 5% of sales but on others it will be low, say 1·3%.

There are 400 workers in the central research laboratory. Of those,

200 are on research
80 are on administration
70 are on experimental production and
50 are on miscellaneous duties.

Of the 200 on research, 100 are graduate scientists and 100 are technicians and graduates with less than 3 years experience. When they have more experience, they will be promoted as scientists. Of the scientists, there are 17 doctors.

The staff get increments every year.

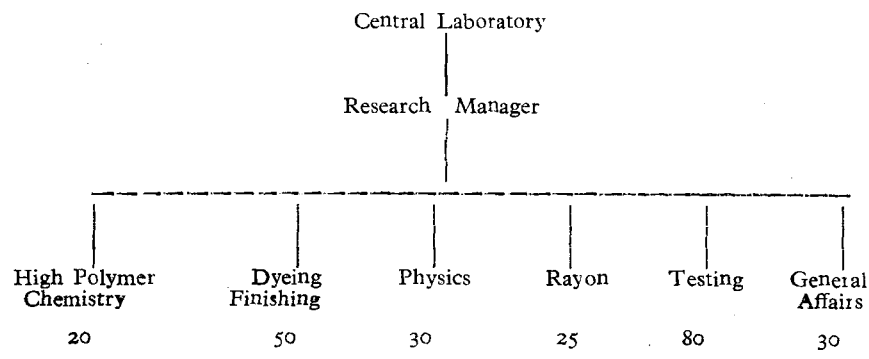
Sometimes, a project might necessitate people from various sections having to work together. In such cases, a group leader will be nominated and he will be in charge of the project. When people from one section only are involved, the section leader will be group leader.

Occasionally research is sponsored through outside organisations. The expenditure on such sponsored research is included in the sanctioned budget. Occasionally, the staff are also sent abroad for special training.

14. 7.2. *A Chemical Company*:

Research is under the immediate control of the Managing Director. The Research Manager is the head of all research in the company and is directly responsible to the Managing Director (Production). The research manager is in charge of the central laboratory while each of the plant laboratories is headed by a chief of plant research or Research Vice-Manager. The Plant Manager controls the laboratory in his plant for administrative purposes while research is directed by the head of research from the central laboratory. There are six plant laboratories—one in each plant. Thus, in the plant which we visited, they have the central laboratory as well as the plant laboratory.

The central laboratory has four divisions besides the testing section and general affairs and employs a total of 235 workers. They are as follows:



Problems for investigation are suggested by the investigation section, by the sales section and by the research workers. There are also technical committees, one for each product that they manufacture. There is also a new products committee. These committees are

held once every two months either at the head office or at any of the appropriate factories. Research division heads, managers and departmental heads from appropriate factories attend these committees and they make suggestions to the research laboratory. There are similar committees for each plant to discuss routine process improvement.

There are frequent conferences between research and production staff at two levels, namely, at the head office and at each of the factories. Formally, they meet once a month, but meet more often on an informal basis. They discuss completed research projects and their implementation. They also discuss projects that are incomplete. Sometimes, the research staff go into the plant to give guidance to the production staff on new methods. A quarterly journal is published. There are monthly reports from all laboratories and the research manager gets weekly reports from his immediate assistants on the work of the week.

The expenditure on research for 1955 works out to about 1% of sales.

14. 7.3. *An Electrical equipment manufacturer*:

It has a central laboratory—only three years old—and 11 departmental laboratories. Here departments imply 11 broad divisions of production divided according to the product. The departmental laboratories are independent of the central laboratory and have their own research programme. Manager of every department decides on problems to be referred to the central laboratory.

There is a comprehensive committee of hundred members composed of Managers, departmental heads and other responsible people which meets twice a year. This committee has various subcommitees which meet more often. One of them is for research. This committee makes suggestions for research. Inter-departmental research is decided by routine discussions as to when it should be conducted.

There are 210 people in the central laboratory (figures for departmental laboratories are not available), of whom 50 are university graduates, 80 are high school graduates and the remainder are junior high school students. Of the total 50 are employed in administration, 50 in the workshop and the rest on research.

The research department has consultations with Municipal and national laboratories and also with the communication laboratory in Tokyo. It refers problems to universities only rarely.

The laboratory publishes a bulletin once every 3 months which has reports of research done in all the laboratories. It also has reports that are not intended for publication.

35% of total sales is contributed by all departments to the central laboratory. Anything from 1 to 5% is spent in the departmental laboratories. The central laboratory is new and a lot of research is done in departments at present.

Part V

Recommendations Concerning the Organisation of a Productivity Movement in India.

RECOMMENDATIONS

1. A number of different agencies in India are undertaking programmes of various types which help to promote some aspects of productivity. Reference may, for instance, be made to the following:—

(i) The Indian Statistical Institute, Calcutta, held seminars many years ago for the promotion of quality control technique in Indian industry. The Ahmedabad Textile Industry's Research Association (ATIRA) introduced extensive schemes for the application of techinques of statistical quality control to the textile industry. The Indian Statistical Institute has set up quality control units at Bombay and Bangalore. Recently the South India Textile Research Association (SITRA) has also been providing a service for the application of statistical quality control techniques.

(ii) In 1953, the Asian Field Office at Bangalore of the International Labour Organisation provided the services of a qualified TWI group instructor who conducted some courses in TWI for supervisors in a few centres of India. This led to the setting up of a pilot project by ATIRA in Ahmedabad, which was followed by a much wider programme covering a large number of units in the industry. A separate training section at ATIRA is today concerned not only with supervisors' training but with operative training as well. The Union Ministry of Labour has extended the work in this direction by setting up a TWI centre in Bombay. This centre has for the past two years been conducting 'Institutes' for the training of trainers in TWI techniques for the benefit of industry in various industrial centres.

(iii) In the field of management training, the Government of India has for some time been interested in the creation of an Administrative Staff College and the organisation of management associations. The Staff College is expected to function in Hyderabad during the current year. It will operate on the lines of the institute at *Henley*.. ATIRA organised an executive development programme in 1955 in collaboration with the Institute of Advanced Training. This programme included members of top and middle management and used the case study method in the field of human relations. Further work is going on at ATIRA on these lines. ATIRA also holds annual management conferences where individuals from industry and scholars and specialists share experiences concerning problems of management. Several universities have recently commenced courses in business administration or management.

(iv) In the field of industrial engineering, some private firms of consultants have been operating in this country for several years. The productivity teams sent by the I.L.O. at the invitation of the Government of India have carried out various pilot projects. Their work has now been consolidated by the creation of a Productivity Centre in Bombay. This centre, during the past two years, has been conducting comprehensive productivity projects in different areas. These projects include a top management seminar, a refresher course in industrial engineering, an introductory course in foremanship for supervisors, a labour seminar and a work study course. The Indian Institute of Technology at Kharagpur offers courses in industrial engineering.

(v) Improvement of some aspects relating to productivity in specialised industries is undertaken by bodies such as ATIRA and SITRA for the textile industry and it is also included in the programme of BTRA. The Small Industries Training Institutes set up by the Government of India are also imparting training and trying to improve techniques.

(vi) During the last two years, the growth of management associations in several important industrial centres in this country has provided a new platform for drawing together members of management to discuss management techniques and undertake projects for improvement of productivity. In many centres, the management associations actively participate in programmes with one or other of the specialised organisations.

(vii) The U.S. Technical Co-operation Mission in India has, during the past few years, invited a number of experts in selected fields. Gifts of libraries on management have been made to eight management associations in the country. The T.C.M. has also expressed keen interest in actively assisting in the creation of an organised productivity movement in India.

While therefore there has been increasing consciousness in the country for the improvement of productivity much of the work done so far has been uncoordinated at the national level and in many cases, the activities of one group have been unknown to other groups interested in the same area. We feel that in relation to the magnitude of the work to be undertaken, the existing effort being devoted at the national level for the promotion of productivity is inadequate. One of the first tasks which requires to be undertaken is the preparation of a document giving details of the activities which are now being conducted under diverse auspices in diverse areas. Such a document would prove invaluable in assessing the present state of the productivity movement in this country and the steps that would be necessary to give further impetus to it. We understand that the Government of India is appointing a special officer and it would appear that this task should receive the first priority in the work to be undertaken by him.

2. In the context of the ambitious targets for industrial production in the Second Five Year Plan, increase of productivity could play an important role by streamlining operations and by motivating the personnel working in industry to produce more goods of better quality than now. Increased productivity has unfortunately become synonimous with rationalisation and the retrenchment of surplus labour. As long as this impression is not removed, there can be no effective mobilisation of effort for increased productivity. It requires repeated emphasis that in a rapidly expanding economy, the increase of productivity could be a powerful element of national policy for increase of national wealth and the raising of the standard of living without creating unemployment. Increased productivity can, moreover, result in increased output of better goods without fresh capital investment or the utilisation of much needed foreign exchange which can be reserved for new schemes.

We believe that the time is now ripe for the launching of an effective national movement for increased productivity. This movement should be sponsored by a non-official body created with active Government support, preferably by an Act of Parliament. There are a number of different forms which the movement can take, but it is essential that the movement receives broad based support of the following five elements:

(i) Employers,
(ii) Labour,
(iii) Technical experts within industry,
(iv) Scholars, research workers and professional consultants, and
(v) Government.

We would like to suggest to Government the early convening of a seminar on productivity to which the elite drawn from all the five elements from the different industrial areas in this country are invited to participate. The programme of the seminar should consist of the presentation of background lectures covering the principles and the organisation of the Productivity Movement in various countries along with the reports on the programmes and experiences of individuals and organisations in this country who undertake projects for the improvement of productivity. This could be followed by the seminar breaking up into Study Groups consisting of eight to ten individuals, each group having representatives of all the five elements. These study groups would discuss in relation to the national movement for productivity the detailed formulation of the following:—

(i) The Principles of the Productivity Movement to ensure effective participation of all the five elements.
(ii) The organisation of the Productivity Movement at the national and the local levels.

We would like here to present some recommendations of the form which, we feel, the Productivity Movement should take on the basis of experience we have gained during our study in Japan and taking into account the various special features which are relevant in this country. We would like to suggest that these recommendations as well as others from other individuals or groups interested in the Productivity Movement in this country, could be considered by the seminar and the study groups. Finally, the programme of

the seminar should consist of the presentation of reports of each study group and a discussion of the main recommendations by the seminar as a whole.

3. On the conclusion of the seminar, a Steering Committee should be formed of those individuals from each of the five elements who not only are leaders in each field but share a common enthusiasm for the promotion of the Productivity Movement in this country. The Steering Committee should make detailed recommendations to Government taking into account the general trend of thought in the seminar.

4. A National Productivity Council should be constituted by Government on the recommendations of the Steering Committee. It may be advisable to have some other name to replace the word 'Productivity', but we have not so far come across any other satisfactory alternative.

5. The National Productivity Council could, with advantage, have an organisation similar to the Japan Productivity Centre. It should have primary members who could be individual units of industry or associations of employers and associations of labour. The subscriptions to be paid by each class could be suitably determined. In addition, we suggest the creation of a class of associate members to enable the participation of other interested organisations and individuals.

6. The Council would receive financial support from its members, from the Government of India, from international agencies and technical assistance organisations of foreign countries.

7. The Council would have a Board having representatives of the five elements indicated earlier. It is desirable that there are equal number of representatives of employers and of labour on the Board. The number of representatives of technical experts, of scholars and professional consultants, and of Government would have to be decided by the Steering Committee.

8. Consideration may be given to membership of the Board being open to representatives of employers and labour from individual units in industry as well as from industrywise and national organisations.

9. The National Productivity Council should consider for adoption the principles of the Productivity Movement as suggested by the Steering Committee, to secure support of all five elements in the Council.

10. We suggest that the activities of the National Council should be:

(i) the creation of a climate for increased productivity by propaganda and by the exchange of teams both within this country and with foreign countries,

(ii) the channelising of financial aid from national and international sources, and

(iii) the provision of specialist technical assistance which would be required as a result of the successful generation of the consciousness for increasing productivity.

11. We do not believe that any significant improvement on a national level can be secured by the creation of one or more large

central or regional institutes under the auspices of the National Productivity Council. The emphasis for securing increased productivity must lie in local initiative and effort at all centres of industry in this country. Wherever there is consciousness and demand for the starting up of a coordinated movement for increased productivity, local productivity councils should be formed on the model of the National Council. These should receive help from the National Council, but function as autonomous bodies. Wherever there is a local productivity council, there should be common membership of units of industry and labour for both the local as well as the national council. Membership fees collected from units in the region could be apportioned between the local and the national councils according to some agreed formula.

We feel that the creation of a demand for the formation of local productivity councils in the different industrial areas of the country should be one of the primary aims of the National Council. This could be stimulated effectively by immediately organising a large number of productivity study teams for study both within this country and abroad. It is felt that sufficient consciousness exists now in several centres for the immediate formation of local productivity councils.

12. It would be necessary for the National Council to estimate the needs for specialist services that would be requirtd by local Productivity Councils. Some of these needs can undoubtedly be satisfied by the existing bodies which are providing specialist services of one form or another. The National Council could endeavour to have these facilities expanded wherever necessary. However, it is visualised that in many instances it might become necessary for the National Council to itself undertake the provision of specialist services where adequate alternative arrangements cannot be made within a reasonable time. It is felt that the type of services which would be required initially would include trainers for personnel employed at all levels in industry, specialists to initiate methods of cost control and other fields of industrial engineering, specialists to advise on working conditions and safety measures, and specialists to advise on organisational studies within companies where requested. It is felt that specialists should only be sent to work in areas where there is an existing demand or realisation of the need for such specialists. Wherever there are local productivity councils, the function of the national body would be to provide the specialists to the local councils.

13. We feel that a great deal of stimulating and useful literature pertaining to productivity is produced in languages other than English and we wish to recommend the undertaking of a translation service by the National Council to make important literature available in the national language.

PART VI

SUMMARY OF OBSERVATIONS

A. *Concerning some Background Factors.*

1. In Japan there are very few State-owned industries and practically little Government control over private enterprise in matters relating to production, distribution or prices. However, where overall planning at national level is necessary, such as, in the matter of procurement of essential raw material, setting up targets of production and regulation of import for conserving foreign exchange, Government control is exercised in some form or other. Control is also exercised for giving protection to small industries against competition from large ones. Instances of these types of control are:

(a) limitation of the installed capacity of the Textile Industry on the basis of the estimated total requirement of textiles during the next 5 years,

(b) inspection of export commodities with a view to enhancing the reputation of Japanese goods and developing sound export trade,

(c) control on expansion of business activities of big Department Stores as a measure of protection of small shops,

(d) enactments for fostering under-developed industries.

2. Medium and small scale industry performs generally a complementary role to the large scale industry. Steps are taken by Government, the community and the large scale industry to improve the standard of efficiency of smaller units. Sub-contracting of production to smaller units is widely restored to.

3. There is a large degree of research activity at the National, Prefectural and Municipal levels and in companies. Adequate funds seem to be provided for all these activities, and work does not appear to be handicapped for want of funds.

4. Research has been organised at various levels in Japan mainly through local enthusiasm and initiative and not as a result of central direction or planning.

5. Except in the textile industry, cooperative research has not been developed in Japan. This is probably because many of the companies are so large that they are able to devote considerable sums and set up their own laboratories. Small scale industries are adequately served by Prefectural and Municipal Laboratories.

6. The heads of Research Institutions seem to have greater freedom in Japan than they do in similar institutions in India. They have freedom of research subject only to the broad purposes for which the funds are allotted. This freedom provides for considerable flexibility and many urgent problems are more quickly tackled than would be possible if the head of a research institution was bound by rigid rules and regulations.

7. Considerable help is given by Prefectural and Municipal Laboratories to small and medium scale industries, particularly with reference to processing and the testing of raw materials and finished products. The industries concerned are making good use of the facilities provided by these laboratories.

B. *Concerning Management in Private Industry.*

1. In the majority of large enterprises, ownership and management are vested in separate groups. This has stimulated the growth of professional management. The hereditary element is now not preponderant in the management of large enterprises.

2. The Board of Directors of companies consists mainly of full-time executives. The Board delegates executive authority to the President of the company who is aided by a small management committee which includes managing or executive directors.

3. Most large companies have operations distributed amongst the Head Office, and a number of manufacturing plants scattered over the country. There are individual differences between companies in allocating line and staff responsibility.

4. Frequent use is made of meetings and discussions vertically and horizontally within an organisation. This practice appears to be of significance in the formulation of effective policies and their communication throughout the organisation.

5. Generally, there is understanding of the role of persons in the organisation at each level and of their discretion and responsibility.

6. The concept of having a group leader for a group of 8 to 20 workers is common. Leaders are chosen on seniority and for skill in human relations.

7. Within an organisation, there are generally two cadres—one covers workers and foremen and the other supervisors and higher levels of management. The difference in salary at various levels is small compared to the range in India.

8. Traditionally, personnel is recruited within an organisation directly after school or college education. Promotions are almost entirely from within the organisation, and only rarely are experienced persons from other organisations recruited to occupy responsible positions. This has contributed to stability and loyalty within the organisation.

9. A great deal of emphasis is laid on the selection and the training of personnel in industry.

10. The Head of the Personnel Department holds a senior position in the organisation, thus ensuring top management support for personnel functions.

11. In general, selection procedures lay more stress on general factors of health, intelligence, personality, family back-ground, and political affiliations, than on specific abilities required for the job. There is a high minimum level of education.

12. Every company takes the responsibility of training all its employees. The training programmes essentially consist of orientation, induction, technical lectures and on-the-job training. The introduction of a new method, new technique or new machine is generally preceded by a training period. When employees are earmarked for promotion, they are first given training in the new functions before they are promoted.

13. Training is both a line and a staff function. Production or line people consider it a part of their responsibility to train people in the organisation.

14. Indirect methods contributing to training are rotation of members in different departments, visits to other companies, attendance at technical meetings and management conferences, and the practice of having group meetings at various levels in the organisation.

15. Generally, persons from production departments are transferred to staff functions such as personnel, quality control or research and development.

16. The emoluments of personnel are made up of basic wage, incentive wage, overtime and family allowances and bonus. The salary at a particular level is determined mainly by educational qualifications and seniority within the organisation. Payment of six monthly bonus is customary. Traditionally, the giving of bonus is not connected with the profits of the company, but now the amount of bonus is a subject of collective bargaining.

17. Annual increments are given in most industries. The total amount and the minimum payable to a worker are subjects of collective bargaining. The ability of the company to pay is a very important factor in deciding the total amount of fresh financial liability.

18. Most companies undertake considerable welfare activities which include subsidised lunches as well as medical, educational and recreational facilities.

19. Uniforms are generally provided to workers, and top management also wear uniforms within the factory. There is a traditional pattern of discipline, cleanliness and aesthetics.

20. There is, in general, a paternal approach on the part of management. Collective bargaining is conducted with company unions which are sometimes affiliated to major national groups. Company unions, however, do not always follow the policies of their national unions in respect of items such as productivity, etc.

21. In the event of failure of direct negotiations, labour disputes are often referred to arbitration or to conciliation and mediation by Labour Relations Commissions set up by Government. In settling disputes between management and labour, or between two interests in the community, provision is made for academic and independent people to sit with the contending parties for finding out a solution. There is a conspicuous absence in such bodies of members drawn from the judiciary. In most cases, the recommendations of the bodies are not obligatory.

22. At every level in industry, there is emphasis from the national and company point of view on producing quality goods at as low a cost as possible.

23. Production is planned as far in advance as possible but is flexible enough to be modified to some extent according to needs.

24. In planning for production, production department chiefs at the factory level are consulted so that the implementation of policies becomes easy. Company targets are communicated to all levels of staff.

25. Cost control is scientifically practised in all companies. Specific responsibilities for cost control and reduction are given to all levels of supervisors.

26. Quality Control and inspection are universally practised. Statistical techniques and SQC charts are greatly made use of.

27. A very active liaison is maintained between production and control departments through a number of formal and informal meetings. A large number of functional committees, drawn from production and control departments are entrusted with special problems of improvements.

28. The integrated approach to Quality Control in the context of production planning and improvement of techniques is emphasised.

29. Control department officers (Section Chiefs and above) have usually had a long experience of production departments. They are given necessary training before they are put in the control departments.

30. Flexibility of organisational set-up is maintained by not too infrequent inter-change of control and production department personnel (section chiefs and above). This makes for a proper understanding of the problems of one department by the other.

31. The status of control and production department personnel at corresponding levels is identical.

32. Top executives in joint charge of production and control departments have usually experience of work in both the departments.

33. Attempts are increasingly being made for training and orientation of shop floor workers and foremen in techniques of quality control.

34. Most companies have extensive research departments, and though expenditure is not ear-marked as a percentage of sales, they spend from 0·3 to 3 per cent of sales on research.

35. Even companies having their own laboratories sponsor research in other institutions and universities, and provide funds for the same.

C. *Concerning the Productivity Movement in Japan*

1. *Genesis*

Despite the rapid economic recovery of Japan after the Second World War, the present *per capita* income in Japan is only 1/10th of U.S.A., 1/4th of U.K., and 1/3 of West Germany. The productivity

of the industry is also low compared to industrially more advanced countries. It is only 1/5th of U.S.A., 1/3rd of U.K., and 1/2·5 of West Germany. The necessity of launching a productivity drive has been increasingly realised for strengthening the economy and thereby to meet the problems of overpopulation, of unemployment, low *per capita* income and inadequacy of natural resources.

In the national government, the Ministry of International Trade and Industry (MITI) and the Labour Ministry took the initiative in propagating the productivity drive. Simultaneously the four principal economic organizations of Japan initiated deliberations on the organization of a productivity movement. With the help of the Government, and at the initiative of the economic organizations, a Japan-U.S. Productivity Advancement Committee was established in March 1954. This Committee was subsequently named the Japan Productivity Council. Further discussions were held with the national government and the I.C.A. (International Cooperation Administration of U.S.A.) for converting the Council into a permanent organization, and eventually the Japan Productivity Centre (JPC) was established in March 1955 as a non-governmental organisation.

The inititive for the productivity centres at the national and the Regional levels was mainly taken by representatives of management of large industries. The representatives of labour and many scholars were later associated with the drive. Four Regional Centres have by now been established and Branch Offices of the J.P.C. have been organised in the other regions. At the Prefectural level, the movement is gathering momentum and in certain Prefectures, Productivity Councils have already been set up.

2. *Objectives and Principles*

The aim of the Productivity Centres is to organise the productivity drive as a national movement, based on the association and understanding of all elements of society. It was considered necessary to differentiate this movement from the pre-war drive by management for rationalisation and increase of efficiency. The basic philosophy of the new movement has been defined as:

> "(i) Increased productivity ultimately increases employment, but as to the transitional surplus employment, pertinent measures should be taken to prevent possible subsequent unemployment as much as possible by the joint efforts of the government and people standing on the viewpoint of the national economy, by means of transposition, etc.
>
> (ii) The actual system for the increase of productivity based on each industry should be studied and consulted, by the joint efforts of management and labour.
>
> (iii) The results of productivity increase should be fairly distributed, according to the actual conditions of the national economy, among capital, labour and consumers."

The enunciation of these principles by the Japan Productivity Centre paved the way for labour participation in the movement.

Certain important labour unions enunciated their own principles which amplified and elaborated the principles of J.P.C., and when the J.P.C. signified its acceptance of these principles, many labour unions joined the movement.

3. *Constitution of J.P.C.*

The J.P.C. is a statutory body. It has a constitution which prescribes its objectives, powers and functions of the Board of Directors, financial competence, and the powers of appointment of administrative personnel and Advisers and Councillors.

4. *Membership and Fees*

Members of the J.P.C. are called "donors" in order to retain the concept that the productivity movement is a national movement and that its benefits are not restricted to members only. Fees paid by the members are termed "donations", though a schedule of fees, related to the invested capital and the employment capacity of the companies has been prescribed.

5. *Finance and Budget*:

The Finances of the J.P.C. comprise "donations" from industrial concerns affiliated to it, subsidy from the national government, contributions from the I.C.A., and the fees levied on seminars, lectures, courses, etc., organised by the Centre.

6. *Organization of the J.P.C. and its Relationship with Government*

The J.P.C. maintains liaison with the national Government through the Japan Productivity Liaison Council. This Council consists of 12 Vice-Ministers of the Government and 12 members of the Board of Directors of the J.P.C. It is presided over by the President of the J.P.C. This Council lays down the supreme policies of the J.P.C. Other Committees have been set up for liaison with different Ministries of the Government and with important economic organisations. of the country.

The Board of Directors of the J.P.C. has on it the representatives of management, labour as well as some scholars. In addition, the Centre has Advisers and Councillors. In addition to the President, there are three Vice-Presidents, one from management, one from labour, and one a scholar. The constitution provides for the appointment of 40 to 60 Directors, but at present there are only 24 Directors. The Directors are persons who hold important positions in their respective fields.

The administration of the Centre is carried on through six Departments. The total staff of the Centre is about 100.

7. *Activities of the J.P.C.*

The activities of the J.P.C. mainly comprise technical exchange in the international and domestic fields, productivity education, productivity research, and dissemination of information.

In the field of international technical exchange, as many as 36 teams, comprising 351 participants have so far been sent by the J.P.C. to U.S.A. for studying various aspects of production and management techniques. A detailed methodology of study has been evolved for these team visits. It includes preparatory work for about three

months in Japan, an overseas itinerary of six weeks, submission of a detailed report and follow up through lectures and discussions by the team in important industrial centres. The productivity drive in Japan has received great impetus by the reports and work of the teams.

In the field of domestic technical exchange, the J.P.C. organises exchange of visits of industrialists and specialists. For productivity education, the J.P.C. organises seminars, lectures, circuit consultations, training courses etc. The J.P.C. is sponsoring research on various matters relating to productivity. To promote Public Relations and Public Information, the J.P.C. publishes a weekly newpaper, pamphlets, reports, translations and a technical digest. It also organises film shows, exhibitions, broadcasts etc.

8. *Support gained by the Centre.*

Hitherto the J.P.C. and the Regional Centre have been mainly connected with the big industries which lend strong support to the movement. Increasing atteniton is now being paid by the J.P.C. and the Regional Centres to the association of medium and small industries with the productivity drive.

Labour has to a considerable extent associated itself with the productivity movement. Moreover, the SOHYO, a large Federation of labour unions, at the national level, is opposed to the activities of the J.P.C. on ideological grounds. Nevertheless, its constituents at the company level follow an independent policy in offering cooperation to the productivity movement. Government is actively assisting the movement.

9. *Regional Centres.*

The four Regional Centres were established in April 1956. Although the J.P.C. encouraged the establishment of these Centres, the main initiative was taken by local interests in each region. The growth of these Centres evolved on an independent basis, in order to suit the requirements of the regions. The Regional Centres, consequently do not consider themselves to be subordinate agencies of the J.P.C., though they recognise the national character of the J.P.C. for maintaining contacts with the national Government, the I.C.A., and foreign countries. They carry out in their areas the projects and activities sponsored by the J.P.C., for which the J.P.C. incurs expenditure. For all other purposes, they act independently. The enrolment of donors by the Regional Centres was started only very recently, and the number now averages between 100 and 300 for each centre. The Regional Centres have their constitutions, membership and activities modelled broadly after the J.P.C.

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APPENDICES

APPENDIX I

ITINERARY OF THE INDIAN PRODUCTIVITY DELEGATION.

October 5 Arrive at Tokyo International Airport.

October 6 1. Visit to Indian Embassy. Ambassador Mr. B. R. Sen

2. Orientation meeting. Speaker: Susumu Morota, Chief of International Department, Japan Productivity Centre.

October 8 1. Visit to (a) Ministry of Labor. Minister: Tadao Kuraishi.

(b) Tokyo Metropolitan Office. Governor: Seiichiro Yasui.

(c) Ministry of International Trade and Industry.

Minister: Tanzan Ishibashi.

(d) Ministry of Foreign Affairs. Minister: Mamoru Shigemitsu.

2. Orientation meeting with Asia Kyokai Picture. Title: "Japan: Manners, Customs and Geography"

3. Orientation meeting with Japan Productivity Centre.

October 9 1. Meeting. Speaker: Yoshio Honinden, Executive Director of Asia Kyokai.

Topic: "The Outline of Japanese Economic History"

2. Meeting. Speaker: Saburo Okita, Chief of Planning Division, Economic Planning Board, Japanese Government.

Topic: "Economic Development Program of Japan"

3. Meeting. Speaker: Toshiro Katoh, Central Executive Committee, National Union of Coal Mine Workers. Topic: "Labour Affairs in Japan".

4. Reception given by Japan Productivity Centre.

October 10 1. Meeting at Main Conference Room of Japan Productivity Centre.

Speaker: Toshio Ito, General Manager of Japan Productivity Centre.

Topic: Activities of Japan Productivity Centre".

2. Meeting. Speaker: Nobuo Noda, Director of Productivity Research Centre and Professor of Seikei University.

Topic: "Activities of Productivity Research Centre"

3. Round-table meeting with Directors of Japan Productivity Centre.

4. Press Conference.

5. Round-table meeting with Directors of the Four Economic Organizations.

6. Reception given by the above mentioned organizations.

October 11

1. Visit to Tokyo Shibaura Electric Co., Ltd. (Kawasaki Office)

2. Meeting. Speaker: Taizo Ishizaka, President of the Company and of the Federation of Economic Organizations.

Topic: "New Idea of Business Management"

3. Meeting. Speaker: Tsuneo Ono, Executive Director of Japan Management Association.

Topic: "Organization Structure, Management Practices, and Control Technique"

October 12

1. Visit to Central Research Laboratory of Hitachi Ltd. (Kokubunji).

2. Meeting. Speaker: Tario Kikuda, Doctor of Engineering and Director of the Laboratory.

Topic: "Research Activities of Central Research Laboratory of Hitachi".

3. Meeting. Speaker: Hideo Takei, General Manager of Japan Industrial Training Association.

Topic: "Industrial Training".

4. Meeting. Speaker: Goro Matsumura, Chief of International Labor Section, Labor Ministry. Ichiro Satake, Assistant Chief of Labor Policy Section, Labor Ministry.

Topic: "Labour Affairs in Japan".

October 13

1. Meeting. Speaker: Shigeo Nagano, President of Fuji Iron & Steel Co., Ltd.—Vice President of Japan Productivity Centre.

Topic: "Iron & Steel Industry in Japan".

2. Meeting. Speaker: Ichiro Nakayama, Chairman, Central Labor Relations Committee, Japanese Government; Vice President of Japan Productivity Centre; Professor of Hitotsubashi University.

Topic: "Labour Movement in Japan".

October 15
1. Visit to Ooi Works of Japan Optical Co., Ltd.
2. Visit to Tabata Works of Hamano Seni Co., Ltd.

October 16
1. Meeting with Takeshi Sakurada, President of Nissin Cotton Spinning Co., Ltd.
2. Travel to Nagoya.

October 17
1. Visit to (a) Aichi Prefectural Government. Governor: Mikine Kuwabara.
   (b) Nagoya Municipal Office. Mayor: Kissen Kobayashi.
   (c) Nagoya Regional Bureau of International Trade and Industry. Chief: Masao Hukui.
   (d) Nagoya Chamber of Commerce and Industry. President: Kinnosuke Ginno.
2. Explanation of Chubu Area at Chamber of Commerce and Industry.
3. Luncheon given by Chubu Productivity Centre.
4. Visit to Nippon Toki Kaisha Ltd.
5. Reception given by business men in Nagoya Area.

October 18
1. Visit to Toyo Plywood Co., Ltd.
2. Visit to Nisshin Cotton Spinning Co., Ltd.
3. Visit to Japan Rolling Stock Mfg. Co., Ltd.

October 19
1. Visit to Nippon Gaishi Kaisha, Ltd.
2. Visit to Mizuhu Works of Brother Sewing Machine Mfg. Co., Ltd.

October 22.
1. Visit to Toyota Motor Co., Ltd.
2. Visit to Toyota Automatic Loom Works Ltd.

October 23
1. Visit to Mitsubishi Electric Mfg. Co., Ltd.
2. Traval to Kobe.

October 24
Visit to Hirohata Works of Fuji Iron & Steel Co., Ltd.

October 25
1. Visit to (a) Osaka Prefectural Government. Governor: Bunzo Akama.
   (b) Osaka Municipal Office. Mayor: Koji Nakai.
   (c) Osaka Regional Bureau of International Trade and Industry. Chief: Chiyozo Yoshioka.
   (d) Osaka Chamber of Commerce & Industry. President: Michisuke Sugi.

2. Press Conference.
3. Round-table meeting with business men and trade unions at the office of Chamber of Commerce and Industry.
4. Cocktail Party given by business men in Osaka Area and Kansai Productivity Regional Centre.

October 26 Visit to Shiga Works of Toyo Rayon Co., Ltd. Meeting. Speaker: Kikuo Sodeyama, President of Company".

Topic: "World market of Chemical Fibers and our Company"

October 28 Reception given by Companies visited in Osaka region.

October 29 1. Visit to Shimazu Seisakusho, Ltd. Meeting. Speaker: Yohsuke Suzuki, President of the Company.

Topic: "Machinery and Tools for Rationalization necessary for Productivity Increase and our Company as these manufacturer".

2. Visit to Kawashima Works of Nishijin Textile Mill Co., Ltd.

October 30 1. Visit to Matsushita Electric Industrial Co., Ltd. Explanation of the outline of the Company Speaker: Kohnosuke Matsushita, President of the Company.

2. Visit to Takeda Pharmaceutical Industries Ltd. Meeting. Speaker: Choubei Takeda, President of the Company.

Topic: "On the integrity of the Laboratory Research and Pharmaceutical Craftsmanship of Takeda".

October 31 1. Visit to Kobe Steel Works, Ltd. Meeting. Speaker Choube Asada, President of the Company.

Topic: "Top Management".

2. Visit to Mitsubishi Heavy Industries Reorganized Ltd. Meeting. Speaker: Shinzo Fukai, President of the Company.

Topic: "Ship-building Industries in Japan".

November 1 Visit to Mukogawa Iron Tube Works of Kubota Iron & Machinery Works Ltd.

November 2. Visit to Tadaoka Works of Toyo Spinning Co., Ltd. Meeting. Speaker: Kohjiro Abe, President of the Toyo Spinning Co., Ltd.

Topic: "Cotton Spinning Industry in Japan" Pictures Introducing Japan's Spinning Industries.

November 5 1. Visit to Sumitomo Metal Industries Ltd. Meeting. Speaker: Hisakazu Hirota, President of the Company and of Kansai Productivity Regional Centre
Topic: "On Productivity Increase".

2. Visit to Hitachi Shipbuilding and Engineering Co., Ltd. Explanation of the outline of the Company. Speaker: Yosomatsu Matsubara, President of the Company.

3. Travel to Fukuoka.

November 6 1. Visit to (a) Fukuoka Prefectural Government. Governor: Karoku Tsuchiya.

(b) Fukuoka Municipal Office. Mayor: Haruo Konishi.

(c) Fukuoka Regional Bureau of International Trade and Industry. Chief: Takashi Hitomi.

(d) Fukuoka Chamber of Commerce and Industry. President: Masatsugu Yamawaki.

2. Reception given by Kyushu Productivity Regional Centre.

3. Round-table meeting with representatives of trade unions.

4. Reception given by businessmen in Kyushu area and Kyushu Productivity Regional Centre.

November 7 Visit to Yawata Iron and Steel Co., Ltd.

November 8 1. Visit to Asahi Glass Co., Ltd.

2. Visit to Mitsubishi Cement Co., Ltd.

3. Reception given by businessmen in western part of Kyushu.

November 9 1. Visit to Mitsubishi Chemical Industries Co., Ltd. Meeting. Speaker: Hideo Shinojima, Plant Manager & Director.

Topic: "Labour Relations in the Chemical Industry of Japan—mainly about its Collective Bargaining".

2. Visit to Yaskawa Electric Mfg. Co., Ltd. Meeting. Speaker: Hiroshi Yasukawa, President of the Company.

Topic: "Standardization"

November 10 Visit to Kurume Works of Bridgstone Tire Co., Ltd.

November 11 Fly to Tokyo.

November 12
1. Visit to Nissan Motor Co., Ltd. (Yokohama) Meeting. Speaker: Genshichi Asahara, President of the Company.

   Topic: "Management Control of Nissan Motor".

2. Meeting. Speaker: Masaru Miyake, Chairman of Central Executive Board, Japan Motor Industry Labour Federation.

   Topic: "Collective Bargaining of Nissan Motor Co."

3. Meeting. Speaker: Sen Koga, Secretary General of Japanese Federation of Trade Unions, Director of Japan Productivity Centre.

   Topic: "Standpoint of Trade Union in Productivity Movement.

4. Round-table meeting with labour representatives (Japan Federation of Trade Unions, All Japan Seamen's Union, The National Federation Textile Industry Workers Union, All Japan Electric Workers Union, etc.)

November 13
1. Meeting at International House of Japan. Speaker: Susumu Takamiya, Professor of Hototsubashi University.

   Topic: "Management Control in Japan".

2. Meeting. Speaker: Takeshi Sakurada, President of Nissin Cotton Spinning Co., Ltd., Director of Japan Productivity Centre.

   Topic: "Present Status of Japanese Textile Industry".

3. Meeting. Speaker: Keiichi Masumura, Deputy Director, Enterprise Bureau, Ministry of International Trade & Industry.

   Topic: "Industrial Policy of Japan".

4. Visit to Diet—House of Representatives, House of Councillors.

5. Round-table meeting with Members of Productivity Council at Prime Minister's Official Residence.

November 14
Visit to Nippon Steel Tube Co., Ltd. (Kawasaki) Speaker: Shige Kawada, President of the Company Meeting. Speaker: Kaname Mochizuki, Director of the Company.

Topic: "On Iron and Steel"

November 15
1. Submission of reports by Delegation.
2. Evaluation Meeting.
3. Farewell party given by Japan Productivity Centre.

APPENDIX II

SPECIAL LECTURES DELIVERED TO THE INDIAN PRODUCTIVITY DELEGATION

(Lectures marked by an asterisk are reproduced in Appendix III)

Subject	*Speaker*
1. The Outline of Japanese Economic History	Yoshio Honinden, Executive Director, Asia Kyokai
2. Economic Development Program in Japan.	Saburo Okita, Chief of Planning Division, Economic Board, Japanese Government
*3. Japan's Industrial Policy	Keiichi Matsumura, Deputy Director, Enterprise Bureau, Ministry of International Trade & Industry
*4. Japan's Steel Industry and its Problems	Shigeo Nagano, President of Fuji Iron & Steel Co. Ltd. Vice-President of Japan Productivity Centre.
5. On Iron & Steel	Kaname Mochizuki, Director of Nippon Steel Tube Co., Ltd. (Kawasaki)
6. Present Conditions of the Chemical Industry in Japan.	Japan Chemical Industry Association
*7. The Present Status of Japan's Chemical Fibre Industry	K. Sodeyama, President of Toyo Rayon Co., Ltd.
8. On the Integrity of the Laboratory Research and Pharmaceutical Craftsmanship of Takeda	Choubei Takeda, President, Takeda Pharmaceutical Industries, Ltd.
9. Ship-building Industries in Japan	Shinzo Fukai, President, Mitsubishi Heavy Industries Reorganized Ltd.
10. Machinery & Tools for Rationalization necessary for Productivity Increase and our Company as these manufacturer	Yohsuke Suzuki, President of Shimazu Seisakusho, Ltd.
*11. The Present Status of the Textile Industry	Takeshi Sakurada, President, Nissin Cotton Spg. Co., Ltd., Director, Japan Productivity Centre.
12. Cotton Spinning Industry in Japan	Kohjiro Abe, President, Toyo Spinning Co., Ltd.
*13. Management Philosophy of Today	Taizo Ishizaka, President of Tokyo Shibaura Electric Co., Ltd. and of the Federation of Economic Organizations.
*14. The Standpoint of Management	Takeshi Sakurada, President, Nissin Cotton Spg. Co., Ltd.
*15. Management in Japan	S. Takamiya, Professor Hatotosubashi University.

Subject	*Speaker*
16. Top Management	Choubei Asada, President of Kobe Steel Works Ltd.
17. Management Control of Nissan Motor	Gnshichi Asahara, President of Nissan Motor Co., Ltd. (Yokohama)
*18. Labour Relations in the Chemical Industry of Japan mainly about its Collective Bargaining	Hideo Shinojima, Plant Manager & Director of Mitsubishi Chemical Industries Ltd.
19. Collective Bargaining of Nissan Motor Co.	Masaru Miyake, Chairman of Central Executive Board, Japan Motor Industry Labor Federation
20. Labour Affairs in Japan	Toshiro Katoh, Central Executive Committee, National Union of Coal Mine Workers
21. Labour Affairs in Japan	Goro Matsumura, Chief of International Labour Section, Labour Ministry
	Ichiro Satake, Assistant Chief of Labor Policy Section, Labor Ministry
22. Labour Movement in Japan	Ichiro Nakayama, Chairman, Central Labor Relations Committee, Japanese Government, Vice President of Japan Productivity Centre, Professor of Hitotsubashi University.
23. Activities of Japan Productivity Centre.	Toshio Ito, General Manager of Japan Productivity Centre.
24. Activities of Productivity Research Centre	Nobuo Noda, Director of Productivity Research Centre and Professor of Seikei University
*25. Productivity Movement in Osaka	H. Hirota, President of Sumitomo Metal Industries Ltd. and of Kansai Productivity Regional Centre.
26. Standpoint of Trade Union in Productivity Movement	Sen Koga, Secretary-General of Japanese Federation of Trade Unions, Director of Japan Productivity Centre.
27. Organization Structure, Management Practices and Control Technique	Tsuneo Ono, Executive Director of Japan Management Association
28. Industrial Training	Hideo Takei, General Manager of Japan Industrial Training Association
*29. Standardisation	Hiroshi Yasukawa, President of Yasukawa Electric Mfg. Co. Ltd.

APPENDIX III.1

JAPAN'S INDUSTRIAL POLICY

By

Mr. Keiichi Matsumura

Assistant Chief, Enterprise Bureau, Ministry of International Trade and Industry

It is a great pleasure and honour to me to have this opportunity of addressing before a group of such distinguished leaders of industry in India. Today I would like to speak on the industrial policy of Japan and problems related thereto.

The recovery of Japanese economy is very often compared with the remarkable economic development of West Germany. Really I feel I am safe to say Japan has achieved spectacular economic reconstruction in the 11 post-war years. The national income is 47 per cent over the pre-war level and the income *per capita* exceeds the pre-war high of 1939 by 13 per cent; the production level this August was 226·9 per cent with 1934-36 as a basis. These results could not have been imagined in the days immediately after the termination. of the war by any speculator in the world. However, the way to this recovery was not a straight line of progress, but a way full of distress and succession of trial and error.

To start with, the businessmen had to fight with difficulty arising out of the devastation of their production equipment and extreme scarcity of raw materials; traders had to labour their way into world market which was not widely open to Japanese at the beginning. Labourer as well as the public had to endure the lack of daily necessaries and the heavy burden of taxation. But through these processes the capital once devastated was recovered and the gap in technical levels of production of Japan and more developed nations of the world was given a chance to be lessened; the competitive power of commodities was strengthened. These efforts and endurance with the severity of the postwar economy has been rewarded by the prosperity of today, partly backed in the favourable external condition of the world-wide boom since the end of last year.

It goes without saying that we still have so many problems to solve. As you know well natural resources in this country can hardly be said to be sufficient to sustain the population of 90 million. To put the working people of this nation under full employment and to elevate the production level, we have to depend heavily upon the import of industrial law materials. In this connection, the promotion of export to maintain the required import is of the first consideration. Looking upon the market situations overseas, the economic developments which are taking place in Asian countries have decisively great bearing upon the direction of Japan's trade.

We know that we cannot maintain the pre-war market for our light-industry especially textile goods; we have to produce machinery, and chemicals which the newly-developing nations require for the economic development of their countries.

This calls for change in the industrial structure of Japanese economy which will be mentioned later as a goal of our industrial policy.

The postwar economy can be divided into three stages according to the concrete objectives of the industrial policy. The objective of the first stage is the recovery of productive capacity, and that of the second, the rationalization of the industry and promotion of export, the third being the modernization of industrial structure.

Of course these three objectives are very closely related with each other, and each objective cannot be attained during the course of one stage. But the emphasis of our industrial policy has been put on those objectives at respective stages.

I. The recovery of the productive facility was the motto for the economic activities during the period ensuing the termination of the War until the end of the Korean Affair.

The World War II damaged the 36 per cent. of the national asset of Japan and major part of the productive facilities. Accordingly, the weight of the industrial policy was temporarily placed upon the promotion of the accumulation of the capital and elevation of the productive capacity to the level of pre-war days.

There prevailed an utmost extent of lack in the industrial raw materials as well as consumer goods; the international trade was suspended; the giant family trust (Zaibatsu) was disorganized and many factories were assigned for reparation purposes. In short condition and the nation's will for opening production were at the lowest.

It was considered of the first importance to restore the normal cycle of the economic activity so that the basic raw materials and energy be secured in the necessary minimum amount.

For this purpose there was introduced a super priority policy which was then called inclination production system.

This program is aimed at the reopening of economic cycle by securing the production of 30 million tons of coal and 1·20 million tons of steel to begin with. If you compare these figures with recent production rate of 48 million tons of coal and 8·4 million tons of steel you may realize from where we started. In order to attain this goal concentrated investment of national funds was made on these two key industries.

During 1946-47 period the national funds invested on the two industries totalled to some 50 billion yen.

This program turned out to be successful, attaining the programmed goal in 1948, and it gave a great hope to business circle. After the success of this program the policy of securing the basic

materials and fuels through the accumulation of capital by the investment of national fund to the key industries was pursued up to the neighbourhood of 1952.

Among the industries promoted by national funds were electricity, sea transportation, chemical fertilizers. To promote the production of these materials and energy, national investment and financing amounting 30 to 80 billion yen was made annually.

As a result the generation of electricity hit the 200 per cent of the pre-war level as early as in 1952 and the production of chemical fertiliser recovered the pre-war level as early as in 1953.

This policy of fostering basic industries through the national financing not only made a very great progress but gave an immeasurable stimulation to the other fields of indutrial activities.

For instance, the textile industry was rehabilitated to 51 per cent with the pre-war level as 100 and the agricultural productivity was expanded to 108 per cent.

However, as the development of these proceeded accumulation of the capital was driven by the disbursement of the enormous amount of national fund and it necessarily brought about a monetary unbalance in the economic cycle.

The loan of national fund through the Reconstruction Fund, the national financial institution, expanded very rapidly and it developed a vicious inflation, bringing the price seven times as high as before during the two year period of 47 to 49. In order to bring the inflational trend under control and to restore stable equilibrium of economy a monetary stabilizing policy which was called "Dodge line" after Mr. Dodge, then economic counsellor to General Headquarters for Allies Powers was enforced in 1949.

By this policy it was intended to bring to end the inflational spiral of Japanese economy and to promote accumulation of capital by forced saving through the means of taxation instead of fiscal disbursement.

This measure resulted in heavy taxation and in the reduction of effective demand, thus bringing so called stability panic temporarily.

However, the Korean Incident which broke out in 1950 produced an incidental new demand to Japanese economy. This so called "special demand" totalled to 2·2 billion dollar from 1951 to 1953. It was an unexpected boon to Japan; it stimulated both investment and production activities of her economy which had been rather stagnant since the conforcement of Dodge line.

However, the rapid expansion of equipment investment and increase of consumers buying power accelerated by this boom brought about heavy increase in import thus resulting in considerable unbalance in the international payment.

II. It was then the deflationary policy in national finance was adopted and in parallel to this measure, weight on the economic policy transferred from quantitative expansion of productive power hithertofore sought to the qualitative improvement of it, namely rationalization of industry and promotion of export based upon it.

Actually rationalization of industry had been one of the goals of economic policy as early as in 1949.

Rationalization of industry, meaning modernization of production equipment and technique, was planned parallel to the accumulation of capital promoted by the financial measures. Among them were five year plan for rationalization of steel industry as well as three year plan for rationalization of cement manufacturing industry.

The aspiration of business-men to introduce modern equipment and technique from abroad was very strong. The government gave financial support and reduced duties and taxes on imported equipments.

These efforts for rationalization, however, did not result in the expansion of export due to the increase in prices incurred by the inflationary climate of Japanese economy after the Korean War. Consequently stronger effort for the increase of international competitive power was planned, introducing a new era for rationalization movement.

This movement emphasized the promotion of productivity. As a central organization, Japan Productivity Centre was established in 1954 in order to introduce and disseminate new technical know-how of production and management and to popularize the conception of productivity.

With the progress made in productive equipment and managerial technique, labour productivity rose by about 60 per cent during 4 years from 51 to 55. This improved the international comparative price of Japanese goods phenomenally, making the export competitive power much strengthened. These results of the effort for rationalization was reflected upon the improved export transaction.

Helped by world-wide boom beginning in the latter part of 1954 actual sum of exported goods in 1955 amounted to $ 2,668 million, recording the biggest gain of $ 500 million in the international payment balance.

However, prosperity Japan is now having still remains at a relative degree, as it is not a fully satisfactory result from the standpoint of the policy goal of full employment and elevation of living standards.

Rather we can easily see the structural defect of Japanese economy being exposed in this boom.

III. The pressing problems of unemployment and small business are deeply rooted in the very constitution of Japanese economy and the industrial policy has reached the stage where it should be worked out from the standpoint of industrial structure.

The argument has long been maintained that for the development of Japanese economy the rationalization of the industrial structure is not less important than that of individual enterprise. It asserts that the fostering of industries which give higher degree of processing and which consequently absorb more labour should be brought up. It also stresses the necessity of improving the degree of self supply.

It requests, in short, the strengthening of industry producing basic materials such as steel and coal, the expansion of machinery industry, the development of chemical industry such as chemical fibre and carbide industry or petroleum chemical industry that produce more added value or that furnish newly-invented materials. In line with this idea both financial and legislative measures have been taken, and as the result of these efforts, the tendency of industrial structure of Japanese economy towards heavy and chemical industry has become rather remarkable. The proportion of steel products, machinery and chemicals, in the export items has gradually become larger and larger and it occupies about 50 per cent of export items. Let me add one comment here.

I used the word "Rationalization of Industry". In broader sense it has three categories. Rationalization within enterprise, rationalization of environmental condition of enterprise, and rationalization of industrial structure.

Rationalization within enterprise could be attained by means of efficiency of labour, standardization of raw material, modernization of equipment, elevation of managerial technique and so forth.

Rationalization of industrial environment, the betterment of so called industrial related facilities such as roads, harbours, water supply services and drainages are becoming more and more necessary these days. This is because the economic container is beginning to fall behind the rapid expansion of the economic contents of these days, both in quantity and quality. For example, shortage of water supply forms, in some of the main industrial areas a great obstacle to the establishment of new plants.

So far, these facilities were maintained and fostered through the disbursement of national funds for public works, chiefly aimed at the relief of the unemployed. But the public work planned from that point of view sometimes did not meet urgent needs of enterprises. They should be reconsidered based upon the fundamental study as to how the industries of Japan will develop in future.

Another aspect of rationalization is the problem of industrial structure. As I already mentioned for the promotion of our export the ideal industrial structure is that the heavy industry as well as chemical industry form the main part of Japanese economy, thus meeting demand from newly developing countries.

There are two other important aspects of the problem of industrial structure. They are unemployment and small business. Let me just point out the nature of the problem here.

The working population in Japan is in relative over-abundance against the present economic scale. It has been endeavoured hitherto to relieve unemployment through public undertakings but it is hardly satisfactory. It has come to be widely recognized that true remedy for unemployment lies not with the individual unemployment relief works (measures); but with the expansion of economic scale.

The importance of small business in Japanese economy cannot be over-stressed.

For example, machinery industry which produces specially high degree of added value among manufacturing industries were composed 60 per cent by small business.

And again 70 per cent of working population of this country are employed by it, and further, daily necessities are mainly produced by small business and every kind of textile finished goods and sundries were made by it, with retailing of them all handled by it excepting for department stores. Of late it has become widely realized that the small business problem occupies one of the greatest importance in the industrial policy.

The policy of adjusting industrial structure, the transformation of such an inherent nature cannot be attained in a short period, and I believe the third stage of industrial policy will continue for rather a long time to come.

APPENDIX III. 2

"Japan's Steel Industry and Its problems"

Lecture delivered by

Shigeo Nagano

President, Fuji Iron & Steel Co., Ltd.

It gives me a great pleasure and honour to have this opportunity of addressing before this group of distinguished leaders of industry in India. I should like to speak on Japan's iron and steel industry and also to touch upon the problems which we are facing today.

Japan's steel industry produced last year, that is in 1955, 9,400,000 tons of steel. This was 3·5% of the total world's production, which amounted to 271,000,000 tons. The larger producers of steels are, as you are well aware, the United States, Russia, West Germany, England and France. Japan ranks 6th in the world, and our industry has already attained the world level in its technical skill.

I. HISTORY OF JAPAN'S IRON AND STEEL INDUSTRY.

In reviewing the history of Japan's steel industry, which is about 50 years old, I must mention the fact that the various aspects of our industry have changed a great deal after the World War II. Firstly, I might talk about management. In 1901, the government sponsored Yawata Iron Works started its operation. The industry had a great deal to learn from other nations who were advanced in the production of steels; we might say that we were in boyhood. Then as Japan's capitalistic system began to develop, we had a period in which private companies began to take interest in producing steels. A very severe test, however, was awaiting the industry, when it had to encounter the depression and the panic following the World War I. The industry felt then the concentration of capital was necessary. It was in the year 1934, the amalgamation of companies took place, and a semi-government, The Japan Iron & Steel Manufacturing Company was born. Our industry entered into a period of progress having this semi-public corporation as a nucleus. The military requirements were met. So the characteristic of our industry then was that it was under the protection, a very kind protection, of the government. And then, came the severe suffering of the industry following the defeat in the World War II; the whole picture of the industry changed. The Japan Iron & Steel Manufacturing Company was dissolved and the Industry as a peace industry had to make a new start almost from scratch, and we are proud to say that 10

years after the end of the War the industry is producing over 10 million tons of steel per year; this figure is larger than that of our peak year when we produced 7,600,000 tons in 1943. But what we are most proud is the fact that the industry is now standing on its own feet and on non-subsidized, commercial basis.

Secondly, I must mention that we are no longer a steel-importing nation; we are today a steel exporting nation. In those days when the industry received assistance from the government and the semi-government steel company was active, the demand was greater than supply; prior to the World War I, approximately half the requirement of steels had to be met by import. As we entered the period of "Showa" the production of steel increased. Around 1927 and 1928 the scale of our production was somewhat similar to that of today's India. We were in need of raw materials to produce more finished steels. We were short of pig iron and we had to depend on the large supply of this material from India and Russia. We were also short of scrap steel, which we imported in large quantity from the United States. In 1936, we imported 980,000 tons of pig iron. In 1939, we imported 2,560,000 tons of steel scrap, of which 2,170,000 tons came from the United States. Incidentally, the pig iron from India was imported for the first time in 1911. Around 1922, the tonnage was over 100,000 tons. In 1928 and 1929, the annual import was in the neighbourhood of 300,000 tons to 400,000 tons. We were in depression then and had a difficult time in competing with India on the price of pig iron. In those days, there was some export of our finished steels, which went to our allies on non-commercial basis.

After the end of the World War II, however, we became very active in steel export business; 20—30% of the total production is being exported to various countries of the world.

Thirdly, I must talk briefly about our steel industry and the raw materials, which had to be supplied from overseas. In the pre-war years, the coal came mostly from China and Manchuria. The ore came from China, Philippines, Malay and so on. The industry had to depend very heavily upon imported materials. In case of coal, a little less than 50%, in case of iron ore about 80%, had to be imported. As to scrap steel, as I mentioned before, much of it was imported. After the recent War, this raw material picture changed. It changed a great deal due largely to the political changes made in China. The coal now has to come all the way from the Atlantic side of the United States. The supply of iron ore has to be dependent upon the countries in the South East Asia, India and so forth, and some has to come from the United States.

II. Plan for the Rationalisation of Eqipment in the Iron and Steel Industry.

Next, I would like to discuss as to how our industry was able to overcome various difficult conditions after the War, and lay a foundation for the progress. Needless to say, much credit must be given to the favourable world economic conditions in which West

Germany and Japan were allowed to make the recovery and progress that are sometimes called the two economic miracles of the world. However, in regard to Japan's growth and the reconstruction of the steel industry, I think I am safe to say that it is mostly the outcome of the efforts made by the industry for the improvement of machinery and equipment, and for the rationalization of management based upon the principle of free competition. The result of our efforts in this direction has been proven in our export business; we had to face a keen competition in the world market and we have been quite successful.

So, I would like to say few words about our effort made on the modernization of equipment. We did have, before the War, the blast furnaces of 1,000 tons in capacity and the strip mills, etc. Much of the equipment became obsolete and inefficient after going through the War and the replacement was badly needed. We were much behind especially in the field of steel rolling. In 1951, the three year program of modernization of equipment got underway, and the total money invested for carrying out this program was 110 billion yen. In percentage wise the money was spent roughly in the following manner: in the field of pig iron making 14 per cent., steel making 10 per cent., rolling 51 per cent., and others 25 per cent. In raising this large amount of money, a mobilization of government capital was made to the extent of 25 per cent. So it was really the effort made on a national scale toward modernization of equipment, and I must mention that the steel was the first industry in this nation to undertake such attempt and this we did to prepare ourselves to meet the competition in the world market.

You may be interested in the result of this modernization program. Our idea at the outset was to reduce the cost of pig iron making by 4 per cent., steel ingot making about 10 per cent. billet making 12 per cent., sheet 27 per cent., wire rod 21 per cent., steel pipe 30 per cent. These were our target figures in percentage. Today, we find that we are getting even better figures than we originally hope for. Take for example our coke ratio, which is the amount of coke consumed in making a ton of pig iron—this coke ratio today is less than 0·7. A tremendous saving is being made in the fuel consumption of open hearth furnaces and soaking pits. In some of these fields our technical skill is even higher than the advanced world level.

Since, last year, like every other nation of the world, Japan's demand for steel has radically increased. The supply has always been short, despite the fact that the mills have been in full operation. And we have come to the stage where a new program for the expansion of steel making capacity must be made at once. Today practically all the steel companies in Japan are busy making new expansion plans based upon the long range demand and supply plan of the government. Some of the mills have already started them.

The total investment amount of the expansion plan this time is, roughly speaking, little over twice the amount required in the first expansion plan. The new expansion plan would cost the

industry something like 200 billion yen and perhaps a little more than that. The outstanding characteristics of the new expansion plan are, firstly, the expansion of pig iron and steel making facilities. The construction of ore boats is included in the program. Secondly, the new program includes the improvement and installation of rolling equipment. When they are complete Japan's steel industry will have several continuous rolling mills and may be on equal footing compared with some of the nations in Europe. We will be in a position to produce plates with larger width. Galvanized sheet, tin plates, silicon steel, etc., will be produced in larger quantity by modern facilities.

Thirdly, I might mention that a progrses is being made on the wider use of oxygen in the open hearth furnaces. A study is also being made on the early installation of oxygen-blown-convertors. This, when materialized, will certainly give advantages to our steel industry, which has had to depend so heavily upon scrap steels.

III. The Present Situation.

(*Production, demand and supply, export, raw materials, and technique.*)

(a) *Production.*

Last year Japan produced five million and two hundred thousand tons of pig iron, nine million and four hundred thousand tons of steel ingot and six million and nine hundred thousand tons of finished steel. Much increase is expected in this year's production. The industry is scheduled to produce five million and six hundred thousand tons of pig iron, eleven million and six hundred thousand tons of ingot and eight million and three hundred-thousand tons of finished steel.

Here I wish to mention a little about the types of steel mills which make up the industry of this country. They are generally divided into three groups, namely; (1) integrated companies producing pig iron, steel ingot and finished steels, (2) semi-integrated companies producing steel ingot and finished steels and (3) companies operating rolling facilities only. It may be mentioned that companies belonging to the second and third groups, though the tonnages they produce are of course smaller than those of integrated mills, have in the past played a relatively larger role in this country, since we have had to depend so heavily upon steel scrap which came in large quantity from the United States.

The productions of pig iron, steel ingot and finished steels percentage wise by the various companies classified in the manner just mentioned are something like this: four integrated companies produce 87 per cent. of Japan's pig iron, 64 per cent. of

steel ingot, and 59 per cent. of finished steel. Semi-integrated companies produce approximately 27 per cent. of Japan's steel ingot and 19 per cent. of finished steel. Rolling mills, which have no blast furnaces and open hearth furnaces, produce about 16% of Japan's finished steel.

	Pig iron	*Steel ingot*	*Finished steel*
(1) Integrated (4 companies)	87%	64%	59%
(2) Open hearth f'ce producers		27	19
(3) Rolling mill operators			16
(4) The rest	13	9	6
Total	100	100	100

In Japan Yawata, Fuji, Nippon Kohan, Kawasaki, Sumitomo and Kobe are called the six major steel companies, which altogether produce 92 per cent. of pig iron, 73 per cent. of steel ingot and 61 per cent. of finished steel. Both Yawata and Fuji have ingot capacities of over two million tons per year. They rank high even among the leading steel-makers of the world.

(b) *Demand and supply.*

Reflecting the remarkable progress made in our national economy, the demand for steel continues to show an upward trend. In analyzing the demand for steel we find that, first of all, the industrial structure of Japan's economy has changed. The heavy industry and chemical industry have become much larger. More steel is needed in producing capital goods and in the construction work of all kinds. In recent years, the level of our living standard has grown as our natural income grew. This is not only true in Japan, but it is the world-wide tendency. And this brought about a large demand for durable consumption goods such as radio, TV sets., washing machines, automobiles, etc.

The amount of ordinary carbon steel produced in the form of finished products last year was 7 million tons. This was consumed by various industries roughly in the following percentages: for making secondary products 26 per cent., sales by dealers 17 per cent., steel works 3·4 per cent. So you may easily note, much ing 11 per cent., construction 6 per cent. communication 4·4 per cent., steel works 3·4 per cent. So you may easily note, much steels are consumed in growing percentages in the field of shipbuilding, machinery making, export, and of making secondary products. The consumption of steel in shipbuilding has almost doubled.

(c) *Export.*

In 1955, the export of our steel amounted to 2,100,000 tons. The customers were, in order of tonnages taken, Argentina, India, U.S.A., Philippines, Pakistan, Thailand, etc. In terms of dollar the above export amounted to two hundred fifty-nine million dollars. This was 13 per cent. of Japan's total export amount which was $2,110,000,000 and ranked first among the export items. It even exceeded those of cotton yarn and cloth the export amount of which was $253,000,000. Thus the export of steel products has much contributed to our foreign trade balance.

(d) *Plan for our raw materials.*

As to the raw materials needed for this year's steel production, Japan requires in total six million nine hundred and sixty thousand tons of metallurgical coal, about 60 per cent. of which will be supplied domestically, and the rest of the coal, *i.e.*, 40 per cent. will have to be imported. This coal to be imported comes mostly from the United States, which produces, as you all know, a very high quality coal. The tonnage from America is about 2,300,000 tons. The import of the Kailan coal from China's maintained has began since last fall in quantity of about four or five hundred thousand tons per year.

As regards steel scrap, our total requirement is eight million and six hundred thousand tons per year. Three million tons originate in the steel mills and another three million tons are purchased domestically. We have to depend upon overseas market for 2,500,000 tons. The largest foreign supplier of this scrap steel is of course the United States, which is giving us about 1,800,000 tons this year. We feel, however, that we should not be expecting limitless quantity of steel scrap from overseas markets. And that is the reason why, as I mentioned before, we are seriously thinking of expanding capacities of convertors and of using more oxygen method in the open hearth furnaces.

The total amount of iron ore required by the industry is, according to our schedule, estimated at eleven million tons. We rely on overseas sources for about seven million and six hundred thousand tons. About six million tons are delivered to us from the mines which have already been developed in the South-east Asia. The remaining one million and several hundred thousand tons are bought from U.S. or other countries on a spot purchase basis.

IV. Industry's Future and Our Policy.

In attempting to discuss our future prospect of demand and supply in iron and steel, let me briefly touch upon Japan's Economic 5 year Program published last year. According to the program, the amount of steel ingot to be produced in the fifth year was supposed to be eleven million and one hundred seventy thousand tons. However, the enormous rise in the demand for steel has already brought about a large increase in the production of ingot. Our estimated output of steel for this year, which is the 1st year in the 5-year Plan, is about 11,640,000 ton and this figure has already exceeded the planned tonnage for the fifth year of the Plan.

So the Ministry of International Trade & Commerce has to re-review the situation and recently made public a revised list of figures for our long range program. The newly announced figures in the way of percentage increase are as follows: on the basis of 1955 actual production, the increase will be made, in 1960, 60 per cent. in pig iron production, 27 per cent. in steel ingot and 30 per cent. in finished steel.

In view of the growth of Japan's economy and industry, we feel that the demand for steel will surely continue to rise, and every effort must be made at this time to hasten the expansion of our steel making facilities.

The big problem, however, is that of raw materials. How can we obtain sufficient amount of raw materials sufficient enough to satisfy the operation of steel making? The iron ore is the main problem. To attain the production goal set for 1960, six more million tons of iron ore should be imported. Development of new mines in large scale is needed and at the same time effort must be made to develop even smaller mines where early delivery of ores is possible. In the meantime a wider and active use of pyrite cinder, sand iron, pyrrhotite, etc., is being seriously studied. And we believe that we have already accomplished a great deal in the utilization of such raw materials.

Nevertheless, we do have to rely upon overseas mines for the supply of ever increasing demand of iron ore. The task of developing new mines and of transporting the ores are the problem we have to face. Starting next year we are going to undertake the construction of large iron ore boats. Over fifty per cent. of the cost of iron ore is the transportation expense, and we are certain that much saving will be made by having the ore boats. In the meantime, a progress is made for the improvement of facilities both at the ports of loading and unloading.

I would like to say further that our steel industry will try not to depend upon loans in the expansion of the facilities, and most of the equipment will be manufactured in Japan, so that in the operation of the new machinery and equipment the cost will be considerably reduced. This will give our industry the power to compete with other nations in the world market. This will also give the related industries the opportunity of working with us towards the enhancement of our national economy. For the attainment of this goal labor and management should work together to improve our productivity, and only by so doing our industry will be able to serve masses of people, who are the consumers of steels. With this thought in mind, our industry was the first one to send last year a team—our Productivity Team to study American steel industry. We are hoping that by making every possible effort we may be able to overcome the difficulties, one of which is the lower profit rate. Japan is noted for it. Compared with the nations in Europe and America, it is very low. It is true that during the past ten years, following the termination of the War, a remarkable recovery of the economic life of the nation was made, but our task is not finished. Our national economy requires further expansion of steel, power and transportation. And I feel that we owe it to ourselves that we should devote our energies to the future development of this industry. I know it is worthwhile to devote our life to it.

I wish to thank you most sincerely for listening to my talk.

APPENDIX III. 3

THE PRESENT STATUS OF JAPAN'S CHEMICAL FIBRE INDUSTRY

K. Sodeyama

President of Toyo Rayon Company, Ltd.

It cannot be denied that the outstanding characteristics of the world chemical fibre industry is its rapid growth accelerated by the sequence of change in end-use from natural fibres to chemical fibres. Keeping pace with this transition of the world textile trend, the chemical fibre industry of Japan has made great improvements.

1. Present Status of Japan's Chemical Fibre Industry

(1) *Production*

The industry had been established in Japan as early as 1916 and during 1936 through 1938 undisputed predominant position among the world rayon producers was achieved by Japan. World War II, however, gave a stunning blow to its progress, resulting in considerable decrease of the production and almost complete devastation of hte productive facilities. Despite these set-backs, the chemical fibre industry of Japan has regained within a short span of ten years a position of one of the world's leading producing countries through her remarkable recovery and subsequent growth. In 1955, the total production of chemical fibres including rayon, acetate and synthetic fibres amounted to 767 million pounds against the world production of 5,579 million pounds, about 40 per cent increase over the pre-war peaks. The production was second only to the United States in the world output and particularly of rayon staple its production has continued to hold the first place. The progress of the chemical fibre industry during past 10 years has been significant both for quality and quantity. Not only has the quality of rayon products been remarkably improved but also the production of rayon tire-cord and acetate has been successful on a commercial basis. Spectacular development of another line of the fibres was that of synthetic fibres. Production of synthetic fibres had begun experimentally as early as 1939, but it was not until year 1951 that serious consideration was directed toward its commercialization. In 1955, total production of synthetic fibres including nylon, vinylon and polyinylide choride fibre has increased to 35 million pounds. Over 60 million pounds are expected in 1956.

(2) *Domestic Consumption*

About 65 per cent of the total production of chemical fibres is consumed in the domestic market. The domestic demands for clothing as well as industrial materials such as tire-cord and fishing nets have been a mainstay for the production.

(3) *Export*

As the export expands, so does the chemical fibre industry of Japan too and more and more will have to be expected of its dependency on foreign markets hereafter. About 35 per cent of Japan's rayon production is exported to all parts of the world. Main destinations are Asiatic countries followed by African countries where chemical fibre industry does not exist or is still in its infancy. It is estimated that Asiatic countries are buying from Japan more than half of their rayon requirements.

(4) *Role of Chemical Fibre Industry of Japan*:

The chemical fibre industry is playing a cardinal role for self-support of Japanese economy. Firstly, it constitutes the largest item among Japan's export products in contributing to the acquisition of foreign currency. Secondly, the chemical fibres, by taking the place of natural fibres such as cotton and wool, serve to save Japan from importing too large amount of cotton and wool which are practically nil in this country.

TABLE 1.—WORLD PRODUCTION OF SIX TEXTILE FIBRES

Millions of pounds

Years	Chemicals Fibres			Cotton	Wool	Silk
	Rayon Acetate	All Other	Total			
1930 . .	457	..	457	12,100	2,210	130
1936 . .	1,321	..	1,321	14,700	2,230	119
1945 . .	1,406	..	1,406	9,505	2,280	24
1946 . .	1,693	..	1,693	9,675	2,088	38
1947 . .	1,979	..	1,979	11,160	2,100	41
1948 . .	2,450	..	2,450	13,105	2,160	44
1949 . .	2,702	..	2,702	14,310	2,219	47
1950 . .	3,493	149	3,642	12,840	2,302	42
1951 . .	4,010	220	4,230	16,445	2,339	47
1952 . .	3,570	269	3,839	16,520	2,540	55
1953 . .	4,143	332	4,475	17,990	2,554	54
1954 . .	4,488	414	4,902	17,725	2,607	4
1955 . .	5,017	562	5,579	18,600	2,730	59

Source : Textile Organon.

TABLE 1—*contd.*

Years	Six Fibre Total	Percent of Total				
		Chemical	Cotton	Wool	Silk	Total
1930 . .	14,897	3	81	15	1	100
1936 . .	18,370	7	80	12	1	100
1945 . .	13,215	11	72	17	0	100
1946 . .	13,494	13	72	15	0	100
1947 . .	15,280	13	73	14	0	100
1948 . .	17,759	14	74	12	0	100
1949 . .	19,278	14	74	12	0	100
1950 . .	18,826	20	68	12	0	100
1951 . .	23,061	19	71	10	0	100
1952 . .	22,954	17	72	11	0	100
1953 . .	25,073	18	72	10	0	100
1954 & 1955 . .	26,968	21	69	10	0	100

TABLE 2.—WORLD RAYON & ACETATE PRODUCTION

	World total			United States			United Kingdom		
Year	Fil	St	To	Fil	St	To	Fil	St.	To
1930	451	6	457	127	0	127	47	1	48
1936	1,021	300	1,321	278	12	290	112	25	137
1945	902	504	1,406	624	168	792	85	53	138
1946	1,112	581	1,693	678	176	854	109	71	180
1947	1,308	671	1,979	747	228	975	118	84	202
1948	1,549	901	2,450	856	268	1,124	147	86	233
1949	1,638	1,064	2,702	801	195	996	167	117	284
1950	1,926	1,567	3,493	954	306	1,260	189	173	362
1951	2,119	1,891	4,010	958	336	1,294	208	166	374
1952	1,835	1,735	3,570	829	307	1,136	147	125	272
1953	2,081	2,062	4,143	887	310	1,197	207	200	407
1954	2,037	2,451	4,488	707	379	1,086	200	224	424
1955	2,296	2,721	5,017	865	396	1,261	203	231	434

Source : Textile Organon

a, Fil=Filament yarn, St=Staple, To=Total

TABLE 2.—*contd.*

	West Germany			France			Italy		
Year	Fil	St	To	Fil	St	To	Fil	St	To
1930	59	4	63	51	..	51	66	1	67
1936	99	95	194	60	7	67	86	110	196
1945	40	150	190	31	19	50	3	4	7
1946	13	36	49	68	34	102	65	30	95
1947	28	36	64	82	43	125	115	35	150
1948	66	88	154	96	67	163	105	39	144
1949	99	181	280	102	57	159	110	80	190
1950	109	245	354	99	80	179	111	117	228
1951	123	287	410	126	103	229	144	144	288
1952	100	129	319	91	73	164	89	80	169
1953	115	260	375	103	100	203	117	117	234
1954	133	285	418	118	112	230	139	136	275
1955	151	336	487	121	122	243	142	148	290

TABLE 2—*contd.*

Millions of Pounds

Year	Japan			Japan % world to		
	Fil	St	To	Fi	St	To
1930	37	..	37	8·2	..	8·1
1936	279	46	325	27·3	15·3	24·6
1945	6	22	28	0·7	4·4	2·0
1946	9	21	30	0·8	3·6	1·8
1947	16	19	35	1·2	2·8	1·8
1948	36	35	71	2·3	3·9	2·8
1949	67	60	127	4·1	5·6	4·6
1950	103	150	253	5·3	9·6	7·2
1951	138	231	369	6·5	12.2	9·2
1952	142	262	404	7·7	15·1	11·3
1953	163	358	521	7·8	17·4	12·6
1954	185	448	633	9·1	18·3	14·1
1955	195	537	732	8·5	19·7	14·6

TABLE 3—JAPAN'S CHEMICAL FIBRE PRODUCTION

Year	Rayon					Acetate		
	Filament yarn					Staple		
	V	HT	AC	CU	TO	V	AC	TO
Prewar	1937					1938		
Peak	324,750	..	..	11,217	335,967	376,222	..	76,222
1945	4,531	..	..	1,092	5,623	21,893	..	21,893
1946	8,587	..	..	441	9,028	20,624	..	20,624
1947	15,710	..	6	594	16,310	19,248	..	19,248
1948	33,538	..	96	2,093	35,727	35,260	7	35,267
1949	61,782	305	236	4,414	66,737	59,487	100	59,587
1950	94,541	871	42	7,768	103,222	148,622	1,056	149,678
1951	124,784	4,052	73	9,028	137,937	228,069	2,756	230,825
1952	122,941	9,073	192	9,985	142,191	258,633	3,555	262,188
1953	136,545	17,314	447	8,953	163,259	353,864	3,669	357,533
1954	150,554	21,407	571	12,320	184,852	442,417	5,648	448,065
1955	159,322	21,046	893	14,091	195,352	530,830	5,918	536,748

V=Regular tenacity yarn by viscose process, HT=High tenacity yarn, AC=Acetate, CU=Yarn by cuprammonium process, TO=Total.

TABLE 3—*contd.*

Thousands of Pounds

	Synthetic Fiber					Chemical
	Total	Nylon	Vioy lon	Vinyli dene	Total	Fibre Total
Prewar Peak	712,189		..	..	..	712,189
1945	27,516	0	0	..	0	27,516
1946	29,652	7	1	..	8	29,660
1947	35,558	9	3	..	12	35,570
1948	70,994	13	29	..	42	71,036
1949	126,324	22	78	..	100	126,424
1950	252,900	219	775	..	994	253,894
1951	368,762	1,018	6,001	..	7,019	375,781
1952	404,379	1,913	5,726	181	7,820	412,199
1953	520,792	4,602	8,594	1,212	14,408	535,200
1954	632,917	10,092	8,093	3,173	21,358	654,275
1955	732,100	17,804	13,575	3,359	34,738	766,838

TABLE 4.—JAPAN'S EXPORTS OF RAYON FILAMENT YARN AND FABRICS

Thousands of Pounds

Year	Yarn Production (A)	EXPORTS (B)			(B/A) %
		Yarn	Fabrics	Total	
			(Thousands of Sys)		
1946	9,028	3,001	— (—)	3,001	33·2
1947	16,310	7,672	688 (3,266)	8,360	51·3
1948	35,727	6,133	1,642 (8,389)	7,775	21·8
1949	66,737	19,107	5,001 (25,092)	24,108	36·1
1950	103,222	5,713	31,187 (152,301)	36,900	35·7
1951	137,937	17,039	43,208 (232,176)	60,247	43·7
1952	142,191	13,160	37,696 (207,228)	50,856	35·8
1953	163,259	16,261	41,088 (228,457)	57,349	35·1
1954	184,852	17,352	46,310 (263,723)	63,662	34·4
1955	195,352	18,046	60,446 (342,606)	78,492	40·2

TABLE 5.—JAPANS EXPORTS OF RAYON STAPLE, SPUNRAYCN YARN AND FABRICS

Thousands of pounds

Year	Production (A)	Exports (B)					(B/A) %
		Staple	Yarn	Fabrics		Total	
				(Thousands of Sys)			
1946 .	20,624	..	..	..	..	..	..
1947 .	19,248	..	..	..	..	..	..
1948 .	35,267	1,286	1,477	255	(764)	3,018	8·6
1949 .	59,587	1,060	7,517	2,141	(8,389)	10,718	18·0
1950 .	149,678	4,029	934	11,981	(44,104)	16,944	11·3
1951 .	230,825	20,397	10,891	16,461	(60,658)	47,749	20·7
1952 .	262,188	3,141	18,690	24,581	(93,435)	46,412	17·7
1953 .	357,533	508	21,681	38,569	(144,947)	60,758	17.0
1954 .	448,065	1,720	34,286	79,491	(302,557)	115,497	25·8
1955 .	536,748	4,648	39,224	140,739	(521,391)	184,611	34·4

TABLE 6.—JAPAN'S EXPORTS OF TEXTILE PRODUCTS

Thousands of Dollars

Year	Total Exports	Textile Products Exports (B/A%)		Chemical Textile Products Exports (C/A%)		(C/B%)
	A	B		C		
1946 . .	103,292	2,633	(2·5)	175	(0·2)	(6·6)
1947 . .	173,568	14,375	(8·3)	1,228	(0·7)	(8·5)
1948 . .	258,271	186,050	(72·0)	10,181	(3·9)	(5·5)
1949 . .	509,700	280,231	(55·0)	35,600	(7·0)	(12·7)
1950 . .	820,055	399,315	(48·7)	69,619	(8·5)	(17·4)
1951 . .	1,354,520	565,837	(41·8)	140,640	(10·4)	(24·9)
1952 . .	1,272,915	398,194	(31·3)	105,798	(8·3)	(26·6)
1953 . .	1,274,843	460,419	(36·1)	119,084	(9·3)	(25·9)
1954 . .	1,629,339	656,986	(40·3)	165,411	(10·2)	(25·2)
1955 . .	2,010,600	749,064	(37·3)	222,595	(11·1)	(29·7)

TABLE 7—1955 BALANCE OF EXPORTS AND IMPORTS IN THE MAIN ITEMS

Thousands of Dollars

Main Item	Exports	Imports		Earning of Foreign Exchange
1. Chemical Textile Products	222,595	21,831 Pulp Salt Other	16,305 5,097 429	200,764
2. Iron and Steel	259,495	96,479 Iron Coal Other	81,538 4,811 10,131	163,016
3. Fishery Products	75,628		590	75,038
4. Silk Yarn and Fabrics	67,762		112	67,650
5. Vessels	78,186		3,531	74,655
6. Metallic Products	60,226		7,874	52,351
7. Machinery	127,698		108,679	19,019
8. Drug and chemical products	93,754		80,206	13,548
9. Cotton Yarn and Fabrics	305,364	379,127 Raw Cotton Other	378,136 991	—73,763
10. Wool Yarn and Fabrics	45,183	171,869 Raw Wool Other	165,788 6,081	—126,686
TOTAL—ITEM	2,010,600		2,471,430	—460,830

APPENDIX III. 4

LECTURE DELIVERED BY TAKESHI SAKURADA, PRESIDENT, NISSHIN COTTON SPINNING CO. LTD., AND DIRECTOR JAPAN PRODUCTIVITY CENTRE.

THE PRESENT STATUS OF THE TEXTILE INDUSTRY.

It is a privilege and a pleasure to have this opportunity to speak to you about the textile industry of our country. As our time is so limited, and in keeping in line with the spirit of The Productivity Centre—that is to save time—instead of having an interpreter. I have taken the liberty of reading my translated manuscript.

While on my way to attend the International Cotton Conference at Buxton four years ago, I visited your country and had the opportunity to see several cotton spinning mills, and was deeply impressed with the modernizations practiced. I also had the chance to see ATIRA. Although at that time it was still under construction, I was struck with its scale, and I believe that it stands well up to Shirley Institute of England. Last year Dr. Sarabhai paid me a visit, informed me of its completion and its organizational activities. Standing before you today, I vividly recall the impressions I received during my visit, and wish to add that I am one of those who sincerely wish ATIRA's success in promoting the progress of the cotton industry of India.

In order to understand the Japanese textile industry, it is essential that I call your attention first of all to what the economic *status quo* of Japan is.

As you are acquainted, our country is a very narrow strip of land, poor in natural resources, besides having a very large population of nearly 90 million people struggling for an existence. The problem of supporting this large population is the basic problem. In order to maintain and promote the economy, and to increase employment and income, it is not only essential that we import food, but also must provide for imports of industrial raw materials, such as raw cotton, raw wool, iron-ores, crude oil and others, which amount to quite a sum. To pay for these tremendous imports, huge amounts of foreign exchange is required, which can be obtained only by promoting exports. This can only be realized by carrying on an extensive industrialization program. Concurrently, this will help in promoting our foreign trade activities.

In order to carry on foreign trade, however, industries whose productivity are inferior and not able to compete with that of foreign countries will not be able to exist. Hence, arises the importance of higher productivity, which is not to be limited to one individual field of enterprise, but is the concern of and key point to

the Japanese economy as a whole. The industry of the country being subjected to these economic conditions, industrial development rested upon the modernization of production equipments. The industry that advanced modernization foremost was none other than the textile industry. Today it is the most modernized industry.

During the prewar years, that is in the thirties, it was the key industry, whose manufactures not only provided the domestic clothing requirement, but also was the main pillar of export, comprising over 50 per cent of total exports. Besides, it was the most representative industry in earning of foreign exchange, thus contributing much in promoting the national economy.

During the war years, the country's industrial reorganization policies necessitated the scrapping of much of the textile equipments, and together with war damages, the industry was almost wiped out. At the end of the war the country being heavily damaged, and with the rising inflation, the textile industry was called upon to bear the role of pioneer in rehabilitating the economy, and its contributions can never be over estimated.

Prewar days, in 1937, the total productions of all textile yarns were 2.34 billion pounds, which at the end of the war in 1946, it cropped to a mere 0.2 billion pounds. During the following ten years, no stone was left unturned in our rehabilitation endeavours, resulting in production recovery to 2 billion pounds last year.

The pattern of the Japanese textile industry at present compared to that of the prewar has changed greatly.

First of all, in the production by fibres, although silk and cotton yarns and rayon filament production has not reached its prewar levels, spun rayon yarns has greatly increased, besides new types of synthetic fibres are being produced.

Second. In the domestic consumption of textiles, the total amount last year surpassed that of the prewar level, but with the increase in population the per capita consumption was 13 pounds, which is slightly less than that of the prewar levels. Marked increases in man-made fibres is seen, which is an indication that our people are enjoying a much greater variety in their clothing requirements.

Third. In our exports while spun rayon products has significantly increased; silk and cotton goods have declined. Nevertheless, the industry still occupies 37 per cent of total exports. Although this percentage is not as large as the prewar standards, it still is the foremost industry in the earnings of foreign exchange, and still is the largest pillar of the Japanese economy.

The characteristic that makes the textile industry possible to carry on as an export industry is that it can hold its stand in international competition, which fact boils down to the problem of productivity—whether it is high enough to compete in the international field. In regard to the problem of productivity, I would like to refer this to the cotton spinning industry.

As you are acquainted the cotton spinning industry from prewar and up to the present is the core of the textile industry of Japan. Although the present spindles of 8.5 million is less than that of the pre-war levels of 12 million, it not only fully provides the domestic market, but its exports are above that of any other country.

The volume of cotton goods traded in the international circle, since postwar has decreased drastically, which is one of the causes of the decrease in our exports from 2·5 billion yards in prewar days, to 1·2 billion yards in recent years. Of course, we must not overlook the influences in competition coming from man-made fibres. As one who is connected with the cotton spinning industry, it moves me deeply, recalling the days right after the war, when we had to start from a mere 2 million spindles remaining then, and the many difficulties encountered not only in rehabilitating the industry to the present day, but also the effects of the changing patterns of the textile industry.

By the very nature of the economy of the country the cotton industry has to rely completely upon imports for all of its raw cotton requirements. Prewar days, this unfavourable position was fully covered by the ample capital funds industry had accumulated, and the abundant supply of diligent labor. But after the war these former advantages have been lost as a great deal of our capital funds were lost during the war. In addition the newly uprising labor offensives, incessantly pressed for wage increases and better working conditions and terms.

During the following ten years, these newly created conditions continually charged us in our efforts to rehabilitate and increase our equipments, rationalization in management, technological improvements, marketing, conciliation of management-labour relation and such problems. The results has made the cotton industry not only the most highly productive industry, but also the wages and living standards of the laborers much higher than that of many other industries.

Looking at the factors in our promotion of higher standards of production. I would like to enumerate a few of them.

For the capital aspects, the present cotton spinning facilities are practically postwar equipments that have been newly installed, moreover continual efforts in modernization such as super-high draft, simplex, large packages, air conditionings, neumafil, automatic spoolers and such have been tested and put into operation.

For the labour aspects, we have in our employment programme practiced rigid test for adaptability and intelligence in the selection of labor, promote scientific labor management, and have promoted better working conditions and terms, thus stabilizing labor, resulting in higher efficiencies.

These two factors are moreover being harmonized by the efficient utilization of raw materials and rationalization in management, which have cut down the costs in our cotton spinning industry. For example the number of direct and indirect man hours necessary to

produce a bale of cotton yarn, converted into 20 counts during the prewar days 1934-36 required 93 man-hours has dropped down to 64.8 man-hours last year. The average last September was 61 man-hours.

Taking the average nominal wages for cotton spinning workers against the total average for all manufacturing industry during last year, it was higher by 28%, for men and 24%, for women. Furthermore, based on the prewar level, the real wage index average for all manufacturing industries for last year rose by 14.5%, of which cotton spinning showed a marked increase of 80.7%, contributing much to raising the all manufacturing average. In the printed materials distributed you will find the details, and I hope you will take time to look over them in your spare moments.

Finally, I wish to express my thoughts on the future of our textile industry. The rehabilitation of the textile industry and promotion of man-made fibre have been carried on so rapidly, that quite frequently the balance of supply and demand has been jeopardized, leaving the industry in a frustrated state with a number of firms going bankrupt. Moreover, it has given foreign countries the seeds for hot discussions in accusing us of "flooding our textile into their markets". Therefore, some means of insuring stability in the industry, and mutual adjustment within the important sectors of the industry has become an urgent problem. This has taken the form of legislative action—"The Textile Industry Equipment Adjustment Law" passed by the parliament in June, this year.

The object of this law is by determining the estimated demand for textiles in the near future, the total production equipment in order to insure a sound expanding production is to be restricted to a reasonable and proper scale, and to restrict excessive expansion and the concurrent disposal of surplus equipments where such action is deemed necessary. Through this law, and in its enforcements, we anticipate to stabilize and to promote sound future developments in the industry, and at the same time expect it to be the means of instituting a fair and orderly export trade, thus enabling us to erase the unpleasant accusations from overseas.

To realise an independent economy for the country, much of the responsibility rests upon the textile industry's promotion of exports. Therefore, in our export trade it is imminent upon us to think in terms of fair trade practices based on the spirit of international conciliation founded upon mutual understandings, and to supply textiles at lower prices.

In looking at the world *per capita* consumption of major textiles the North American continent has an average of 32 pounds, Western Europe 17 pounds. Against this the Asian and African *per capita* consumption is a very low of 5 pounds, which is slightly one-half of the total world average *per capita* consumption. It is needless for me to point to you that these last two continents are also the low income groups, absorbing much of the world's population.

On the one extreme USA with a high *per capita* consumption of 33.3 pounds, and on the other extreme. Cambodia, Laos, Viet Nam with a very low average of 1.5 pounds, clearly indicates that one of the principal necessities of mankind—clothing—is still not been properly provided.

The mission and duty of our textile industry to mankind is to supply this fundamental necessity of life to the people on this earth, that they shall not be in want of clothing. In order to realize this, it is imminent upon us to do all that is in our power to cut costs down, so as people of the low income group will be able to obtain their clothing requirements and enjoy a human-like life, and at the same time, to those who already are quantitatively provided; they should be supplied with goods in such qualities as would meet their tastes.

To this end, I have continually worked, and believe that the objects of the Productivity Centre are in concurrence with my efforts.

APPENDIX III 5

MANAGEMENT PHILOSOPHY OF TODAY

Lecture delivered by

Taizo Ishizaka,

President

Tokyo Shibaura Electric Co., Ltd.

MANAGEMENT PHILOSOPHY OF TODAY

As you well know, today is called the day of Second Industrial Revolution but our economic system in the present stage of that revolution is so-called "free economy" or in other words "capitalistic economy". However this capitalistic economy has been changing in the past two hundred years since the First Industrial Revolution in the 18th century, and it is now considerably different from what it used to be in its form and content.

We hear such new words as "revised capitalism" or "neo-capitalism", and the birth of these new words indicates the need to describe more properly what has become different from its orginal content.

Apart from the question whether these new expressions for capitalism are suitable or not, it cannot be denied that the economic system under capitalism has changed in some form or another. It goes without saying that the establishment of the system of industrial capitalism has brought a drastic increase in industrial production which in turn gave our life some amazing conveniences and benefits.

Although the traditional home industries have retarded, the management people have always been earnestly studying to improve means of production and efficient methods for management. This is quite logical under the economic system of capitalism which is based upon free competition.

In Japan as well as in Western countries it is a fact that their economy has been operated by liberalistic system before and after the war, and their economy will continue to develop with this system as its basis. Of course, today my speech is based upon the above way of thinking as its premise.

Today America is enjoying the most prosperous economy in her history avoiding periodical depressions successfully, which was once said inevitable to capitalistic economy. Naturally, this can not be attained without efforts, but it is the result of integration of all the brains of the United States.

This is unanimously confirmed in the reports made by industrial inspection teams which have been sent by Japan Productivity Center since last year to study American industries.

Although Japanese economic system stands upon the principle of liberalism, we cannot disregard the considerable change upon the foundation of the Japanese industry itself.

Here we have to face the problem of how to conceive our philosophy as the management of today.

Then what is our new philosophy for us management? I'd like to limit this question to the four points. The first one is human relations, the second is the public nature of business, the third is exchange and cooperation and the last is the scientific management.

ESTABLISHMENT OF GOOD HUMAN RELATIONS

Recently the problem of human relations is universally being discussed. Japan Productivity Center has been studying this particular problem by means of seminars and inspection teams, particularly by sending "the human relations study team".

Of course, the elements of production are capital, land and labor. Aside from capital and land problems, I'd like to consider here the problem of human beings which is the source of labor rather than the mere problem of labor.

Formerly labor force is considered more or less as merchandise and there was very little consideration for human being itself who provides labor. Especially in Japan the infinite labor force could be provided, in the past from rural areas, so this might be somewhat an inevitable attitude. But as its result mechanization and production technique in Japan remained quite backward compared with other progressive countries.

It is needless to say that as the production technique highly develops, the men who engage in it need higher education and better personalities. In the modern mass production efficiency and mechanical power tend to be given the first consideration and human problems are often put aside.

In so far as the objective of an industry is purely economical, efficiency of machinery and general efficiency are undeniable factors but in order to raise efficiency and fully utilize machinery, human beings who have physical, intellectual and moral characteristics must exist.

These men or more properly these personalities occupy one important division of enterprising organization. That is, in a sense an enterprise can be said an executing organ of the will of collective personalities.

Therefore, the idea of common obligation will naturally be conceived. When we consider an enterprise as a combined unit with mutual obligation, the problem of human relations becomes very important.

In other words, proper human relation is the very important basic question for today's enterprises.

In establishing duties and authorities in an organization and in establishing lines and staffs, human relation should be considered as the basis.

Recently in the field of industrial training and industrial education or management education, the problem of human relations has been taken up with considerable emphasis as against the technicalities, and various such sciences as psychology, education, labor science are increasingly taken into enterprise. This will mean that the human being as the supplier of labor in enterprises is being respected and a new way of thinking toward human being is being established.

Thus, as the good human relations establish themselves, real team work of enterprise will be enabled and cooperative system of labor and management will be established.

PUBLIC NATURE OF ENTERPRISE

At the 10th International Scientific Management Conference held in Sao Paulo, Brazil in 1954, American representative, Elvin Haskel Shell, mentioned as follows with the foreword that "the responsibility of management is rapidly changing in its character and importance":—

"The fast changing world is daily adding depth and width to the business and authorities of management. It is influenced not only by the difficulties which arise in such comparatively small worlds as company's works or its workers but from the world-wide change in technique and society. In this greatly changing circumstances accompanied with complexities, it is imperative that the management be equipped with modern management techniques. The role of the management is no more simply to manage the profitable enterprise but to manage the enterprise in such able and progressive manner as to benefit the investors and the general public of the world." Objective of the management of an enterprise is no doubt purely economical. And the word economical implied obviously to one unit of enterprise in the past. Therefore, the management exerted all their efforts in raising the profitability of his own enterprise and in offering service to the investors.

However, for today's management social relations which go beyond the boundary of one company or one enterprise have come to have greater weight.

Public relation which has been introduced mainly from the United States after the war can be said to be a method of not merely advertising certain company but of raising the social nature of enterprise. This was also the case with the United States after the great panic of 1929 and its objective was the social nature of enterprise.

We must not forget that the today's enterprise cannot exist without the general public speaking from capital and the demand for the products. No enterprise can exist where there is no demand.

Social nature of enterprise becomes clear when we think of the technical progress. Technical progress means, from other point of view, greater fixed capital per production capital, and therefore the size of enterprise tends to become greater. Of course, the accumulated fortune of an enterprise comes under the possession of stock

holder, but it is increasingly becoming difficult that the stock holder freely dispose of the fortune contrary to the intention of the society. society.

There is a contention today that a considerable portion of profits of enterprise should be returned to the society. In the United States, as a matter of fact, the top management unanimously emphasize "the first service to the customer (consumer including employee) as management policy".

We cannot overlook the fact that besides the basic principle that the objective of management of enterprise is purely economical, the new conception is that it is the service to the general public. That is, management of enterprise must have the public nature of the service to the general public and not only to attain profitability for itself.

All parties engaged in an enterprise, management as well as labor, should fully understand the social nature of enteprise and its being public facilities. As the management cannot be allowed to chase only after profits and disregard the fair distribution of the profits, the labor cannot rightly disregard service to society and only claim their wages. Both the management and labor should think of the service of responsibility to society through prices before they receive their own share.

Service to the general society or the customer means to manufacture the products which the customers want and satisfy them. or in other words to supply the products of good quality at low cost. Therefore, today's management has to increase production under the best conditions, decrease the cost by improving the manufacturing method and revolve the capital efficiently, that is to increase the so-called productivity.

This has to be realized first by the top management and through each phase be thoroughly made prevalent to the lower stratum. Only after all the labor and management engaged in the management of enterprise thoroughly conform to this way of thinking, the enterprise can expect to improve its record.

Active creation of demand requires expansion of production. For the creation of demand, improvement of quality and lower cost are indispensable. Further, it has to be endorsed by the planned production based upon the detailed market analysis and market research. For this purpose, the management and labor must cooperate and accumulate their concentrative efforts.

In order to realize this in each enterprise, it is fairly important that the national policy is so formed as to enable this.

First of all, for the common purpose of increasing productivity, it would be important to establish a strong cooperative body between the labor and management.

In May 1954 Japan Productivity Center adopted the so-called three Principles as the basic principles of productivity movement.

"In order to attain self sufficiency of our country and to raise the standard of living it is urgently needed to increase the producti-

vity of our Industry. The productivity movement aimed at from such view-point should be developed as a national movement under the deep understanding and support of all the people. Therefore, we understand the basic philosopy of this movement as follows:—

1. Although productivity increase will expand employment in the long run, transitional surplus man-power will be treated properly by both public and private cooperation to prevent unemployment by means of transferance of position and others from the view point of national economy.

2. As to the concrete form of productivity increase, the condition of individual enterprise should be considered. Both labor and management study the proper form and discuss it.

3. The fruit of productivity increase should be fairly shared by management, labor and consumer in accordance with national economy".

As clearly indicated here we believe the fruits should be fairly divided raising business achievement to the maximum while recognizing request from such parties as management, investor in general and government. We realize that we have to study this as "ethics of the management" of the contemporary age. The reason of our contention that social responsibility of enterprise and its public nature should be considered important, lies here. We believe awakening of enterprise to its social nature constitutes a core of new idea of the management.

EXCHANGE AND COOPERATION

It is a well-known fact that economic loss caused by the World War II brought a great deal of pain to every country in the world, regardless of whether it is on winning side or losing side. The desire to escape from "the fear of eating nothing but bread" was universal among Western European countries.

The countries in Western Europe facing a big problem of how to rehabilitate their economy, realized their common desire and fate and went for establishing new economic order which has never been seen in its history. This was concretely realized as the establishment of organization of European Economic Cooperation and subsequent establishment of European Productivity Agency under the I.C.A. of U.S. aid, which aims at promoting trade among these European countries, agreements in settlement of payment, distribution of needy goods, and expansion of production. This organization is to rehabilitate worn-out economic conditions of each country by technical exchange and cooperation among these countries and U.S.

Such international cooperation and technical exchange are still vividly conducted. International Scientific Management Conference and Conference of International Chamber of Commerce, which was held in Tokyo in 1954, or ECAFE. Colombo Plan are all phenomena of this international exchange and cooperation.

The problems taken up for international cooperation and technical exchange range from human relations, sales planning, manage-

ment control, industrial training, credit and also to tax, which are dealt by large scale conferences as before mentioned, and subsidiary organizations such as European Council. There are other international organizations for rationalization in special fields, such as International Standardization Organization, which is very active.

The promotion of economic plan based on such international cooperation and exchange of technique and experience has been started by new realizations of countries in the world, not because of physical condition where each country becomes more closer. It can be said that the consciousness of affinity as common human beings must be its cause.

Such consciousness can be seen not only in international relationship but also among different industries in one country, among individual enteprises and even within organization of one company.

In some sense, monopolization of experience is vital to enterprise and to keep secrecy of production technique is common practice. But today "new invention" is destined to be solved by somebody and reproduced in very short period. Even atomic power which is integration of super science and technology is actually impossible to be kept in secret by one country. The attitude of "give and take", with good-will although it may sound old fashioned, is the very one to bring mutual welfare and prosperity.

By knowing the limit of individual ability and function, we can expect the ability and function of organized body. It is not fruitful to spare time and labor for the study, which was already done by the same method. However, it is more effective to add a ladder to the one previously put in order to approach the fruit above your head.

INDUCING SCIENTIFIC METHODS

Certainly mass investment and mass production are the characteristic of modern business. There are quite a few small and medium industries in Japan whose role is very important but most of them remain obsolete. In fact every field of our society requires more and more variety and complexity for production as time goes by. At the beginning of the joint declaration of Belgian labor and management issued on May 5th, 1954, it says "Even the kings, before the Industrial Revolution in 18th century, could not enjoy such high standard of pleasure and health which today's workers are enjoying. This is because we have learned the means to produce more and more various goods with less labor".

Glass, which used to be regarded as a precious ornament for King's crown, is now commonly used for cups in kitchen, and silk which used to be monopolized by ladies in King's palace has now become stockings for common girls in downtown. This is nothing but a result of inducing scientific method into industry, such as technical development and improvement of production method. We also know that the idea "Man is a slave of machines" was once prevalent in one part of society as the capitalism developed. However, today a new thought of respecting humanity is becoming more important, as mentioned at the beginning of my speech.

While technology has been rapidly developed as natural science has progressed, more comprehensive, integrated study in terms of cultural standpoint and social scientific viewpoint are still backward and people reflect on this fact today.

When we take problems of modern management in its true sense from right standpoint of scientific method, there appear many points to think about.

In the first place, high productivity with high utilization of materials and better quality of products are naturally important. For this purpose the promotion of 3S movement, that is standardization, simplification and specialization of products, which Japan Productivity Centre is studying, is very much necessary.

In order to promote 3S movement, an organization structure which is strong enough to integrate every power, whether it is man power, mechanical power, capital or equipment, and to make their full utilization, becomes necessary. Furthermore, collecting of continuous data compiled by scientific methods in such field as management policy, sales forecast, cost control, and production control and their right application should always be considered. For instance, we should solve a series of problems such as purchasing of materials, production and selling, by utilizing data obtained mathematically through cost control, operational research and marketing research.

We should not disregard scientific management technique being occupied with technical improvement or expanding equipments in narrow sense.

In American industries with high productivity, consultants have very important roles. They are specialists in such various fields as work analysis, time study, or work study which directly relate to production and also accounting, selling or organization, and they give suitable advice and guidance on the request of each enterprise. Businessman is really making full use of such consultants.

In modern business management, there are influential factors, which management cannot control, such as national economic power, distribution of income, population, national stock of durable consumer's goods, and governmental fund release.

For these matters, intuition from past experience is hardly effective and we have to depend upon statistical figures prepared by responsible agencies with thorough exactness. But unfortunately such figures are not much available in Japan yet.

In modern management it is necessary not only to acquire correct figures in and outside the enterprise, but also to make satisfactory utilization of them. Another thing I wish to emphasize here is unsparing research. This is the kind of research not bringing immediate result and directly connected with profit, but aiming at some future without flowery appearance.

Where there is no research, there is no invention.

Where there iis no invention, there is no progress.

It is the duty of today's management to realize such surroundings as to enable research activity easy. This means the enterprise needs

to have long term planning and also should consider it together with the direction of our future industry.

I have explained "New way of thinking for management" so far, but I wish to add one more thing which should be remembered by those who have this new way of thinking.

That is: We have to conduct our business activities from the viewpoint of our national economy, grasping the ever changing world economic conditions. And we should also clearly realize that the purpose of enterprise is eventually to increase the standard of living. For that reason we are devoting ourselves to propagate and promote productivity drive in cooperation with all the people in Japan.

APPENDIX III.6

THE STANDPOINT OF MANAGEMENT

Lecture delivered by TAKESHI SAKURADA, President, Nisshin Cotton Spinning Co. Ltd.

I deeply appreciate your kind permission in allowing an indigent member of management as myself to express my thoughts on management, and be favored to have this unexpected opportunity to receive your severe and unbiased criticism in a most friendly spirit, which is considered as one of the many virtues of our Keizai Doyukai (The Japan Management Association).

To some the problems of what the present and future of our country ought to be is thought of only as an old and obsolete problem, but I believe it to be a constantly new and fresh proposition. To do this justice, it is necessary that I first prescribe the meaning of the present age.

If you would permit me to speak dogmatically, I consider the present age to be:

First of all, an age where intelligence and technique must have priority over numbers and strength.

Second. Only those men in enterprise, who through their full command of intelligence and technique, which will contribute to the welfare of the public, are to be considered as management to whom the "public organ" can be entrusted. This is what I consider the so-called age of management.

Electronic physics has changed the basis of our material concept. It did not stop here; it spread into every field of our daily work, calling forth an age requiring great changes in our ideas on heat and power sources. At this time management of enterprises, whether profit or non-profit organizations, who had come to find that this urgently required an extremely high quality of academic knowledge and experience, are management who really are worthy to carry the burden of the national economy. Political power that changes much too frequently is practically unfit to bear the direct burden of the national economy.

In spite of this view of the present age, the ever-changing and unstable political parties being such, should a bureaucratic organization divorced from the government take over the administrative powers and control the politics and economy of the society of mankind, I believe that that government and bureaucratic organization will both be quite divergent to the realities of the age.

In this sense we cannot but feel that the present Socialist party and the Liberal-Democratic party have both feet floating in the air, further widening the discrepancies in their senti-

ments to the movements of the age. As long as these politicians continue their dancing in such manner, someone will have to pay for it. Who then shall be the helpless and largest victims? They shall be none other than the unorganized multitudes, who in number is the largest, and whose love for the country is most sound. They are the truly qualified principals of the public welfare, but because they are unorganized they are usually being passed on unnoticed, and left behind. Viewing the phases of the present age in this manner and with your kind understanding, the role that management in enterprises, in the narrow sense of this word, must play in this age shall automatically be settled, and concurrently the spirit of management which is the root of the role of management shall be obviously clear.

The first requisite in the spirit of management is that management should in our conception fully concieve enterprise as truly a "public organ entrusted". Considering this from two different phases:

First. Speaking from the legal standpoint, the owner of the enterprise is the shareholder. But law is one form of arrangement that is set with its settings dependent on the age. In the present age enterprise ownership in order to exercise this ownership must be exercised so as to concur to the public welfare. Without doubt, it is natural that the owner is entitled to the fruits of ownership, *i.e.* in the form of dividends, but if the owner should exercise the right of ownership only from his personal interest, the enterprise shall wind up by losing its very value as a social entity. It will meet many restrictions coming from the various quarters of society, and shall finally end up by negating the very rights of ownership, itself. Here is where the role of management and its importance is born. Management on the one hand will check the owner from exercising unwarranted greed, and express the good will of the owner, thereby stabilizing the rights of ownership, and on the other hand be responsible in securing the rights and interests that should naturally accrue to ownership. This must persistantly be based on the concept "with full respects to the public organ".

The second is that in the management of enterprise, it is man that is driving capital. Men in accordance to their employment are divided into employers and labor union members. The greater numbers are in the labor unions. Here is where the illusion of numbers is born. Since labor is an indispensable factor in enterprise, and because labor forms the largest numbers of the man factor, enterprise should serve labor, and labor should intervene in management. Thus giving rise to the two fallacious claims of labor. It is here that the second important mission of management arises, Enterprise is a "public organ" and not the property of labor. We must hold fast in our stand that enterprise, which should be in the hands of management who shall contribute to the present and future of the 80 million people welfare, can not be left to the self-indulgence of the present organized labor consisting of only a few millions. It is only through management that it is possible to accumulate capital, and hope to maintain and expand the national employment and be able to stabilize and elevate wages; all of which are but too self-evident truths. These are the responsibilities

management has to realize. At the same time management and labor should contend reasonably with each other in accordance with the rules of democracy, which will initiate the maintenance of the check and balance principles. If company union is bad, the same holds true for labor union's intervention in management. Only by each executing their responsibilities upon equal footing based on the intellectual consciousness and power of persuasion of each, which is a very important subject matter, will management and labor be able to meet the trust placed by the people.

As previously stated, the important role of management is to stand in between the owner of enterprise—capital—and labor; binding both together and checking both from exercising unwarranted greed on the one hand, and protecting the interests of each on the other hand. Moreover, by binding both together the productive powers created must be executed so as to contribute to the benefit of the national economy. This function of management is based on the conception of "public organ entrusted".

I would like to follow this by giving a few examples of the spirit of management from a different angle.

First. "The public organ entrusted" and the meaning placed on the word "entrusted". A management of whom I have the highest respect, frequently said, "If this were mine, I would give liberally, but as it is a thing entrusted to my care, it is not mine to give". This clear distinction of public and private, which he thoroughly sets is the starting point of economizing the company's business. Here is where it gives birth to the strong attitude of management in their negotiations with labor on wage increase problems, which has of recent years become more or less a regular business.

This newly born spirit of management in enterprise based on the conception of "entrusted" is much stronger and firmer than the pre-war days enterprisers, who guarded their enterprise as "my personal things". We must recognize that enterprises operated by management firm in this spirit are the ones that will prosper in this age.

The second is in the selection of management for the "public organ entrusted". At the outset I have mentioned that in order to fulfil the high-power functions required by management in this age of intellectual consciousness, and considered from the standpoint of the importance of the concept of "public organ", management entrusted with the "public organ" should most preferably be selected from among the best and most powerful men employed in the enterprise.

Just because he is a relative of the former management, or just because he is the man who owns the purse does not justify entrusting the enterprise to his care. It is needless to cite you instances where such enterprises have dismally failed in times of severe and keen competition. Consequently the complete understanding of the concept of "public organ" is paramount. In our Keizai Doyukai (The Japan Management Association), we have members of the so-called second and third generation, who are management par excellence. These men are the men who have been born out of the

enterprise and are the best and ablest. I should say to look upon these men as the so-called second and third generations is quite old fashioned.

It is often said that management is the man who makes it, and that enterprise is also the man who makes it. The criterion in judging the powers of the man is his character, ability and health.

A man in management must constantly be on the look out for some one who is better than he is; rear that person so as the responsibilities of management could be transferred to him; and should always be prepared to uphold a high-power management; otherwise it cannot be said that he has given his best attention to the care of the "public organ". In the selection of management all personal considerations must be thrust aside, and carried out with exactly the same austerity as in the world of contest.

Looking at this from another angle, it is my belief that by placing the right man in the right place, persons employed in the enterprise will be able to fully display their powers and those excelling in their power are to be singled out and promoted accordingly; and by being fully impartial in this selection the members of the labor union shall be the mother who gives birth to the management group. Furthermore from within this group top management shall be selected. In this age management and labor shall not confront each other as a heterogeneous class conflict, but as a sound and healthy process of competition of homogeneous men.

As has been elucidated only in the existence of the spirit of management will it be possible for this age to be called the age of management, and also make it possible for management to contribute to the age.

Even if a political revolution should by chance occur, and a time when the worst situation that can be expected should arrive, and whatever political power that may be set up, it is my conviction that as long as enterprises management are being held by these management, and as long as there is a necessity of maintaining and expanding the production power which is the premise for the problems of distribution, the maintenance of the people's livelihood would not be possible without the intelligence, ability and good conscience of the management camp. Should a stage of violent revolution by force occur, although top management would unconditionally lose practically everything, I firmly believe that it still cannot obliterate the role we, of management, have played in this age.

Anticipating that we shall keep on treading the right path of management, I appreciate your generosity in permitting me to express a phase of thought born from a hard headed cotton spinner's narrow and impetuous experience based on 30 years. I have supplied you the material for consideration, and would further appreciate your enlightening me with your comments.

I thank you for your most kind attention.

APPENDIX III. 7

MANAGEMENT IN JAPAN

Lecture delivered by SHIN TAKAMIYA, Professor,

Hitotsubashi University

I should like to begin my lecture by explaining the social character of management in Japan, then give a brief summary of organization and methods of its business administration.

1. Social Character of Management in Japan

Industrialization, especially management, differs according to the technical, economic and social conditions of a country. The management in Japan greatly differs from that of the United States and probably from that of your country as well, although there are number of similarities between India and Japan.

While lacking in natural resources, Japan faces the problem of overpopulation. Moreover, its domestic market is small. This results in the fact that having to depend upon foreign trade, Japanese economy is insecure and is sharply sensitive to the economic and political changes of the world. That is why management in Japan is an increasingly difficult task. Further the social point is important. Management has its proper social character, determined by social conditions of the society where the management exists. Management in Japan has a proper character of its own, which can be classified into two distinct periods, namely pre-war and post-war.

A. *What was the social aspect in pre-war management in Japan?*

A singular characteristic in the development of pre-war modern Japanese industry was that despite the rapid expansion of large-scale organizations during the last years of the 19th century and the early decades of the 20th, management succeeded in integrating traditional patterns of family behaviour into the operation of their enterprises. Personal loyalty, subservience of subordinate to superior, and acceptance of inter-dependence in cooperative enterprises were some of the main features of the traditional family-system which were readily incorporated into industrial administration.

This experience sharply contrasted with that of other industrialised countries, in which serious breakdowns in social organization usually occurred. There was the exceptionally smooth, even though rapid transition from backward agrarian to advanced industrialization. The economic transformation was not the outburst of unhampered individualism as in the West, but a deliberate superstructuring of industry upon the traditional agricultural foundation. There was little agrarian upheaval. The family system which formed the basis of Japan's peasant society remained relatively undisturbed.

In addition to this, the impetus for industrial growth in Japan after her opening to the West was less the opportunity to seize economic advantage of self-aggrandizement than it was the need to perform a national mission. The realization by Meiji leaders that modern industrialization was essential to protect Japan against foreign invasion girdled *laissez-faire* within the narrow limits of marshalling and controlling enterpreneurial activity for this end. With the concentration of economic power sanctioned both by legal measure and social custom, business leadership perceived its function primarily in implementing national objectives and accordingly shaped its organizations for their achievement.

In short, under the common purpose of national independence with the Zaibatsu as its central power, Japanese enterprises succeeded in achieving the unification of modern industrialization with the traditional family system.

The character of pre-war management was management paternalism. It is through management paternalism that pre-war Japanese enterprise operated modern technique. There are two factors in management paternalism, namely "pátriarchy" and "despotism". Patriarchy tended to emphasize the cooperative aspects of internal organizational relationship while "despotism" stressed the authoritarian. Although one or the other emphasis usually emerged from the blend, an enterprise was rarely a pure type of either. The patriarchal strain of Japanese management have such characteristics as follows. While no member of the organization was considered an independent individual, yet his importance to the enterprise was not minimized. The behaviour of the manager was directed at promoting complete identification between superior and subordinate. If this was achieved, employees came to depend upon their employers for almost every means of personal security, morale was likely to be high, and mobility in and out of the enterprise was extremely low. Workers acquired little consciousness of their status as wage earners, but were keenly aware of their subordinate positions within their own enterprise. A patriarchal employer established a wide variety of welfare programs and especially structural management to carry them out. Thus, one administrative approach was to maintain close personal contact with employees on a face-to-face, day-by-day basis. However, as an industrial enterprize grew in size, it became increasingly difficult to maintain the conditions for successful patriarchy. Face-to-face contact was hampered simply for technical reasons. The method of stemming the problems associated with a breakdown of pátriarchal management often tended to resort to despotic elements present in Japanese paternalism.

The tight structure of Japanese management, before the last war, mirrored the neatly ordered family system which was imbedded in tradition and not uprooted by industrial changes. Skills in administration—usually associated with American business—were of little concern to Japanese managers, who could rely upon paternalism, either of the patriarchal or despotic type, to secure spontaneous cooperation. Fundamentally, the success of this managerial system rested upon the maintenance of traditional social relations and the Japanese "way of life".

B. *What is the change in the social character of post-war management?*

The initial impact of the defeat and Allied Occupation was to throw Japanese management into a state of great confusion and uncertainty as was the case of most Japanese institutions. A four-year period was to elapse before management fully recovered its status. By 1949, the status of management in Japan had been restored to its former high position. But such new elements as the dissolution of the Zaibatsu, the Anti-Monopoly Act and the development of labour unions revolutionized the prewar status of management. In other words, Japanese economy was democratized.

Although the dissolution of the Zaibatsu and the Anti-Monopoly Act tended to weaken the economic power of Japan, it succeeded in creating a new element of competition. On the other hand, we cannot deny the fact that competition vitalized Japanese economy by the introduction of the free competitions. And development of labour unions brought great changes to the character of Japanese management. Labour unions became the opposing power against the despotic pattern of management and began to have a direct voice in policy-making of an enterprise. Japanese labor unions are characterized by one distinctive feature. They are organized on an enterprise-wide basis, and their members are permanently attached to their enterprise. In Japan, when a person is employed by an enterprise, he intends to be employed permanently, and as a result, labor union necessarily becomes to be enterprise wide. This type of structuring in contrast with craft or industrial unionism, forced the union leadership to give special consideration to the needs of the members within the particular enterprise, not to the general needs of the particular craft or labor-class as a whole. Thus, enterprise-wide structure carried with it an inward orientation of the postwar labor unionism despite the strong political bent of the national organisations that have been built precariously upon the basic enterprise-wide units. As the labor unions developed, the vertical patterns of internal management organization increasingly loosened. But the horizontal relationship as exemplified by contractural arrangements between management as one group interest and wage earners as another did not emerge yet. The modification has served negatively to prevent the emergence of despotic management, but not as yet positively to establish horizontal relationship between employer and employee.

However, the trend to return to patriarchy instead of despotism contains the seeds of horizontal. contractual relationships in Japanese enterprise. The spread of collective bargaining and the use of joint consultative machinery evidence this likelihood. The growth of these seeds is an important problem for the future of Japanese enterprise. But for the moment, traditional values governing soial relationships accepted even by most unions continue to favour something vertical of paternalism. A major function of the new unions, despite their ideological flavor, has been largely in terms of forcing management to re-accept this role. Moreover, the problem of overpopulation necessitated the need of patriarchy for permanent workers as well as enterprise-wise trade unions.

In summary democratizations of Japanese society caused modification of paternalism as an old tradition, decrease of its vertical element as well as development of its democratic organism under its democratic leadership. On the other hand, technical complexity and the increase in the scale of enterprise operation necessitates greater skill in modern administration. In the past several years, Japanese enterprises made a close study of the principles and techniques of modern administration and tried to adopt it. Fundamentally paternalism has been indifferent towards the skill of modern business administration. But now, Japanese management has been faced with and keenly felt the need for it. By studying the principles and skill of modern administration, it is trying to do away with this weakness of its paternalistic nature.

Although I have mentioned that present Japanese management is paternal in its character, its despotic abuses are being checked by the pressure of trade unions, while on the other hand. Japanese management is trying to strengthen itself by introducing modern administration methods. As a result, there arose a need for industrial relation specialists as well as administration specialists. The fact that they have begun to play an important role in Japanese enterprise is one of the most striking post-war changes. In other words, it symbolizes the innovation that befell post-war Japanese management. Another characteristic of post-war Japanese management is the fact that most of the big enterprises are managed by professional managers. Generally speaking, the ownership and management in a modern large-scale corporation has a tendency to be separate. As a result of the dissolution of the Zaibatsu, this tendency has been definitely accelerated in post-war Japan. Stocks owned by the Zaibatsu, which controlled the majority of big enterprises in Japan, were completely dispersed. As a result, we cannot find stockholder who is big enough to control an enterprise by his own holding. The ownership and management being separate, Japan has the so-called management control on big enterprises. It is not the large stockholder, but a man whose profession is management, a professional manager, who manages big enterprises in Japan. Hence, a Board of Directors, as I will explain later chiefly consists of inside Directors. Owing to this fact, Japanese enterprises have a promising future in developing methods of modern management. Because the methods of modern management can only develop along with the development of the professional manager.

2. Organization and Methods of Business Administration in Japan.

A. *Organization of Top-Management*

Japanese big enterprises are joint-stock companies. When Japanese Commerce Act was revised in 1950, the Board of Directors came to be recognized as a legal organ. The legal organ of a joint-stock company consists of the Meeting of Stockholders, the Board of Directors and the Auditor. As a matter of fact, there had been such a thing as a Board of Directors even before the new Commerce Act, but it was not a legal organ. According to the old Commerce Act, each director could make decisions, execute and represent

the company as a legal organ. But in the new Commerce Act, it is the Board of Directors that is the direct legal organ in decision-making. The position of a director has been changed—a director can participate in decision-making only as a member of the Board of Directors. In other words, he lost the authority of decision-making by himself. Decision-making is done by resolution of the committee, called the Board of Directors. Each director has only authority to be able to participate in that resolution. And, although the Board of Directors has the power of decision-making, it has no power of execution. Execution is done by the President and his Executive Officers. The Board of Directors elects a special director who represents the legal rights of the company. A representative director is both a director and an executive as well, and is a chief of the executives. As a legal organ for the Meetings of Stockholders, an Auditor has function of accounting audit of the Business administration handled by the Board of Directors.

A Board of Directors is delegated the entire responsibility and authority of business administration by the Meeting of the Stockholders. It is expected to make the basic policy of business administration as its main function.

A director does not necessarily have to be a stockholder, rather, to require him to own stocks is against the law. Thus, on the basis of function, a director or an executive is expected to be a professional manager. But as it is, the Board of Directors of a Japanese enterprise chiefly consists of inside directors who are also executives there, so-called professional directors who becomes directors as a profession. A Board of Directors consisting of exclusively inside directors has a tendency of being only formal. In view of the present situation of Japanese enterprise, a Board of Directors is little more than a mere name. It is the President and his executives who decide and control the basic policy of the company. As a result there is a recent tendency to establish a Jomukai or the General management council with the President as its central figure for the purpose of organizing and strengthening the function of the general management.

Recently, the need for establishing a general policy and improving general administration is strongly felt in Japanese enterprise. To meet this need, we are now attempting to train top management and at the same time establishment of the Jomukai is the main problem from the organizational point of view. A Jomukai is a formal committee of general management, the President being its chief. Usually the President consults chief of each department. By formalizing this relationship and establishing a committee consisting of the President and the department chiefs and forming a Council, the general management can organize and strengthen itself. This committee is not a liaison organ of department chiefs, but an organ of the general management attached to the President. Hence, the chief of department who is its member is not a representative of his department but a member in the capacity of general management. As a committee member, he has the responsibility of advising the President from the stand point of the general manage-

ment and not that of his department. The greater the scale of enterprise, the busier is the department chief and the more complex is the work of the general management. Here arises the necessity of a full-time change of doing the work of general management by advising, assisting and partly representing the President. In Japan, company officers who are in this position are called Vice-Presidents or Managing Directors. The President organizes a committee with them and makes it the consultative organ of the general management. He is unable to make any decision without consulting this committee. But this committee is not a decision-making organ. It is always the President who has the final power of decision. And the difference between a Vice-President and a Managing Director in Japanese enterprise consists only in the difference of treatment for seniority. Both are likely members of the committee and assist the President by participating in his efforts. As above said, the Jomukai is a committee of the general-management and is divided into two forms, one being the formation of a committee whose members are chiefs of departments and the other, as its members the establishing of Managing Directors who are in full time charge of the general management. The Jomukai is not a legal organ and can be organized whenever the need arises. In Japan, where inside directors are the core of an enterprise, it is the Jomukai rather than the Board of directors that is in fact the main pillar of an enterprise. By establishing a Jomukai, an enterprise can strengthen the organizational power of its top-management. Board of directors can successfully perform its proper function only when it largely contains outside directors. By the way, how the board of directors should be in the enterprise which has the nature of management control, I think, is a great problem to be still more considered. Further I must say that is it to the same degree important to establish and organize the general staff assisting the Jomukai.

B. *Establishment of the General Administrative Staff*

A general staff is the staff of the general management. It goes without saying that the top-management consults the chiefs of departments and gets their advice, but it is necessary to have a staff which will assist the top-management in matters of direct concern such as, problems concerning the whole company, overall problems beyond each department, integrating problem coordinatory to each department and long range policies. These are the functions of the general staff. Since business administration consists in organization planning as well as planning and control for profit, the core of the general management lies in an overall execution of these functions covering the whole company. The function of the general staff is to assist the top-management in organization planning, overall planning and overall control. We can categorically divide a general staff into organization staff, planning staff and control or coordinating staff. To establish and perfect the general staff is one of the main problems facing Japanese enterprise.

Numerous attempts have been made in order to accomplish this purpose. In trying to do so, functional reorganization of the old

system which is not on the functional basis is most necessary. We must also specialize and establish the function of an overall administration as a independent function in relation with the above reorganization. I think modernization of business administration means the administration or the basis of function, so the only solution must be functional reorganization of administrative organization. Then what is the functional reorganization of the mechanism of an organization in order to establish the general staff? For instance, a certain company has separated the accounting department which had the dual function of both accounting and financing into the accounting department and the finance department. Besides having an accounting section, the former newly adds a budgetary section and an auditing section. In doing so, the company is able to establish control through the accounting staff. On the other hand, the department of general affairs newly establishes an organization section which has the organization staff. Again, the planning department acquires the staff for the purpose of planning long range policies and overall integrating policies. Thus, this company succeeds in acquiring the general staff handling organization, policy-making and control among its various departments. Concentration of the general staff under one department is another method of reorganizing. For instance, in the first example, the functions of the general staff are concentrated under the administrative department. This department is adopting a typical controllership system as its accounting section is combined with the control section. In the second example, the general staff is concentrated under the administrative center. Unlike the first example, it does not include an accounting section which is, as is the custom, left under the accounting department. It is impossible to give a mechanical conclusion whether it is better to concentrate the general staff or to dispense with it. Each enterprise has to face its own problems which have to be solved accordingly. Whichever it may be, establishment of the general staff should be carried out together with the organization of top-management which has the Jomukai as its center.

As I have already discussed one of the most important problems facing Japanese enterprise is organization of top-management for the purpose of establishing an overall management. Another important point in organization is the problem of clearly defining responsibility and authority. In the past, this problem was informally handled according to the traditional Japanese practice. This is the reason why Japanese enterprises are endeavoring for formal definition of responsibility and authority, the lack of which resulted in inefficiency and crossing and duplicating between responsibility and authority.

C. *Planning and Control for Profit*

In order to achieve the general administration, planning and control for profit must be run together with having a organization planning. Japanese enterprises are striving hard to achieve this purpose. The Committee of Business Administration, is one of the sub-committees of the Rationalization Committee of the Ministry of Industry and Foreign Trade. In 1950, this sub-committee advised Japanese enterprises to establish controllership. Following this advice, more than a hundred big companies have established some-

thing like controllership. Again, this year the same Committee advised profit planning. The Committee stressed the necessity for an overall economic policy by profit planning and proposed methods of carrying it out.

D. *Human Relations in Management*

In giving effect to the organization planning, planning and control for profit, we must take care of the human relations among the employees. As you know, human relations are now the control problem of the business administration in America. This problem is also a very important problem in Japanese management. However, the nature of this problem is very different from that of America. In America, I think, this problem has been emerging as a reaction to the excess of the mechanization or the over-rationalism. While we must stand on the rationality on one hand, we must also stand on the human sentiment and psychology on the other hand, in the management of the enterprise. This is true in my country of course. But the real problem of the human relations in my country is to further the spirit of the rationalism rather than check it. We cannot avoid to face the hard resistance among employees against the attempt of improving the business administration scientifically, because the spirit of employees has been not yet enough modernized. They have not yet enough modern spirit of nationalism we must change such irrational character of the spirit of the peopl toward more rational nature. In order to adopt the organization and methods of modern business administration, we often use the word "Kukizukuri" (make the atmosphere of climate of opinion) when we attempt to improve the business administration scientifically. This is just the urgent problem of the human relations in Japanese management, patrnalistic management, as before, is good management in the matter of so-called human relations. However, we must change this old human relations toward modern human relations. I suppose your problem will be the same as ours. In order to solve this problem we are now persisting to continue the educational movement among the employees, as well as the top-management. This is one of the main purpose of Japan Productivity Center.

In addition to this, we are now studying and adopting the modern techniques of human relations in management, such as developed in American management, that is attitude survey, moral survey many devices of communication and so on.

In conclusion, Japanese management is aiming to modernize itself in accordance with its technical progress. Its main concern is to integrate and strengthen its overall administrative power. Japanese management is striving hard to accomplish modernization of management in harmony with the Japanese way of life.

Thank you.

APPENDIX III.8

LABOUR RELATIONS IN THE CHEMICAL INDUSTRY OF JAPAN MAINLY ABOUT ITS COLLECTIVE BARGAINING

Lecture delivered by HIDEO SHINOJIMA

Plant manager of the Kurosaki Factory & Director, Mitsubishi Chemical Industries Limited

It is my greatest pleasure that you of the Indian Mission of Industrial Productivity have visited this factory and that we have had an opportunity of getting together.

General view of Japanese national unions

I believe you already have learned the general view of the Japanese labor unions and their status. The total population of Japan is nearly 90 millions and 15·6 millions among them are wage or salary earners. About 40 percent namely, 6·2 millions, are organized. This percentage is almost the same as that of the United States and of England respectively.

Japan's 6·2 millions union members are organized in about 30,000 basic units usually called enterprise unions, which you may call "locals". The affiliation of locals with national unions, and of these with national federations, has been erratic, tenuous, and incomplete. Many locals have remained unaffiliated, and both local and national unions have changed their allegiance frequently with shifting political tides in the labour movement.

In 1946 the right wing of Japanese labor was represented by the General Federation of Japanese Trade Unions, usually abbreviated as *SODOMEI*, under Social Democratic leadership. SODOMEI had taken a relatively conservative political position and had employed cautious tactics in the economic field. On the left stood a larger group, *SANBETSU*, namely called the National Congress of Industrial Unions, under strong Communist influence, which pursued militant methods including political strikes. Dissatisfaction with SANBETSU policies, together with a crack-down on Communists by SCAP and the government, led in 1949-50 to the secession of many of its affiliated unions. At about same time SODOMEI was torn between left and right-wing factions, paralleling those in the Social Democratic Party; several left-wing unions left the federation and combined with SANBETSU secessionists to form, in 1950, a new federation, the General Council of Trade Unions, abbreviated as *SOHYO*, which soon became and still is, the largest of the national federations. Politically, SOHYO has been the mainstay of the left-wing of the Socialist Party. More recently, amid allegations that SOHYO had fallen under Communist influence, another democratization movement led to the defection of a number of SOHYO unions and the organization in 1954 of another new federation, the Japanese Trade Union Congress, called *ZENRO*. *ZENRO* is aligned with the Eight Socialists. At present SOHYO embraces about one third of the local unions and

claims nearly three million members. Since its formation in 1950, SOHYO has gradually increased its membership, but has succeeded in enlisting only 50 percent of the organized workers, despite its initial resolve to weld all the locals together in unified body through national industrial unions.

Next in size to SOHYO is ZENRO, with about 670,000 members, comprising national unions that have quit SOHYO, groups that have broken off from SOHYO affiliates, and the older federation, SODOMEI.

SANBETSU, which in 1950 had over a million members, has shrunk to a mere 12,000 with less than 200 locals. The National Federation of Industrial Unions, called SHIN-SANBETSU, which broke off from SANBETSU in 1950 and for a while was affiliated with SOHYO, numbers about 34,000 members in less than 150 locals. SHIN-SANBETSU also falls in Left Socialist grouping. Another 2·4 million workers belong to national industrial unions through their locals, or merely to independent enterprise unions; both of them are not affiliated with any national federations.

National Unions in the Chemical Industry

The largest national body of the chemical workers is the Federation of Synthetic Chemical Worker Unions, called *GOKARO,* with 74,000 members, and next in size to this is the Federation of Chemical Workers Unions, called *KAGAKUDOMEI,* with 37,000 members. Both of them are affiliated with SOHYO. The National Congress of Chemical Workers Unions, affiliated with ZENRO, is called *ZENKOKU-KAGAKU* and has 30,000 members. GOKARO is the leading national union in the chemical industry.

The union of this Mitsubishi factory was affiliated with GOKARO, but seceded in 1953, because the union did not agree with the leftism of GOKARO. Now the Mitsubishi union is independent from any national labour organizations. This Mitsubishi union has 4,500 members including office workers except about 300 supervisory executives.

Characteristics of the Japanese unionism

A peculiar feature of the Japanese labour movement is the prevalence of the so-called enterprise union, which includes all regular employees of the factory, mine, or shop or of a company which owns several establishments. This resembles the industrial union in form, that is, the plant or company is usually the basic unit of local organization. The difference lies in control and jurisdiction. An enterprise union may be affiliated with a national union or some other larger group, but it usually retains a large measure of control and jurisdiction over jobs in its own enterprise. A national industrial union, on the other hand, exercises a high degree of control throughout its industry, utilizing the enterprise or plant as a convenient administrative unit. Basically the distinction hinges on the location of power within and between union organizations.

I believe the rise of enterprise unionism lies in certain historical factors. The postwar unionization proceeded rapidly under the guarantees of the Right of Organizing and Collective Bargaining in the Constitution of 1946. Under its provisions workers spontaneously organized in enterprise-wide or plant-wide units. Therefore these

units became very prevalent. Since unionization has been largely in the enterprise or plant-wide unit, there seldom is a craft union, such as the AFL in the United States. The national industrial unions, which are composed of plant—or enterprise-wide unions, are affiliated with such larger bodies as SOHYO or ZENRO according to their respective ideologies, whether radical or conservative.

Since most of the locals, as I said before, retain their individual bargaining rights and administrative autonomies within themselves, the upper bodies rarely deal with the collective bargaining of the locals. The national unions, therefore, chiefly pour their energy into political activities and into instruction of the locals regarding tactics of bargaining. As the result of enterprise unionism, local autonomy is firmly established throughout the Japanese labor movement. The national union, however, has often tried to take the initiative in local contract bargaining, but they have not succeeded in getting control, because the workers are afraid that a third body would disturb the corporate enterprise from which they secure their daily bread. In other words, the workers believe that they know their company best, and that negotiation by or in conjunction with third body, which does not know intimately the peculiarities of the particular co-operate enterprise, is actually apt to develop into an inpractical argument over ideology and to lead to unnecessary conflict. Hence, there is still in Japan a strong tendency that unions, and also companies, of course, avoid negotiation by and in conjunction with the third person.

On the other hand, this enterprise unionism generally creates a tendency for unions to want to participate in the management. The rise and fall of the company is a very serious matter for its workers. Hence the workers pay much attention to their company's position, and they desire to participate in the management, at the same time that they prevent the intervention of an outsider. Although I said "participation in the management", I do not mean direct participation in managerial activity. I mean simply that the company explains the main problems, the profits and losses, the sales and production policies, and the union has a chance to ask questions and offer useful suggestions. It is fairly different from the co-determination which has taken place in German industry.

Collective bargaining in the Mitsubishi Chemical Company

Well, it is now my intention to speak on the subject of collective bargaining in the chemical industry in Japan. However, it is too broad a subject to talk about all the principles and practices of collective bargaining, and I am afraid of the brevity of time. Therefore I will tell you somewhat of the actual labour relations in the Mitsubishi plant, and of the working conditions which are the result of collective bargaining. I believe this will be the more understandable way to explain actual Japanese labor relations.

It was in 1946 that this company had its first collective bargaining with the union. Early in that year, the white-collar union and also the workers union were organized. At the beginning, these unions were separately established. Then in 1948 they were combined into a single union. The fact that most of the unions include white-collar

and blue-jean employees is the unique feature of Japanese unionism. This development may be closely related to the fact that Japanese unions are organizad on the basis of enterprise or plantwide units. Our company has continued to negotiate a collective bargaining with this union every half-year since then. The present agreement which became effective as of May 25, 1955, is in force for a year. This is the first one-year contract in the history of this company.

Area and scope of collective bargaining

In regard to the area and the unit of collective bargaining, industry-wide bargaining has been very rare in Japan except in the mine, steel and textile industries, and multi-employer bargaining has never been discussed. In the chemical industry, even industry-wide bargaining has not yet been discussed, and the present system probably will be continued for several years.

As to the scope of collective bargaining, these constitute a very controversial and difficult problem. What are the rights of management and what points should we negotiate with the union; in other words, how far may the union invade management's territory? The Japanese Labor Relations Law provides that working conditions should be determined by both parties on a basis of equality in collective bargaining. In Mitsubishi policy, hours of work, holidays, vacations, salaries and retirement allowances are considered as the most important aspects of working conditions.

In addition to these points, we also negotiate with the union on such matters as non-membership in the union; detailed procedures of union activities during working time; welfare and fringe benefits; safety programs; rules of discharge; retirement; discipline; the length of off-the-job absence on account of illness and the payment for the same; presentation of grievances against executive actions such as transfer, replacement, and other changes of an employee's situation; management council with the union; procedures of collective bargaining, and the union's duty to offer a minimum number of employees to make secure the production equipment against the natural damage on account of stopping operation during a strike, and so on.

Main working conditions

Now, I will explain the main working conditions in this plant, which are determined as the result of collective bargaining.

The normal working day is eight hours and the normal work week is 48 hours. The plant is operated day and night, and three shifts are the regular course. The Labor standard Law provides a mixi-mum of eight hours' actual work except for the rest time, but our employees work seven hours and take rest for one hour. It is a far better condition than the law. Holiday is one day a week, and we give 13 other holidays per year including eight holidays.

Annual vacations with pay are granted by the company as follows: any employee having less than one full year of service immediately preceding January 1 of the current year receives 3—6 days according to the month they entered the company; the second year he receives 10 days; the third to fifth, two weeks; the sixth to tenth, 17 days; 11th to 14th, 20 days; more than 15th, one day is added to 20 days for every three-year service beyond 14 years.

For both the company and the union, the most important matter among labor conditions is wage rates. The main consideration for determining wage rates is, of course, the solvency of the company. At the same time, we must evaluate the fair wage level in reference to other companies' wage rates. For that purpose, we are always investigating the wage rates of other chemical companies or other companies in this area, from various view-points such as seniority, age, schooling, and position on the job. Unions, for some years after the war, demanded the wage-rise with the slogan, "Enough wage to live", and difference of income between the high executive and the worker became very slight by reason of labour aggression. Many companies, in these days, have adopted wage scales based on the job evaluation, and have tried to retrieve the differential between executives and workers. The unions' theory of wage-rise has been usually based on the market-basket theory which is based upon expenses of daily life for a standard size family. The difficult points of the wage negotiation are, at the first, to make the union understand the company's solvency, and the second, to keep the optimum differentiation of pay according to the jobs in the wage scale.

The average wage of union members of this plant is 20,000 yen a month, which is constructed with such conditions as age and seniority of about 50 percent, job evaluation of 40 percent and family allowance of 10 percent, and overtime premium ratio is roughly around ten percent of the normal wage. Incidentally, we don't set wage on hourly, daily or weekly, but monthly basis. The annual rise of wage by certain method such as merit rating is one of the characteristics of Japanese wage system. Although nowadays most of companies adopt the system of job evaluation, nevertheless, worker's income is increased according to his length of service every year despite the fact that his job may be the same year after year.

These wage matters are, of course, discussed most seriously and determined at the contract negotiation.

Grievance procedure

We have no particular provision in our agreement about grievance machinery, because every grievance has been solved satisfactorily by the Labor department and other department at all times. Actually, every employee is an employee of the company, at the same time that he is a member of the union. Therefore, he can take any problem to his foreman or to the manager of his shop, or he can take problems to a shopsteward.

Any grievances taken to the Labor department, except those solved in the shop through either the company organization or the union, are discussed completely until a satisfactory conclusion both for the employee and the company is reached.

In some other labor agreements, there are several steps of dealing with a grievance, and, it is finally taken to an impartial arbitrator by the both parties if it is not solved, but we believe there is no problem which we cannot solve by ourselves if the both parties discussed thoroughly in good faith. Any cases in this company have been so done up till now. The following also may be another reason that we don't need any specific grievance machinery. We have labor branches in every departments, and staffs of the Labor department and those branches have been consulted by employees whenever any problems trouble them either on the job or in their private lives. These problems have been solved and workers have been helped before they became serious. Furthermore, we have a shop conference system which is constituted with all members of a shop and opened respectively every two or three months. At such occasion, some labor relation staffs attend and we utilize it as good channel of communication.

Finally, I will tell you of our philosophy of labor relations. We have made a great effort to build up a real harmony among employees and in personnel relations, as a prior stage to labor administration. We believe this harmony should be a key to develop the company.

In labor relations, both the company and the union have tried to avoid an argument and a vain discussion, and to build a trusting relationship upon mutual understanding and respect.

It has been more than ten years since the Mitsubishi union was organized, and we have never had a strike or any serious conflict in our labor relations. I dare say such is a very rare case among large general industries like this one. I am convinced that the company and its employees are mutually supported: the prosperity of the company secures and improves employees and their families' lives, and at the same time, the prosperity of the company can be expected only by the co-operation of its employees.

APPENDIX III 9

PRODUCTIVITY MOVEMENT IN OSAKA

Lecture delivered by HISAICHI HIROTA, President, Kansai Regional Productivity Center

I am Hirota, the president of the Kansai Regional Productivity Center. On behalf of myself and our organisation I cordially welcome opportunity to be your host and wish to say a few words of greeting at the very outset of your survey tour in Kansai industrial area.

With regard to the development of productivity movement in Japan—how it has been driven and operated and where it stands in community—there seems to be no need for me to reiterate any further, since I understand you all have been told much about it and very much loaded with such information while you were in Tokyo. Today, I wish to make a brief remark regarding the practical aspect of this movement which is being steadily conducted here in Osaka.

The outstanding physical characteristics of the City of Osaka which you are now visiting is that the people freely choose their own course of action rather than benevolent guidance along a course chosen for them by others and steadily practice in a way they think the best instead of preaching doctrine and theory and beating about the bush. This spirit of practice-before-theory has decisively shaped up the psychology and attitude of the people of Osaka.

Therefore, at the time when the productivity movement was first introduced in this country about a couple of years ago, enterprisers thought what this meant to the community in terms of higher wages, lower prices and better return to stockholders. Once they recognize all-important idea of the movement they readily put forth all their effort to practice and promote the interest for greater company's success and job security. Today, more and more forward-looking enterprisers and labour unions here recognise the idea.

The management and labor union in their respective positions work together and study practical means of realising the common goal of productivity improvement. They work together in order to find means and ways to nourish the tree of enterprise and to grow as many fruits of success as possible and to share them among as many people entitled to them as possible in such a way as befitting conditions and economic effort of each individual company. This constitutes the characteristics of Osaka and a climate under which Osaka has made such a tremendous progress in the field of industrialization. This you will understand when you visualise the fact that the problems of marketing which constitute a major portion of the productivity movement is being given greater and more serious consideration here in this area than elsewhere.

With this idea in mind, we programmed the tour itineary for the Indian Productivity Delegation so that you could have better understanding of the productivity movement in various industries here, which are typical of the kind and which your country may have a relative interest. Therefore, it is my ardent wish that you all take as much time as available to grasp a genuine picture of their activities while you are in Osaka and make your mission worthwhile and fruitful.

I presume you already have heard about the industrial and human relations practice which has just begun in Japan a little over a year ago, and which is believed to be the nucleus of the productivity movement. We do not intend to deny the fact that we have not made as much relative progress in this human field of employee-employer relations as we have in the mechanics of industrialization. It is true and undeniable, when viewed from a standpoint of its short history. However, frankly speaking the idea is strictly theoretical and logical. In actuality, the sound human relations have been in existence and practised between the two segments in each individual shop, plant and place of business without them realising that it is the improved method of personnel management grouped under a new term "Human Relations." The workers identify themselves with their company, appreciate the mutuality of interest between the management and labor and give active cooperation in achieving the common goal of the increased productivity. Enlightened management strives by every means to encourage each worker to put forth his best voluntarily and to carry personal enthusiasm to his job, the result is bound to be higher productivity, which is the only true source of higher real wages and better living standard.

The ideal situation we dream of is that instead of us driving and stimulating all these activities of the productivity movement every one of our people, whether he be a manager, worker or consumer has the true understanding of how it works and what it means, and makes it his second nature by which he naturally acts toward the increased productivity. To this end, we who are concerned with this movement are constantly striving with all-out effort in our regional area.

At this point I should like to state briefly as regards the history of the Kansai Regional Productivity Center. It is only about half a year ago that the Regional Productivity Center was organised and came into being in Osaka. For about a year till then there has been formed a productivity council which was participated in and promoted by five leading trade associations of Osaka and competent service branches of government. The major project undertaken by this council was to hold meetings in which various representative industries' survey teams gave report to the general public after their return here from the United States. On the 17th April this year it was reorganized and strengthened with the participation of the academic people and labor unions who subscribe to the movement, and leased a new start under the name of the Kansai Regional Productivity Center.

It is with great regret that I have to admit that we have been unable to do much about it because of such a short lapse of time and an extremely limited supply of personnel available in the office. All we have done was far less than what we hoped and anticipated at the outset. Ours can be comparable to the state of having laid down rails on the track on which the train is about to pull out. Nevertheless, retrospecting our past exploits over this short period of 6 months, we held 13 report meetings, a U.S. Marketing Seminar, a Small Business Productivity Seminar and a Profit Planning Seminar along with various many other projects including an extensive public relations drive through movie shows, publication and dissemination of bulletins.

Fortunate as we are, we are accorded considerable support and cooperation from various concerned circles here in Osaka, which made our job much easier and smoother. For example, every time when a report meeting was held, a large number of enthusiastic audience filled the auditorium to the capacity. Especially, when a labor movement survey team gave a report sometime ago, the audience turnover was so great that a large number of them could not get in. I believe this large turnover of audience at the report meetings is indicative of the prelude to the fact that many good points related to productivity growth in the United States which are worthy of application in Japan are being gradually digested in a Japanese fashion.

Moreover, it is noteworthy that when the U.S. Marketing Seminar was held here over a period of 6 days this summer, it attracted many more audience than it did in Tokyo and elsewhere and that among seminar participants there was formed a marketing club immediately thereafter. They are actively conducting study in effort toward following up the results of the seminar and furthering the knowledge of marketing since then. The reason why marketing has been given such serious consideration and study is partly because we, the Japanese, were not familiar with this relatively new science of marketing until recently and there was a fertile field for development. But it is mainly because their recognition of a concept that marketing is the key factor to the productivity growth has been sensitively reflected here in Osaka which virtually is the heart of Japan's industry and commerce.

We are placing our profound expectation and faith in the outcome of successful result of these studies combined with their direct application in respect of business as well as in the consequent growth of productivity in not too distant future. Further, having considered that there is a large concentration of small and medium size business in Osaka, we also held a Small Business Productivity Seminar as one of our projects locally independent and on its own. This also attracted a large turnover of enthusiasts and was carried through with great success.

With all these valuable experiences gained and the knowledge acquired as to what people want and expect of the productivity movement, we will strive with all of our intelligence and ingenuity to attack this movement on a deeper and broader front and point the road to greater satisfaction for all.

To be effective, we must deal with both problems. While we try by every means to preach the importance of productivity improvement in industries through extensive campaigning of P.R. drives such as film shows, conferences, meetings, etc. within our regional area, we will advise enterprisers of the necessity of establishing and maintaining a sound employee-employer relations and make our plans for future to firmly adhere to this human principle.

There still are many more obstacles to be overcome, such as how to adjust and apply the science of marketing in various individual industries, how to accelerate the movement within small business range, how to deal with and industrialise the improved method of technology, grouped under a new term automation, and its related technological problems, how to take up the slack of employment which threatens to occur as the result thereof, and so on. All these factors add up to a tremendous challenge to us. We are bound to face severe tests in the years ahead. It is axiomatic, therefore, that unless without continued support and cooperation of related business association, labor union and academic people we can never make to attain our ultimate goal of the movement-greater abundance and satisfaction for all.

In conclusion, I should like to state briefly one thing which can not be emphasized too emphatically. As you may know, for 90 million people to subsist on their narrow land, Japan can not be founded on agriculture and marine industries alone. During the course of past ten years following the end of the war, Japan's economic vigor advances with gradual strides towards her goal of self-supporting economy. However, Japan which depends largely for her living on exports can not expect to strengthen her economic activities without a close economic tie with South Eastern Asian countries including India. Of course, we have to exert our utmost on our part to foster our economic vigour, corporate and national, and hence to improve costs and quality of products through increased productivity, but we should very much like for your people in India and other friendly nations in South East Asia to buy and use as many our products of better quality and lower prices as possible.

Likewise, it is my earnest wish that your people will succeed in the accomplishment of the productivity movement in such a way as befitting the conditions and environments of your country in the earliest possible future, and cooperate with us in assisting other Asian countries to realize the growing prosperity and advanced standard of living.

It is regretful that we had to program a tight tour itinerary for you this time because of your limited time factor. I wish you to take much of the time to see for yourself how Japanese industries are striving to achieve productivity gains on every facet of their economic activities and hope that you will utilize the present tour in Osaka to your best advantage.

APPENDIX III 10

ON STANDARDISATION

Lecture delivered by HIROSHI YASUKAWA, President

Yasukawa Electric Manufacturing Co. Ltd.

Standardization of Office Work and Management

1. *Brief history*

We were among the first to take up the rationalization of office work. As early as 1930, we adopted One Writing System, Cardex, designated abbreviated names of products and materials. Despite our efforts, however, we must admit that the rationalization of office work lags behind that of manufacturing and technical phases of the business, which is also the general picture here in Japan.

After World War II, many kinds of new and better management methods have been introduced into Japan from foreign countries, in particular the United States of America.

In view of the fact that the pressure of keen competition in the international market gives new importance to the reduction of manufacturing cost, we are incorporating newer management methods into our policy and proceeding with the rationalization program.

2. *Rationalisation policy*

Our policy of the rationalization of office work and management can be summed up in so-called 3-S policy, namely, standardization, simplification and specialization, of which we have laid emphasis on standardization. An enormous quantity of office work involved in the operation of business, however, makes standardization an arduous task which cannot be accomplished in a short period of time.

To push on our program, we have Business Control Committee, a standing committee whose job it is to coordinate the whole activity of the business toward rationalization, while every department and every section have an autonomous policy in this direction. Suggestion System, established a long time ago, has also been doing its share toward the progress of rationalization.

Now, I would like to introduce some examples of how our rationalization program is being carried out.

3. *Rationalization of organization*

The Organizational Manual, defining the fundamental organization and tasks each organizational unit must perform, was revised on a large scale in April last year. Its primary objective is to standardize, from a new angle based on new methods and ideas of managemental tasks, by clarifying responsibilities and authority of managemental positions. In this Manual are laid down various

basic standards: standards for organizational units such as department, section, etc.; basis for establishing assistant and staff systems; basis for establishing committees; definition of various authorities; and definition of deputy status.

As appendix, it has "Classified Table of Tasks" showing functional classification of tasks, and an organization chart. The tasks to be performed with responsibility and authority of every department and section are described in this manual not in general terms but in concrete form so that every employee can perform his job with it as a guide.

4. *Job authority manual*

I stated that the Organizational Manual provides for fundamental responsibilities and authorities, but it does not mention the functional authority of an individual position. We are preparing a job authority manual in the form of a table, based on the order of individual task in the classification chart.

5. *Example of standardization of personnel administration*

With the rise of labour movement since after World War II, personnel administration covering employment, disposition, promotion, service evaluation, wages has become a tough problem for us. Administration as management dictates is now a thing of the past.

In order to practise fair personnel administration, we adpoted a job classification plan in 1951. Practising fair personnel administration requires standardization of business procedures and determination of administration standard. We therefore made more complete the regulations regarding job evaluation, service evaluation, disposition, promotion and wages.

Under chief of the section, there are 61 kinds of job and 12 degrees, which are classified according to the substance of jobs. What wage employees will be paid is determined by the degree of position they hold. On the other hand, employees are promoted, raised in wage, and paid a bonus by the service evaluation.

These standards are all provided for minutely in the abovementioned regulations.

6. *Sample of standardization of work involved in getting orders*

Besides standard motors and switches, we custom-produce motors and switches to specific requirements of customers, which range over a wide area. This makes the job of getting orders a complicated one. In order to simplify work attendant on order getting, and economize time and expenses as much as possible, we are directing our efforts to standardize the job. For example, we have ready on hand all sorts of "Standard Specifications" and "Standard Design Sheet" about our products, which can be furnished to our customers on request. In order to save the trouble of accounting cost of an individual case when quoting our price,

standard estimate cost is worked out beforehand. As for materials used in our products, standard unit cost is fixed previously, which can be used in cost accounting. Furthermore, standard estimate price sheets, prepared from standard estimate cost, are distributed among our branches and offices, which can refer to them when quoting prices.

7. *Various task standards*

To facilitate the smooth and efficient transaction of office work, it is necessary to put the standardized tasks in statuary form and to make use of them. We have for this purpose task standard sheets which are used in training employees who engage in sales and purchasing.

8. *Guide to the discharge of office routine*

All employees are furnished with a manual called "Employee Handbook," in which there are given the rules they must keep under the "Guide to the Discharge of Office Routine." It contains the standard methods on writing letters, dealing with mails, telegraphing and telephoning.

9. *Y. E. S. (Yaskawa Engineering Standard)*

In 1934, the company established the Y. E. S. an engineering standard, which has since been amended many times. In the Y. E. S. there are laid down the standards for methods of design and drawing, names, quality and dimensions of materials, insulation specification, various kinds of construction method, testing methods, dimensions of various gauges and tools, etc. The Y. E. S. is the basis of our techniques.

II. Standardization of Design

1. In standardizing design, the first thing to do is to cut down work load that comes under design. To attain this, it is necessary to—

(a) enlarge stock production items.

(b) control, by coordinating sales activities, the range of items for which orders are received.

At present, 60 per cent. of the company's total production is stock-produced, but we aim at raising this percentage by combining sales and technical force toward this objective. It is the job of technicians to work out types of motors into which maximum flexibility is built, so that they can be easily tailored, with modification of parts or combined with necessary equipment, to meet specific requirements of the customer. Salesman, on the other hand, has to sell the customer on the advantage of selecting his motor or machine from among the lines we carry as standard. After all, this practice pays, for the customer can get the motor at lower price and the builder can turn it out at less cost.

2. *Data*

In bettering efficiency, the following also have their share:

(a) making ready for use data such as drawings, literature and other necessary technical materials.

(b) accumulating techniques and experience so as to avoid unnecessary repetition of brain labor.

There are many practice proven ways for item (a) and I shall not dwell on them. About item (b), I know many cases in which precious assets in the form of technical know-how and experience have been lost because those concerned failed to take positive action. Here I will cite a typical instance often met with in Japan.

A technician builds up knowledge and experience from long years devoted to his particular field. He, however, keeps to himself what he gains: he shuts it in his brain, in his notebook or his desk drawer. When he transfers or retires, therefore, he takes with him the know-how which could have been made available to his successor. As a result, a new man succeeding him has to start from scratch. To eliminate this uneconomical repetition of brain labor, we are making it part of the job on the part of our employee to put "on the record" whatever know-how he develops.

3. *Making drawing an easy job*

Drawing a complicated connection diagram or doing a sketch of a motor of large capacity, say several thousand horsepower, may seem a job for an expert with high intelligence. It is true some drawings require high skill or intelligence, but more often than not, doing diagrams is easier than it appears, for drawing in many cases amounts to what is involved in modifying, or adding to, standard parts. There will be no end to the number of engineers and technicians we need if all drawings are to be done on calculation of strength, or every control device is to be built on a new theory.

I notice, however, that there are quite a few who have firmly rooted in their mind this idea that partial modification, addition or doing combination of parts in different ways require a considerable experience. The fact is that they are often taken in by deceptive front put on by complicated lines.

Our approach to the matter is: reduce a drawing to its essentials. What is this reducing the drawing to its essentials? The essentials, to put it in another way, are combined to form a drawing. However complicated it may appear, the drawing can be reduced to essentials plus some addition or modification, or new combination of essentials. Standardizing these essentials, therefore, does much to simplify the drawing. Equipped with a few instructions from her superior, a girl can execute a complicated diagram.

By transferring to his subordinate work such as tracing, the technician can cut down his work load.

4. *Standardization of products*

In the above, I have mentioned matters which play a subordinate role in the standardization of design. Now, I shall enter upon the principal part of standardization—products themselves. Our principal lines include motors and switches, control devices and control systems.

Standardization is not always easy to apply. There are instances where we are at a loss as to where to start standardization. When we have trouble getting at the matter, we turn to what may be called an inductive method: to find in different systems or devices something in common, and to standardize this common feature.

We have manufactured in large numbers control devices for mine hoists, skip hoists for blast furnaces, and machine tools of certain types. You will think, because these control devices are used for different purposes, they have nothing in common. As a matter of fact, we find in them a common feature, and an important one at that. Accurate stopping of mine hoist. Accurate stopping of skip hoist for blast furnace. Accurate stopping of a machine tool. The keynote of the controls for these three different things is "accurate stopping," and that's where standardization comes in. This feature will be found in an action seemingly having nothing to do with them. For instance, when you pour water from a can into a cup, you first rush water into the cup, but when water rises to the brim, you do it slowly and carefully. This "first with rush, and then slowly" is the key to accurate stopping. Standardization of this feature will make design simpler and widen the range of application of it.

In the design of the motors go various factors: horsepower, revolution, voltage, frequency, type, current, and specific requirements of customers. What poses a problem in standardizing motor design is the last factor—specific requirements of customers. Standardization requires reducing the number of basic types and varieties of motors we manufacture, but requirements of customers cover a wide range. Our major technical efforts, therefore, are bent on how to design basic type motors, their parts, and equipment which can be combind in a multitude of varieties to meet any requirement.

III. Standardization of the shop practice

1. Standardization of jigs and tools, etc.

In order to accomplish the daily work in the shop, many kinds of jigs, tools, gauges, punches and dies must be used. All of these are necessary to manufacture the products. Furthermore, they will affect directly the quality, quantity and manufacturing time of the products. Therefore it is very important that they are ready for use at the desired time in the shop.

The outline of their standardization in our company will be given below.

2. *Tools*

In this company, all sorts of products are manufactured. Therefore, various types of tools are necessary to cut different shapes. Most of them are based on the JIS, but all parts of JIS are not necessary for our shop.

The tools which are not described in YES will not be used as a rule. As the tools based on YES are always provided in the tool room and the products are designed by YES, there are no troubles.

3. *Punches and fixtures*

The punches and fixtures cannot be standardized, because they are almost in different forms. However, many parts of them can be used in common, as they are made according to YES. Since these parts are always provided in tool room, punches and fixtures are manufactured easily and quickly.

4. *Gauges*

We use many kinds of gauges, which mostly comply with JIS. According to the frequency of usage, they are put in YES, which helps smooth operation of the daily work.

5. *Miscellaneous tools*

Miscellaneous tools such as hammers are provided by the same method in tool room.

6. *Standardization of shop equipment*

A large number of machine tools (about 600 sets), equipments (about 1100 sets), and many transmission equipments are used. In order to use these equipments without interruption and damge, it is necessary to standardize the main part and spare part dimensions of machine. This makes it easy to repair or exchange for daily maintenance. It is also necessary to match the knocked or fitting part dimensions of these machines with the standards of jigs and fixtures, because most machines are to be used in combination with these jigs.

From the above-mentioned point of view, the standardization of these machine parts and jig dimensions are determined in this company with reference to the JIS (Japanese Industrial Standard) and YES (Yaskawa Engineering Standard).

The preventive maintenance has been a topic recently in this country, and we also feel keenly its necessity as the trends of specialisation of machines and of their high characteristics are greatly increasing.

The principal dimensions of many transmission equipments which we use—crane, fork lift, electric and air hoist, hand lift, roller conveyor, and chute are referred to in the standard of this company and the heights of platform or waste box are arranged by this standard. The heights of working table, chair, and handle of machines are also checked by the standard to economize the motion of workers.

7. *Shop surroundings*

It goes without saying that the shop surroundings affect greatly the manufacturing efficiency, and we have the motto of "more comfortable shop." We have been adopting the color dynamics for these several years and painted the machine tools, equipments and houses with standard color to make the surroundings more comfortable. This has an important relation to the shop safety, especially the standardization of safety signal makes it easy to draw worker's attention.

8. *Work standardization*

The work done in this company is divided into elementary and application works. Elementary work is mostly taught in the course of apprentice period by using a manual on the work, and application work at each shop by group leaders or foremen. We expect the increase in quality and reduction in price of the product and greater shop safety will be achieved through job training and the use of guide book.

I have explained the standardization as being carried out in our company by giving some examples. We have many more projects under way for the purpose, but I am not going to give them here. I would like to conclude my address by stressing that standardization, simplification and specialization of all phases of a manufacturing enterprise is the key factor in effecting the reduction in price and the increase in quality, of the product.

APPENDIX IV

PARTICULARS OF COMPANIES VISITED

Name of Company	President	Capital (unit ten million yen)	Number of Employees	Products
Iron and Steel.				
1. Fuji Iron & Steel Co. Ltd.	S. Nagano	840	22,824	Pig Iron, Steel Ingot, Steel Base Benzole products.
2. Kobe Steel Works, Ltd.	C. Asada	360	9,209	Wire, Rods, Rolled Steel, Electric Machine for mining, Hydraulic Electric Machines.
3. Nippon Steel Tube Co., Ltd.	S. Kawada	500	25,556	Pig Iron, Tubes, Special steel, Foundry Products, Refractory Materials.
4. Sumitomo Metal Industries Ltd.	H. Hirota	500	12,986	Pig Iron, Steel Ingot, Cast Iron Products, Various Machinery, Tools.
5. Yawata Iron & Steel Co. Ltd.	S. Kojima	480	36,724	Pig Iron, Steel Ingot Steel Bars.
Automobiles and Locomotives				
1. Japan Rolling Stock Mfg. Co., Ltd.	H. Amano	44	5,385	Locomotives, Passenger Coaches, Electric Trains & Freight Cars.
2. Nissan Motor Co. Ltd.	G. Asahara	140	7,341	Vehicles, Small Vehicles, and Parts.
3. Toyota Motor Co. Ltd.	T. Ishida	167·2	5,309	Trucks, Buses, Vehicles, Special Motor Vehicles.
Ship-building				
1. Hitachi Ship-building & Engineering Co. Ltd.	Y. Matsubara	316	13,704	Building of various Ships & Repairing Bridges.
2. Mitsubishi Heavy Industries Reorganized Ltd.	S. Hujii	560	21,934	Ships and their Machinery, Locomotives, Vehicles, Aeroplanes.

Name of Company	President	Capital (unit ten million yen)	Number of Employees	Products
Electrical Machinery and Appliances				
1. Hitachi Ltd.	C. Kurata	660	27,101	Electric Machinery and Tools, Locomotives, Medical Optical Apparatus.
2. Matsushita Electric Industrial Co., Ltd.	K. Matsushita .	300	6,771	Radio & Television Sets, Electric Bulbs.
3. Mitsubishi Electric Manufacturing Co. Ltd.	S. Takasugi .	240	16,742	Machinery and Tools for Electric Industry, Mining Locomotives and Ships.
4. Tokyo Shibaura Electric Co., Ltd.	T. Ishizaka .	400	23,424	Radio & Television Sets, Electric Bulbs, Electric Machines & Equipments.
5. Yasukawa Electric Manufacturing Co., Ltd.	H. Yasukawa .	60	1,959	Electric Motors, Generators, Starters, Switches.
6. Aichi Electric Mfg. Co., Ltd.	..	8	600	Transformers, Electricity Distribution Equipment.
Machinery				
1. Brother Sewing Machine Manufacturing Co., Ltd.	M. Yasui .	20	1,952	Sewing Machines.
2. Japan Optical Co., Ltd.	U. Nagaoka .	31	1,786	Physical and Chemical Appliances, Optical Glass.
3. Kubota Iron & Machinery Works, Ltd.	T. Odawara	168	4,352	Cast Iron Tubes, Vinyl Chloride Tubes, Internal Combustion Engines.
4. Shimadzu Seisakusho Ltd.	S. Yohsuke .	360	9,209	Wire Rods, Rolled Steel Cast Iron Products Industrial Machines.
5. Toyoda Automatic Loom Works, Ltd.	T. Ishida	70	3,819	Spinning Machinery, Automatic Looms.
6. Taihai Machinery Works, Ltd.	.. ..		..	Plywood Machinery.
Chemical				
1. Asahi Glass Co., Ltd.	K. Morimoto .	310	6,784	Sheet Glass, Special Glass, Soda Ash, Caustic Soda.

Name of Company	President	Capital (unit ten million yen)	Number of Employees	Products
2. Bridgestone Tire Co., Ltd.	S. Ishibashi .	200	2,569	Vehicles, Tires, Inner Air-tubes, Other Rubber Manufacturing Goods.
3. Mitsubishi Chemical Industries, Ltd.	T. Kuwata .	113·5	5,569	Cokes, Tar Chemicals.
4 Takeda Pharmaceutical Industries Ltd.	C. Takeda .	210	5,060	Medical Supplies, Medicines.
Ceramics				
1. Mitsubishi Cement Co. Ltd.	Y. Ito .	60	283	Portland Cement.
2. Nippon Toki Kaisha, Ltd.	U. Saeki .	35	3,167	China & Porcelain.
3. Nippon Gaishi Kaisha, Ltd.	Y. Kumao .	35	1,532	Electric Insulators, Acid-proof Equipments, Industrial China & Porclain.
Textiles				
1. Hamano-Seni Co. Ltd.	S. Hamano .	3	600	Dyeing Bleaching Water-proofing.
2 Kawshima Textile Mill Co. Ltd.	J. Kawashima .	1·25	344	Weaving (Textile Fabrics Manufacture) Upholstering work.
3. Nisshin Cotton Spinning Co., Ltd.	T. Sakurada .	104	8,155	Cotton Rayon Spinning, Dyeing & Bleaching.
4. Toyo Spinning Co. Ltd.	K. Abe .	430	24,844	Cotton Yarn, Cotton Goods, Laces, Woollen Goods, Shirts.
5. Toyo Rayon Co., Ltd.	K. Sodeyama .	300	17,534	Staple Fibre Yarn, Rayon Staple Fibres Nylon, Textile Fabrics.
Plywood				
Toyo Plywood Co. Ltd..	K. Sasabe .	5	1,432	Plywood, Fency Veneae

APPENDIX V

LETTER ADDRESSED TO THE PRESIDENTS OF ORGANIZATIONS VISITED BY THE INDIAN PRODUCTIVITY DELEGATION.

"The Productivity Delegation of the Government of India is looking forward to the visit to your organisation which has been arranged through the good offices of the Japan Productivity Centre. Our delegation is grateful to you for your co-operation in making possible our visit to your organization.

Our delegation has come to Japan with specific terms of reference. We wish to study firstly the recently started movement for increased productivity through the Japan Productivity Centre. Increased productivity is a matter of importance in achieving the national targets of production and increased standard of living in India. However, the movement for increased productivity in our country, which suffers from under-employment must have a different orientation from the movement for increased productivity in countries where there is a shortage of manpower. It is felt that the exchange of experiences in the promotion of productivity movements in Japan and in India would be valuable in assisting the industrial progress of both the countries.

The second object of our delegation is to study the organization and management practices and various other factors which constitute the climate in industry under which Japan has been able to make such striking progress in the past and continues to lead in industrial development in Asia. The object of our delegation is not so much to study the technological progress achieved in industry but the variety of factors which have made this technological progress possible. In particular we should like to understand the organization structure, the delegation of authority and decision making, the method of giving instructions and receiving information within your organization, the selection and training functions, industrial relations, control techniques, and organization of research in industry.

We are conscious that the task we have undertaken covers a vast field. However, to do the maximum possible justice to it during the short time for which we shall be in Japan and particularly during our visit to your organization, we shall greatly appreciate if preliminary background information concerned with the subject of our study as indicated in the enclosed questionnaire, could be completed and returned to the Japan Productivity Centre prior to our visit to your organization. If you consider any of the questions of a nature to which you would prefer not to reply, please feel free to leave blank the answers to such questions. We believe that a

study by us of your answers would greatly assist our delegation in getting acquainted with background information so that the few brief hours that we spend with you could be utilised to the best advantage in studying and discussing specific points. We realise that by adopting the present procedure we are putting you to inconvenience but we trust you will excuse us for this.

Looking forward to the pleasure of meeting you soon.

Yours sincerely,"

GENERAL QUESTIONNAIRE

1. Name of Organization.

2. Date of Commencement of Business.

3. Principal line of activity.

   Manufacture.
   Distribution.
   Public utilities.

   List of principal products or services.

4. Nature of Corporate Body.

   Public joint stock company.
   Private Company.
   State Enterprise.

5. Financial.

   Subscribed Capital.
   Annual sales Turnover in 1955.
   Gross profit in 1955 before taxes.
   Percentage Dividend in 1955.

6. How many factories do you have?

7. Personnel Employed.

   Manufacture.
   Workers.
   Supervisors upto Departmental Heads.
   Administration and commercial.

8. Is the Company a member of—

   Trade Association?
   JPC.
   Other technical and Research bodies,
   if so please specify names.

9. Are the workers of your plants members of Labour Union? If so, please name the Union.

10. Please enclose organizational chart showing number of persons employed at each level.

11. Number of shifts operated in your factories. Number of working days per annum.

12. Hours of work per day for—

	From	To
Managers.		
Departmental Heads.		
Supervisors.		
Workers.		

13. Do you have special provision for
    (a) Industrial Relations.
    (b) Personnel Department.
    (c) Training for Management.
    (d) Training for Supervisors.
    (e) Training for Workers.
    (f) Quality Control and Inspection.
    (g) Work Studies.
    (h) Costing.
    (i) Advertising and Publicity.
    (j) Market Research.
    (k) Research.

14. What is your Absenteeism Rate for workers
    Turnover rate for workers.

15. Do you have for your employees?
    (a) Provident Fund.
    (b) Gratuity on retirement.
    (c) Pension scheme.
    (d) Health insurance.
    (e) Unemployment insurance.

16. What is the wage scale for?
    (a) Workers.
    (b) Supervisors.
    (c) Departmental Heads.
    (d) Managers.

17. Do you have financial incentive for—
    Increased production and
    Better quality.

APPENDIX VI

JAPAN SPINNERS' INSPECTING FOUNDATION

The Japan Spinners' Inspecting Foundation (JSIF) is one of the private organizations for inspection of all kinds of textiles in Japan.

JSIF was established on 6th December 1948, duly approved by the Minister of International Trade and Industry, under the Law Concerning Control of Export Commodities.

The purpose of this foundation is to promote the Japanese textile industry by inspecting and expressing grades of the products mentioned below, in accordance with the standard set forth in the Law Concerning Control of Export Commodities, and by maintaining quality of Japanese textile products and by making contribution to the improvement of quality and also giving technical guidance.

1. Cotton yarn (including sewing yarn, bleached yarn and mercerized yarn).
2. Spun rayon yarn.
3. Spun silk yarn, Peignie.
4. Grey cotton fabric, Cotton velveteen and Cotton corduroy.
5. Finished cotton fabric, Cotton velveteen and Cotton corduroy.
6. Grey spun rayon fabric.
7. Grey spun rayon fabric.
7. Finished spun rayon fabric.
8. Damask table cloth.
9. Sarong, Sarie and Kikoy.
10. Maffler, Scraf, Shawl and Handkerchief.

In order to achieve the above object, the foundation transact the following business:

1. Inspection and certification of textiles made by cotton spinners.
2. Issuance and certification of textile inspection Besides, the foundation transact the following:
    1. Various testing and research for textile materials and textile products.
    2. Cotton fibre testing.

3. Chemical analysis and identification for textile fibre or dyestuff, etc.
4. Investigation on inspection and testing problem and preparation of statistics on inspection.
5. Convention and exhibition of the above described items.
6. Publication of report, pamphlet concerning inspection and testing statistical quality control problem.

The Inspecting Foundation has its Head Office at Osaka, an office at Tokyo and Inspection Houses at Osaka, Tokyo, Hamamatsu, Nagoya, Toyama, Okayma Shikoku and Kyushu. It has 880 staff members.

The standards for grading of textile goods are enacted by the government, after hearing the opinion of interested parties through public hearings, etc. This standard is published as the Japanese Industrial Standard (JIS).

The stamps and labels to show the JSIF grades are given.

In the foregoing, we have briefly outlined the operation of inspection work done by the JSIF.

In short, our immediate targets are diminution of trade claims, improvement of quality, establishment of reputation and confidence in the overseas markets.

APPENDIX VII.1.

TREND OF TECHNICAL DEVELOPMENTS IN JAPANESE COTTON INDUSTRY

Prepared by

All Japan Cotton Spinners' Association

Osaka, September, 1956

The Japanese cotton spinning industry has increased its spindleage from mere 2,000,000 spindles remain intact at the end of the last war to 8,570,000 at the end of August 1956. The balance of about 6,500,000 spindles are mostly new machinery installed after the war with very small proportion representing old machinery either held in store at the war end or repaired thereafter. However, the majority of the spindles added during the early postwar years were, although new, conventional type and left much to be improved.

With the progress of the rehabilitation of the industry, particularly during the last few years, great efforts are being made in modernization of the equipment and rationalization of the operation, as briefly observed in the following lines.

1. *Raw Cotton.*

In response to increasing demands for superior qualities of cotton goods, more importance is now placed on the research of raw cotton qualities. Present tendency is to find a more efficient and appropriate use for cotton on the basis of its physical property measurements.

Holdings of fiber testing equipments in Japan are as shown in the following table.

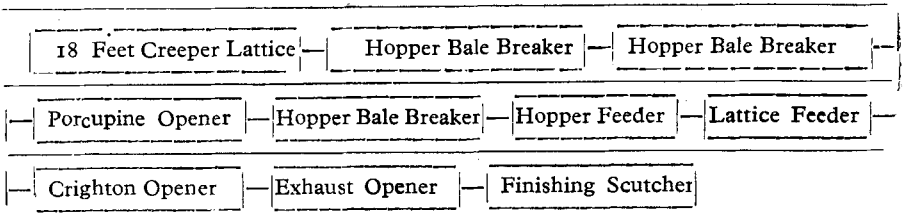
Holdings of Testing Equipments

Year	Equipments Fibrograph	Micronaire	Pressley	Colorimeter	Shirley Analyzer	Arealometer
1953 . .	21	17	17	3	9	2
1954 . .	31	45	24	4	11	2
1955 . .	35	64	23	5	14	2

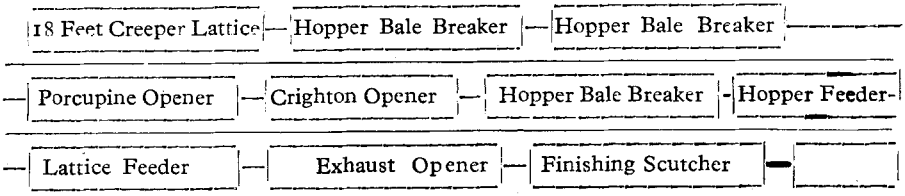
2. *Opening and Packing.*

The standard opening and picking machine layouts are as shown below.

For Coarse Yarns:

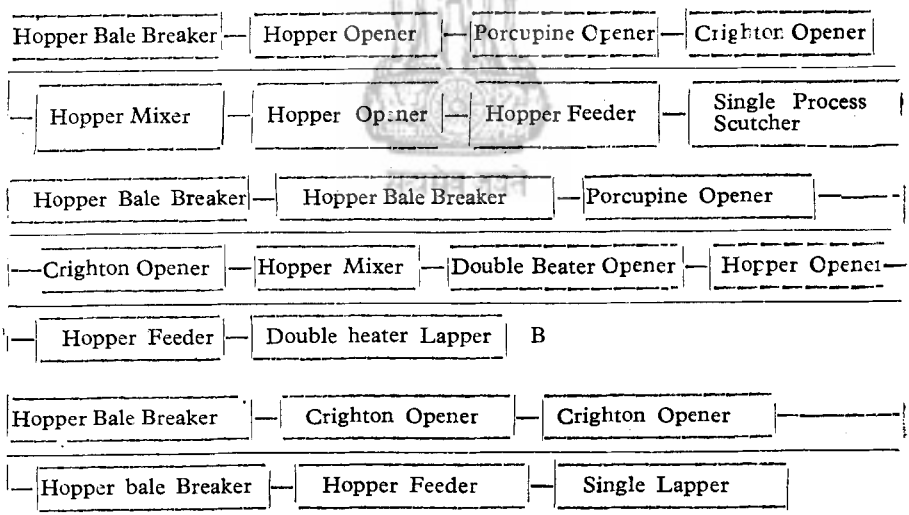


For Medium Yarns:



However, in order to save floor space to obtain efficiency and automatic control of the flow of cotton and finally because of the better result obtained in opening the cotton, most of our spinners are using what we refer to as "Direct Opener and Picker Layout System."

Example:



Recently with increased consumption of Machine-picked American Cotton and Pakistan cotton which have larger foreign matter contents, coarser yarn spinning mills are using the "Superior Cleaner" to minimize the possible damage to the fibers, to obtain the maximum lint cleaning and to improve the yarn quality.

The spinners and their technicians are studying the opening and picking arrangements and their best utilization from many angles.

From the point of view of improving the quality of the product, the air return system in the opening room becomes an important factor. Constant temperature and humidity, and economy are some of the aims in developing a better air return system.

This air return system is adopted in 96 per cent. of all the opener and picker layouts by the end of 1955.

At the end of 1953, the ratio of single process opener and picker layouts was estimated to account for 17 per cent. but since then increased year by year as follows.

	1954	*1955*
Total number of opener and picker layouts	681	724
Number of single process layouts	138	174
Perecentage of single process	20	24

3. *Carding.*

To obtain a uniform sliver, heretofore, Eliminators or Vacuum Strippers were widely used, but with the invention of the Automatic Card Stripper and Evercleaner which were designed for use in continuous stripping, presently these new type cardings are gradually being adopted by our mills since 1953.

There is a tendency to operate with a shortage of cards, because of the relatively large amount of capital tied up in the equipment. The following table will show the card installed and its ratio per 10,000 spindles.

Year	*Spindleage*	*Cards*	*Ratio per 10,000 Spindles*
1953	7,667,950	28,174	36.7%
1954	7,863,592	28,854	36·7%
1955	8,214,242	29,819	36·0%

In this process, larger packages are increasingly adopted; cards with 14″ cans and 12″ representing 6:4 per cent. and 12:2 per cent. respectively.

4. *Combing.*

Remarkable increase in combers installed is found as a result of the tendency to produce finer yarn products.

Comber installments and combed yarn production pre-war and 1946—1956

Year	Pre-war	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
Combers	660	398	408	499	574	679	811	970	1,083	1,459	1,935
Production (1,000 lbs)	..	..	..	..	..	15,535	21,862	19,138	32,102	47,517	65,215
Percentage of total Yarn production	..	..	..	..	..	3·0	3·1	2·6	3·7	5·1	7·9

Majority of these combers in Nasmith type but there are 89 whiten model J combers as well.

Number of spinners owning mills equipped with combers is as follow:

Year	No. of spinner with combers	Ratio to total spinner	No. of mills with combers	Ratio to total mills
1953	13	10	27	12·2
1954	17	12	36	16·2
1955	21	16	47	21·4

5. Drawing.

The typical Japanese drawing process has been three-passage, and 6-end feeding. It is desirable, however, from the standpoints of productivity, to finish, if possible, with two-passage, as long-term variation may be reduced but short-term one added by additional passage. Two-passage system is used in 7·6 per cent. of the total for carded yarn processing and 74 per cent. in the case of combed yarn processing.

As to drafting system, 5 roll system and 3-over-4 or 4-over-5 roll system are being gradually adopted in more mills instead of conventional 4 roll system.

Numbers of deliveries by can diameters are 10 per cent. of 14″. 5:8 per cent. of 12″ and the rest is of 11″ or below. There are 2:6 per cent. of 5 to 5½″ which is used for Super High Draft ring frames.

6. Roving.

The roving used to include three processes, slubbing, intermediate and roving. But since the introduction of high draft spinning system in 1930 (previous draft 7—9, draft for high draft spinning 15—19), the two processes of slubbing and intermediate have been widely used and even been reduced to one process. The drafts for slubbing and intermediate are 3-4 and 4-5 respectively whereas the one process roving draft is 7-8. The four roll one process roving system is still being studied from various angles, and it has been found that even a draft of over 10 is possible which results in a quality equal to or even better than the quality produced from the two processes of slubbing and intermediate.

Various forms of roving process now being used are shown with their percentages based on ring spindleage.

	Percentage
Roving process totally eliminated (for Super High Draft ring frames)	4·6
One-Process System (Slubbing only, Simplex or High Draft Roving)	44·3
Two-Process System (Slubbing and Intermediate)	47·9
Three-Process System (Slubbing) Intermediate & Roving)	3·2
TOTAL	100·0

As seen above, three-process system is confined only to a very small proportion of finer counts. The most popular is two-process system representing 47·9 per cent., but one-process system also amounts to as much as 44·3 per cent.

Shortening the process means considerable amounts of saving in both initial investment and running cost, and therefore is much desirable within a limit not adversely affecting the quality of the products.

Another factor which should not be overlooked is wider use of larger package. The size of package may be divided into two major groups of $10'' \times (4\frac{1}{2}-6\frac{1}{2}''$ and 11 (4—6″). The proportion of each group is 58 per cent. (10″) and 42 per cent. (11″) in slubbing, 64·5 per cent. and 35·5 per cent. in intermediate and 30·1 per cent. and 69·9 per cent in simplex.

It has been also noticed that "double sliver sinble line one process roving frames" are being installed for the combination use with the Super High Draft Spinning Frames.

7. *Spinning.*

From the point of view of capital investment, labor and its direct relation with the mill's production, special attentions are paid to this process. Uses of larger package and super high draft spinning are some of the present main improvements.

(A) *Larger Package.*

Before the war, ring diameter of $1\frac{3}{4}$ and lift up to 6 were used in Japan. After the war, however, size has been increased: *i.e.*, 20·2 per cent. of total ring frames having diameter of $1\frac{13}{16}$ and above and 56·7 per cent having lift $6\frac{1}{4}''$ and over. In this connection it is notable that as much as 48 per cent. are of 7″ and over which clearly demonstrate the wider use of large package.

(B) *Super High Draft Spinning.*

As mentioned before, super high drafting system is not only applied to the roving process but to the ring spinning process. Draft up to 20 is considered as high draft and draft over 30 is referred to as Super High Draft.

The following table shows the trend of increasing use of Super High Draft Spinning.

Year	S.H.D. No. of Spindles (1,000 spd.)	Ratio to total spd. %
1947	18	0·6
1948	50	1·4
1949	90	2·4
1950	250	5·7
1951	540	8·1
1952	872	11·7
1953	872	11·5
1954	902	12·0
1955	956	11·8

Of the total Super High Draft system now representing about 12 per cent. of all spindles in Japan, 38 per cent. are direct system, *i.e.*, direct from drawing to ring frame, and 62 per cent. are through only one process in roving.

Use of pneumatic clearer to ring frame is increasing year by year, namely, 33·2 per cent. in 1953, 53·5 per cent. in 1954, and 64·7 per-

cent. in 1955. This means that nearly two-thirds of all ring frames in Japan are equipped with pneumatic clearers. On the other hand, overhead travelling cleaner is used in nearly 10 per cent. of all ring frames.

8. *Air Conditioning System.*

Maintenance of equipment and training of operatives are some of the most important factors in improving quality and efficiency. However, air conditioning is another very important factor to consider.

Previously water cooling was the only cooling system in Japan, but mills facing a shortage of underground water or those with high temperature water are gradually installing refrigerators.

About 60 per cent. mills in Japan have installed air conditioning systems.

9. *Winding.*

Being stimulated by the American high speed winder, the improvement in efficiency of winding has been urged.

The drum speed is 400 rpm for the generally used Q.T. Winder and the average winding speed is about 130 yds/min. The Q.T. Winder is practically used for all yarn counts.

Generally winding speed of over 140 yds/min. is referred to as high speed winding. However, from its construction, the maximum winding speed obtainable from a Q.T. Winder being 250 yds/min, higher speed than this does not seem possible.

Presently Route-Corner type high speed winders are gradually replacing the Q.T. Winders.

Our imports of Barber-Colman Automatic Spooler and other high-speed winders are increasing.

10. *Warping.*

The yarn speed of an ordinary warper is 60 yds/min. and warpers with speeds over 100 yds/min are referred to as high speed warpers. Mills are now being modernized by the imported Super Speed Warper having a speed of 900—925 yds/min which is about 8 times faster than the warper so-called high speed in Japan. Presently 17 Super Speed Warpers are installed.

11. *Sizing.*

The sizing process in Japan is mainly operated with experience and the average sizing speed is 20 yds/min. Sizing speed of over 30 yds/min. is called high speed sizing. High speed sizing equipments in Japan is as follows:

Hot Air Type Sizing Machine:	53%
Cylinder Type Sizing Machine:	47%

The standard arrangement requires 4 sizing machines to each 1,000 looms. The number of looms held by the spinner's weaving depart-

ment is about 75,600. Therefore, at least, 317 sizing machines are necessitated. Accordingly 25 high speed sizing machines installed represent only 8 per cent. of the total.

The 75 yds/min. speed sizing machine of West Point Mfg. Co., is now under consideration for import. It is unnecessary to mention that size is an important item in the weaving process and that research in homogenizers for starch or synthetic size is also important.

12. *Weaving.*

Statistics shown below regarding loom instalments are only for the looms installed by the members of All Japan Cotton Spinners' Assn. and do not include those held by the members of the Cotton Weavers' Assn., a separate organization.

	Automatic Looms							
	With shuttle change	With cop change	Ordinary loom	Dobby	Jaquard	Duck	Others	Total
No. Looms	33,954	19,690	19,747	512	136	1,558	52	75,649
	44·9	26·0	26·1	0·7	0·2	2·1	..	100

13. *Finishing.*

The followings are the installments of finishing machines in Japan.

Bleaching	. . .	Kier	. . . 502
Printing	. . .	Printing Machine	. 298
Dyeing	. . .	Jigger	. . . 3,322

Modernization and improvement in the finishing department is very active and the following are some of the new type machines installed.

(1) Continuous Scouring and Bleaching Range	24 sets
(2) Compressive Shrinking Machine	24 sets
(3) Continuous Dyeing Machine	96 sets
(4) Mercerizing Machine	115 sets
(5) Resin Finishing Range	34 sets

From the foregoings it will be seen that every effort is being continued in Japan for better quality and higher productivity.

APPENDIX VII. 2

STATISTICAL DATA

ON

JAPANESE COTTON TEXTILE INDUSTRY

It is about ten years since the first cargo of American raw cotton after the war arrived at Kobe in the summar of 1946 and the Japanese cotton spinning industry resumed its production, and now it may be said that it has completed almost all of the necessary rehabilitations that are practicable under current conditions.

Equipment

Japan's cotton industry has now cotton spinning equipment of 8,570,000 spindles, and the national total of cotton and spun rayon weaving looms exceeds 383,000 units. Although present size of spinning equipment is much less than the pre-war level of 12,567,000 spindles (1937), it is regarded to be more than enough to satisfy demand, in the near future, for domestic use (which is facing competition from man-made fibers) and export use which has considerably dwindled down as compared with the pre-war level. Particularly in the case of weaving equipment, where number of looms is now greater than in pre-war years, the present size is clearly in excess of requirements in the future, and therefore steps are already taken to dispose of surplus looms gradually in the years to come, starting with initial disposal of about 9,000 looms in 1956.

Production

Consumption of raw cotton in Janpan registered a post-war peak in 1954 when 1,084 million pounds of raw cotton were consumed to produce 932 million pounds of pure cotton yarn. As a result of curtailment of production, corresponding figures fell down in 1955 to 968 million pounds and 827 million pounds respectively. In the year of 1956, as the rate of curtailment was gradually relaxed until it was removed altogether in July, consumption and production are now running at a level higher than in 1954. It must be pointed out here that, according to index number of production, on the basis of average 1934—36 equals to 100, cotton yarn production at present stands at only 75 points as compared with over 223 points for all manufacturing industries in Japan. This is because the export demand, in the near future, for domestic use (which is facing competlevel of approximately 2,600 million yards of cotton cloth to around 1,200 million a year at present, in spite of the fact that total domestic demand is now somewhat higher than the pre-war level of about 551 million pounds a year.

Export of cotton products

Historically, the Japanese cotton industry has been developed as an export industry and the pre-war average of 1934—36 the proportion held by exports was 60 per cent. against 40 per cent. for domestic market. The recent proportion is one of 37 per cent. for export and 63 per cent. for home market owing to sharp decline in exports and slight increase in supply to home market.

The percentage held by cotton in the total exports of all commodities was 20 per cent. in pre-war (1934—36). In the early post-war years this rate once rose to a level higher than pre-war on account of relatively rapid recovery of the cotton industry, but with the progress of recovery and development of other industries the rate gradually declined to about 15 per cent. in 1955.

Nevertheless, there is no change in the fact that cotton goods, in parallel with metal and metal products, are still playing a most important part in export trade of Japan and that it is vital for the Japanese cotton industry, which almost entirely depend on imported raw materials, to earn as much foreign exchange as possible through expansion of export trade.

Both in pre-war and post-war years, the principal export markets for Japanese cotton yarn were Asian countries, and in the case of cotton cloth, too, these Asian markets played an important role by sharing more than a half of total shipment from Japan. As a noticeable trend after the war, export to European markets has increased, but shipment to this direction has now declined from the peak level of about 200 million yards each in 1949 and 1950 to 132 million in 1955 and 52 million in the first six months of 1956.

Analized further by destinations, the big three markets for Japanese cotton goods before the war were India (including Burma and Pakistan), Netherlands, East India and China, and these three markets represented about 45 per cent. of total exports of Japanese cotton cloth. At present, India and China are competitors, rather than customers, to Japan in the export markets of cotton goods in the South-east Asia. Pakistan, too, lost its significance as an important export market for Japanese cotton goods since she has developed cotton industry of her own in recent years. On the other hand, direct shipment to Indonesia has sharply declined since last year owing to Japanese restriction placed on exports to this market as a result of difficulties in settlement of trade account.

As the alternative markets, the United States and such entrepot centers as Hong Kong and Singapore—and more recently the Philippines and Indo-China—are playing increasingly important part in the export trade of Japanese cotton goods.

Domestic consumption

For the Japanese people, general consumption level as well as per capita consumption of all fibers, including industrial and clothing end-uses, are already 20 per cent. higher than pre-war standards and the total volume of domestic consumption of cotton goods after 1952 has been greater than pre-war level. However, as far as per-

capita consumption of cotton goods is concerned, present level is only about 80 per cent. of pre-war standard. For one thing, competition from other fibers, and for another, recent trend of using lighter cotton yarn is responsible for such slow pace of recovery in per head consumption.

A remarkable feature of textile consumption in Japan is the relatively high rate of dependence on man-made fibers. According to official statistics for demand and supply, cotton accounted for 52 per cent. of total consumption of all fibers in 1955, and man-made fibers as much as 34 per cent. Factors attributable to this situation are among others: emphasis has been traditionally placed on exports by the Japanese cotton industry; imports of raw cotton, particularly for domestic consumption, has not always been adequate owing to Government's control on foreign exchange; the Government has taken a policy to encourage production and consumption of man-made fibers; raw cotton price has been relatively high.

1. Cotton Textile Equipment

End of Year	SPINNING (*a*)			WEAVING							
				Spinner-weavers(*a*)		Independent weavers			National total (*b*)		
	Companies	Plants	Spindels	Plants	Power looms	Plants	Power looms	Hand looms	Plants	Power looms	Hand looms
1934-36 Av.	73	208	10,773,010	113	95,890	..	..	..	48,814	331,903	53,305
1946	10	60	2,632,232	50	30,482	2,475	103,549	..	..	134,031	..
1947	13	71	3,015,852	60	34,385	3,251	119,734	4,117	3,311	154,119	4,117
1948	19	81	3,456,748	66	42,130	4,247	146,336	3,048	4,313	188,466	3,048
1949	34	100	3,736,200	80	49,244	5,551	163,870	6,195	5,631	213,114	6,195
1950	51	119	4,381,174	79	51,585	6,075	178,298	5,399	6,154	229,883	5,399
1951	91	173	6,366,501	100	65,431	7,846	215,556	6,385	7,946	280,987	6,385
1952	122	214	7,451,957	110	70,251	8,312	226,303	11,384	8,422	296,554	11,384
1953	131	221	7,663,487	116	75,649	9,373	239,725	15,050	9,489	315,374	15,050
1954	130	221	7,903,918	123	81,701	9,336	251,936	12,664	9,459	333,637	12,664
1955	130	219	8,167,754	126	80,934	13,200	294,207	14,564	13,326	375,141	14,564
1956 1st half	129	222	8,392,520	121	80,292	12,908	290,123	14,884	13,029	370,415	14,884

.. Not available. (*a*) Upto 1950 in place, 1951 and after operable. Including Korea in 1934-36 average.
(*b*) Japan Proper only.

Source : Spinning and spinner-weavers.. .... All Japan Cotton Spinner's Association.
Independent weavers and national total. Ministry of International Trade and Industry.

II.—Imports and Consumption of raw cotton

Countries	1934-36 Average	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956 1st half
1	2	3	4	5	6	7	8	9	10	11	12	13
IMPORTS												
Ginned												
Burma		..	..	..	0·1	0·2	9·0	10·9	27·4	19·2	15·2	6·8
India	781·8	..	44·3	70·6	25·3	24·1	18·3	71·2	47·9	33·4	82·4	65·6
Pakistan		..	..	..	36·5	80·1	121·4	140·2	280·1	73·3	114·6	85·8
Iran	0·3	..	..	..	..	..	2·5	0·1	17·5	25·1	10·0	2·6
Turkey	4·7	..	..	..	..	0·2	12·3	0·1	8·1	15·6	0·6	..
United States	801·3	339·5	194·0	160·4	311·8	622·2	393·4	464·4	324·0	445·5	314·0	226·6
Mexico	7·6	..	..	..	..	21·1	150·6	163·8	219·9	226·6	213·5	146·0
Peru	15·7	..	..	..	(*b*)	1·0	6·8	8·5	5·4	6·0	8·2	4·7
Brazil	34·2	..	..	..	1·1	1·1	43·2	24·3	31·0	130·8	92·5	33·9
Argentina	3·5	..	..	..	(*b*)	13·0	23·5	1·2	44·9	17·6	2·2	..
Egypt	67·5	10·6	..	8·6	25·0	8·4	27·8	28·0	38·9	42·5	39·8	31·5
Others	88·0	..	..	..	12·8	4·0	30·0	30·7	21·5	43·2	79·1	57·8
TOTAL, GINNED	1,804·6	350·1	238·3	239·6	412·6	775·4	838·8	943·4	1,066·6	1,078·8	972·1	661·3
Waste	..	..	..	..	10·7	4·9	44·7	39·2	82·5	71·8	71·5	38·5
GRAND TOTAL	1,804·6	350·1	238·3	239·6	423·3	780·3	883·5	982·6	1,149·1	1,150·6	1,043·6	699·8

[Continued]

(Continued from previous page)

	1934-36 Average	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956*a* 1st half
1	2	3	4	5	6	7	8	9	10	11	12	13
CONSUMPTION (*a*)												
Burma	12·4	..	*	..	..	0·1	4·2	10·9	14·8	18·7	14·3	3·6
India	668·3	..	3·1	79·5	31·1	18·5	8·6	33·0	15·6	9·1	31·4	39·7
Pakistan		..	..	7·3	29·4	57·5	128·4	115·0	232·4	85·8	86·5	56·2
Iran	4·4	..	*	..	..	..	0·9	0·4	12·9	24·7	13·1	2·9
Turkey	3·5	..	*	..	..	..	10·5	2·0	1·5	20·5	2·5	0·1
United States	795·0	..	301·1	213·0	316·3	466·3	405·0	497·4	362·5	453·9	348·9	190·5
Mexico	*	..	*	*	..	7·6	133·3	118·4	214·0	241·2	231·4	133·1
Peru	7·4	..	0·8	0·1	0·1	(*b*)	3·0	5·6	7·3	6·2	8·5	6·2
Brazil	17·6	..	..	..	1·1	0·8	46·7	25·2	27·3	113·2	109·5	34·3
Argentina	*	..	*	..	..	7·0	27·1	3·5	39·1	22·5	5·7	0·2
Egypt	61·4	..	6·3	9·9	10·3	23·1	24·7	27·5	37·7	40·9	40·7	28·1
Others	73·1	..	0·3	0·1	7·9	9·8	18·9	22·1	25·4	33·2	67·2	48·6
Imported waste	..	..	*	6·8	1·9	0·1	20·2	11·8	7·7	14·0	7·8	1·5
TOTAL	1,643·1	144·8	311·6	316·7	398·1	590·8	831·5	872·9	998·2	1,083·9	967·5	545·0

..Not available. *If any, included in "Others."

(*a*) Consumption by cotton spinners only. (*b*) Less than 500,000 lbs.

Source : Imports, Ministry of Finance. Consumption. All Japan Cotton Spinners' Association.

III.—Production of Cotton Yarn

(In thousand lbs.)

Year	Pure cotton yarn (*a*)				Mixed cotton yarn	Spun rayon Yarn	Other Yarn
	Coarse	Medium	Fine	Total			
1934—36 Average . .	817,495	552,525	48,744	1,418,764	..	..	..
1946	106,763	19,749	1,407	127,919	411	4,928	8,817
1947	189,985	70,447	5,923	266,355	7	918	2,976
1948	148,827	117,761	6,803	273,391	..	1,858	1,378
1949	208,549	125,033	12,105	345,687	..	10,976	1,265
1950	259,536	240,276	17,885	517,697	2	12,386	7,511
1951	349,407	333,511	27,720	710,638	56	11,919	32,119
1952	383,776	342,326	22,596	748,698	9,799	9,477	21,018
1953	413,496	417,205	30,538	861,239	16,048	885	5,975
1954	342,999	550,617	38,295	931,911	30,962	5,412	19,249
1955	296,010	492,842	38,041	826,893	28,466	12,425	29,781
1956 1st half . . .	159,467	285,465	25,656	470,588	7,343	6,784	12,804

Above figures refer to production by cotton spindles.
(*a*) Classification of pure cotton yarn.
Coarse.....22's and under
Medium.....23's to 44's
Fine.....45's and above

Source : All Japan Cotton Spinner's Association.

IV.—Production of Cotton Fabrics

(In thousand sq. yds.)

Year	Spinner-weavers			Independent weavers cotton fabrics(*b*)	National. total, cotton fabrics(*b*)(*c*)
	Pure cotton fabrics	Spun rayon fabrics	Other fabrics		
1934-36 Average (*a*) . .	1,813,239	..	3,546	..	4,202,033
1946	144,993	2,829	..	..	241,700
1947	337,872	264	1,437	..	662,274
1948	418,086	3,164	1,044	504,292	924,086 (*d*)
1949	514,821	15,488	256	467,420	984,860 (*d*)
1950	760,771	35,208	1,029	773,756	1,541,988 (*d*)
1951	921,950	49,230	4,877	1,192,820	2,179,406 (*d*)
1952	878,996	83,696	1,014	1,312,313	2,238,755 (*d*)
1953	992,119	89,496	7,465	1,769,340	2,810,577 (*d*)
1954	1,113,237	100,628	12,451	2,022,750	3,183,554 (*d*)
1955	925,346	123,535	19,039	2,063,397	3,018,124 (*d*)
1956 1st half . . .	474,306	6,026	8,758	1,192,540	1,681,216 (*d*)

.. Not available. (*a*) In thousand linear yards 1934-36 average.
(*b*) Including mixed cotton fabrics and waste cotton fabrics.
(*c*) For 1934-36 average cotton broad woven fabrics only, which are indicated in meterage sourced from "Ministry of Industry and Commerce Statistics" (converted into yardage). In 1946 and after sourced from "Textile Statistical Year Book".
(*d*) Including cotton fabrics produced by other than cotton looms.

Source : Spinner-weavers..All Japan Cotton Spinner's Association
Independent weavers and national total.....Ministry of International Trade and Industry.

	Direct			Indirect			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Spinning Workers on Payroll									
1934-36 Av. .	..	..	..	..	..	..	18,446	129,825	148,271
1947 . .	5,657	52,529	58,186	..	..	..	..	..	..
1948 . .	6,250	54,916	61,166	..	..	..	..	..	..
1949 . .	6,464	50,507	56,971	..	..	..	..	..	..
1950 . .	6,985	59,722	66,707	..	..	..	..	..	..
1951 . .	8,950	87,727	96,677	6,464	5,503	11,967	15,414	93,230	108,644
1952 . .	9,976	83,919	93,895	6,288	4,897	11,185	16,264	88,816	105,080
1953 . .	10,076	77,588	87,664	5,453	4,406	9,859	15,529	81,994	97,523
1954 . .	10,030	75,820	85,850	5,073	4,149	9,222	15,103	79,969	95,072
1955 . .	9,400	66,827	76,227	4,786	3,837	8,623	14,186	70,664	84,850
1956 1st half .	9,448	68,763	78,211	4,721	3,804	8,525	14,169	72,567	86,736
Weaving Workers on Payroll of Spinner-weavers.									
1934-36 Av. .	..	..	..	..	..	..	5,019	32,181	37,200
1947 . .	2,561	25,676	28,237	..	..	..	..	..	..
1948 . .	3,035	30,691	33,726	..	..	..	..	..	..
1949 . .	3,701	30,241	33,942	..	..	..	..	..	..
1950 . .	3,711	30,608	34,319	..	..	..	..	..	..
1951 . .	3,870	35,380	39,250	2,806	2,574	5,380	6,676	37,954	44,630
1952 . .	4,064	31,106	35,170	2,784	2,329	5,113	6,848	33,435	40,283
1953 . .	3,998	26,962	30,960	2,257	1,540	3,797	6,255	28,502	34,757
1954 . .	4,045	26,207	30,252	2,036	1,426	3,462	6,081	27,633	33,714
1955 . .	3,853	23,805	27,658	1,916	1,264	3,180	5,769	25,069	30,838
1956 1st half .	3,667	22,458	26,125	1,812	1,177	2,989	5,479	23,635	29,114

.. Not available.

Source : All Japan Cotton Spinners' Association.

VI.—Cotton Textile Exports

(Yarn in thousand lbs. Fabrics in thousand sq. yds.)

Year	Cotton yarn	Cotton fabrics						
		Total	Grey	Bleached	Dyed	Printed	Yarn-dyed	Others
1934-36 Av. . .	35,975(a)	2,670,752	893,713	516,701	..	1,260,338	..	..
1946	3,359	982	205	78	..	699	..	..
1947	23,881	378,006	285,222	41,630	..	51,154	..	..
1948	12,562	422,055	193,409	69,415	..	159,231	..	..
1949	23,668	783,213	420,100	149,413	..	213,700	..	..
1950	24,532	1,103,447	420,015	248,514	..	434,918	..	..
1951	28,114	1,092,300	328,620	311,351	176,150	215,919	45,636	14,624
1952	29,550	762,026	220,693	256,196	57,037	149,616	62,874	15,610
1953	21,201	914,009	200,014	261,891	89,870	264,597	81,148	16,489
1954	29,547	1,278,075	304,358	346,647	102,167	389,272	104,801	30,830
1955	26,226	1,138,829	255,128	299,153	112,060	297,068	131,255	44,165
1956 1st half . .	15,379	622,543	109,788	161,925	72,010	190,958	85,957	1,905

(a) Not including cotton thread.

Source : Ministry of Finance.

VII.—Cotton Textile Exports by Major Markets

(In thousand lbs.)

Destinations	1934-36 Average	1948	1949	1950	1951	1952	1953	1954	1955	1956 1st half.
Cotton Yarn.										
China	7,324	..	..	..	93	..	..	34	40	..
Hongkong	1,410	3,500	1	24	452	950	1,256	3,575	2,011	6,592
India	14,559	860	9,488	10	29	16	..	21	11	6
Pakistan		786	4,813	15,101	16,720	21,048	4,171	3,200	5,115	..
Burma		2,010	6,899	3,453	3,949	3,362	6,410	6,048	5,046	1,489
Indonesia	4,361	3,459	362	4,676	2,520	2,104	4,651	11,146	7,192	839
TOTAL—(Including others)	35,975(*e*)	12,562	23,668	24,532	28,155	29,549	21,201	29,547	26,226	15,379
Cotton Fabrics									(in million sq. yds.)	
Asia Total	1,717·0	272·2	425·8	701·0	751·3	535·4	655·4	836·4	605·6	378·4
China	329·0(*a*)	..	0·2	0·1	2·2	..	0·3	7·0	2·7	0·6
Hongkong	56·8	0·5	11·9	30·9	49·2	57·3	48·5	54·3	61·4	104·0
Thailand	68·1	13·6	48·7	83·2	48·0	40·1	83·2	109·2	97·1	20·9
Singapore	61·4	23·3	45·7	20·2	53·1	32·5	32·1	48.0	72·9	37·8
Philippines	69·2	4·2	11·2	10·3	5·0	3·7	21·2	24·9	22·7	20·7
Indonesia	387·7	201·7	93·1	197·6	239·2	128·7	303·8	282·5	108·3	77·5
Burma	482·1	0·1	..	38·6	7·0	9·7	40·7	68·2	42·5	23·9
India		2·2	34·0	0·2	0·3	0·2	0·1	0·2	1·7	0·9
Pakistan		..	84·9	225·1	248·9	184·0	0·4	84·9	32·4	11·9
Iran	24·7(*b*)	1·6	2·9	4·1	2·3	6·6	43·5	42·9	33·1	4·3
Iraq	61·7	0·5	3·8	7·5	22·1	10·2	16·2	17·3	16·9	4·7
Aden	55·1	15·5	49·2	13·9	27·5	18·8	5·2	15·9	6·9	2·7
Syria	41·7	0·6	0·4	..	..	0·5	..	3·0	7·7	1·6

VII.—Cotton Textile Exports by Major Markets—*contd.*

Destination	1934—36 Average	1948	1949	1950	1951	1952	1953	1954	1955	1956 1st half
Cotton Fabrics—contd.										
Europe Total . . .	74·5	75·4	215·2	205·7	144·0	86·5	68·9	148·0	132·5	51·7
Sweeden . . .	7·1	1·2	28·3	23·2	24·6	2·2	11·8	14·3	14·2	6·2
United Kingdom . .	12·1	72·4	172·1	111·4	83·5	64·2	32·7	66·5	51·3	17·7
Netherlands . . .	1·3	0·9	9·0	35·7	24·6	15·0	17·4	36·6	41·2	14·8
F. R. of Germany . .	13·9(c)	..	3·8	18·2	4·3	1·4	3·5	13·5	11·8	3·5
America Total . .	305·7	17·3	17·5	66·6	12·0	26·9	66·0	113·7	221·3	122·7
United States . .	46·4	11·9	5·0	22·8	1·6	6·5	33·2	49·5	140·2	78·8
Africa Total . . .	485·4	56·0	113·3	118·8	132·8	101·8	99·0	118·4	102·2	41·1
Fr. Morocco . . .	63·1	0·1	1·2	0·1	0·2	..	0·1	..	..	..
Egypt	167·9	0·3	0·1	..	..	..	..	0·1	0·6	0·2
A.—E. Sudan . .	58·4	15·0	4·0	..	5·0	0·7	..	..	4·6	0·8
Br. West Africa . .	7·0(d)	16·4	51·7	32·2	35·5	43·4	29·3	61·2	57·8	19·9
Belgian Africa . .	15·6(b)	4·9	10·0	11·6	26·3	22·0	25·5	22·4	3·9	2·3
Br. East Africa . .	88·7	15·8	38·6	25·0	40·8	23·1	..	1·5	11·4	1·5
U. of South Africa . .	24·0	1·0	3·0	41·9	20·9	10·5	36·6	18·6	13·5	9·1
Oceania Total . . .	88·2	1·2	11·4	11·3	52·2	11·4	24·7	61·6	77·2	28·6
Australia	77·1	0·5	9·3	10·6	50·0	10·1	21·9	57·6	70·8	24·5
Grand Total .	2,670·8	422·1	783·2	1,103·4	1,092·3	762·0	914·0	1,278·1	1,138·8	622·5

..Less than 50,000 sq. yds.
(*a*) Including Manchuria and Kwantung Province.
(*b*) Nigeria, Gold Coast and Sierra Leone only.
(*b*) 1935-36 Av. (*c*) All Germany.
(*e*) Not including cotton thread.
Source : Ministry of Finance.

VIII—Total Export and Proportion of cotton Textiles

(In million dollars)

	1934—36 Average		1950		1951		1952		1953		1954		1955		1956 1st half	
		%		%		%		%		%		%		%		%
Total—Exports	928	100·0	820	100·0	1,355	100·0	1,273	100·0	1,275	100·0	1,629	100·0	2,011	100·0	1,160	100·0
Metal and metal products	76	8·2	150	18·3	300	22·1	341	26·8	187	14·7	249	15·3	386	19·2	173	14·9
Iron and steel	34	3·7	72	8·8	206	15·2	263	20·7	140	11·0	166	10·2	259	12·9	117	10·1
Machinery	67	7·1	112	13·7	109	8·1	110	8·6	189	14·8	202	12·4	247	12·3	207	17·9
Chemicals	40	4·3	16	1·9	37	2·7	40	3·1	67	5·3	79	4·9	94	4·7	55	4·7
Non-metallic minerals	27	3·0	30	3·7	60	4·4	58	4·6	58	4·5	69	4·2	85	4·2	51	4·4
Fibre and textiles	483	52·1	399	48·6	623	46·0	418	32·8	460	36·1	657	40·3	749	37·2	400	34·5
Cotton (*b*)	193	20·8	237	28·9	367	27·1	223	17·5	215	16·9	300	18·4	305	15·2	175	15·1
Man-made fibre (*b*)	53	5·7	67	8·2	141	10·4	106	8·3	119	9·3	165	10·1	223	11·1	130	11·2
Silk (*b*)	138	14·8	70	8·5	76	5·6	76	6·0	66	5·2	81	5·0	89	4·4	35	3·0
Others	235	25·3	113	13·8	226	16·7	306	22·1	314	24·6	373	22·9	450	22·4	274	23·6

(*a*) Including shipments to Korea and Formosa.

(*b*) Not including products unseparable by fibres.

Source : Ministry of Finance.

IX.—Estimate balance of demand and supply of cotton Textiles

(in thousands lbs.)

	1934-36 Average	1948	1949	1950	1951	1952	1953	1954	1955	1956 1st half
Production (*a*)	1,424,564	274,553	346,075	521,861	738,793	765,341	879,433	970,733	864,296	480,692
Imports (*b*)	12,100	292	7,037	1,408	796	540	775	1,887	1,870	786
Cotton yarn	11,737	54	120	840	470	39	245	186	36	2
Cottton fabrics	363	2	959	114	179	114	127	110	89	30
Cotton made-up goods	..	236	5,958	454	147	387	403	1,591	1,745	757
Exports (*b*)	838,777	117,789	218,491	309,993	291,601	223,864	254,867	341,549	331,673	178,602
Cotton yarn	36,260	12,562	23,668	24,532	28,114	29,550	21,201	29,547	26,227	15,379
Cotton fabrics	667,688	101,112	180,602	261,095	244,152	173,097	205,896	275,184	246,210	130,890
Cotton made-up goods	134,829	4,115	14,221	24,366	19,335	21,217	27,770	36,818	59,236	32,333
Shipments to Korea (*c*)	65,411	..	..	..	..	..	..	..	..	..
Estimated delivery for special procurements	..	..	..	..	28,000	12,200	12,000	1,520	947	326
crease or decrease of Stocks	(—)18,810	(—)6,449	(—)7,016	(—)22,332	+20,606	(—)26,066	(+)11,115	(+)41,341	(—)26,310	(+)5,705
Cotton	..	(—)11,141 (*e*)	(—)18,223 (*e*)	(+)8,952	(—)6,249	(+)2,670	(—)11,220	(+)9,802	(—)12,416	(+)7,954
Cotton fabrics	..	+4,692	+11,207	(—)30,951	(+)26,318	(—)28,725	(+)21,866	(+)31,351	(—)13,813	(—)2,332
Other cotton goods (*d*)	..	..	..	(—)333	(+)537	(—)11	(+)469	(+)188	(—)81	(+)83

	1934-36 Average	1948	1949	1950	1951	1952	1953	1954	1955	1956 1st half
		(f)	(f)	(f)						
Domestic supply . . .	551,286	163,505	141,637	235,608	399,382	555,883	602,226	588,210	559,856	296,848
Population (thousands) . .	69,236	79,500 (f)	81,300 (f)	82,900 (f)	84,300	85,600	86,780	88,000	89,100	89,850 (g)
Per capita supply (lbs.) .	7·96	2·06	1·74	2·84	4·74	6·49	6·94	6·68	6·28	6·61

Not available. (a) Including mixed cotton, waste cotton and mixed waste cotton yarn.

(b) Including estimates partially. Not including re-imports or re-exports. (c) Shipment to Sahkalin and Formosa are not available.

(d) Manufacturer's stocks of knitted fabrics and fishing nets and twines only. (e) Manufacturers' stocks only. (f) Not including domestic supply of cotton fabrics owned by Government's export agency (which amounted to 483 million yards during 4 fiscal years 1947-50, including 296 million yards in fiscal year 1949, according to the agency's accounts). (g) Annual rate.

Prepared by data of All Japan Cotton Spinners' Association, Ministry of Finance, International Trade and Industry etc.

APPENDIX VII 3

NEW STATISTICAL DATA

Supplementary to

Labour Situation of the Cotton Spinning Industry in Japan

September 1955.

TABLE 1. *EQUIPMENT OF COTTON SPINNERS (AS OF DECEMBER 1955)*

	Number of Mills	Ring Spindles Operable	Looms Operable
Mills spinning only	128	3,522,534	..
Mills spinning and weaving	91	4,645,230	67,171
Mills weaving only	35	..	13,763
Total	254	8,167,754	80,934

N.B. In addition to the above there are 308,771 looms in 13 200 weaving mills owned by independent weavers.

TABLE 2. *SCALE-STRUCTURE OF COTTON SPINNING MILLS (AS OF DECEMBER 1955)*

	Mills		Operable Spindles	
	No.	%	No.	%
Under 5,000	20	9·1	60,710	0·7
5 000 — 9,999	26	11·9	165,448	2·0
10,000 — 19,999	41	18·7	515,880	6·3
20,000 — 29,999	21	9·6	502,388	6·2
30,000 — 39,999	25	11·4	862,872	10·5
40,000 — 49,999	16	7·3	704,208	8·6
50,000 — 59,999	16	7·3	882,648	10·8
60,000 — 69,999	17	7·8	1,087,976	13·4
70,000 — 79,999	14	6·4	1,039,680	12·8
80,000 — 89,999	6	2·7	499,024	6·1
90,000 — 99,999	5	2·3	480,288	5·9
100,000 and over	12	5·5	1,366,632	16·7
TOTAL	219	100·0	8,167,754	100·0

TABLE 3. *SCALE STRUCTURE OF COTTON SPINNING COMPANIES (AS OF DECEMBER 1955)*

Spindles	Companies		No. of Mills					Operable Spindles		Operable Looms	
	No.	%	Spinning & Weaving	Spinning only	Weaving only	Total	%	Spindles	%	Looms	%
Under 5,000	19	14·6	4	15	0	19	7·5	58,228	0·7	759	0·9
5,000— 9,999	22	16·9	3	19	1	23	9·1	139,608	1·7	1,444	1·8
10,000— 19,999	35	26·9	6	30	1	37	14·5	431,540	5·3	3,133	3·9
20,000— 29,999	13	10.0	7	7	3	17	6·7	303,164	3·7	5,412	6·7
30,000— 49,999	16	12·3	7	14	2	23	9·1	609,060	7·4	4,379	5·4
50,000— 99,999	9	6.9	3	7	1	11	4·3	610,072	7·5	1,548	1·9
100,000—149,999	0	0	0	0	0	0	0	0	0	0	0
150,000—199,999	4	3·1	6	4	8	18	7·1	664,204	8·2	7,284	9·0
200,000—299,999	3	2·3	7	6	5	18	7·1	715,168	8·8	7,779	9·6
300,000—499,999	4	3.1	16	11	4	31	12·2	1,740,808	21·3	15,694	19·4
500,000 and over	5	3.9	32	15	10	57	22·4	2,895,902	35·4	33,502	41·4
Total	130	100·0	91	128	35	254	100·0	8,167,754	100·0	80,934	100·0

TABLE 4. *NUMBER OF WORKERS IN THE TEN SPINNING COMPANIES BY TYPE OF WORK (AS OF DECEMBER 1955)*

	Males	Females	Total	%
Head and Business Offices .	4,213	1,720	5,933	4·8
Textile Section				
Cotton	16,711	49,890	64,601	52·2
Wool	4,654	13,952	18,606	15·0
Synthetics				
Spinning & Weaving .	1,830	5,574	7,404	6·0
Others . . .	9,059	2,034	11,093	9·0
Silk	1,153	4,275	4,428	4·4
Sundry Products . .	3,570	3,725	7,295	5·9
Others . . .	530	1,799	2,329	1·9
Others	715	344	1,059	0·8
TOTAL . . .	42,435	81,313	123,748	100·0

TABLE 5. *CHANGES IN THE LABOUR COMPOSITION OF MILL WORKERS*

Year	No. of Companies	No. of Mills	(1) Clerical Staff			(2) Operatives			(3) Grand Total		
			Males	Females	Total	Males	Females	Total	Males	Females	Total
1948	18	122	N.A.	N.A.	N.A.	16,706	91,745	108,451	N.A.	N.A.	N.A.
1949	34	128	6,309	1,250	7,559	19,783	92,744	112,527	26,092	93,994	120,086
1950	47	146	5,670	753	6,423	18,945	117,691	136,636	24,615	118,444	143,059
1951	87	197	6,953	1,090	8,043	23,752	146,998	170,750	30,705	148,088	178,793
1952	117	243	7,265	1,239	6,504	22,886	113,241	136,127	30,151	114,480	144,631
1953	129	252	6,946	1,235	8,181	22,000	109,574	131,574	28,946	110,809	139,755
1954	130	229	6,951	1,184	8,135	21,227	102,652	123,879	28,178	103,836	132,014
1955	125	222	6,717	1,034	7,751	19,984	92,080	112,064	26,701	93,114	119,815
1956 (June)	126	224	6,721	1,104	7,82	19,915	100,492	120,407	26,636	101,596	128,232

NOTES : (1) Not including employees of head and business offices.

(2) Including workers in concurrently operated weaving Mills.

(3) As of the end of the December, except 1956.

(4) Numbers of Companies and mills in this table do not agree with those in Table 1-3 because the former does not include unreported mills and closed mills, whereas the latter represents total registered equipment.

N.A.=Not available.

TABLE 6 *NO. OF OPERATIVES BY SECTIONS (AS OF JUNE 1956)*

Sections	Males	Females	Total
Direct Sections			
Spinning	9,462	66,784	76,246
Weaving	3,131	18,435	21,566
Others	506	2,011	2,517
Indirect Section	6,885	4,850	11,735
TOTAL	19,984	92,080	112,064

TABLE 7. *CHANGES IN THE AVERAGE AGE OF OPERATIVES IN THE TEN SPINNING COMPANIES*

	Males	Females	Average Age
1948 (Nov.)	29·0	20·2	21·6
1949 ,,	29·0	20·3	21·9
1950 ,,	29·0	19·6	20·9
1951 ,,	29·2	19·8	21·1
1952 ,,	29·9	20·4	22·2
1953 (Dec.)	30·7	21·1	22·9
1954 (June)	31·3	21·3	23·2
1954 (Dec.)	31·7	21·6	23·6
1955 (June)	32·	22·0	24·0
1955 (Dec.)	32·5	22·3	24·4

NOTES : Ages are counted in full, except for 1948-1949, which are computed in Japanese style.

TABLE 8. *AGE DISTRIBUTION OF OPERATIVES IN THE TEN SPINNING COMPANIES (AS OF DECEMBER 1955).*

Ages	Males	Females	Total or Average
15—19	167	12,885	13,052
20—29	6,103	32,112	38,215
30—39	3,739	1,818	5,557
40 and over	2,809	1,134	3,943
TOTAL	12,818	47,949	60,767
Average Age	32·5	22·3	24·4

TABLE 9. *CHANGES IN THE AVERAGE SERVICE YEARS OF OPERATIVES IN THE TEN SPINNING COMPANIES*

	Males	Females	Average
1948 (Nov.)	3 years and 6 months	1 year and 10 months	2 years and 1 month
1949 ,,	4 years and 2 months	2 years and 3 months	2 years and 7 months
1950 ,,	4 years and 10 months	2 years and 5 months	2 years and 9 months
1951 ,,	5 years and 2 months	2 years and 8 months	3 years
1952 ,,	5 years and 9 months	3 years and 2 months	3 years and 8 months
1953 (Dec.)	6 years and 9 months	3 years and 11 months	4 years and 6 months
1954 (June)	7 years and 3 months	4 years and 2 months	5 years and 7 months
1954 (Dec.)	7 years and 9 months	4 years and 7 months	5 years and 2 months
1955 (June)	8 years and 3 months	4 years and 11 months	5 years and 7 months
1955 Dec.)	8 years and 8 months	5 years and 3 months	5 years and 11 months

TABLE 10. *OPERATIVES BY SERVICE YEAR GROUPS IN THE TEN SPINNING COMPANIES (AS OF DECEMBER 1955)*

	Males	Females	Total or Average
Under 1 Year	94	2,978	3,072
1—2	144	6,741	6,885
3—4	1,859	14,698	16,557
5—9	8,843	22,547	31,390
10 Years and Over	1,878	985	2,863
TOTAL	12,818	47,949	60,767
Average Service Years	8 years and 8 months	5 years and 3 months	5 years and 11 months.

TABLE 11. *PERCENTAGES OF OPERATIVES WHO ENTERED AND LEFT*

	Entrants (%)			Leavers (%)		
	Males	Females	Average	Male	Females	Average
All Spinners:						
1949	1·3	2·7	2·5	1·4	3·1	2·8
1950	1·4	4·3	3·8	0·8	2·1	1·7
1951	2·3	3·2	3·1	1·2	2·1	1·9
1952	0·9	1·7	1·5	1·4	3·9	3·5
1953	1·1	2·1	1·9	1·4	2·4	2·2
1954	0·8	1·4	1·3	0·9	1·9	1·8
1955	0·3	1·0	0·9	0·7	1·9	1·6
Ten Spinners:						
1949	1·0	2·2	2·0	1·3	2·9	2·6
1950	1·2	3·8	3·3	0·7	1·8	1·6
1951	1·7	2·3	2·2	1·0	1·8	1·7
1952	0·2	0·5	0·4	1·0	4·1	3·6
1953	0·1	0·6	0·5	1·0	1·8	1·6
1954	0·1	0·7	0·6	0·2	1·3	1·1
1955	0·1	0·4	0·4	0·2	1·4	1·2

N.B. In 1952, the percentage of those who left was high on account of the voluntary retirement occasioned by production curtailment.

TABLE 12. *RESIDENTAL COMPOSITION OF OPERATIVES (AS OF DECEMBER 1955)*

	Males	Females	Total
Dormitory	5,181	77,602	82,783
Company House	5,049	1,453	6,502
Living-Out	9,754	13,025	22,779
TOTAL	19,984	92,080	112,064

TABLE 13. *CHANGES IN WAGE STANDARDS (IN YEN PER MONTH)*

Established	Effective	Wage Standards		
		Starting Wages	Wage for Worker with Standard Family	Meal Charge
1947 Jan.	1947 Jan.	200	1,300	..
,, May	,, May	290	1,950	90
,, Sep.	,, Aug.	820	2,800	300
1948 March.	1948 Jan.	1,500	5,400	500
,, Dec.	,, Aug.	2,250	8,100	750
1950 May	1950 Apr.	3,200	..	1,170
1951 June	1951 May	4,270	..	1,350
1953 June	1953 May	4,670	..	1,350
1955 Nov.	1955 Oct.	4,800	..	1,350

N.B.

(1) "Starting Wage " means the wages for recruits, sixteen years of age up to 1948; thereafter, the wages for recruits from junior high schools.

(2) "Wage for Workers with Standard Family " means the wages for a worker with ten years' service and having a wife and three children and domiciled in a district of lowest prices.

(3) "Meal Charge" means the monthly charge made against a worker who is fed three meals a day.

(4) Wages up to July 1947 are net or exclusive of tax; after that date all wages includ e tax.

TABLE 14. *WAGE COMPARISON BY TRADES (AS OF DECEMBER 1955)*

	Month-Wage (in Yen)		Monthly Actual Working Hours	
	Males	Females	Males	Females
Overall Mfg. Industries	19,192	7,749	211·2	198·9
Food stuffs	17,407	6,751	219·4	201·8
Tobacco	20,154	12,681	176·2	154·7
Spinning-Weaving	16,636	7,306	219·3	204·3
Clothing & Millinery	14,766	6,241	215·4	205·2
Lumber & Wood Products	12,211	5,821	218·8	200·8
Furnitures	13,811	6,238	226·7	206·5
Paper & the like	21,885	7,906	220·5	191·7
Printing, Publishing & the like	19,933	10,186	231·6	211·8
Chemicals	20,106	8,792	187·4	183·3
Petroleum & Coal Oil Products	21,262	8,811	199·9	189·6
Rubber Goods	17,911	7,230	205·9	188·7
Hide & Leather Goods	16,294	7,976	216·6	211·1
Glass & Ceramics	18,896	7,567	210·2	196·5
Primary Metals	22,288	10,307	207·0	184·9
Metal Goods	17,907	8,307	223·2	204·7
Machinery	17,442	8,126	215·6	197·0
Electric Machinery & Appliances	19,907	8,508	207·7	191·2
Transportation Machinery	21,066	9,795	210·8	188·0
Medical, Physical, Chemical, Optical Instruments and Time-Piece Mfg.	18,834	9,247	206·5	198·5
Others	14,491	6,583	220·6	202·4
Cotton Spinning Industry	24,239	10,173	202·4	195·3

NOTES : (1) The above are regularly paid wages.

(2) Source : AJCSA for cotton spinning industry; Labour Ministry's "Monthly Wage and Employment Survey" for all other industries.

TABLE 15. *COMPARISON OF PER CAPITA MONTHLY AVERAGE CASH WAGES IN 1955 (IN YEN)*

	Per Capita Monthly Cash Wages			Percentage against Cotton Spinning		
	Males	Females	Total	Males	Females	Total
Cotton Spinning	26,749	10,221	14,770	100	100	100
Cotton and Staple Fibre Spinning	20,807	8,677	12,050	77·8	84·9	80·7
Spinning and Weaving	18,185	7,493	10,973	68·0	73·3	73·5

NOTES : Source of information : As to the spinning industry, AJCSA; others, "Monthly Wage and Employment Survey" *ibid.*

TABLE 16. *CHANGES IN NOMINAL WAGES (IN YEN)*

		Total Cash Pays						Regular Pays					
		Per head per month			Per head per hour			Per head per month			Per head per hour		
		Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
1947	Cotton Spinning . .	1,692	616	815	—	—	—	—	—	—	—	—	—
	All Manufacturing . .	2,084	891	1,580	—	—	—	1,837	787	—	—	—	—
1948	Cotton Spinning . .	6,470	2,659	3,377	32	14	18	5,130	2,082	2,652	25	12	14
	All Manufacturing . .	5,775	2,468	4,379	—	—	—	5,119	2,171	—	—	—	—
1949	Cotton Spinning . .	8,785	3,778	4,784	43	21	25	7,711	3,373	4,244	38	18	23
	All Manufacturing . .	9,860	4,246	7,516	—	—	—	9,308	3,931	7,084	—	—	—
1950	Cotton Spinning . .	12,281	5,362	6,690	60	27	35	9,554	4,323	5,327	46	23	28
	All Manufacturing . .	11,171	4,778	9,133	—	—	44	10,340	4,278	8,414	—	—	41
1951	Cotton Spinning . .	16,323	7,169	8,783	79	39	46	12,846	5,821	7,060	62	31	37
	All Manufacturing . .	14,420	6,015	11,708	73	33	60	12,641	5,213	10,245	64	29	53
1952	Cotton Spinning . .	20,325	8,638	11,049	103	48	60	16,364	7,297	9,168	83	41	50
	All Manufacturing . .	16,759	6,809	13,516	84	37	70	14,691	6,065	11,858	74	33	61
1953	Cotton Spinning . .	21,526	9,371	12,246	108	50	64	17,745	8,268	10,510	89	44	55
	All Manufacturing . .	19,148	7,572	15,322	95	40	78	16,612	6,675	13,069	80	36	66

1954	Cotton Spinning . .	27,205	10,449	14,786	137	55	77	22,101	9,149	12,501	111	49	66
	All Manufacturing . .	20,253	8,124	16,308	99	43	83	17,669	7,242	14,276	86	38	73
1955	Cotton Spinning . .	26,749	10,221	14,770	140	56	80	22,429	9,204	12,844	117	50	69
	All Manufacturing . .	20,888	8,249	16,716	101	43	83	18,173	7,351	14,606	87	38	72

NOTES : (1) Source : AJCSA, for cotton spinning industry ; "Monthly Wage and Employment Survey" of the Labour Ministry, for all manufacturing industries.

(2) The male and female wages in 1950 for all manufacturing industries represent a nine-month average, excluding June, July and September.

(3) "Regular pays" are wages paid regularly according to pre-arranged terms. While "total cash pays" are inclusive of special and temporary pays such as bonus, back-pays, etc.

(4) Not including wages of head and business offices in cotton spinning before 1953.

(5) As the result of the strike from October 11 to November 2, cotton spinning wage increased from October 1955 by about 400 yen per month per head, but will not reflect in this return before January 1, 1956.

TABLE 17. PERCENTAGES *OF* PER CAPITA *TOTAL CASH PAYS IN COTTON SPINNING INDUSTRY AGAINST ALL MANUFACTURING INDUSTRIES*

	Pays per head per month		Pays per head per hour	
	Males	Females	Males	Females
1947	81·2	69·1	..	..
1948	112·0	107·7	..	..
1949	89·1	89·0	..	..
1950	109·9	112·2	..	..
1951	113·2	119·2	108·2	118·2
1952	121·3	126·9	122·6	129·7
1953	112·4	123·8	113·6	125·0
1954	134·3	128·6	138·4	127·9
1955	128·1	123·9	138·6	130·2

TABLE 18. *CHANGES IN REAL WAGE (1934—36-100)*

Year	Nominal Wage Index		C.P.I.	Real Wage Index	
	Cotton Spinning Industry	All Mfg. Industries		Cotton Spinning Industry	All Mfg. Industries
1934—36. .	100	100	100	100	100
1948 . .	14,253	9,192	18,907	75·4	48·6
1949 . .	19,949	15,714	23,684	84·2	66·3
1950 . .	27,385	18,790	21,999	124·5	85·4
1951 . .	32,638	23,523	25,550	127·7	92·1
1952 . .	41,852	27,223	26,623	157·2	102·3
1953 . .	46,794	30,704	28,616	163·5	107·3
1954 . .	50,624	32,580	30,180	167·7	108·0
1955 . .	53,741	34,040	29,740	180.7	114·5

N.B.—1. The wages, including allowances applied for calculating the nominal wage indices in the cotton spinning industry, are the total cash payment excluding bonuses. The wages applied for the 1934—36 period were computed by multiplying the day-wage per head by the number of mill-operating days according to the data compiled by the Japan Cotton Spinners' Federation, the predecessor of the present AJCSA. The wages applied for the 1948—54 period are the month-wage per mill worker according to the data compiled by the AJCSA.

2. The wages applied for calculating the nominal wage indices in the overall industries are the total cash payments including allowances, except temporary pay given at internals of every three months or so, as also presents in kind. The Wages applied for the 1934-36 period were computed by multiplying the day-wage per head by the number of mill operating days according to the "Monthly Wage Investigation" compiled by the Statistics Bureau of the Cabinet. The wages applied for the 1948—54 period are the average monthly cash payments per worker according to "Monthly Wage and Employments Survey", *ibid.*

3. Consumers' Price Indices (C.P.I.) are according to the Tokyo Basic Price Indices compiled by the Statistics Bureau, Prime Minister's Office.

4. Real Wage Indices are figures obtained after dividing th Nominal Wage Indices by the C.P.I.

TABLE 19. *WELFARE EXPENSES PER HEAD PER MONTH*

	Feeding Expenses	Facilities Expenses	General Expenses	Legal Welfare Expenses	Total
1952 . .	584	855	179	558	2,176
1953 . .	629	947	212	587	2,375
1954 . .	685	961	220	681	2,547
1955 . .	699	1,004	233	718	2,654

NOTES—1. The company borne "feeding expenses" mean the difference between the actual feeding expenses and the part borne by the employees.

2. The "facilities expenses" mean the cost of running and maintaining the dormitories, company-houses, schools, hospitals, etc.

3. The "general expenses" mean expenses for education, recreation, hygiene, and a part of the expenses borne by the companies for mutual aid association subscriptions.

4. The "legal welfare expenses" mean the part borne by the companies of the contributions to Health Insurance, Welfare Annuity Insurance, Unemployment Insurance, and Workers' Accident compensation, and contributions pertaining to the Workers' Accident Compensation law, and discharge-notice allowance.

Changes in the man hours required to produce a bale (400 lbs.) cotton of yarn converted into 20 count yarns.

1934–36	1948	1950	1951	1952	1953	1954	1955
93·5	120·8	107·2	107·2	100·8	83·2	69·6	64·8

Basis : (1)

$$\frac{\text{Average number of workers} \times 12 \text{ months} \times \text{Number of working days in a month} \times 8 \text{ hours}}{\text{Years cotton yarn production (converted in 20 counts)}}$$

(2) For the years 1934—36 is derived from Mr. Moriya's calculations.

2. *Textile Equipments*

Equip.	Kind	Unit	Year 1937	1946	1955
Man-mad fibres	Rayon filament	Daily production in metric ton	611,000	151,000	316,293
	Rayon staple fibre	,,	359,000	301,000	828,169
	Nylon	,,	..	..	33,310
	Vinylon	,,	..	..	27,535
	Vinyledene	,,	..	..	8,000
Spinnin	Cotton	1000 spindles	12,567	2,632	8,168
	Spun rayon	,,	550	174	2,144
	Spun silk	,,	462	194	115
	Worsted wool	,,	1,549	..	1,779
	Woollen yarn	,,	..	..	..
	Linen	,,	135	158	176
Weaving	Cotton + staple fibre	1000 Looms	363	134	375
	Silk + Rayon Filament	,,	379	198	248
	Wool	,,	29	11	26
	Linen	,,	6	14	6

Source : Textile Statistics Year Book.

3. *Annual Production of Textiles in Selected Years*

Kinds	Unit	1937	1946	1955
Rayon Staple Fibres . . .	1000 lbs.	175,494	20,624	536,748
Synthetic staple fibres . .	,,	..	..	18,824
Raw Silk	,,	92,124	12,433	38,215
Cotton Yarns	,,	1,586,480	128,056	855,258
Woollen Yarns	,,	147,902	28,176	184,748
Spun Silk Yarns	,,	12,834	4,548	3,426
Linen Yarns	,,	84,986	14,796	1,01,053
Rayon Filaments	,,	335,967	9,028	195,352
Spun Rayon Yarns	,,	80,507	10,687	410,938
Spun Synthetic Yarns . .	,,	..	..	29,241
Total	,,	2,344,705	209,655	1,996,454
Cotton Fabrics	,,	4,826,000	241,700	3,018,124
Woollen Fabrics	,,	279,608	22,938	185,615
Silk Fabrics	,,	439,308	46,667	208,822
Linen Fabrics	,,	42,239	14,222	137,550
Rayon Fil. Fabrics	,,	1,034,453	42,156	773,828
Spun Rayon Fabrics	,,	262,621	30,284	895,927
Synthetic Fibre Fabrics . .	,,	..	..	64,806
Total Woven Goods .	,,	6,841,990	397,967	5,344,658

4. *Domestic Consumption of Textiles*

Kinds	1937		1946		1955	
	Domestic consumption in 1000 lbs (A)	Per capita consumption in lbs (B)	Domestic consumption in 1000 lbs (A)	Per capita consumption in lbs (B)	Domestic consumption in 1000 lbs (A)	Per capita consumption-lbs (B)
Cotton . .	700,427	10·03	127,434	1·74	577,918	6·48
Silk . . .	30,537	0·44	5,744	0·08	25,845	0·29
Man-made Fibre .	205,091	2·94	16,875	0·23	385,009	4·31
Wool . . .	98,040	1·40	26,936	0·37	152,516	1·71
Linen . . .	40,705	0·58	14,032	0·19	23,530	0·26
Total .	1,074,800	15·38	191,021	2·61	1,164,818	13·05

Sources : Textile Statistics Year Book.

5. *Exports of Textiles.*

Kinds	Unit	1937	1946	1955
Cotton Yarn	1000 lbs	51,480	3,359	26,226
Raw Silk	,,	62,615	11,572	11,561
Wool Yarns	,,	7,343	..	7,877
Spun Rayon Yarns	,,	8,177	..	39,224
Rayon Filaments	,,	56,431	3,000	8,945
Total	,,	186,046	17,931	93,833
Cotton Fabrics	1000 sq. yds. 1000 lbs	2,643,429	982	1,138,829 246,210
Silk Fabrics	,,	122,362	928	30,02 2,467
Wool Fabrics	,,	34,670	459	17,751 8,945
Spun Rayon Fabrics	,,	16,755	..	521,391 140,739
Rayon Filament Fabrics	,,	485,128	..	342,549 60,435
Total	,,	3,302,344	2,359	2,050,542 458,796

Source : Customs Bureau of Ministry of Finance.

Textile Statistics Year Book.

APPENDIX VII 4

FIVE YEAR PLAN FOR ECONOMIC SELF-SUPPORT AND TEXTILE INDUSTRY

Prepared by

All Japan Cotton Spinners Association, Osaka, September, 1956

I. *Our view on the Five-Year Plan for Economic Self-support.*

The Japanese Government, in December 1955, framed an Economic Self-supporting Plan covering five years from 1956 (the Japanese fiscal year beginning April 1st, unless otherwise specified, throughout this paper) through 1960 as the target year. (This Plan was originally called the six-year plan, because 1955 had been intended for the starting year but later changed into a five year plan to begin from 1956).

The principal aim in preparing this Plan is stated by the Economic Planning Board of the Japanese Government as follows:

"To attain economic self-support so as to provide ample opportunities of employment to the increasing number of working population is a big problem the national economy of Japan has to face. In order to bring about economic stability and, at the same time, to solve this vital problem, a comprehensive and long-term plan must be established."

Needless to say, an economic plan of this type for a country like Japan, where economic system is based on the initiative of individuals and private enterprises, is quite different from the pattern in the Communist countries. The basic aim of this Plan is to attain an enlarged economy (by increasing gross national products from 7,241 billion yen in 1954 to 9,673 billion yen in 1956) with balanced international payments (from receipts of 2,366 million dollars against payments of 2,022 million dollars in 1954 to a balance at 2,964 million dollars both ways in 1960) so that Japanese economy will be large enough to provide necessary jobs to 44,860,000 out of the estimated working population of 45,310,000 in 1960 when the total population would reach 93,230,000 persons (see Table 1). The necessary policies to attain this object are enumerated in the Plan. In our opinion, however, these policies do not necessarily regulate all of actual economic activities but are to be interpreted as targets for the national economy of Japan to reach.

Moreover, we hear that this Plan will be revised every two years in accordance with changes in world economic and political conditions as well as actual developments in the domestic economy of Japan. Therefore, this Plan does not necessarily picture the

future position of Japanese textile industry. Nevertheless, we can see from the Plan how greatly our Government is expecting on the development of man-made fibres, especially of synthetic textiles, in order to increase the degree of textile self-sufficiency.

II. *Textile programme in the Five-Year Plan for Economic Self-support*

(1) *Production programme (see Table 2).*

Under the Plan, stress is directed to increase the export of natural fibre products, and domestic demand is to be satisfied as much as possible by increased production of chemical and synthetic fibres. Thus, the volumes of production in 1960 are to reach 941 million pounds of cotton yarn (against 972 million in 1954), 764 million pounds of spun rayon (462 million in 1954), 228·5 million pounds of rayon filament (187 million in 1954), and 257 million pounds of synthetics including acetate (29·2 million in 1954). As these comparative figures indicate, the tempo of expansion of synthetic fibre production is planned extremely high and for that reason a doubt is entertained by the natural fibre industries as to whether actual demand for synthetic fibres would justify such sharp increases in production.

The Industrial production indices (1954=100) by industries are expected to be, under the Plan, for chemicals at 183 and engineering at 160, followed by metals at 159, ceramics at 155, timber and timber products at 145. For textiles, the index will stand at only 132,or less than 142 for food products.

(2) *Estimated demand for yarns (see Tables 3 and 4).*

The estimated demands for various kinds of yarns are shown in Table 3, which indicates an increased demand for all kinds of yarns as far as clothing in domestic use and exports are concerned but anticipates a substantial decrease in cotton yarn demand for industrial use.

Per capita consumption of clothing textiles is shown in Table 4. The total consumption will rise from 12·64 pounds in 1954 to 14·97 pounds in 1960 as a result of higher level of consumption. However, the respective shares held by natural fibres and man-made fibres to the total consumption will change from 70·3 per cent and 29·7 per cent in 1954 to 58·3 per cent and 41·7 per cent, greatly in favour of man-made fibres.

Broken down by major fibres, *per capita* consumption of cotton yarn will slightly decrease from 5·68 pounds in 1954 to 5.62 pounds in 1960, whereas in all cases of man-made fibres, particularly synthetic fibre, consumption will expand 10 timse—from 0:19 pounds in 1954 to 1:88 pounds in 1960, and spun rayon also will increase by 13 per cent—from 2.51 pounds in 1954 to 2.85 pounds in 1960.

In the meantime, the "Textile Industry Equipment Deliberation Council" which was set up under the "Textile Industry Equipment Adjustment Law" will shortly estimate the volume of prospective demand for textiles in 1960. It is expected that, in the category of clothing demand, the share of each fibre will be somewhat different from that shown in the Five-Year Plan.

(3) *Textile trade prospect (see Tables 5 and 6)*

(a) Textile exports.

The textile trade program under the Plan as shown in Table 5, is that exports of cotton yarn will decrease from 29.5 million pounds in 1954 to 26:0 million in 1960, but cotton cloth exports will remain almost on the same level—from 1,278 million square yards in 1954 to 1,300 million in 1960.

In the case of man-made fibres, however, a substantial increase is anticipated: for instance, rayon filament yarn from 17·4 million pounds in 1954 to 23:0 million in 1960, spun rayon from 34·8 million to 40.0 million, rayon fabrics from 263.7 million square yards to 386.0 million, spun rayon fabrics—in view of remarkable export records attained in recent years—from 302:5 million square yards to 686·0 million, and synthetic fibres and their products to 48 million dollars in 1960. The export value of the "other" textile products would increase about 80 per cent. from 102.1 million dollars in 1954 to 183.9 million dollars in 1960 because of greater exports of made-up goods which are included in this category.

The total export of all textiles listed in Table 5 is planned to be increased considerably—from 549·8 million dollars to 774·0 million dollars in 1960. If 1954 is taken as 100, the index for 1960 (not including raw silk exports of 76,200 bales valued at 46·9 million dollars in 1954 and 140,000 bales valued at 77·0 million dollars in 1960) will be 141. This is much lower than 225 for metal products, 222 for machinery, and 207 for medical and chemical products.

(b) Imports

Under the Plan, the import of raw cotton will increase slightly—2,257,000 bales in 1954 to 2,350,000 bales in 1960, but that of pulp, in spite of much increased domestic supply, will rise sharply—from 99,000 tons in 1954 to 115,000 tons in 1960, in proportion with increased production in man-made fibre.

III. *Measures required in achieving the textile programme.*

ThTe following measures are proposed in the Five Year Plan as necessary steps in achieving the textile programme.

"That production of man-made fibres such as chemical, synthetic and acetate fibres shall be expanded and strengthened in compliance with long-range prospects in world textile markets as well as in view of the need of greater self-sufficiency in domestic market.

"That use of man-made fibre products and mixtures thereof should be encouraged in place of natural fibre consumption in domestic market, and greater efforts should be exerted for promotion of exports. The rate of domestic consumption of natural fibres shall be gradually reduced, but exports of natural fibre products shall be secured by means of production of finer goods and reduction in costs.

"In addition, the spinning section of natural fibre, and also the weaving section, if necessary, will be examined for the purpose of restricting, converting and/or purchasing surplus equipment."

Judged from the nature of the Five Year Plan, it is impracticable under present conditions to force the policy of gradual decline in home consumption of natural fibres as a national policy. However, the Government is already taking positive steps to encourage growth of synthetic fibre production by means of providing financial facilities for expansion of equipment, advantageous treatment concerning taxation, priority given in procurement of synthetic fibre products for the requirements of government and public bodies, financial facilities for the purchase of synthetic fishing nets, encouragement and promotion of the use of school uniform made of synthetics, etc.

The policy on textile equipment was taken up at our request and has been already implemented in the "Textile Industry Equipment Adjustment Law" which was recently promulgated.

TABL 1.—MAJOR ECONOMIC INDICATORS UNDER THE FIVE YEAR PLAN

Item	Unit	1954	1960	Index 1954=100
Total Population	1,000	88,350	93,230	105·5
Ratio of labour force	%	67·8	67·8	..
Labour force	1,000	40,460	45,310	112·0
Employed persons	1,000	39,820	44,860	112·7
Totally unemployed persons	1,000	640	450	70·3
Gross national products	21,000 million	7,241	9,673	133·6
National income	"	6,034	8,088	134·0
Gross private capital formation	"	1,110	1,741	156·8
Government purchases	"	1,385	1,896	136·9
Surplus of the nation on current accounts	"	131	22	16,8
Personal consumption expenditure	"	4,615	6,014	130·3
Personal consumption expenditure *per-capita*	1954=100	100	123·5	..
Industrial production	1934—36=100	166·9	256·5	153.7
Production of agriculture, forestry and fishing	1950—52=100	105·2	126·8	120·5
Balance of payments				
Receipts	Million dollars	2,366	2,964	125·3
Export	"	1,602	2,660	166·0
Invisible	"	764	304	39·8
General	"	175	304	173.8
Special procurement		589	..	..
Payments	"	2,022	2,964	146·6
Import	"	1,692	2,590	153·1
Invisible	"	331	374	113·0
Balance	"	344	0	..

TABLE 2.—PROGRAMME FOR FIBRE AND YARN PRODUCTION

Item	Unit	1954	1960
Cotton yarn*	million lbs.	972	941
Rayon staple	"	462	764
(Spun rayon)*	"	(360·5)	(524)
Rayon filament	"	187	228·5
Wool yarn	"	164	205
Synthetic fibre	"	23·1	192
(Spun synthetics)*	"	(27·3)	(262)
Acetate fibre	"	6·1	65
(Spun acetate)*	"	(14)	(89)

NOTE.—*Weight of yarn including mixtures.

TABLE 3

PROSPECTIVE DEMAND FOR TEXTILE YARN

(In million lbs)

	1954	1960
Domestic Demands		
(*a*) Clothing Uses		
Cotton	501·9	524·0
Wool	145·9	169·0
Spun rayon	221·8	265·7
Filament rayon	83·7	92·5
Synthetics	16·6	174·9
Acetate	9·3	50·0
(*b*) Industrial Uses		
Cotton	90·0	60·0
Wool	2·3	2·2
Spun rayon	3·0	3·0
Filament rayon	20·0	25·0
Synthetics	8·5	63·1
Acetate	..	..
Export Demands		
Cotton	347·0	365·8
Wool	28·8	34·2
Spun rayon	135·7	255·5
Filament rayon	78·3	111·0
Synthetics	0·7	23·7
Acetate	5·0	39·0
TOTAL		
Cotton	939·0	940·8
Wool	176·9	205·4
Spun rayon	360·5	524·2
Filament rayon	182·2	228·5
Synthetics	25·8	261·7
Acetate	14·3	89·0

TABLE 4

PER CAPITA TEXTILE CONSUMPTION (FOR CLOTHING USES)

(In lbs.)

	1954	1960
Natural fibers		
Cotton yarn	5·68	5·62
Wool yarn	1·65	1·81
Linen yarn	0·16	0·14
Silk yarn	0·25	0·27
Others	1·15	0·88
TOTAL (A)	9·89	8·72
(A)/(C) %	(70·3)	(58·3)
Man-made fibers		
Spun rayon	2·51	2·85
Filament rayon	0·95	0·99
Synthetic yarn	0·19	1·88
Acetate yarn	0·10	0·53
TOTAL—(B)	3·75	6·25
(B)/(C) (%	29·7	41·7
GRAND TOTAL (Cp)	12·64	14·97

TABLE 5.

TEXTILE TRADE PROGRAMME

	Unit of quantity	1954		1960	
		Quantity	Value in million (dollars)	Quantity	Value in million (dollars)
Export					
Wool yarn	million lbs.	11·9	26·3	11·0	22·0
Cotton yarn	,,	29·5	23.6	26·0	22·6
Filament rayon	,,	17·4	9·8	23·0	10·4
Spun rayon	,,	34·8	16·1	40·0	14·0
Cotton fabrics	million sq. yds.	1,278·1	252·3	1,300·0	260·0
Wool fabrics	,,	12·1	16·8	18·0	27.0
Filament rayon fabrics	,,	263·7	49·6	386·0	69·5
Spun rayon fabrics	,,	302·5	53·1	686·0	116·7
Synthetic fiber products			..		48·0
Othres			102·1		183·9
TOTAL			549·8		774·0
Import					
Pulp	thousands tons	99	20·4	115	23·6
Raw wool	thousands	551	147·0	780	187·2
Raw cotton	bales	2,257	409·0	2,350	434·8
Linen	,,		17·5		20·0

TABLE 6

EXPORT OF MAN-MADE FIBRE PRODUCTS

	Unit	1950	1953	1954	1955	1956 (Jan./June)
Filament rayon	thousnds lbs.	17,004	16,261	17,353	18,046	8,042
Spun rayon	,,	10,869	21,681	34,286	39,224	16,913
Filament rayon fabrics	thousand sq. yds.	232,143	228,445	263,720	342,549	221,314
Spun rayon fabrics	,,	60,658	144,946	302,540	521,391	299,823

Source : Ministry of Finance.

APPENDIX VII 5

PRESENT CONDITIONS OF THE CHEMICAL INDUSTRY IN JAPAN

Japan Chemical Industry Association

I. Post-war Reconstruction of Manufacturing Industries and Position of Chemicl Industry

Owing to the interruption of interchange of scientific techniques between Japan and foreign countries during the war and immediately after the war termination, the production technique in Japan after the war became considerably lower than the world level. In order to make up for this difference, the induction of foreign techniques and the formation of capital tie-up with foreign companies have been carried on positively in Japan especially since 1950. The aggregate total case of foreign capital induction up to the end of March 1955 numbered 518, valued at $218.2 million, payments abroad for this purpose reaching $5.6 million in 1951, $10.9 million in 1952, $17·9 million in 1953, $23·2 million in 1954 and $30·7 million in 1955. It is worthy of note that as regards the induction of foreign techniques the largest number of cases and most important techniques were related to the branch of applied chemistry.

On the other hand, researches and studies on scientific techniques in the country has also become active rapidly since around 1950. The disbursement of research expenses by private enterprises (the manufacturing industry branch) showed an increase of more than 4 times during the period from 1950 to 1953 (about 50 per cent increase in the disbursement of research expenses by national research expenses by national research institutes). This tendency has still continued and has been even more accentuated, reflecting the advancement of views about scientific researches of managers of enterprises. Because, most of them are engaged in management with the belief that at present, prosperity cannot be expected without the progress in techniques.

Thus, the level of industrial techniques in Japan has shown a rapid elevation, the technological vacuum during the war time having been mostly fulfilled. Excepting some special new techniques such as for instance atomic enery industry, petro-chemical industry, etc., the necessity to introduce foreign techniques in large scale seems to have lessened to a considerable extent.

The post-war rehabilitation of the chemical industry in Japan started from the production of chemical fertilizers which are necessary to secure food, or ammonium sulphate. By the united efforts of government and people, the production of ammonium sulphate

in 1949 exceeded the pre-war record figure. Next to this, the rehabilitation of production of various chemical products necessary for the reconstruction of industrial economy was taken up: the production of chemical products including soda, inorganic chemicals, tar products, synthetic dyes, synthetic resins, organic chemicals, paints, fats and oil manufactures, fermentation products, explosives for industrial use, photo-sensitive materials in 1950 recovered almost the pre-war level. Since then, the production has continued to be upward, and already exceeded the pre-war record figure. Moreover, new fields of the chemical industry which could not be found in pre-war days have been developed in succession.

Thus, the development of the chemical industry in Japan has been especially remarkable compared with other various industries. The production index for the mining and manufacturing industries compiled by the Economic Planning Board of Japan (1934-36=100) reveals that the composit index for the fiscal year 1955 averaged 187·7, whilst that of the chemical industry alone was 330·4, showing the largest rate of advance.

This high rate of advance in the chemical industry is expected to continue in the future. The Economic Council, which was established by the government estimates in the prospect of industrial production until 1960 recently drawn up that the production index for the chemical industry in 1960 will be 503.0 (1934-36=100). It is worthy of note that the above index is the largest, far exceeding figures for other industries.

TABLE 1. *Development of Production Index for the Mining and Manufacturing Industries*
(1934-1936=100)

Fiscal year	1953	1954	1955	1956	1957	1960
Mining & manufacturing	161.4	166.9	179.7	191.5	203.6	256.5
Mining	117.2	117.4	118.5	124.0	128.0	147.0
Manufacturing	167.5	173.8	188.2	200.4	213.6	271·3
Food processing	166.1	190.2	206.8	223.2	226.2	270.0
Textile	80.3	82.3	83.5	85.6	90.5	108.6
Printing	108.8	114.2	120.0	126.0	134.7	155·0
Chemical	233.1	274.8	313.5	341.5	378.0	503·0
Rubber	180.3	164.2	171.0	175.7	188.1	231·6
Timbering	174.6	176.7	185.8	195.0	210.4	257·6
Ceramic	163.5	173.7	182.9	192.3	203.3	269·8
Metal	194·2	193.2	214.8	219.8	230.7	307·2
Machinery	275·6	242.7	262.0	293.6	306.5	388·3

Note : Based on the 6—Year Economic Programme compiled by the Economic Council, Economic Planning Board

As regards the present position held by the chemical industry in the manufacturing industries in Japan, the statistics recently compiled and published (The Statistical Yearbook of the Chemical Industry compiled by the Ministry of International Trade and Industry) indicate that the production of the chemical industry (besides chemical products in the narrow sense, chemical fibres, paper and pulp, petroleum and coal products, rubber goods, leather goods, etc. are included) in 1954 totalled 1,134,268 million yen or 18.15 per cent of the total production of the manufacturing industries of 6,247,832 million yen, the number of employees in the chemical industry was 647,000 persons or 12.24 per cent of total employees in the manufacturing industries of 5,285,000 persons. Thus, the chemical industry in Japan holds a very important position in the manufacturing industries.

The sphere of the chemical industry according to the Japan's industrial classification can be understood by the following production statistics by industrial categories. The production of the chemical industry in the narrow sense based on this classification was 507,822 million yen in 1955, showing a marked increase as already mentioned.

TABLE 2. *Production of Chemical Industry (by Categories) Production value (million yen)*

Commodities	1950	1951	1952	1953	1954	1955
Ammonia its derivatives	53,865	65,115	86,128	90,225	100,221	103,968
Carbide & calcium cyanamide	17,358	20,068	32,188	26,332	23,546	28,115
Sulphuric acid	13,583	21,140	24,407	21,732	25,361	27,952
Phosphatic fertilizers	11,913	22,134	28,994	35,976	42,937	47,879
Soda industry chemicals	13,550	31,229	25,914	32,056	30,044	29,705
Inorganic chemicals & pigments	13,281	24,694	27,068	35,764	36,587	40,142
Explosives	4,072	5,446	7,189	8,890	8,023	11,324
High-pressure gas	155	224	2,896	7,145	7,557	9,285
Protein adhesives	430	703	718	942	1,150	1,035
Tar products	8,809	13,334	11,241	13,428	14,104	14,632
Dyes, pharmaceuticals & intermediates	5,380	11,734	8,427	10,544	10,934	14,305
Synthetic dyes	6,531	10,777	10,249	12,635	11,809	13,888
Organic chemicals	6,243	11,513	12,084	17,525	19,042	22,636
Synthetic resins & plastics	10,533	18,791	22,396	25,049	32,194	35,518
Ethyl alcohol	2,172	3,225	2,760	2,492	2,219	2,238
Organic acids	323	508	707	963	811	889
Photo-sentitive materials	4,426	5,946	7,046	19,433	11,913	14,674
Oils & fats products	37,893	45,433	33,825	37,635	45,521	55,328
Paints	11,645	16,277	16,505	22,475	23,778	25,262
Printing ink	3,368	4,052	5,326	6,131	6,421	7,758
Organic rubber chemicals	—	—	—	1,256	1,173	1,290
Total	225,530	332,345	366,069	418,629	455,343	507,822

Note: Based on Statistical Yearbook of the Chemical Industry compiled by the Ministry of International Trade and Industry.

II. Brief Survey of Principal Branches of the Chemical Industry

1. *Fertilizer Industry*

(a) Nitrogenous fertilizers

The backbone of the Japanese chemical industry is still the ammonous fertilizer industry (ammonium sulphate, urea, ammonium nitrate and ammonium chloride). The domestic demand during the recent fertilizer year (Aug. 1955—July 1956) is estimated to have increased by 10 per cent compared with the preceding fertilizer year, and the export trade was so active that the scheduled amount of 610,000 tons could not meet overseas demands. In view of the production capacity of ammonia, the raw material, the production in the fertilizer year 1957 is expected to reach 4 million tons (annual production in terms of ammonium sulphate), when the increase in production due to the rationalization works, which are now in progress in 17 factories of 14 companies, is taken into account (new installations are not included). As this production volume will exceed domestic demand, the ammonium sulphate industry must attach importance to this side as an export industry in the future. The international competitive power of Japanese ammonium sulphate has been recovered following the firm market abroad, but the fact that various measures for cost reduction adopted by domestic manufactures especially since 1954, when the 5-year rationalization programme was revised, have proved successful can not also be overlooked in this respect.

The production of principal nitrogenous fertilizers in Japan in 1955 was as follows:—ammonium sulphate 2,241,000 tons (in terms of N 20 per cent), calcium cyanamide 555,000 tons (in terms of N 20 per cent), ammonium nitrate 419,000 tons (besides, 15,000 tons for industrial use), ammonium chloride 56,000 tons (besides, 7,000 tons for industrial use), and urea 158,000 tons (besides, 14,000 tons for industrial use). The increasing tendency in the production of ammonium chloride and urea is extremely remarkable. Especially, the production increase of urea has been related to the rationalization of ammonium sulphate factories, and leading companies have begun to increase the production of urea. Consequently, the production capacity is expected to reach 400,000 tons in the fertilizer year 1958.

The carbide industry in Japan, which has developed from comparatively old times favoured by abundant hydro-electric power, registered the production of 674,000 tons in 1955. Of this total, 557,000 tons were produced in calcium cyanamide factories, 69,000 tons in factories manufacturing organic synthetic chemicals and the remaining 49,000 tons in factories where the production is carried on for the purpose of direct marketing.

(b) Phosphatic fertilizers

The nitrogenous fertilizer industry is blessed with raw material conditions, whilst raw material resources of phosphatic fertilizers in Japan are very poor, raw materials necessary for phosphalic

fertilizer mostly being imported. The import of these raw materials in 1955 totalled 1,646,000 tons, the principal sources being the United States which supplies the greater part of imports. The raw materials are also supplied by Egypt, French Morocco, Society Islands, other French oceania, Mariana Islands, etc., but the volume is relatively small.

Phosphatic fertilizers include compound fertilizer and fused phosphate fertilizer, besides superphosphate of lime. As regards superphosphate of lime which holds the leading position in phosphatic fertilizers, the number of manufacturers is 16 companies with 29 factories, the production capacity on April 1, 1955 being 3,269,000 tons. The actual production in 1955 totalled 1,795,000 tons of which 213,000 tons were exported. Fused phosphate fertilizers are mostly manufactured by the process using electric furnace. The raw materials are serpentine and phosphate rock. As sulphuric acid is not necessary for the manufacturing, this fertilizer has a special property not to acidify soils when it is used in farm land. Therefore, the production of this fertilizer has shown a marked development in Japan after the war, the annual rate of increase in production being 62 per cent in 1952, 74 per cent in 1953, 23 per cent in 1954 and 35 per cent in 1955. The actual production in 1955 reached 270,000 tons of which 11,000 tons were exported to South Korea.

As regards other phosphatic fertilizers, Thomas meal and compound fertilizers registered the production of 43,000 tons and 985,000 tons respectively in 1955.

Here, the sulphuric acid industry in Japan will be mentioned in addition. Japan is blessed with abundant resources of sulphur, and techniques and equipment of sulphuric acid manufacturing have reached the world level due to relatively long history and efforts for researches and studies. The production capacity was 16,749 tons per day (in terms of 50° Be) of 67 factories on April 1, 1955; the production in 1955 was 5,264,000 tons (in terms of 50° Be) valued at 27,952 million, of which 3,997,000 tons were provided for self consumption and 1,694,000 tons were sold on market. Owing to the development of various branches of the chemical industry, where sulphuric acid is used, in addition to the fertilizer industry, the supply is apt to be short.

2. *Soda and Related Products*

Owing to the post-war rapid rehabilitation of various industries, which use soda as raw materials, such as chemical fibres, glass, paper and pulp industries, and the rise of new industries requiring soda such as polyvinyl chloride, metallic titanium, etc., the soda industry in Japan has raised its importance as a basic industry.

The production of various soda products in 1955 totalled yen 29,705 million, including 517,000 tons (yen 16,310 million) of caustic soda 330,000 tons yen 5,481 million) of soda ash, 69,000 tons (yen 2,010 million) of liquid chlorine, and 223,000 tons (yen 1,812 million) of hydrochloric acid.

The defect of the Japanese soda industry is the fact that the domestic production of salts, the raw material, is so small that the supply depends on imports from the People's Republic of China, Formosa, Thailand, India, Aden, Egypt, Spain and other countries.

Imports of salts in 1955 attained to 2,183,000 tons. Of course, salts are produced in Japan, and the output has shown a gradual increase through government encouragement, reaching 594,000 tons in 1955. But domestic salts cannot be used as industrial raw materials due to high costs and are generally appropriated for the replenishment of table salts. In order to eliminate the dependency of industrial salt on imports, various technical researches have been conducted. Production costs have shown marked decline, but not yet reached the stage to compete with imported salts. However, research and development of ambitious new techniques are now being carried on enthusiastically.

3. *Inorganic Chemicals*

Chemical products of various kinds which are generally known as inorganic chemicals are used originally as auxiliary materials and are not final products. Consequently, the rise and fall of them are influenced by the development of related industries. Branches which have a close relation with inorganic chemicals are paints, printing ink, chemical fibres, paper and pulp, rubber goods and pharmaceuticals. The production of inorganic chemicals in 1955 totalled yen 40,142 million, taking the important position in the Japanese chemical industry. Manufacturers of inorganic chemicals are mostly of medium and small enterprises, therefore, the improvement of quality and lowering of prices through rationalization seems to have been delayed as compared with other chemical products. However, following the enlargement of production scale, rationalization has recently been promoted. A general review of principal inorganic chemicals is given below.

Carbon disulphide is consumed to the extent of 97 per cent in the manufacturing of rayon filament yarn, rayon staple and cellophane. The production in 1955 reached 108,000 tons (yen 4,455 millions).

Glauber's salts, which are collected as by-products of the chemical fibre manufacturing and others, are used mainly in branches of dyeing, paper and pulp and sheet glass of and for the manufacturing sodium sulfide. The production in 1955 was 505,000 tons (yen 221 million) of crystal Glauber's salts and 103,000 tons (yen 756 million) of Glauber's salts anhydride.

The development of the phosphorous chemicals including yellow phosphorous, red phosphorous, phosphoric acid, etc., has been striking. The production of the above three times in 1955 reached yen 738 million, yen 144 million and yen 780 million respectively. The output of sodium bichromate has shown no marked increase, but the figure in 1955 attained to 11,646 tons (yen 1,258 million), maintaining an important position among inorganic chemicals. Besides the above, sodium silicate (81,701 tons, yen 1,099 million), silver niterate (226,357 kg., yen 1,557 million), aluminium sulphate (73,623 tons.

yen 1,067 million), active carbon (5,463 tons, yen 1,440 million), quick lime (574,0000 tons, yen 1,951 million), slaked lime (657,000 tons, yen 2,215 million), precipitated calcium carbonate (67,850 tons, yen 1,060 million), zinc oxide (13,700 tons, yen 1,928 million), etc. can also be pointed out as important items.

The production of titanium oxide has shown a remarkable advance after the war, reaching 17,298 tons (yen 3,391 million) in 1955. The domestic demand is about 10,000 tons a year, therefore, the surplus has been appropriated for exports. This industry constitutes one of the new branches of the chemical industry which have developed after the war. The future prospect of this product as an export commodity is promising from the view point of quality and prices.

The production of iodine which was 511 tons valued at yen 532 million in 1955 is not so important from the viewpoint of its value. However, it is worthy of note that after the war iodine has begun to be collected from natural gas wells, becoming a special product of Japan.

4. *Explosives*

The post-war rehabilitation of the explosive industry has been remarkable. The production of industrial explosives increased markedly from 8,277 tons in 1946 to 29,161 tons in 1953. Later some recession set in, the production in 1955 being 26,750 tons (yen 5,260 million). Now, the industry has export capacity, because the production is in excess of domestic demand.

5. *Tar Products*

The supply of coal tar in Japan after the war has shown a marked increase following the rehabilitation of iron and steel industry and the spread of gas industry, the production reaching 508,760 tons in 1955. As a result, the production of tar products increased to yen 14,632 million in the same year.

Principal tar products produced in 1955 were as follows:— Pure benzol 40,566 tons, pure toluol 7,738 tons, creosote oil 140,928 tons, pitch 263,167 tons, tar acids 6,150 tons, crude naphthalene 28,699 tons, etc.

The domestic demand for tar products has shown a continued increase year after year from related industries including synthetic fibres such as nylon, synthetic resins, agricultural chemicals, dyes-intermediates, etc. Especially, the demand for benzol, is expected to show a remarkable increase in the future. If so, the supply is anticipated to be in short, unless a considerable amount is furnished by the petroleum industry. Under these circumstances, a replenishment programme is investigated from the two sides of petro-chemical and coal-chemical industries.

6. Intermediates and Synthetic Dyes

The manufacturing of synthetic phenol in Japan had developed to supply for explosives (picric acid), but, after the war, following the appearance of a new demand from nylon manufacturing, the conditions have undergone a complete change. At present, the greater part of demand is occupied by nylon manufacturing and the remaining part comes from the manufacturing of phenol resins. The production of synthetic phenol in 1955 was 12,242 tons (yen 2,640 million); the present production capacity of 3 companies is 1,700 tons per month, and a production increase programme is now in progress.

The increase in production of aniline has been inactive in recent years due to the weak conditions in dyestuff and rubber chemicals industries. The production in 1955 was 5,296 tons (yen 880 million).

The production of phathalic anhyderide has shown a remarkable increase following the development of polyvinyl chloride industry and in expectation of larger demand from alkyd resin paints in the future, the figure for 1955 being 8,968 tons (yen 1,369 million) as against 4,211 tons in 1953.

The production of maleic acid anhydride in 1955 was still very short, though a remarkable increase is expected in the future.

The output of synthetic dyes in 1955 was 20,305 tons (19,142 tons in terms of pure indigo), registering a post-war high record despite the inactivity in market conditions. The increase was especially pronounced in dyes for chemical fibres, vat dyes and naphtol dyes.

The production of thren dyes increased remarkably, reaching 162 tons in 1955, almost six times the figure for five years ago. Flourescent dyes have become able to compete with imported goods in regard to quality and prices; as a result, the production in 1955 reached 316 tons (yen 593 million).

Exports of dyes in 1955 totalled 1,783 tons (yen 1,110 million), whilst imports reached 1,618 tons (yen 3,650 million).

7. Synthetic Resins and Plastics

The most noticeable movement in the chemical industry in Japan after the war is the development of synthetic resin branch. Needless to say, in Japan, the celluloid industry had developed from old times, and the manufacturing of phenol resins and introcellulose had been industrialized. While the development and spread of new synthetic resins such as urea resins and polyvinyl chloride after the war, have been very striking, the production in 1955 reaching 39,932 tons (yen 5,577 million) for the former and 32,370 tons (yen 5,948 million) for the latter. Since then, the demand has continued to increase, following the cultivation of new applications and the improvement of processing techniques. In view of the facts that raw materials are completely supplied from domestic resources and that processing of products to finished goods requires much labour force, the synthetic resin industry can be said to be most suitable for Japan.

Besides the above two synthetic resins, the manufacturing, of melamine resins, polyester resins, silicon resins, etc. has already been industrialized, and the increase in production is expected in the future. Further, new synthetic resins such as polyethylene, polystyrene, polypropylene, etc. are expected to be manufactured within several years by petro-chemical works, which are now under construction.

Needless to say, much expectations are also entertained of the development of phenol resins, nitrocellulose and celluloid.

8. *Chemical Fibres*

The textile industry centering on raw silk and cotton had been the most powerful industry which supported the Japanese national economy since the Meiji era. However, this industry seems to have entered the conversion stage as regards raw materials. There developed a tendency of utilizing chemical fibres, in particular synthetic fibres, raw materials of which are available in the country and products of which have a great possibility of exports.

New textile fibres, which are produced in Japan at present, such as polyamide fibre (nylon), polyvinyl alcohol fibre (Vinylon), vinylidene chloride and vinyl chloride copolyner fibre, cellulose acetate, etc., have been industrialized after strenuous efforts of research and development made by various companies for a long time. Besides, the production of polyester fibre and polyacrylic fibre will be commenced in the near future, and raw materials necessary for the production of these synthetic fibres are expected to be available in the country.

The production of nylon continued to increase since 1954 when the monthly figure exceeded 1 million lbs., reaching 17.800,000 lbs. in 1955, 76·4 per cent larger than in 1954. Manufacturing companies number 2. The Japanese government is contemplating measures for raw materials on the basis of prospected production of 37 million lbs. in 1959.

Vinylon is manufactured in 5 factories of 4 companies. The monthly production exceeded for the first time the level of 1 million pounds in June 1955, and the annual production for the whole year of 1955 reached 13,580,000 lbs., an increase of 67·4 per cent compared to the preceding year. The goverment is contemplating raw materials replenishing measures, to meet the scheduled production of 74 million lbs. in 1959.

Vinylidene chloride and vinyl chloride copolymer fibres are manufactured by 2 companies. This fibre has excellent uses as a substitute of hemp, jute, ramie, etc., but its uses are not so popular. The government estimates the production in 1959 at 19,800,000 lbs.

The production of cellulose acetate is carried on by 2 companies. It is used for acetate fibre, non-inflammable and soft photo-film base, and materials for paints. Acetate fibre can take the place of cotton and wool, therefore, its production has shown a marked expansion suddenly in expectation of checking imports and promoting exports. The production is undertaken by 5 companies.

9. *Organic Chemicals*

Methanol manufacturing factories now in operation number 6, the production capacity being about 8,000 tons per month. In the past, coal or coke was used as raw material, but since 1952, the production using natural gas as raw material has been commenced, bringing about a marked increase in production. The production in 1955 reached 63,265 tons (Yen. 3,659 million). The largest customer is formaline manufacturer, followed by pharmaceuticals, paints, polyvinyl alcohol and synthetic resins manufacturers.

Formaline is manufactured in 10 factories of 9 companies, and the production capacity is about 8,000 tons per month. It is used mostly for manufacturing urea resins. Supported by the firm market of urea resins the demand for formaline has been very active. The production in 1955 was 58,478 tons (Yen. 2,883 million).

Synthetic acetic acid is manufactured in 7 factories of 6 companies, and the monthly production capacity is about 3,200 tons. Owing to the firm market of vinyl acetate, cellulose acetate, acetate ester etc., the production of synthethic acetic acid has been active, reaching 28,894 tons (Yen. 2,895 million) in 1955. The production of acetic anhydride in the same year was 10,256 tons (Yen. 0,961 million) and that of various acetates 10,146 tons (Yen. 1,417 million).

The production of plasticizers has shown an increase due to the activity in the manufacturing of polyvinyl chloride.

The output of DOP and DBP, principal phthalate plasticizers, witnessed a satisfactory increase, the former reaching 5,481 tons and the latter 3,420 tons in 1955.

Principal fermentation product is Ethylalcohol. The annual production capacity of alcohol in April 1955 was 29,400 tons for government factories and 39,300 tons for private factories, the total being 68,700 tons. The actual production in 1955 was 26,676 kilolitres.

Acetone and butanol are manufactured in Japan through the synthesis process using acetylene as raw material and the fermentation process using molasses and sweet potatoes. Factories in operation manufacturing acetone through the former process number 2, and those manufacturing butanol also 2. Factories of the latter process in operation are 3. The present production capacity is 495 tons per month for acetone and 950 tons per month for butanol. The actual production in 1955 was 4,818 tons (Yen. 599 million) for acetone and 10,230 tons (Yen. 1,747 million) for butanol.

10. *Oils and Fats Products*

Owing to the heavy decline in the supply of cheap fish oil from shore fishes and the loss of domestic resources of oils and fats after the war, Japan is making up the shortage of oils and fats materials through imports of beef tallow, copra, palm oil, cotton-seed oil, castor oil, etc. Imports of beef tallow in 1955 were 117,381 tons.

Arrivals of whale-oil reached 86,880 tons of which 41,774 tons were appropriated for domestic consumption and the remaining 45,606 tons were exported. As regards whale-oil for domestic consumption, fen-whale-oil is used as raw materials of margarine and shortening; sperm-whale-oil is used for manufacturing high grade alcohol. The consumption of coconut oil has shown a marked increase due to larger demand from soap, edible hardened oil and higher alcohol manufacturing, Imports of copra in 1955 increased heavily to 50,736 tons.

As regards the production of principal products in 1955, fatty acid registered 41,763 tons (Yen. 370 million) showing some stagnant development in recent years but still constituting an important product of oils and fats. The production of both edible and industrial hardened oil totalled 66,878 tons (Yen. 8,659 million) and that of glycerine 5,792 tons (Yen. 1,822 million). The production of soap, a leading item in the oils and fats industry, has shown a remarkable increase in recent years, the figure for 1955 being 279,177 tons (Yen. 31,473 million). The increase in production of surfactants has been far greater, the total production of various surfactants in 1955 being 41,270 tons (Yen. 6,877 million) as against 11,751 tons (Yen. 1,633 million) in 1950. Exports of oil and fat products in 1955 totalled Yen. 625 million, glycerine accounting for Yen. 463 million.

11. *Paints*

The paint industry has witnessed a marked activity, reflecting larger production in main consuming fields such as shipbuilding, rolling stock, machinery, and automobile industries. The production in 1955 reached 145,014 tons (Yen. 25,262 million). By categories, the largest production in quantity is registered in oil paints followed by lacquers, enamel paints, etc. It is worthy of note that synthetic resin paints have shown a noticeable increase in production.

Following the increase in production, raw material consumption has become larger. The consumption of oils and fats in 1955 was 21,687 tons, an increase of 5 per cent. compared with the previous year, that of natural resins declined by 5 per cent. to 8.085 tons, that of titanium white increased by about 48 per cent. to 4,628 tons and that of carbon black increased by about 4 per cent. to 3,484 tons. Generally speaking, the consumption of imported raw materials declined, whilst that of domestic products increased, indicating the lessened dependency of raw materials on imports.

12. *Printing Ink*

Reflecting the prosperity in publishing circle, the production of printing ink has shown a favourable increasing trend. The figure for 1955 including various kinds of printing ink totalled 25,676 tons. (Yen. 6,571 million) as against 10,369 tons (Yen. 2,853 million) in 1950. Factories now in operation number 108 which are mostly of medium and small scale. Among these factories, those belonging to so-called large enterprises are 6 factories of 2 companies, which are producing only 20 per cent. of total production. Exports of products

in 1955 were 516 tons (Yen. 182 million) and imports 115 tons (Yen. 82 million), registering excess of exports. There developed a tendency toward larger exports and smaller imports.

13. *Pharmaceuticals*

The pharmaceuticals industry in Japan is one of those industries which have shown most noticeable development after the war. The production continued to increase from Yen. 31,916 million in 1950 to Yen. 87,466 million in 1955. As regards the production in 1955 according to medicinal properties, liniments were Yen. 11,730 million, anti-biotics Yen. 11,941 million, vitamins Yen. 11,677 million, medicines for nervous systems Yen. 8,853 million, digestives Yen. 7,663 million, chemo-therapeutical medicines Yen. 7,127 million.

Exports of pharmaceuticals have shown a marked increase in recent years. The figure for 1955 was Yen. 3,001 million which accounted for only 3·5 per cent. of the total production, indicating a strong possibility for the future advance of export trade. The largest export item was vitamins (Yen. 1,279 million), followed by sulfa drugs and anti-biotics.

14. *Photo-sensitive Materials*

The photo-sensitive materials industry in Japan succeeded in completing rehabilitation within several years after the termination of war. The production in 1935 reached yen 14,674 million: of which films such as X-ray film, cine-film, etc. (including colour films), amounting to Yen. 11,232 million (8,005,696 sq. meters), photo-sensitive paper (Yen. 1,698 million), and photo-sensitive plates (Yen. 327 million). Exports in 1955 were only Yen. 329 million, therefore, these products have no marked importance as export goods. However, it must be remembered that photo-sensitive materials producing countries number less than 10 countries in the world, and among these Japan is one of the largest producing countries.

15. *Seasonings, in particular MSG.*

Mono-sodium glutaminate which was invented and industrialized in Japan, is still leading the world market. The production totalled 8,809 tons in 1955, of which 4,179 tons, almost half of the total, were exported. Destinations are spread over the world, principal ones being Hongkong, Switzerland, West Germany, Italy, the United States, the Netherlands, the United Kingdom, etc. M.S.G. figures prominently in various export chemical goods in the point that the export value of this unit item reaches a huge sum. However, the expansion rate of exports has recently slowed down due partly to the progress in self-supply in the importing countries but considerably to the competition with the United States.

16. *Agricultural Chemicals*

Following the shift of major products of the agricultural chemicals industry in the world from inorganic compounds before the war to organic compounds after the war, the agricultural chemicals industry

in Japan has also realized a remarkable progress. The production increased from about Yen. 2,500 million in 1950 to Yen. 12,315 million in 1955. Of this total, organic compounds amounted to Yen. 9,586 million or 77·9 per cent. and inorganic compounds Yen. 1,939 million or 15·7 per cent. The greater part of the former was occupied by parathion, B.H.C. and mercury compounds which developed after the war. Agricultural chemicals in Japan are manufactured principally by about 10 chemical companies. Some agricultural chemicals still depend on the supply from foreign countries, imports in 1955 amounting to Yen. 1,600 million. On the other hand, exports have shown a gradual increase, the figure for 1956 being expected at about Yen. 1,300 million. Principal items are B.H.C. mercury compounds, DDT, chloropicrin, etc. shipped mainly to Formosa.

17. *Petro-Chemical Industry and Natural Gas Products*

Following the increase in demand for synthetic resins and synthetic fibres after the war, there appeared a fair prospect of stabilized demand for various compounds produced by petro-chemical industry. On the other hand, petroleum refining capacity has gradually been enlarged and its techniques have been modernized. Under these circumstances, there arose a movement to establish petro-chemical industry among some oil refining companies and some leading chemical concerns, from around 1953. Actual projects have been drawn up since 1954, and the number of enterprises, which were approved under the government principles for producing the petro-chemicals on a commercial basis, reached already 6 companies, which are expected to start the production from the end of 1956 or in 1957.

The annual output of natural gas in Japan reaches about 155 million cubic meters, of which 70 per cent. are used as fuel and the remaining 30 per cent. as a raw material of the chemical industry for the production of methanol.

The utilization of natural gas as a raw material of the chemical industry has recently been watched with keen attention. Since 1955, chemical enterprises to use natural gas as a raw material of ammonia and other chemical products, besides methanol, appeared in succession.

APPENDIX VIII

ARTICLES OF JAPAN PRODUCTIVITY CENTRE

CHAPTER I GENERAL PROVISIONS

Article I The object of the Foundation shall be to increase the productivity of the Japanese economy.

Article II The name of the Foundation shall be the "Japan Productivity Centre, Foundation".

Article III The Foundation shall have its principal office in Chiyoda-ku, Tokyo.
2. The foundation shall be entitled to have subordinate offices at any required locations as occasion demands, in accordance with the resolution of the Board of Directors.

Article IV The Foundation shall carry out the following projects in order to attain the object specified in Article I:

1. Sending overseas inspection groups for the purpose of increasing productivity.

2. Inviting foreign specialists on productivity.

3. Studying on, investigating into, and diffusing around the scientific control regarding production, sales, labour and problems on management.

4. Practicing trainings in production, sales, labour and management.

5. Diagnosing and guiding practically for the purpose of increasing productivity.

6. Investigating into, introducing in and diffusing around the advanced foreign techniques.

7. Enlightening and propagating for the purpose of increasing productivity.

8. Collecting materials in connection with productivity.

9. Operating the other projects necessary to accomplish the object of the Foundation.

Article V The enactment and the amendment of the detailed regulations necessary to practice the Act of Donation shall be established by President on the resolution of Board of Directors.

Chapter II Fiscal Year, Property and Accounts.

Article VI The endowment fund of the Foundation shall be consisted of the following as specified in each of three items.

1. Y1,000,000 (one million yen) donated on the occasion of establishment.

2. Properties subsidized or donated with specifications after the establishment.

3. Properties transferred to the fund by the decision of Board of Directors.

Article VII The cast of the fund shall be in the custody either by depositing it in trustworthy banks or by leavnig it in trust with trust companies; and otherwise by converting it into national and public bonds or into other securities.

Article VIII The fund shall not be disposed of without the authorization of the competent minister on the resolution of Board of Directors.

Article IX The expenditure of the Foundation shall be defrayed by the fruits raised from the endowment assets provided in Article VIII; and by donations, subsidies, and other revenues.

Ariticle X The fiscal year of the Foundation shall begin on April 1, and shall end on March 31 the following year.

Article XI The Foundation shall draw up its business programs and budget of incomes and expenditures prior to the opening of every fiscal year and must have them got through the decision of Board of Directors.

Article XI The foundation must draw up every fiscal year the business report, the statement of accounts, the itemized statement of balance forwarded and the inventory of properties; and, after having obtained the approval of Board of Directors through the auditors inspection, must submit them to the competent minister within two months after the conclusion of every fiscal year.

Article XIII The surplus fund of every year shall either be carried to the next business term or be transferred to the endowment fund on the decision of the Board of Directors.

Chapter III Officials and Board of Directors.

Article XIV The Foundation shall maintain the following officials:

President:	1 (one)
Vice-president	Numbers unfixed
Managing Director	1 (one)
Directors	20—30 (not exceeding thirty above twenty)
Auditors	2 (two)

2. President, Vice presidents, Managing Director and Directors shall take the responsibility as directors under the civil code.

Article XV The officials shall be elected among managers, labourers and those learned and experienced by the procedures provided in Article XVI.

Article XVI The president shall be elected by the Board of Directors.

2. Vice-president and the Managing Director shall be commissioned by President on the approval of Board of Directors.

3. Directors shall be commissioned by President.

4. Auditors shall be commissioned by President.

Article XVII The President shall preside over the whole business on behalf of the Foundation.

2. Vice-presidents shall administer the business by assisting President; and, in case the President is in inaction owing to unavoidable circumstances or during the time the position is vacant, shall execute as proxy the duty of Predent in accordance with the provisions fixed in advance.

3. Managing Director shall execute business by assisting President and Vice-Presidents; and, in case both of President and Vice-presidents, are in inaction due to unavoidable circumstances or during the time their positions are vacant, shall execute as proxy their duties.

4. Directors shall direct the affairs of the Foundation and also shall deliberate and make decisions at their meetings on the important items in regard to the affairs of the Foundations.

5. Auditors shall audit the properties and accounts; and also shall inspect the proceeding state of business.

Article XVIII The term of officials shall be one year but there shall be no rejection to re-appointment.
2. Officials shall remain in duty, even after the expiration, of their terms, till their successors are installed.

3. When vacancy occurs to officials, the positions shall be left unfilled in case no hinderance in the management of business is acknowledged by the Board of Directors.

4. The term of an official appointed by by-election shall be the remaining duration of his predecessor's term.

5. The term of an official appointed according to the increase of staff shall last till the term of the other officials expire.

Article XIX This foundation shall found the Board of Directors.

2. The Board of Directors shall be made up of President, Vice-president, Managing Director and Directors.

3. Auditors shall be able to express their opinions at the meetings of Board of Directors. But they shall not participate in voting.

Article XX Director's meetings shall be classified into regular meetings and extra-ordinary meetings.

2. Regular meetings shall be held twice a year.
3. Extraordinary meetings shall be held when, (a) the President realizes it necessary, (b) the Board of Directors (including Vice-presidents and Managing Director) demand the call of meeting by indicating the items for the meeting's object with joint signature, or (c) Auditors demand the call of meeting by showing the items for the meeting's object with joint signature.

Article XXI The subjects given in the following items must be decided or approved at the meetings of Board of Directors:

1. Business program and budget of balance .

2. Business reports, settlement of account, itemized balance brought forward from the last account, and the inventory of properties.

3. Other items acknowledged by President.

Article XXII The meetings of Board of Directors shall be convened by President and shall be presided over by him.

2. The proceedings of Board of Directors shall be decided on the agreement of the greater part of attendance (exclusive of Auditors, the

same shall apply hereinafter. In case pros and cons are of the same number the decision shall be made by President.

3. When necessitated urgently, or in case it is realized that the circumstances are in difficulty to call up the Board of Directors, or else, of the slight subjects, President shall make decisions on asking pros and cons by letter instead of calling up the Board of Directors.

4. With regard to the proceedings of Board of Directors, minutebook must be made, recording in it the substance of the processes and results of meetings with the signs of no less than two of the officials attended as well as of the chairman.

Article XXIII When officials who fall under Clause No. 1 of the following paragraphs are decided to be relieved of their positions by Board of Directors with the concurrence of more than two-thirds of attendance, the officials must be released from their offices by the Foundation.

(1) Officials who acted against the permance of this foundation.

(2) Officials who defamed the Foundation.

2. Officials who fall under the preceeding clauses shall not be allowed to participate in the voting.

Chapter IV Counsellors and Councillors

Article XXIV The Foundation shall be allowed to have counsellers and councillers.

2. Councellors shall submit their advices and suggestions on administrative policy and such like, and Councillors, on the concrete managerial programs as requested by President.

3. Counsellors shall be nominated by President, on the approval of Board of Directors, among those who have done meritorious services to the Foundation as well as among those who are learned and experienced.

4. Councellors shall be nominated by President among the learned and experienced.

5. The term of Councellors and councillors shall be one year.

Chapter V Office and Personnel

Article XXV The Foundation shall have an executive office.

Article XXVI The executive office shall be furnished with one director General and necessary personnel.
2. The Director General shall control the general affairs under the orders of President.

3. The Personnel shall conduct general affairs at the command of Director General.

4. The Director General shall be appointed and dismissed by President.

Article XXVII The necessary matters with regard to the executive office and personnel besides those regulated in the preceeding two articles shall be established by President.

CHAPTER VI AMENDMENT AND DISSOLUTION OF ACT OF DONATION.

Article XXVIII The revision of the Act of Donation shall need to obtain the authorization of the competent minister through the decision agreed by the majority of attendance at the meeting of Board of Directors consisted of the majority of officials (exclusive of Auditors, the same shall apply hereinafter).

Article XXIX The dissolution of the Foundation and the disposition of its residue shall need to obtain the authorization of the competent minister on the decision assented by not less than two-thirds of attendance at the meeting consisted of more than two-thirds of officials.

Article XXX When the Foundation has been dissolved, the officials shall act as liquidators, and the auditors as liquidation auditors, other liquidators, however, shall be allowed to be elected on the approval of the Board of Directors.

SUPPLEMENTARY ARTICLES.

(1) The Act of Donation shall take effect on the day authorized to establish the Foundation.

(2) The first business term of the Foundation shall begin on the day it established and shall end on March 31st, the following year.
(3) The terms of officials (including Auditors) in the year the Foundation established shall end on March 31st.

(4) The officials of the Foundation at the start of its establishment are as follows:

President
Vice-presidents (2)
Managing Director

Directors (18)
Councellors (39)

APPENDIX IX

BUDGET OF J.P.C. FOR THE YEAR 1956 (*Unit 1000 yen*)

Classification	Item	Contents	Income	Expenditure
Administration	For the Centre	Rent of office	..	6,600
		Office equipment	..	2,367
		Personnel	..	35,565
		Conference & Liaison	..	4,039
		General Administration	..	17,018
			..	66,018
	For Reg. Centres			13,600
				79,618
Operations of J.P.C.	Overseas Technical Excahnge	Sending teams to (i) U.S.A.	50,269	120,770
		(ii) Europe	14,650	26,175
			64,919	146,646
		Inviting Specialists from abroad.		
		Seminars	2,200	3,477
		Consultants	0	0
			2,200	3,477
		Long term trainees	0	0
		Interpreters	0	2,584
		Receiving Indian Productivity Team	0	1,665
			0	154,372
	Productivity Research	Research	0	3,352
		Consigned Research	0	3,500
		Model factory	0	2,091
			67,119	8,943
	Information Centre	Books, magazines pamphlet, etc.	0	3,293
		Translations	0	4,251
		Technical Consultation	252	400
		Equipment	0	530
			252	8,474
	Productivity Education	Productivity courses	100	2,089
		Do. Institute	789	2,679
		Do. Lectures	0	823
		Do. study meetings	200	588
		Domestic teams	852	1,070
		Circuit Consultations	0	331
			1,941	7,580
	Public Relations	Newspaper	9,538	16,808
		Publications	24,456	36,883
		Broadcasting	0	2,063
		Movies	9,000	29,303
		Exhibition	0	8,480
			42,994	93,537
			112,306	272,906

Classification	Item	Contents	Income	Expenditure
	(Unit : 1000 yen)			
	Reserved Fund .		0	34,415
			127,306	416,939
	B/F from 1955 .		13,683	23,929
	Contributions : .	(i) Donations .	61,960	
		(ii) Contributions from U.S.A. .	11,213	
		(iii) Special contributions .	121,216	
	Govt. Subsidy .		75,000	
	Profit from PL 480 investment.		11,470	
	Others . .		15,000	..
	GRAND TOTAL . . .		440,868	

APPENDIX X

FUNDS PROVIDED BY ICA/W FOR IMPLEMENTATION OF TECHNICAL COOPERATION PROGRAMME

(As of June, 1956)[1]

Activity	Number of Participants	Technicians	Fy 1955 (*in dollars*)	Fy 1956 (*in dollars*)
1 *Industry—Total*			240,100	611,200
a. Participants (Teams to U.S.)—TOTAL	332		84,000	288, 35
1. Steel Industry	11		12,000	
2. Automotive Industry	11		12,000	
3. Management Development & Productivity (Nagoya)	11		11,000	
4. Top management	14		12,900	4,750
5. Cost Control Study	10		12,000	
6. Materials Handling Study	12		12,200	
7. Heavy Electrical Industry	12		13,000	
8. Shoe Manufacturers	11			11,300
9. Automotive Parts Industry	12			12,300
10. Industrial Machinery Manufacturers	12			12,300
11. Electrical Contractors	12			12,300
12. Building Construction Techniques	13			13,300
13. Marketing Techniques Study	13			16,300
14. Life Insurance Business Study	12			12,300
15. Offlce Managment Practices Study	13			13,300
16. Engineering Practices Study Tunels & Dams	11			13,500
17. Heavy Chemical Industry	12			12,300
18. Human Relations Study	12			12,300
19. Economic Rehabilitation	10			16,000
20. Industrial Design Study	13			13,300
21. Lumber Industry	12			13,700
22. Tourism	6			9,300
23. S.S.S. Study	13			13,300
24. Power Plants Operations	13			17,300
25. Vegetable Oil Industry	13			16,300
26. Second Top Management	13			13,300
27. Foundry Industry	12			16,300
28. Distribution Techniques Study	13			13,300
(*b*). Contract Services—TOTAL	26		80,000	145,300
1. Management Seminar		5	25,000	
2. TWI Institute		3	40,000	
3. Marketing Seminar		5	15,000	10,000
4. Industrial Engineer—Iron & Steel		1		12,600
5. Industrial Engineer—Assembly & Work Factor		1		15,000
6. Corporation Controller Specialist		1		12,600
7. Foundry Specialist		1		12,600
8. Marketing Speciaist		1		15,000
9 Product Design Specialist		1		15,000
10. Handicraft Design Consultant		1		11,000
11. Materials Handling Technician		1		12,600
12. Reserve for Technicians		..		4,000
13. Reserve for Industrial Engineering Seminar		5		25,000

APPENDIX XI

ORGANISATION OF J.P.C.

- General Affairs Deptt.
  - General Affairs Section.
  - Personnel Section.
  - Regional Affairs Section.
- Control Deptt.
  - Control Section.
  - Accounts Section.
- Board of Directors — President — Executive Director.
  - Internal operations Deptt.
    - Internal operation Section.
    - Coordination Section.
    - Small & Medium Enterprise Section.
  - International Deptt.
    - International operation Section.
    - Liaison Section.
  - Public Information Deptt.
    - Public Information Service Section.
    - Publication Section.
    - Audio-Visual Section.
    - Newspaper Section.
  - Productivity Research Centre
    - Research Library

Activity	Number of Participants	Technicians	Fy 1955	Fy 1956
1. *Industry—Continued*				
(*c*) Weseda University Contract—Total	18	7	34,000	148,000
1. Waseda Survey (I)	2		8,000	
2. Waseda Survey (II)	4		16,000	
3. Michigan Survey (I)		2	10,000	
4. Michigan Survey (II) and Waseda Survey (III)	12	5		148,000
(*d*) Technical Aids			42,100	29,450
2. *Agriculture*—TOTAL	81		24,914	86,100
1. Manila Agricultural Extension Workshop	5		2,414	
2. Pasture Land Improvement Study	4		9,300	1,000
3. Agricultural Administration and Research	4		13,200	
4. Agricultural Policy Study	8			9,500
5. Home Economic Research & Extension	8			17,800
6. Milk Processing & Distribution	12			18,000
7 Plant Protection System Study	3			5,400
8. Mechanisation in Forestry	4			6,000
9. Far East Extension Directors	2			3,000
10. Soil & Water conservation	2			3,600
11. Taipei Agricultural Workshop	5			1,810
12. Manila workshop-Farm Credit	5			2,550
13. Agricultural Credit & Corporation	7			10,500
14. Far East Asia Rural Youth Workshop (Bangkok)	12			6,940
3. *Labour*—TOTAL	24			53,700
1. Labour Organisations Productivity I	11			26,400
2. Labour Organisations Productivity-II	13			27,300
4. *Peaceful Uses of Atomic Energy*—TOTAL	12			37,000
1. II Course Argonne	4			8,000
2. III Course Argonne	3			11,600
3. Radioisotopes Study	1			5,800
4. IV Course Argonne	4			11,600
5. *Civil Aviation Survey*—TOTAL		2		4,000
1. Airways Operation Specialist—I		1		2,530
2. Airways Operation Specialist—II		1		1,470
6. *Technical Support*			197,873	158,000
TOTAL			462,887	950,000

Source : "The Productivity Programme in Japan", published by The United States Operations Mission to Japan ; August 1st, 1956.

General Affairs Section .	1. Organization, regulations of J.P.C 2. Arrangement of various meetings and conference (except securing the place and confirming the attendance) 3. Planning committee in board of directors. 4. Liaison and coordination within JPC. 5. Official documents.
Personnel Section. .	1. Miscellaneous work for the department. 2. Wage system welfare, fringe benefit time record. certificate, employment, discharge. 3. Maintenance of office equipment, office manage ment, operation of cars. 4. Petty cash, transportaion allowance for employees. 5. Secretarial work, keeping attendance for meetings. 6. Reception.
Regional Affairs Section. .	1. Regional organization. 2. Patron contribution.
Control Section.	1. Miscellaneous work for the department. 2. Activity planning and compilation of activity report. 3. Job planning and budgetary control. 4. Financial committee in board of directors.
Accounting Section	1. Assessment of various bills. 2. Disbursement. 3. Account settlement. 4. Special account. 5. Tax.
Internal Operation Section.	1. Miscellaneous work for the department. 2. Management technique propagation (follow-up of teams seminars, domestic technical exchange). 3. Industrial training. 4. Simplification, standardization and specialization. 5. Experimental plan.
Coordination Section. .	1. Labour management cooperation. 2. Agriculture and fishery.
Small and Medium Enterrise Section. .	1. Small and medium enterprise.
International Operations Section . .	.1 Miscellaneous work. 2. International technical exchange (teams, seminars consultants). 3. Selection committee (for team members) in board of directors.
Liaison Section . .	1. Translation and interpretation. 2. Asian affairs.

Public information Section.	1. Miscellaneous work for the department. 2. Gathering and spreading news and information. 3. Editing the JPC news. 4. Compilation and distribution of pamphlets. 5. Information circles. 6. Public information committee in board of directors.
Publication Section.	1. Publishing reports of teams and seminars. 2. Publishing Technical Digest, Productivity Series and other various periodicals. 3. Any publication regarding productivity.
Audio Visual Section	1. Producing movies, slides and their utilization for P. R. 2. P. R. through radio, television or posters. 3. Productivity exhibition.
Newspaper Group	1. Editing and publishing Japan Productivity News.
Productivity Research Centre	1. Research activities on productivity issues. 2. Technical inquiries.
ibrary	1. Collectingb ooks, magazines and materials for public use.

APPENDIX XII

STUDY TEAMS SENT BY JPC.

Name of Team	*Number of Participants*
1955	
Industry	
Steel	11
Automotive	11
Management Development and Productivity	11
Top Management	14
Cost Control	10
Heavy Electrical	13
Agricultural Policy	8
Shoe Manufacturers	11
1956	
Materials Handling	12
Automotive Parts	12
Industrial Machinery Manufacturing	12
Electrical Contractors	12
Life Insurance Business	12
Marketing	13
Building Construction (*Dams and Tunnels*)	11
Engineering Practices— Office Management Practices	12
Heavy Chemical	12
Human Relations	12
Tourism	6
Economic Rehabilitation	10
Industrial Design	13
Lumber Industry Management	12
Simplification Standardization and Specialization	12
Power Plant, Operation, Transmission and Distribution	13
The Second Top Management	10
Foundry	12
Vegetable Oil	12
Distribution Techniques	13
Labour	
The First Labour Productiviy	11
The Second Labour Productivity	13

APPENDIX XIII

PAMPHLETS & REPORTS PUBLISHED BY JPC.

Theory & Practice of Productivity (2 volumes)

Pr[illegible]y Illustrated

Re[illegible]ds of Productivity Exhibition

Training of Supervisors

J.P.C. Guide Book

Guide to the activities of J.P.C.

Productivity Improvement Series of overseas Productivity publications

(*i*) Supervisors' Training
(*ii*) Wrapping and Packing for sales
(*iii*) Pulp manufacturing industry of America
(*iv*) Suggestion system
(*v*) Curtailment of office expenses
(*vi*) Guide Book for Health maintenance
(*vii*) Improvement of Transportation.

Report of Top Management Study Team

Report of Electric Industry Team

Report of Management Improvement Team

Report of Iron & Steel Works Team

Report of Automobile Parts Industry Team

Report of Shoe Manufacturing Industry Team

Report of Top Management Seminars

Report by Consultants.

(*ii*) FILMS PRODUCED BY AND AVAILABLE WITH JPC.

Key to Advancement	(2 reels)
Increase of Productivity and Improvement	(2 reels)
Standard of Living	(2 reels)
Machines in Operation	(3 reels)
Living ; Originality and Devices	(2 reels)
Productivity and Workers	(2 reels)
Holland, the Country of Technology	(3 reels)