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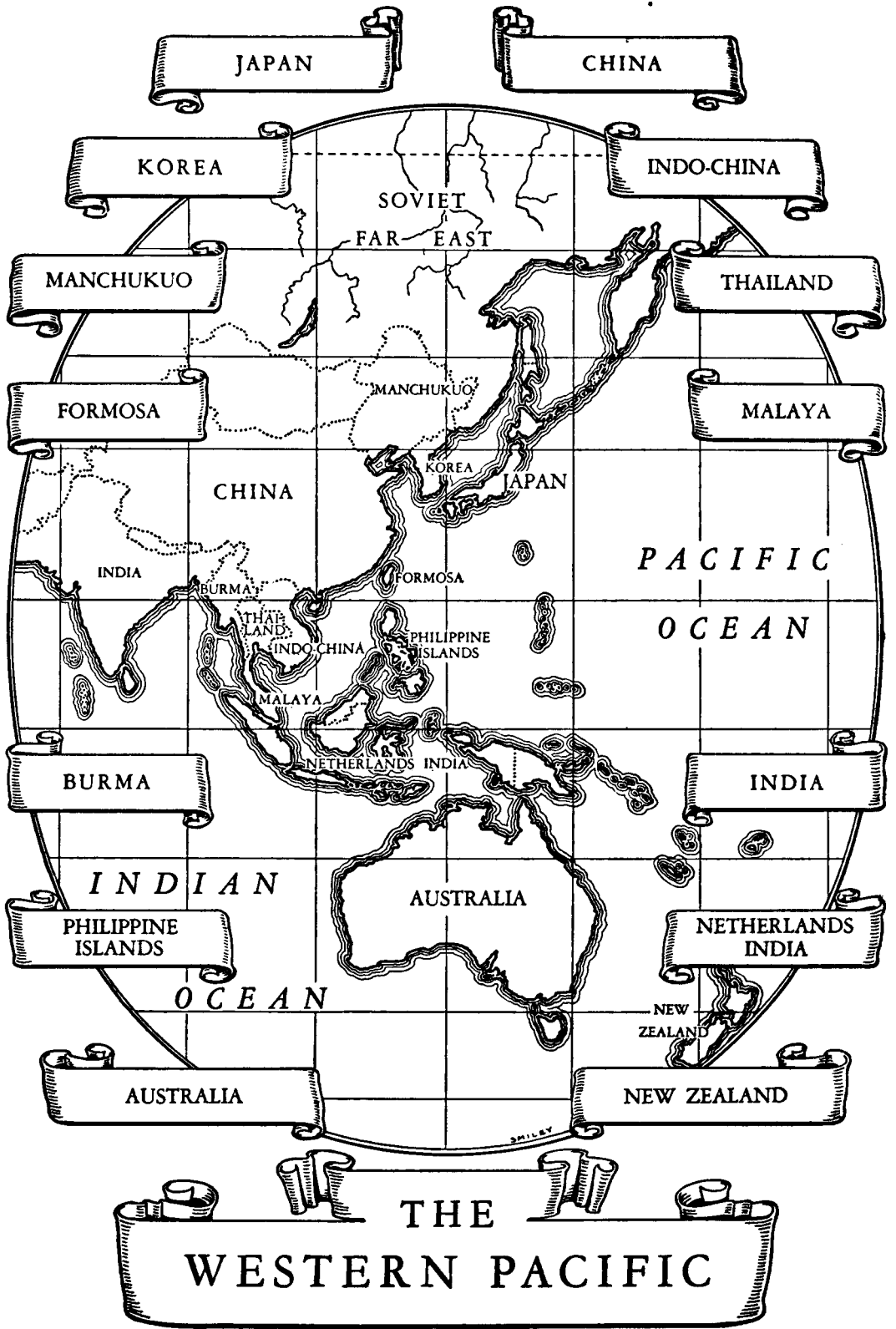
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**INDUSTRIALIZATION OF THE
WESTERN PACIFIC**



INDUSTRIALIZATION OF THE WESTERN PACIFIC

By

KATE L. MITCHELL

Constituting Part III of

AN ECONOMIC SURVEY OF THE PACIFIC AREA

I. P. R. INQUIRY SERIES

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FOREWORD

This study forms part of the documentation of an Inquiry organized by the Institute of Pacific Relations into the problems arising from the conflict in the Far East.

It has been prepared by Miss Kate L. Mitchell, research associate of the International Secretariat, Institute of Pacific Relations.

The study has been submitted in draft to a number of authorities including the following, many of whom made suggestions and criticisms which were of great value in the process of revision: Dr. H. D. Fong, Mr. W. W. Lockwood and Mr. Michael Greenberg.

This study also constitutes Part III of An Economic Survey of the Pacific Area prepared in the International Research Series of the Institute of Pacific Relations.

Though many of the comments received have been incorporated in the final text, the above authorities do not of course accept responsibility for the study. The statements of fact or of opinion appearing herein do not represent the views of the Institute of Pacific Relations or of the Pacific Council or of any of the National Councils. Such statements are made on the sole responsibility of the author. The Japanese Council has not found it possible to participate in the Inquiry, and assumes, therefore, no responsibility either for its results or for its organization.

During 1938 the Inquiry was carried on under the general direction of Dr. J. W. Dafoe as Chairman of the Pacific Council and since 1939 under his successor, Dr. Philip C. Jessup. Every member of the International Secretariat has contributed to the research and editorial work in connection with the Inquiry, but special mention should be made of Mr. W. L. Holland, Miss Kate Mitchell and Miss Hilda Austern, who have carried the major share of this responsibility.

In the general conduct of this Inquiry into the problems arising from the conflict in the Far East the Institute has benefited by the counsel of the following Advisers:

Professor H. F. Angus of the University of British Columbia

Dr. J. B. Condliffe of the University of California

M. Etienne Dennery of the Ecole des Sciences Politiques.

These Advisers have co-operated with the Chairman and the Secretary-General in an effort to insure that the publications issued in connection with the Inquiry conform to a proper standard of sound and impartial scholarship. Each manuscript has been submitted to at least two of the Advisers and although they do not necessarily subscribe to the statements or views in this or any of the studies, they consider this study to be a useful contribution to the subject of the Inquiry.

The purpose of this Inquiry is to relate unofficial scholarship to the problems arising from the present situation in the Far East. Its purpose is to provide members of the Institute in all countries and the members of

I.P.R. Conferences with an impartial and constructive analysis of the situation in the Far East with a view to indicating the major issues which must be considered in any future adjustment of international relations in that area. To this end, the analysis will include an account of the economic and political conditions which produced the situation existing in July 1937, with respect to China, to Japan and to the other foreign Powers concerned; an evaluation of developments during the war period which appear to indicate important trends in the policies and programs of all the Powers in relation to the Far Eastern situation; and finally, an estimate of the principal political, economic and social conditions which may be expected in a post-war period, the possible forms of adjustment which might be applied under these conditions, and the effects of such adjustments upon the countries concerned.

The Inquiry does not propose to "document" a specific plan for dealing with the Far Eastern situation. Its aim is to focus available information on the present crisis in forms which will be useful to those who lack either the time or the expert knowledge to study the vast amount of material now appearing or already published in a number of languages. Attention may also be drawn to a series of studies on topics bearing on the Far Eastern situation which is being prepared by the Japanese Council. That series is being undertaken entirely independently of this Inquiry, and for its organization and publication the Japanese Council alone is responsible.

The present study, "Industrialization of the Western Pacific," falls within the framework of the first three of the four general groups of studies which it is proposed to make as follows:

I. The political and economic conditions which have contributed to the present course of the policies of Western Powers in the Far East; their territorial and economic interests; the effects on their Far Eastern policies of internal economic and political developments and of developments in their foreign policies vis-à-vis other parts of the world; the probable effects of the present conflict on their positions in the Far East; their changing attitudes and policies with respect to their future relations in that area.

II. The political and economic conditions which have contributed to the present course of Japanese foreign policy and possible important future developments; the extent to which Japan's policy toward China has been influenced by Japan's geographic conditions and material resources, by special features in the political and economic organization of Japan which directly or indirectly affect the formulation of her present foreign policy, by economic and political developments in China, by the external policies of other Powers affecting Japan; the principal political, economic and social factors which may be expected in a post-war Japan; possible and probable adjustments on the part of other nations which could aid in the solution of Japan's fundamental problems.

III. The political and economic conditions which have contributed to the present course of Chinese foreign policy and possible important future developments; Chinese unification and reconstruction, 1931-37, and steps leading toward the policy of united national resistance to Japan; the present degree of political cohesion and economic strength; effects of resistance and current developments on the position of foreign interests in China and

changes in China's relations with foreign Powers; the principal political, economic and social factors which may be expected in a post-war China; possible and probable adjustments on the part of other nations which could aid in the solution of China's fundamental problems.

IV. Possible methods for the adjustment of specific problems, in the light of information and suggestions presented in the three studies outlined above; analysis of previous attempts at bilateral or multilateral adjustments of political and economic relations in the Pacific and causes of their success or failure; types of administrative procedures and controls already tried out and their relative effectiveness; the major issues likely to require international adjustment in a post-war period and the most hopeful methods which might be devised to meet them; necessary adjustments by the Powers concerned; the basic requirements of a practical system of international organization which could promote the security and peaceful development of the countries of the Pacific area.

EDWARD C. CARTER
Secretary-General

*New York,
January 20, 1942*

AUTHOR'S PREFACE

This book was written in an effort to present, in concise form, the available information on the industrial development and resources of the countries of the Western Pacific and India, and their place in the world economic structure. Today the Western Pacific has become a major battleground in the war of the United Nations against the Axis Powers, and the peoples of that area are proving their right to be recognized as equal partners in the world-wide struggle against fascist aggression. The opening stage of the battle of the Pacific witnessed Filipino troops bearing their full share in the defense of the Islands; Indian and Chinese troops aiding in the defense of Burma and Malaya; Chinese forces dealing a smashing blow at the Japanese offensive in Central China; and the designation of Generalissimo Chiang Kai-shek as commander-in-chief of all Allied forces in the Chinese theater of war. It was marked by redoubled efforts on the part of Australia to increase her already substantial contribution to the Allied war effort, not only in men but in munitions and equipment, and by Netherlands India's effective use of her limited air and naval forces in telling blows against the Japanese. It also saw the advance of Japanese troops to the Indian Ocean at Penang, which brought war to the very gates of India and underlined the necessity for a rapid mobilization of India's vast manpower and material resources.

As the battle of the Pacific develops, it is inevitable that the peoples of these countries will be called on to take an increasingly active part in the struggle, and that their contribution to the ultimate victory over the Axis Powers will be substantial. This means that they will have earned a place at the peace conference, and a voice in whatever post-war settlement is made. This settlement will therefore have to deal, *inter alia*, with the conditions which have kept many of these countries economically backward and impoverished, with almost no modern industries, with their natural resources largely undeveloped, and the living standards of their people, incredibly low.

In this study, which was completed just prior to the outbreak of war in the Western Pacific, I have tried to indicate some of

the economic problems confronting the peoples of that area. Because of the increasing scarcity of information regarding recent industrial developments in both China and Japan, and the lack of statistical data for certain countries of Southeast Asia, the study is admittedly and unavoidably incomplete in many respects. My hope is, however, that the facts presented here may be of some value to all those who must co-operate in the enormous task of post-war economic reconstruction in Eastern Asia, when the time comes to win the peace as well as the war in the Pacific.

KATE L. MITCHELL

*New York,
January 1, 1942*

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**INDUSTRIALIZATION OF THE
WESTERN PACIFIC**

CHAPTER I

GENERAL SURVEY

The aim of this study is to describe the extent and nature of industrial development in the countries of Eastern Asia and the Southern Pacific. This geographical limitation is admittedly arbitrary, inasmuch as all the countries in this area have close commercial, financial and, in many cases, political ties with other parts of the world which directly affect their industrial development. Nevertheless, this area possesses certain unique characteristics which seem to justify its treatment on a regional basis. In the first place, the majority of the countries in this area have much in common, in that for many years they have been in a colonial or semi-colonial relationship with respect to the highly industrialized nations of Europe and North America, with the result that their industrial development has been shaped with the primary aim of increasing their value as markets and sources of raw material for the manufacturing industries of foreign countries. Secondly, this is the area in which Japan has been struggling to establish an autarchic bloc economy under Japanese dominance. Finally, this area appears destined to constitute one of the principal battlegrounds of the Second World War.

The countries covered in this survey are Japan, Korea, Formosa, Manchukuo, China, Indo-China, Thailand, Malaya, Burma, Netherlands India, the Philippine Islands, Australia, and New Zealand. An analysis of recent industrial trends in India is also included because though India is not, strictly speaking, a Far Eastern country, her economic development has many characteristics in common with that of the colonial and semi-colonial areas in the Far East, and also because, under the stimulus of wartime demands, India is becoming increasingly important as an industrial producer, and her vast resources are certain to play a large part in the future economic development of Eastern Asia. The Soviet Far East has been omitted because, though geographically a part of the Far East, economically it does not fit into the pattern of financial, commer-

cial, and political relationships which govern the industrial development of the other countries under discussion.¹

Before considering the special features of industrial development in individual countries, a few general comments are necessary to indicate the sense in which the term "industrialized" is used in this study. In the first place, it is assumed that a country may be considered highly industrialized when its economic power in the world derives from its manufacturing production rather than from its production of mineral or agricultural raw materials. A highly industrialized nation may, of course, also be an important producer and exporter of raw materials, as witness the United States. But it is obvious that the economic power of the United States is based upon its highly developed system of power-driven machine production, and particularly on the strength of its heavy industries.

By this criterion, only one of the countries included in this survey can be classified as highly industrialized—Japan. Japan is a newcomer to the ranks of industrial nations, but her progress in recent years, particularly in the development of her heavy

¹ For a detailed analysis of Soviet interests and policies as they relate to the Far East, including a discussion of the industrial resources and progress of the Far Eastern region, the reader is referred to the study by Miss Harriet Moore, published in the I.P.R. Inquiry Series. Miss Moore points out that the Soviet Far East is rich in many of the raw material resources for industry, notably coal, oil, timber, and the rarer metals, e.g., tungsten, manganese, molybdenum, platinum, etc. Its iron ore reserves are less favorable, the chief deposit containing some 200 million tons of low-grade ore. There are, however, rich coal and iron deposits on the border of the Far Eastern region near Irkutsk, which are expected to play an important part in its industrial development.

At present the economic development of the Soviet Far East is in the pioneering stage, but industrial progress has been rapid in recent years, especially since the beginning of Japanese expansion on the continent in 1931. The main emphasis of Soviet policy has been to make the Soviet Far East a self-sustaining economic unit, with its own fuel, food, and industrial supplies, in order that its citizens and also its armies may function independently of European Russia in case of need. Many small mines are being opened up to serve local needs. Consumers' industries already established include meat and fat processing plants, fish canneries, a beet-sugar refinery, leather factories, brick, cement, and other building material plants, woodworking shops, etc. Heavy industries include a large railroad repair shop at Ulan Ude; the shipbuilding yards at Vladivostok and Komsomolsk; machine shops and an oil refinery at Khabarovsk; and a rolling mill at Petrovsky-Zabaikalsk. As a result of the progress made, particularly under the Third Five-Year Plan, the Soviet Far East is now able to supply most of its local consumption needs and to service its own industries, but is still dependent upon other sections of the U.S.S.R. for most of its new capital construction.—H. Moore, *Soviet Interests and Policies in the Far East*, I.P.R. Inquiry Series, Institute of Pacific Relations (in manuscript).

industries, entitles her to be rated as a first class industrial power. The remaining countries are, in varying degrees, dependent for their national wealth on the production and export of agricultural and mineral raw materials—their manufacturing industries playing a subordinate role in their national economies. It is true that these countries represent widely varying levels of industrial development, ranging from the primitive agricultural economy of Thailand to the highly mechanized production system of Australia. But although Australia's manufacturing industries have made rapid progress in recent years, she cannot yet be considered a highly industrialized nation, since her heavy industries are not sufficiently developed to meet her own domestic needs, and her economic importance in the world still derives primarily from her production and export of such commodities as wool, wheat, meat, and dairy products.

There is, at the same time, a great difference between a country such as Australia, where there has been very considerable nationally-controlled industrial development, and the colonial or semi-colonial countries where native-owned industries are nonexistent or in their infancy, and where production and transport are largely controlled and financed by foreign interests. All these raw-material producing countries, however, possess certain characteristics in common which have an important bearing on their prospects for future industrial development. One is their dependence, in varying degrees, upon foreign financial centers for the operation of their banking and production systems. A second is the fact that, in many instances, foreign capital investments have carried with them special economic and political concessions giving foreign interests a large measure of influence or control. These two features are most obvious in the colonial areas which make no pretense at economic or political independence, but they are also present in the economies of countries which are technically independent in the political sense, e.g., China and Thailand, and even some of the British Dominions.

The history of the Far East since the closing years of the nineteenth century has been marked by an intense rivalry among several great powers for control of the resources and markets of the less industrially developed areas. This struggle, in all of its many manifestations, has dominated the commercial and financial relationships among the countries of the Pacific.

and between them and other parts of the world. There have been many phases to this struggle, ranging from the military aggression of Japan to the defensive political and economic maneuvers of the United States in her efforts to maintain the Open Door not only in China but throughout the Far East. The role of the Soviet Union throughout has been unique in that it has been purely strategic, since the U.S.S.R. has no capital investments and no territorial, economic, or political concessions in any of the countries under discussion. Accompanying this struggle among the advanced industrial powers is the struggle of the less industrialized nations to share in the benefits of technological progress, to achieve higher standards of living and stronger powers of national defense by industrializing their own economies and freeing themselves from the control of foreign financial and industrial interests.

It is clear, therefore, that an analysis of industrial development in the colonial and semi-colonial countries of the Far East and Southern Pacific should include far more than a statistical account of the volume of factory production, or railway construction, or the consumption of iron and steel, coal and petroleum. For, although railways have been built, public utilities established, mines opened up, and tin smelters, textile mills, flour mills, oil cracking plants, power plants, and other industrial enterprises with modern technique and equipment have been set up in these countries, the vast majority of these enterprises are foreign-owned and foreign-operated, and have been established solely to facilitate the production, processing, and export of raw materials. Thus, an analysis of colonial industries must take into consideration the extent to which these industries are native-owned; whether they are related to the needs of the country concerned, or whether they are designed primarily to make that country a useful appendage to the economies of more powerful states.

In varying degrees, the leading imperialist powers in Southeast Asia proceeded on the assumption that the chief value of a colony is as a source of essential raw materials and an assured market for the manufactures of the mother country. To this end, they discouraged the establishment of any modern industries in their colonies which might make their subjects less dependent upon foreign manufactures, or which might lead to the

rise of a native industrialist class strong enough to challenge the financial and commercial control of the mother countries.

The obstacles in the way of the growth of any independent native industries in the colonial countries are obvious when it is remembered that the banking, transport and communication systems, the power facilities, the principal mineral deposits, and the wholesale trading and shipping companies were controlled either by the respective colonial governments or by private foreign interests. The usual aids to infant industries, e.g., protective tariffs, and other forms of government subsidy, were denied the native industrialists.

The World War of 1914-18 provided the first important opportunity for the establishment of manufacturing industries in the industrially backward countries of the Far East. The shortage of shipping, the high freight and insurance rates, the loss of the principal European sources for manufactured goods, and the consequent curtailment of markets for the raw material exports by which imports were financed, all served to encourage the growth of local industries. Moreover, with the major imperialist powers fully engaged in the European struggle, the pressure of western capital was temporarily relaxed, and native industrialists in many Pacific countries were able to strengthen their position. Japan, having previously emerged from her own semi-colonial status and established herself as an independent and as the most industrially advanced nation in the Far East, successfully seized the opportunities offered by the war to become one of the powerful nations of the world and an important exporter of manufactured goods. Australia, India, and China also made important industrial advances, but most of the newly established industries in these countries, unlike those in Japan, were unable to survive the renewed postwar competition of western industrial powers when they were once more free to concentrate on the preservation of their Far Eastern interests.

The next great stimulus to the development of manufacturing industries in the colonial and semi-colonial countries was the world economic depression following 1929. Being completely dependent for their prosperity on the production and export of a few commodities, these countries suffered severely from the collapse of the world market for their products. The drastic fall in both the price and the demand for raw materials during the early 'thirties caused such widespread unemployment and

impoverishment that colonial governments were compelled to take steps to alleviate the general distress of their subjects. "Industrialization" was widely advocated as a means of making colonial economies less dangerously one-sided and of providing employment for the hundreds of thousands of workers who had been thrown out of work by the curtailment of production on the plantations and in the mines.

Most of these colonial "industrialization" programs, however, were little more than stop-gap measures, designed to render the problems of unemployment and abject poverty among the native population less dangerously acute. They consisted chiefly in the revival of native handicrafts and the establishment of small-scale rural industries for the production of low-cost consumers' goods. No attempts were made to encourage the development of modern, manufacturing enterprises on a large scale, and in no country of Southeast Asia was the amount of "industrial" development sufficient to alter the agricultural and colonial character of the economic structure.²

Prior to the outbreak of the Second World War, therefore, it may be said that with the exception of Japan and Australia, the countries of the Far East had made little progress toward the development of a modern, industrialized economic structure, or toward freeing themselves from the control of foreign capital and foreign enterprise. Some of the basic difficulties preventing such progress, namely those deriving from the politically dependent status of the countries concerned, have already been mentioned. Additional difficulties are to be found in the lack of sufficient supplies of a variety of raw materials essential for extensive industrial development, notably coal and iron; the lack of large capital resources; and the lack of the technical skills and knowledge required for the construction and operation of modern industrial equipment.

No one of these obstacles is inherently insurmountable. Though it is true that many of these countries are not as richly endowed with industrial raw materials as the great industrial nations of Europe and North America, they nevertheless possess resources sufficient to permit of a far greater degree of industrialization than they have yet achieved. Many countries have

² For a detailed discussion of the "industrialization" movement in the colonial areas of Southeast Asia, see Jack Shepherd, *Industry in Southeast Asia*, Institute of Pacific Relations, 1942 (in press).

built up highly industrialized economies by drawing upon the resources of neighboring areas, as witness Japan. Many countries became highly developed on borrowed capital and technical assistance. One need only point to the history of trade and financial relations between Europe and the United States to show that untrammelled industrial development in one country increases the material welfare of another. Industrially backward countries can offer many opportunities for profitable investment and the prospect of a steadily expanding market in return for aid given without political strings.

The Second World War has given new incentives and new opportunities to the industrially dependent nations to win their economic independence and establish the industries essential not only for their national defense but also for the welfare and prosperity of their people. Complete information on wartime industrial developments in these areas is difficult to obtain.³ It is certain, however, that in a number of countries the war has greatly accelerated industrial progress. In Australia, heavy industries have been rapidly expanded, technological progress has been given a tremendous impetus, and the dependence of Australian industry on British capital and equipment has definitely decreased. In India, native capital has been able to get a foothold in the war industries, and in Free China the establishment of numerous state-controlled industrial and mining enterprises marks the beginning of a nationally-controlled industrial structure. The war has also caused far-reaching changes in the economy of Netherlands India with increasing emphasis on the development of modern manufacturing industries as part of the general defense program. The extent to which this wartime industrial development will survive in the postwar period is impossible to predict. It depends not only upon the defeat of the fascist powers, but also upon the far-sightedness of the great western powers now fighting fascist aggression, and upon whether the industrialization which has taken place is sufficiently strongly rooted to withstand the renewal of foreign economic competition and political pressure.

³ For valuable material on this question, the reader is referred to the following studies to be published by the Institute of Pacific Relations:

Ellen van Zyll de Jong, *Wartime Developments in Netherlands India*
Virginia Thompson, *British Malaya, 1931-1941*
Catherine Porter, *The Philippines*

CHAPTER II

JAPAN

This survey is concerned with trends in Japanese industry since the conquest of Manchuria in 1931, and more especially with the effects of the Sino-Japanese War upon Japan's industrial structure. But though the year 1931 marked the beginning of the current phase of Japan's continental expansion program, and the launching of her drive for a self-sufficient "yen bloc" economy, it is a somewhat arbitrary demarcation line so far as Japan's internal industrial development is concerned. As a background for the discussion of recent industrial trends, therefore, it is necessary to mention briefly some of the characteristics of Japan's development as a modern industrial nation following the Meiji Restoration in 1868. Notable among these characteristics were: (1) the leading part taken by the State in the development of modern industries, particularly in those branches related to national defense and military strength; and (2) the extreme concentration of capital and hence of economic power in the hands of a small financial oligarchy which financed the State in its early industrial program and to which the State subsequently turned over a large share of its industrial enterprises.

When the Meiji Government undertook the tremendous task of closing the gap between the primitive feudal technique of Tokugawa Japan and the technological prowess of the most advanced western powers, only a very few wealthy merchants and money-lenders had accumulated sufficient capital to initiate large-scale industrial enterprises. But these financial magnates were reluctant to risk their wealth in such revolutionary and costly ventures. The State itself, therefore, was compelled to develop the modern industries considered essential for the preservation of Japan's political and economic independence. "Thus early Japanese capitalism may be described as a hot-house variety, growing under the shelter of state protection and subsidy. Big private capital preferred to remain in trade, banking and credit operations, particularly in the safe and

lucrative field of government loans, while small capital had no inducement to leave the countryside where trade, usury, and, above all, high rent—averaging almost 60% of the tenant's crop—prevented capital invested in agriculture from flowing into industrial channels.”¹

The chief aim of the Meiji leaders was to build up a defense against foreign economic penetration and internal insurrection, and they therefore devoted their limited capital resources to the development of “strategic” industries, including not only the industries related to military and naval power, but also manufacturing industries that were intended to compete against foreign products in the international or domestic market. The arsenals, shipyards, mines, and foundries belonging to the various feudal lords were brought under government control and modernized with the aid of foreign technicians. Other essential industries, such as chemical works, cotton mills, glass, and cement factories, were established; technical schools with foreign instructors were founded; and many Japanese students were sent abroad to study the industrial techniques of the West. As a result, technical progress in these key industries was extremely rapid, while those industries producing “Japanese-style” goods such as porcelain, silk, lacquer, etc., which did not have to compete with foreign products, were left in their primitive handicraft stage of development.

Moreover, because of their fear of the dangers which might arise from the penetration of foreign capital, the Meiji leaders contracted only two foreign loans between 1868 and 1900, despite their desperate need for working capital.² This refusal to compromise Japan's economic independence not only accentuated the predominant position of State enterprise supported by the financial oligarchy, but also retarded the spread of modern industrial techniques to the “nonstrategic” domestic industries which were forced to get along with undercapitalization and high interest rates, and consequently soon became mortgaged to the great financial houses which controlled the limited supply of industrial credit.

The Present Role of the State in Japan's Industrial Structure.
After the Meiji Government had developed its model industries

¹ E. H. Norman, *Japan's Emergence as a Modern State*, Institute of Pacific Relations, New York, 1940, p. 111.

² A loan of £1,000,000 at 9% floated in London in 1870, and a loan of £2,400,000 at 7% floated in London in 1873.

to a sufficiently high point of technical efficiency, a large share of these enterprises was turned over to the favored financial interests at extremely low prices. The Japanese Government, however, has continued to the present day the policy of subsidizing and supervising the development of key industries, with the result that the interlocking of state and monopoly capital in those branches of industry related to national defense and the exploitation of colonial resources have remained a prominent characteristic of the Japanese industrial structure.

Today the Government owns and operates the state railways, postal, telegraph and telephone services; war industries owned by the army and navy, e.g., arsenals, dockyards, gunpowder, and clothing factories; and state monopolies of tobacco, camphor, and salt. In addition, the Government exercises control, through part ownership and special rights of supervision, in a number of semi-official companies which represent joint enterprises of the State and the large private capitalist interests. Prior to the outbreak of the war with China, these semi-official companies were chiefly concerned with banking, communications and colonial development. Since the beginning of the war, a number of new semi-official or "national policy" companies have been organized to promote production in certain strategic industries; to develop communications and raw material resources in China; and to monopolize the generation and transmission of electricity and the sale of coal. (See Table 1.)

The Government also exercises considerable control over Japan's industrial economy through its various financial agencies. These include the eight special government banks, together with the seventeen prefectural Banks of Agriculture and Industry and the Central Treasury of Agricultural Co-operatives. These institutions receive financial support from the State but are incorporated as private companies in which private capital is invested in considerable amounts. They are given special privileges of issuing either bank notes or debentures in order to facilitate the control of financial operations in their respective fields. In return for such special privileges, these banks are subject to absolute control by the Government in the choice of their executive personnel and the execution of their policies. Through them the Government is in a position to regulate the working of the country's financial system and, through the special colonial banks, to control the financing of

TABLE 1
SEMI-OFFICIAL COMPANIES IN JAPAN
(Capital June 30, 1939, in Million Yen)

	Year Estab- lished	Authorized		Paid-up	
		Total	Govt. Share	Total	Govt. Share
Yokohama Specie Bank.....	1881	100.0	—	100.0	—
Bank of Japan.....	1882	60.0	—	45.0	—
Japan Hypothec Bank.....	1896	141.9	—	117.8	—
Bank of Formosa.....	1897	15.0	0.2	13.1	0.2
Hokkaido Colonial Bank.....	1899	20.0	1.0	12.5	1.0
Industrial Bank of Japan.....	1900	200.0	—	87.5	—
South Manchuria Railway Co.....	1906	800.0 ¹	400.0	696.2	296.2
Oriental Development Co.....	1908	50.0	3.0	35.0	3.0
Bank of Chosen.....	1911	40.0	1.5	25.0	1.5
Korea Industrial Bank.....	1918	30.0	0.3	30.0	0.3
Formosa Electric Power Co.....	1919	45.8	12.0	45.8	12.0
Central Bank of Co-operative Societies	1923	35.7	17.5	31.7	15.5
International Electric Communica- tions Co.....	1925	25.0	2.3	15.9	2.3
North Saghalian Mining Co.....	1926	10.0	—	5.0	—
North Saghalian Oil Co.....	1926	20.0	—	20.0	—
Japan Iron Manufacturing Co.....	1933	500.0	284.2	394.9	284.2
Central Bank of Commercial and In- dustrial Associations.....	1936	11.5	5.0	4.7	3.4
Northeast Development Co.....	1936	30.0	—	15.0	—
Northeast Electric Power Co.....	1936	30.0	—	22.5	—
Korea and Manchukuo Development Co.....	1936	20.0	—	8.0	—
Formosa Development Co.....	1936	30.0	15.0	18.8	15.0
South Seas Development Co.....	1936	20.0	10.5	15.3	10.5
Imperial Fuel Development Co....	1937	100.0	50.0	20.0	10.0
Japan Transportation Co.....	1937	35.0	8.0	20.9	2.0
Manchuria Development Co.....	1937	50.0	15.0	33.3	10.0
Popular Loan Fund Bank.....	1938	10.0	10.0	10.0	10.0
Pension Loan Fund Bank.....	1938	30.0	5.0	5.0	1.0
Japan Gold Production Co.....	1938	50.0	25.0	20.0	10.0
Japan Electric Power Generation & Transmission Co.....	1938	739.3	—	664.3	—
North China Development Co.....	1938	350.0	175.0	99.3	55.6
Central China Development Co.....	1938	100.0	50.0	31.4	18.9
Japan Rice Co.....	1939	30.0	15.0	—	—
Imperial Mining Development Co...	1939	30.0	15.0	—	—
Japan Aeronautical Transportation Co.....	1939	100.0	37.2	33.8	12.5
Japan Fertilizer Co.....	1940	50.0	25.0	—	—
Japan Coal Co.....	1940	50.0	25.0	—	—

¹ The authorized capital of the South Manchuria Railway Co. was increased to ¥1,400 million in the spring of 1940, the Japanese Government taking half the increase.

Sources: *Mitsubishi Monthly Circular*, September 1939; *Contemporary Opinions*, June 15, 1939.

economic activities in the colonial areas. In addition to these special banking institutions, the Government has two other agencies through which it can mobilize immense funds. These are the Deposit Bureau Fund, depository of the postal savings collected from the great mass of the lower and middle class, and the Postal Life Insurance Fund. Both these funds are under the control of the Ministry of Finance.³

The Financial Oligarchy (Zaibatsu). The partner of the State in the development of modern industry in Japan was the financial oligarchy, or *Zaibatsu*. As already noted, these giant "family" businesses got their start in the Meiji era by acting as bankers for the Government and by taking over the operation of many industries initiated by the State. From their original favored position as the financial supporters of the new regime, these great concerns continually strengthened their position, because by their interlocking control over banking, industry, and commerce they were able to absorb lesser industrial enterprises, particularly at times of economic crisis.

The four leading *Zaibatsu* are Mitsui, Mitsubishi, Sumitomo and Yasuda, in that order of importance. The term is sometimes applied to other large family businesses, e.g., Okura, Asano, Kuhara, Shibusawa, Kawasaki, Furukawa and Ogawa-Tanaka, but these concerns differ from the great *Zaibatsu* not only in the size of their interests but also because they do not operate simultaneously in finance, commerce and industry.⁴ Their control over large financial institutions, as well as industrial and trading companies, gave the *Zaibatsu* an enormous competitive advantage, because in Japan there was no large section of the public willing to invest in industrial securities. Large industries needing investment capital were therefore forced to get it by selling their securities to the banks, and their working capital was largely obtained from bank loans. The small producers

³ See M. Matsuo, "The Japanese State as Industrialist and Financier," *Far Eastern Survey*, Vol. V, No. 11, May 25, 1936, pp. 105-10.

⁴ Okura is concerned chiefly with trading, mining, textiles and motor transport; Asano with cement, mining, iron and steel and heavy engineering; Kuhara with heavy engineering, chemicals, mining and aquatic products; Kawasaki with banking, insurance and rayon; Shibusawa with banking, shipbuilding and engineering; Furukawa with copper refining and electrical plants; Ogawa-Tanaka with chemicals. For a detailed discussion of the *Zaibatsu* see G. C. Allen, Part II of *The Industrialization of Japan and Manchukuo, 1930-1940*, edited by E. B. Schumpeter, Macmillan Co., New York, 1940, pp. 625-646, on which this summary is based.

were financed by merchants and factory owners who also relied on the banks for capital funds. The *Zaibatsu*, through their ownership of banks and trust companies, were thus able to exercise an indirect control over smaller banks, public utilities and many industrial enterprises in addition to those which they operated directly.

In 1937 the four *Zaibatsu* banks possessed more than one third of the total deposits in non-Government banks and their trust companies held some 70% of all trust deposits. About one third of Japan's total foreign trade was conducted by their trading companies, and they had large amounts of capital invested in shipping, shipbuilding, warehousing, colonial enterprises, engineering, mining, textiles, metal manufacture, sugar refining, and flour milling. Mitsui and Mitsubishi between them controlled the paper industry, possessed about 70% of the flour milling capacity of the country, produced 44% of the raw sugar and 37% of the refined sugar output. A large part of the chemical industry, including most of the ammonium sulphate and artificial fertilizer production, was controlled by these four great concerns. Mitsubishi was pre-eminent in the aircraft industry and had a virtual monopoly of the sheet glass output, while Sumitomo was supreme in the nonferrous metal industry. The *Zaibatsu* also controlled most of the heavy machinery industry and had extensive interests in the woolen textiles, rayon and cement industries. Because of their close association with the State, the *Zaibatsu* long provided the bulk of the private capital in the semi-official companies and banks described above, although in recent years there has been some tendency to diversify ownership in these special companies by selling stock to the general public.⁵ It should also be noted that through their control over the two major political parties (Mitsui—Seiyukai; Mitsubishi—Minseito) and the financial pressure which they could exert on the Government, the *Zaibatsu* were in a position to influence the Government's industrial policies, and also to secure subsidies, fiscal protection for their industries, and profitable government contracts.

Popular resentment toward the *Zaibatsu* has become increasingly strong in recent years, particularly in certain sections of

⁵ For example, the Mitsui family in the summer of 1940 transformed their top holding company into a joint stock enterprise, in order to be able to raise capital needed for enterprises in China from outside the family connection.

the army. Most recently this resentment has found expression in the drive for complete state control over the great business monopolies. There seems little chance, however, that the *Zai-batsu's* power can be seriously weakened so long as Japan continues her expansionist policies, and therefore requires vast sums for armaments and colonial exploitation which only the great financial interests are in a position to provide.

The Technical Organization of Japanese Industry. Although the concentration of capital in Japan has proceeded at least as far as in any of the older industrial nations, this has not been accompanied by a similar concentration of industrial production in large-scale units. A large part of Japanese industry is still carried on in a multitude of small-scale factories and household workshops, employing a large amount of manual labor and using only the simplest forms of equipment. These small producing units are found not only in the industries producing traditional goods for home consumption, but also in many export industries, and even in the engineering and other heavy industries. According to the population census of 1930, 53% of the total industrially employed were in factories with fewer than five workers, 59% were in factories with fewer than ten workers, and 70% in factories with fewer than fifty workers. Although no more recent census figures are available, there appears to have been no decline in the number of these small-scale factories at least up to the outbreak of the war, as during the period of the export boom following 1931 many new small enterprises were established to take advantage of the expanding demand for cheap consumers' goods.

This co-existence of a few, highly modernized, large-scale factories in certain lines of industry, and a multitude of small-scale shops in others, has given rise to widely divergent estimates of the technical efficiency of the Japanese industrial structure as a whole. The fact that a large proportion of Japan's total industrial output is produced in "pygmy" factories is stressed by some writers as indicating both the immaturity of Japanese capitalism and its inability to compete with the products of large-scale western industries except when given a temporary advantage such as was secured by the depreciation of the yen in 1931. Other writers, however, have emphasized the fact that in the industries where large-scale organization is imperative for technical reasons, Japan possesses factories which in size,

equipment and organization compare very favorably with those of older industrial nations. These writers also point out that the disadvantages of small-scale production are to some extent offset by the fact that many of the small producers are virtually a part of larger organizations, both administratively and financially, and can therefore benefit from the economy of large-scale buying, marketing, and financing. Merchants and large factory owners supply these small producers with materials, specifications, equipment and working capital, and then assemble and market the finished products. As a result, many of these small producers are indirectly controlled by the great financial interests which own the trading companies and shipping lines and the bulk of the country's industrial credit.

The continued prevalence of the small-scale unit in Japanese industry is usually explained by the special combination of productive resources in Japan, namely the relative scarcity of industrial capital and natural resources, and the abundance of cheap labor. Japanese economists also stress the importance of cheap electric power as a factor in preserving the small factory unit. Since capital is scarce and interest charges high, it is to the advantage of the factory owner to keep his capital investment as low as possible, and to have his manufacturing done whenever possible in a number of small workshops. Thus, according to this argument, the prevalence of small factories in certain Japanese industries is not a sign of economic weakness, but only the logical use of manufacturing processes suited to conditions in Japan.⁶

On the other hand, some economists consider that these conditions are in themselves proof of the relative weakness of Japan's industrial structure. They emphasize the fact that the existence of a vast reservoir of cheap labor is the result of a semi-feudal agrarian system which cannot provide a livelihood for a large part of the peasant population, and of a retarded development of the modern industries necessary to absorb this "surplus" agricultural population. Moreover, in their view, the scarcity of industrial capital in Japan is the result (1) of Japan's failure to develop an independent class of industrialists, and (2) of an unhealthy agricultural system, based on excessively high

⁶ See, for example, G. C. Allen, *Japanese Industry; Its Recent Development and Present Condition*, Institute of Pacific Relations, New York, 1940, pp. 25-44.

rents, which tends to keep private capital invested in land rather than in industrial enterprise.⁷

From this brief introduction to current industrial developments in Japan, we see that by 1930 Japan possessed some highly developed modern industries, control over which was concentrated in the hands of a few giant "family" concerns which were also predominant in finance, mining, transport, and foreign trade. On the other hand, Japan was far from being a highly industrialized country, if judged by western standards, since not only was half the working population engaged in agricul-

TABLE 2
OCCUPATIONAL DISTRIBUTION IN
JAPAN IN 1930

(In thousands)

Agriculture.....	14,131
Fishing.....	568
Mining and quarrying.....	315
Manufacturing.....	5,876
Commerce.....	4,906
Transport and communications....	945
Public and professional services....	2,005
Domestic service.....	802
Others.....	71
	<hr/>
	29,620

Source: Census statistics taken from *Nippon Rodo Nenkan*, 1937, pp. 101-3, quoted in Schumpeter, *op. cit.* p. 76.

ture and fishing (see Table 2) but of those employed in industry, by far the largest number were engaged in relatively small-scale light industries, producing a variety of consumers' goods. (See Table 3.)

The figures in Table 3 illustrate the predominant position of light industries, and particularly of the textile industry, in

⁷ See, for example, Norman, *op. cit.*, pp. 111-14. Mr. Norman points out that "in most nations, during the formative stage of capitalism banking capital has been distinct from industrial capital, but in Japan industrial capital did not develop independently; the state initiated industrialization, developed it, and turned it over at amazingly low rates to a few private enterprises, mostly representatives of the great banking houses. In this process no new class of industrial capitalist was created; what took place was only the strengthening of banking and usury capital and its partial transformation into industrial capital. This smothering of the seeds of an independent class of industrialists is a reflection of the immature, hot-house character of capitalism in Japan and of its serious weakness in this respect compared to the strongest capitalist nations."

TABLE 3
COMPOSITION OF JAPANESE INDUSTRY IN 1930

<i>Industry</i>	<i>Percentages of Total Numbers Engaged in Mining and Manufacturing</i>
Mining and quarrying.....	5.2
Kiln products.....	2.8
Metal.....	6.3
Machinery and tool.....	3.9
Shipbuilding and vehicle.....	3.1
Watch, scientific instruments, etc.....	.9
Chemical.....	2.7
Textile.....	24.2
Clothing.....	7.8
Paper and printing.....	4.5
Wood, bamboo and grass.....	10.6
Food and drink.....	8.1
Civil engineering and building.....	15.7
Public utilities.....	2.1
Others.....	2.1
	100.0

Source: G. C. Allen, *Japanese Industry; Its Recent Development and Present Condition*. Institute of Pacific Relations, 1940. p. 4.

Japan prior to 1931. This predominance is shown even more strikingly in the *Factory Statistics* issued by the Ministry of Commerce and Industry, which cover only factories employing five or more workers. According to these statistics for 1929, textiles accounted for 50.4% of the total factory employment and for 40% of the total value of factory production. Textiles also formed the backbone of Japan's export trade; in the fiscal year 1928-29, 37% of Japanese exports consisted of raw silk, with silk manufactures, and cotton yarn and piece goods accounting for another 20%.

INDUSTRIAL TRENDS IN JAPAN, 1931-1936⁸

The Changed Composition of Industrial Production and Exports. The period from 1931 to the outbreak of the war with China was notable for the rapid expansion in Japan's total industrial output, but even more for the greater diversification

⁸ In discussing recent industrial trends in Japan, it seems advisable to distinguish between the prewar period from 1931 to July 1937 and the period of a full-fledged war economy, although even in 1936, the last full "peace" year, the development of a quasi-wartime economy, marked by increasing state control over industry and heavy government expenditures on war industries, had already profoundly affected Japan's industrial structure.

of Japanese industry as a result of the growth of the metal, machinery and chemical industries.

Table 4 shows the development of Japan's manufacturing industry by industrial divisions, from 1931 to 1937. Table 5

TABLE 4
DEVELOPMENT OF JAPAN'S MANUFACTURING INDUSTRIES:
BY INDUSTRIAL DIVISIONS—1931-1937¹

Industrial Division	1931			1937		
	No. of Factories	No. of Workers (1,000)	Value of Production (million ¥)	No. of Factories	No. of Workers (1,000)	Value of Production (million ¥)
Textiles....	20,965	899	1,803	28,133	1,095	4,242
Metals.....	4,133	84	433	10,076	350	3,488
Machinery and tools..	5,850	158	443	14,636	692	2,557
Chemicals..	3,389	122	826	5,820	374	2,917
Ceramics...	3,167	57	142	4,990	125	405
Wood and wood-working..	5,200	57	143	9,880	122	379
Printing and binding...	2,948	51	167	3,857	77	273
Foodstuffs..	12,567	134	835	16,518	214	1,525
Others.....	6,217	98	381	12,095	216	625
Total..	64,436	1,660	5,175	106,005	3,265	16,412

¹ Data covering factories employing five or more workers.

Source: *Japan-Manchoukuo Year Books, 1933, 1940.*

TABLE 5
INCREASE IN CONSUMPTION OF FUEL AND MOTIVE POWER
IN JAPANESE INDUSTRY

	1931	1933	1935	1937
Coal (1,000 m. tons).....	8,705.1	10,513.8	15,864.5	24,030.9
Coke (1,000 m. tons).....	538.9	784.1	1,054.0	2,991.1
Petroleum (1,000 kiloliters)....	187.3	384.6	620.0	687.3
Charcoal (1,000 m. tons).....	79.7	86.1	107.4	136.4
Gas (million cft.)				
Self-supplied.....	1,259.2	2,049.9	9,346.5	9,211.0
Other.....	661.7	208.2	238.0	188.9
Electricity (million kwh.)				
Self-supplied.....	1,377.4	1,445.6	2,717.8	3,401.0
Other.....	4,959.2	7,198.2	9,518.1	12,265.0

Source: *Japan-Manchoukuo Year Book, 1940.*

gives a further indication of the rapid expansion of Japanese industry by showing the increase in the consumption of fuel and motive power during the same period. There was no abso-

lute decline in production in any of the major light industries, but the heavy industries expanded much more rapidly, so that by 1937 Japan's industrial production had become far more diversified. This changed composition of Japan's industrial production is illustrated in Table 6, which shows the relative

TABLE 6
GROWTH OF JAPANESE FACTORY OUTPUT, 1931-1936

	1931	1932	1933	1934	1935	1936
No. of factories:						
Total.....	64,436	67,318	71,940	80,311	85,174	90,602
"Light industries".....	51,064	52,234	56,194	60,207	62,860	65,585
"Heavy industries".....	13,372	15,084	16,746	20,104	22,314	25,017
Gross production:						
Total (in million ¥)....	5,174	5,982	7,871	9,390	10,836	12,257
"Light industries":						
Millions of ¥.....	3,428	3,859	4,816	5,254	5,678	6,221
Percent of 1931.....	100	112	140	153	166	181
"Heavy industries":						
Millions of ¥.....	1,746	2,123	3,065	4,136	5,158	6,036
Percent of 1931.....	100	122	175	236	295	346
Net production¹						
Total (in million ¥)....	2,119	2,541	3,163	3,644	4,102	4,540
"Light industries":						
Millions of ¥.....	1,295	1,479	1,689	1,730	1,781	1,880
Percent of 1931.....	100	114	130	134	138	145
"Heavy industries":						
Millions of ¥.....	824	1,062	1,474	1,914	2,321	2,660
Percent of 1931.....	100	129	179	232	292	323
Workers (thousands)						
Total.....	1,660	1,735	1,901	2,063	2,369	2,592
"Light industries":						
Thousands.....	1,264	1,307	1,363	1,472	1,557	1,616
Percent of 1931.....	100	103	108	117	123	128
"Heavy industries":						
Thousands.....	396	428	538	591	812	976
Percent of 1931.....	100	108	136	149	205	246
Net output per worker (in yen)						
All factories.....	1,277	1,465	1,664	1,766	1,732	1,752
"Light industries".....	1,025	1,132	1,239	1,175	1,144	1,163
"Heavy industries".....	2,081	2,481	2,740	3,239	2,858	2,725

¹ Net production is the gross value of production, minus materials consumed in the process of manufacturing.

Sources: These data are derived from Japanese articles translated and published in *Contemporary Opinions on Current Topics*, issued weekly in Tokyo (in English). See especially the issues for December 21, 1939 and February 8, 1940.

importance of light and heavy industries, both as regards the value of their production and their share in total factory employment.

The broadening scope of Japanese manufacturing during this period was also reflected in the composition of Japan's export trade. Between 1931 and 1936, the total value of Japan's exports rose from 1,147 million yen to 2,693 million yen, while the proportion of raw silk exports to the total fell from 38% to 15%; and that of silk and cotton manufactures from 28% to 25%. Many new export lines were developed, including rayon and woolen textiles, metals, machinery, and a wide variety of miscellaneous consumers' goods. Japan's export markets also became more diversified, for whereas in 1928-29 the United States, China, British India and the Dutch East Indies took 80% of her exports, in 1935-36 these countries took only 63%.

Contributing Factors in Japan's Industrial Expansion. Many factors played a part in the rapid growth of Japan's industrial production during this period. Among the most important were: the collapse of the American market for raw silk; the favorable market conditions created by the Government's monetary policy following the abandonment of the gold standard in December 1931; improvements in the technical efficiency of the major industries; and the greatly increased government expenditures in connection with the rearmament program, the exploitation of Manchurian resources, and the development of Manchukuo as a heavy industry center.

The collapse of Japan's major market for raw silk naturally necessitated the development of other lines of export goods. It also caused a severe agricultural depression which, coinciding with the new industrial boom, precipitated a substantial shift of population from the impoverished rural areas to the cities where industrial employment was available. This not only provided an ample supply of low-cost labor for the larger industries, but also stimulated the growth of many new small-scale enterprises, since the larger plants were not sufficiently developed to provide work for all those who could no longer make a living on the land.

The effects of the Government's fiscal policy, however, were of even greater importance in stimulating industrial production, particularly in the heavy industries and the trades producing for export. Following the imposition of a gold embargo in December 1931, the yen was allowed to depreciate by about one third in relation to the pound sterling and the dollar. This depreciation, coupled with the lowered labor costs and the im-

proved technical efficiency of Japanese industry, produced an export boom despite the tariff barriers and other obstacles raised against Japanese goods in many of Japan's most important foreign markets. The decline in the value of the yen also caused a sharp rise in import prices and thus encouraged the domestic manufacture of many products which had formerly been imported, particularly capital goods.

The capital goods industries were also stimulated by the speed-up in war preparations during this period, which was marked not only by large government expenditures for armaments,⁹ but also by increases in the direct or indirect subsidies granted by the Government to the munitions, shipbuilding and other "strategic" industries, and by large-scale capital investment in Manchuria.

Improvements in Technical Efficiency. The prevalence of the small, poorly equipped factory in many branches of Japanese industry has already been mentioned as an evidence of the relative immaturity of the Japanese industrial structure. However, it was also noted that in the heavy industries, and in those industries which manufacture standardized products, such as cotton yarn, chemicals, rayon yarn and flour, Japan had a number of large-scale, modern factories. One of the outstanding features of the 1931-36 period was the improvement in the technical efficiency of these industries, shown both by the increased output per worker and the lowered production costs, as a result of the introduction of improved equipment and manufacturing processes.

The development of a Japanese engineering industry capable of producing the ordinary types of machine tools resulted in a substantial increase in the use of machinery in all industries manufacturing western-style products. Standardization in the metal and engineering industries progressed rapidly after 1931, and between 1930 and 1937 Japan became practically self-sufficient in the production of rolling stock and most kinds of textile and electrical machinery. The production of boilers and all forms of prime movers was greatly increased, and by 1936, domestic iron and steel foundries were producing the heavy castings which had formerly been imported from abroad.

⁹ In the fiscal years 1932-33 to 1936-37, Japan spent ¥4,611 million on armaments.

Table 7 shows the supply and demand for machinery and tools in Japan in the period 1931-39.

TABLE 7
SUPPLY AND DEMAND FOR MACHINERY AND TOOLS IN JAPAN
(Value in millions of yen)

Year	Production	Imports	Exports	Demand	Import Excess	Imports as % of Demand
1931.....	443	81	30	494	51	16.4
1932.....	544	94	35	603	59	15.6
1933.....	805	107	68	844	39	12.7
1934.....	1,082	144	125	1,101	19	13.1
1935.....	1,381	159	141	1,399	18	11.4
1936.....	1,609	153	175	1,587	22 ¹	9.6
1937.....	2,380	243	228	2,395	15	10.1
1938.....	—	313	267	—	46	—
1939.....	—	288	370	—	82 ¹	—

¹ Export excess.

Note: Figures on production and consumption of machinery have not been published since 1937. These value figures must, of course, be read in relation to the substantial rise in prices from 1937 on. The wholesale price index for Metals and Metal Products (1933=100) was as follows: 1936—97.8; 1937—194.1; 1938—193.3; 1939—178.0.

Source: *The Japan Year Book, 1940-41.*

By 1936, therefore, Japan had advanced to the point where she could produce a large part of the finished steel products needed for domestic use and also develop an export trade in certain types of machinery although she was still dependent upon foreign countries for high-quality steels, complicated machine tools, motor trucks, and aircraft. Table 8 shows the rela-

TABLE 8
MACHINERY PRODUCTION: RATIO OF PRODUCTION TO DEMAND

	1934	1935	1936
Boilers and prime movers.....	78.0	84.0	89.4
Electrical machinery.....	108.0	103.6	108.7
Machine tools.....	62.9	72.7	78.9
Auxiliary machinery ¹	78.9	79.6	82.8
Pumps.....	104.6	106.4	106.4
Hoisting machinery.....	106.5	104.2	104.7
Working machinery ²	88.6	89.7	96.9
Mining machinery.....	100.0	100.0	100.0
Agricultural and civil engineering.....	114.4	117.3	115.0
Total.....	89.5	92.0	97.2

¹ Hydraulic presses, blowers and fans, air compressors, etc.

² Textile and other.

Source: Schumpeter, *et al*, *Industrialization of Japan and Manchukuo*, p. 813.

tive self-sufficiency of various branches of the Japanese machinery industry for the years 1934-36:

Japan had also attained self-sufficiency in the production of steel and steel products, as shown in Table 9:

TABLE 9
SUPPLY AND DEMAND FOR STEEL AND STEEL PRODUCTS IN 1936
(In thousands of metric tons)

	Production	Imports	Exports	Domestic Demand	Percentage of Production to Consumption
Steel.....	4,580.0	285	419	2,535	103%
Steel products.....	4,538.6	344.9	887.9	3,775.6	115%

Source: *Japan-Manchoukuo Year Book, 1940.*

The most serious weakness in Japan's industrial self-sufficiency insofar as a war economy was concerned was her deficiency in important industrial raw materials, notably iron ore, pig iron, and petroleum products. Japan's position with regard to certain mineral and oil resources in 1936 is shown in Tables 10 and 11.

TABLE 10
DEMAND AND SUPPLY OF CERTAIN IMPORTANT INDUSTRIAL MATERIALS IN JAPAN—1936

Commodity	Unit of Quantity	Domestic Production	Imports		Total Supply	Exports	Domestic Demand	Production ¹ as % of Demand
			Colonies and Manchukuo	Foreign				
Iron ore...	1,000 M. tons	620.4	242.7	3,780.1	4,643.2	—	4,643.2	19%
Pig iron...	1,000 M. tons	2,007.5	394.1	707.7	3,102.4	—	3,101.5	77%
Coal.....	1,000 M. tons	41,803	2,000	2,201	45,306	1,088	44,218	95.7%
Crude oil..	million U.S. gallons	104.7	—	1,033.6	1,140.4	—	1,140.4	9%
Copper....	1,000 M. tons	78.6	—	47.8	129.6	—	127.5	62%

¹ Represents domestic production plus imports from colonies and Manchukuo.

Source: *Japan-Manchoukuo Year Book, 1940.*

In summary, therefore, it may be said that during the period from 1931 to 1936, Japan achieved a substantial expansion in her heavy industries and great improvements in her industrial organization and technique. She had not yet equaled the western industrial powers, since in many of her large-scale industries her factories were smaller and less highly specialized than similar plants in western countries, and she was still dependent upon the West for the major new industrial processes. But the gap

TABLE 11

DEMAND AND SUPPLY OF PETROLEUM PRODUCTS IN 1936

(In thousands of cases of 9.5 gallons each)

	<i>Production</i>				<i>Domestic Consumption</i>	<i>% of Production to Demand</i>
	<i>From Domestic Oil</i>	<i>From Foreign Oil</i>	<i>Imports</i>	<i>Exports</i>		
Gasoline...	2,378	17,165	19,250	81	38,712	50%
Kerosene..	1,228	2,603	2,526	864	5,493	69%
Light oil..	1,375	2,789	222	514	3,872	107%
Machine oil	1,815	4,985	1,787	453	8,134	83%
Heavy oil..	3,659	8,295	35,463	86	47,331	25%
Total...	10,455	35,837	59,248	1,998	103,542	44%

Source: Japan-Manchoukuo Year Book, 1940.

between Japanese and western technical efficiency and diversification of industry had been substantially narrowed.

The expansion of Japan's heavy industries had also greatly increased her requirements for industrial raw materials, the bulk of which had to be imported from abroad. (See Table 12.) This increased dependence upon foreign sources of supply, and the fear that she might be cut off from these sources in time of war, has been one of the chief causes of Japan's current effort to establish a self-sufficient "yen bloc" economy by which Japanese industries can be assured of the material resources of the countries of East Asia. It should be noted, however, that in her efforts to establish this self-sufficient bloc, Japan has had to expand her industrial production sufficiently to equip her armies of conquest and also to provide the capital equipment necessary for the exploitation of Manchurian and Chinese resources. Furthermore, Japan's decision to develop Manchuria as an industrial base for further expansion on the mainland, i.e., an extension of Japan's own industrial economy, still further increased her raw material requirements, with the result that she became more than ever dependent upon foreign sources of supply and upon sales in foreign markets to obtain the funds required to pay for these essential imports.¹⁰

Japanese Economic Policy, 1931-1936. An important feature of Japan's industrial development during the period from 1931 to the outbreak of the war in 1937 was the acceleration of the

¹⁰ The relation of Manchukuo to Japan's economic structure is discussed in greater detail in Chapter III, *infra*.

TABLE 12

VOLUME RATIO OF DOMESTIC PRODUCTION TO DEMAND OF PRINCIPAL RAW MATERIALS IN JAPAN, IN 1936

(Consumption—100)

	<i>Domestic Production</i>	<i>Imports from Colonies</i>	<i>Imports from Manchukuo</i>	<i>Imports from Foreign Countries</i>
Iron ores.....	12.5	5.3	—	82.2
Pig iron.....	64.6	4.0	8.8	22.7
Steel.....	91.6	1.6	—	6.8
Copper.....	61.7	0.8	2.7	34.8
Aluminum.....	40.5	—	—	59.5
Zinc.....	37.0	—	—	63.0
Lead.....	8.0	—	—	92.0
Nickel.....	—	—	—	100.0
Tin.....	28.8	—	—	71.2
Magnesium ¹	100.0	—	—	—
Coal.....	89.2	1.6	4.9	4.3
Mineral oil.....	10.0	—	—	90.0
Crude rubber.....	—	—	—	100.0
Sulphide iron ore.....	100.0	—	—	—
Pulp.....	70.2	—	—	29.8
Rayon.....	100.0	—	—	—
Silk cocoons.....	99.6	0.2	—	0.2
Raw cotton.....	—	1.3	—	98.7
Raw wool.....	—	—	—	100.0
Hemp, flax, etc. ¹	11.8	0.7	—	87.5
Oil products ¹	27.2	—	33.0	39.7
Leather and hides ¹	58.3	3.9	—	37.8
Phosphorus ores ¹	10.7	—	—	89.3
Salt.....	29.0	4.8	2.0	64.2
Wheat and wheat flour..	78.1	0.3	9.2	12.4

¹ 1935 figures.Source: *Japan-Manchoukuo Year Book, 1940*, p. 365-6.

trend toward State intervention and control over industry. This movement began during the depression period of 1930-31 when a number of laws were passed with a view to encouraging rationalization in the major industries, e.g., the Major Industries Control Law of 1930 which had as its aim the creation in every large-scale industry of a cartel for the control of production, sales and price policy. At the time that these laws were passed, political power was largely in the hands of the big business interests which were primarily interested in rescuing industry from the effects of the depression and in strengthening the monopolistic position of the large concerns in each industry. By 1935, however, political power had shifted, at least in part, to the militarist factions, and these laws came to be regarded as a means of subjecting private enterprise to government regulation

as part of the effort to create a quasi-wartime economy (*Junsenji Keizai*).

Throughout this period, the course of Japanese industrial development was profoundly affected by the military and strategic considerations involved in an expansionist foreign policy. The militarist factions and their supporters among the bureaucracy demanded the imposition of strict government regulation and control over all aspects of economic activity relating to the enhancement of the nation's military strength and the prosecution of the continental expansion program. The big business and financial interests, although supporting the ultimate aims of the expansion program, were inclined to oppose the wholesale and unrestricted diversion of national resources to the war industries, and were fearful lest the imposition of military-bureaucratic control over industry would reduce both their political influence and their profits. Moreover, having vast sums invested in export industries and foreign trading enterprises, these interests were less sympathetic with the autarchic bloc economy theories propounded by the militarists and, in general, favored a more conservative policy of "economic expansion" backed up when necessary by the threat of military force.

The advocates of a "war economy" and stricter government regulation over the basic industries and the great business monopolies, however, gradually strengthened their position after each of a series of political crises, and also secured the support of a number of powerful new business groups, chiefly in the engineering and chemical industries, whose fortunes were more closely allied with the continuance of a war economy than were those of the older *Zaibatsu*.

The trend toward a quasi-wartime economy is illustrated not only in the altered administration of existing laws in accordance with the political views of the militarists, but also in a series of *ad hoc* control measures for certain "strategic" industries. One of the most important of these control measures was the establishment, early in 1934, of the Japan Iron Manufacturing Company by the amalgamation of six large private companies with the State-controlled Yawata Works. As a result of this merger, the State, which held 70% of the capital of the new company, secured control over almost the entire pig iron output of the

country and more than half the total steel capacity. The Petroleum Industry Law, also enacted in 1934, was designed to remedy the fact that much of the distributive trade in oil within Japan was in the hands of foreign companies, a situation regarded as dangerous from the military standpoint. The law subjected the production, refining, marketing, and import of oil to government license; required oil companies to store a quantity of oil equivalent to their sales during a six-month period; and empowered the Government to make compulsory purchases of oil and to fix prices. In this way the State was able to impose strict control over the import and distribution of oil, and also to force foreign oil companies to assist the Government in building up reserve stocks of a highly important war material.

The shipping and shipbuilding industries were given increased government subsidies, and in May 1936 the State assumed large powers of control under the Shipping Route Control Law which empowered the Government to intervene for the purposes of checking "improper" competition among shipping lines, assigning routes, and regulating freight rates and fares. In the fertilizer trade, the State attempted to reconcile the conflicting interests of the manufacturers, who wanted exclusion of imports, and the farmers, who wanted free imports in the hope of lower prices, by a law passed in 1936 which provided for the establishment of associations of chemical fertilizer producers with power to fix prices and production quotas, and which set up a Control Commission to supervise the associations and advise the Government on foreign trade in these products.

This extension of State control was vigorously opposed by the various industries concerned, most notably in the case of the proposal to establish State control over the electric power industry. The militarist factions favored this proposal on the ground that State supervision of the country's power resources was essential to national defense. The large financial and industrial interests were strongly opposed to any form of State control since it was likely to affect their privileged position as buyers of current. Although legislation on the question was not finally enacted until after the outbreak of the war,¹¹ the long drawn out debate on this issue is an important illustration of the growing strength of the forces advocating state intervention and

¹¹ *Infra*, p. 33.

regulation for "war preparation" purposes in the years prior to the actual outbreak of hostilities.¹²

Thus by 1937 a large volume of legislation had been passed authorizing the State to intervene and regulate the operation of "strategic" industries, and the way had been cleared for the immediate imposition of far-reaching control measures once the war had broken out. Moreover, as a result of the operation of these control measures, and also of the Government's inflationary fiscal policies, an increasingly large portion of Japan's resources was being diverted into the strategic industries, to the detriment of those industries manufacturing for the home market and for the export trade. The export industries were also suffering from the increase in production costs and the restrictions imposed in foreign markets against Japanese goods. By the end of 1936 the yen was showing signs of weakness. As a further depreciation of the yen would have increased the cost of the vast quantities of imported raw materials and machinery needed for the expansion of the heavy industries, the Government early in 1937 imposed import and exchange control measures designed to restrict imports of "non-essential" materials and conserve Japan's foreign exchange reserves. Thus even before the outbreak of the war, it had become obvious that Japan could not develop a "war economy" and also maintain the expanding trade in manufactured goods which was so essential for the continued prosperity of the Japanese people as a whole.¹³

WARTIME INDUSTRIAL DEVELOPMENTS IN JAPAN

The industrial trends which characterized the development of a quasi-wartime economy in Japan prior to July 1937 were naturally intensified with the outbreak of war. Wartime needs required an enormous expansion in the metal, engineering, and chemical industries, with the result that Japan's dependence upon foreign sources of raw materials, munitions, high-grade machine tools, motor vehicles, etc. was greatly increased, necessitating a sharp curtailment in imports of less essential materials and placing a severe strain on Japan's foreign exchange resources. But the wartime developments in Japan's industrial structure were not merely a continuation of previous trends.

¹² For a detailed analysis of Japanese economic policy in the immediate prewar period, see Allen, *op. cit.*, pp. 15-24, on which this summary is based.

¹³ *Ibid.*, pp. 23-24.

Far-reaching changes occurred, the most outstanding being the decline in the output of the so-called peace industries producing for export and the home market, as a result of the diversion of capital and labor resources to the war industries; increased inflation accompanied by a sharp rise in the cost of living; and the attempted extension of government regulation and control to almost every aspect of the national economy, accompanied by a continuous struggle between the big business interests and the militarist-bureaucratic factions as to which groups should control the "new economic structure."

Space does not permit of more than a brief outline of the principal wartime developments in Japanese industry. It would require many pages to describe in detail the provisions and operation of the innumerable control measures introduced by successive cabinets in an effort to mobilize the nation's resources for war and simultaneously continue the expansion of essential war industries. All that can be included is a general survey of the extent to which Japanese industry was centralized toward wartime production; the principal aims of Japanese wartime economic policy; and Japan's economic position after more than four years of war.

Extension of State Control over Industry. Following the outbreak of the war with China, Japan was confronted with the difficult problem of meeting the ever increasing demands of the armed services for munitions and other war supplies, while at the same time continuing to expand the productive capacity of her heavy industries both at home and in Manchukuo. The effort to conserve foreign exchange for essential war imports, to divert capital and labor resources to the war industries, to restrict the import and production of "nonessential" commodities, to control prices, to maintain the most vital export industries and, most recently, to apply a rationing system to such consumers' goods as sugar, matches, charcoal, and rice, called forth a vast volume of legislation authorizing government control and intervention in almost every phase of Japan's economic life.

The keystone of this structure of economic control was the National Mobilization Law of March 1938 which authorized the Government to mobilize labor and regulate working conditions, control the production, consumption and exchange of

goods, control or take over movable and immovable property, compel the formation of business associations, regulate the use of capital funds and limit prices and profits. The Mobilization Law was subsequently revised and strengthened at the 1941 Diet session, and in its new form created machinery for the requisition of goods, houses, land, mines, patent rights, and funds; authorized suppression of labor disputes, control of wages, profits, and salaries, control of exports and imports, and restriction of news.

In addition to this omnibus enactment, a substantial number of control measures were passed relating to specific branches of industrial activity. Among the most important of the laws relating to industrial production were:

The Temporary Import and Export Control Law (1937) which authorized the Government to prohibit or restrict the import and export of certain goods, and also to issue regulations regarding the manufacture, distribution and use of goods produced from imported raw materials. As a result of the application of this law, imports of many raw materials, such as hides, rubber, wool, cotton, pulp, wood, etc. were made subject to license and were greatly curtailed; the import of nearly 300 items of luxury and nonessential goods was prohibited; the export of goods needed for war purposes was forbidden; and the import and distribution of many light metals was subjected to strict control.

The Temporary Capital Adjustment Law (1937) was intended to force the country's savings into heavy industry. Manufacturers were compelled to obtain official permission before they could raise capital for establishing, extending or improving their plants, and banks and investment institutions were required to set up machinery for controlling the underwriting of new capital issues. The law provided for special credit facilities for the heavy industries, and permitted the issue of ¥200 million in savings bonds by the Hypothec Bank of Japan and the issue of an additional ¥500 million in bonds by the Industrial Bank of Japan. The bond issues permitted were subsequently raised to ¥500 million for the Hypothec Bank and ¥1,000 million for the Industrial Bank. A list of "nonessential" industries, including textiles, was debarred from raising new capital during the emergency period. A third

TABLE 13

INVESTMENTS AUTHORIZED UNDER THE TEMPORARY CAPITAL ADJUSTMENT LAW

(in million yen)

	1938	%	1939	%
Mining.....	404.9	14.3	587.0	13.9
Manufacture.....	1,917.6	67.9	2,724.9	64.6
Agriculture.....	1.6	0.1	10.3	0.2
Fisheries.....	29.3	1.0	13.7	0.3
Transportation.....	289.6	10.3	499.7	11.9
Commerce.....	82.1	2.9	42.3	1.0
Miscellaneous.....	97.7	3.5	337.0	8.1
Total.....	2,822.8	100.0	4,214.9	100.0

Source: *The Japan Advertiser Annual Review, 1939-1940*, p. 4.

group of industries was to be granted loans under special circumstances, each application to be considered on its merits.

The Electric Power Control Law (1938) gave the Government authority to control the generation and transmission of electric power for the purpose of insuring an adequate supply for the war industries and lowering costs. A semi-official company, the Japan Electric Power Generation and Transmission Company was established to carry out these plans. The measure did not provide for government ownership or for government control over the distribution of power to the consumer. It stipulated that the principal electric companies¹⁴ should sell their hydraulic power to the new company, which took over all the main transmission systems, and which was to take over all important new water and steam power equipment. The new company began to function on April 1, 1939, and encountered serious difficulties in the form of greatly increased demand, a severe drought in the winter of 1939-40, and a continued shortage of coal which compelled it not merely to curtail consumption but even to suspend it entirely for brief periods. Since about 85% of the electric power generated in Japan is used for

¹⁴ At the end of 1936 there were 1,172 concerns engaged in the electric business, and many additional plants in private factories. The total generating capacity was 6,777,422 kilowatts with plants providing for an additional 2,067,860 kilowatts under construction. The "Big Five" in the Power industry are Tokyo Electric Light, Toho Electric Power, Daido Electric Power, Nippon Electric Power, and Ujigawa Electric Power. It is claimed that Japan had a total electric power capacity of 8,000,000 kilowatts at the beginning of 1940, but no figures on electric power production have been released since November 1938. See Schumpeter, *op. cit.*, p. 332.

industrial purposes, this meant that industrial establishments of all kinds had to close down or greatly curtail their operations.¹⁵

A number of laws were passed providing for government control over the strategic mineral and manufacturing industries. The provisions of these laws were generally similar; in return for being made subject to varying degrees of government control, these industries were given preferential treatment with regard to capital expansion and supplies of raw materials, and were permitted to import materials and equipment free of duty. In certain cases, manufacturers were exempted from the payment of income and profit taxes and were granted government subsidies. Regulation over these industries was effected by the following laws: Petroleum Industry Law (1934); Major Fertilizer Industry Control Law (1936); Motor Car Industry Law (1936); Gold Production Law (1937); Synthetic Petroleum Production Law (1937); Iron and Steel Industry Law (1937); Mineral Production Law (1938); Electric Power Control Law (1938); Airplane Manufacturing Industry Law (1938); Machine Tool Industry Law (1938); Light Metals Industry Law (1939); Shipbuilding Industry Law (1939); Coal Distribution Control Law (1940); Synthetic Chemical Industry Law (1940).

In addition to giving preferential treatment to the strategic industries in the matter of capital, materials, and equipment, a number of new semi-official or national policy companies were established. In general, these companies have been formed when there was not sufficient inducement for private capital alone to engage in production on the scale desired. Prior to the war, these semi-official companies were mainly concerned with banking, communications, and colonial development (see, *supra*, p. 13). The Japan Iron Manufacturing Company, established in 1933, was the first to be concerned primarily with an industry. Between 1937 and 1940 companies were formed to promote the output of synthetic fuel, gold, minerals, airplanes, and chemical fertilizers; to develop communications and raw materials in North and Central China; to monopolize the generation and

¹⁵ Production of sulphate of ammonia reportedly declined by 30%; cement and aluminum production was sharply curtailed; steel producers suffered from lack of power and coal; textile mills were forced to restrict operations, etc., cf. Kurt Bloch, "Coal and Power Shortage in Japan," *Far Eastern Survey*, Vol. IX, No. 4, February 4, 1940, pp. 39-45.

transmission of electricity and the sale of coal. (See Table 1.) In these semi-official companies, the Government usually contributed a part of the capital, guaranteed the principal and interest on debentures; received dividends at a lower rate than the private stockholders, granted exemptions on income, profit, and local taxes and from import duties on imported materials and equipment for a limited number of years, and sometimes provided subsidies.

Restrictions on Peacetime Industries. The subsidized expansion of the war industries was accompanied by increasingly severe government restrictions on the peace industries. The curtailment of imports of "nonessential" goods affected all industries producing either for the export or home market, although the latter were hardest hit. Laws were passed requiring the use of a large percentage of substitute fibers in the manufacture of woolen and cotton goods. Government agencies were established to regulate the distribution and use of scarce materials, and domestic consumption was increasingly curtailed, since preference was always given to industries producing either for war purposes or for export. In 1938 an import-export link system was applied to the cotton, woolen, and rayon industries, and to a number of other commodities. By this system imports of raw materials were permitted only to those manufacturers who could produce vouchers issued when manufactured products were exported. The link system as applied to textiles was based on quantities, but in January 1939 a special link system was applied to some 26 commodities, including beer, cement, soda ash, and matches, which provided that exports of these commodities to countries *outside* the yen bloc would confer the right of importing raw materials to a value equivalent to the value of the raw material content of the exports. This was part of the Government's policy for curtailing exports of consumers' goods to yen bloc areas, since such exports did not provide the foreign exchange which Japan needed so desperately to maintain her imports of munitions and war supplies from foreign-currency areas. In view of the fact that Japan's main aim is to bring large areas of Asia under her political control so as to secure monopolistic privileges for her merchants and traders, this forced curtailment of exports to the yen bloc areas was not only ironic but was also an important illustration of Japan's

dependence upon trade with foreign countries for the maintenance, to say nothing of the expansion, of her heavy industries.

Development of Japanese Manufacturing Industry, 1936-1939. All these various control measures formed part of a general plan to expand the productivity of Japanese heavy industry and decrease Japan's dependence upon foreign sources of raw materials. As announced in the spring of 1939, this plan called for self-sufficiency within the yen bloc by 1942 in iron and steel, coal, light metals, zinc, soda, sulphate of ammonia, pulp, rolling stock, motor cars, and shipping, and for substantial increases in the production of many other raw materials. To what extent this plan is being fulfilled cannot be determined, as statistics of production and stocks of many important commodities have not been published since July 1937. It seems certain, however, that production has fallen far short of the desired goal. In the following paragraphs an attempt will be made to indicate the general trends in Japanese industrial production, based on the limited data available.

The official factory statistics, covering industrial enterprises employing five or more workers, are available through 1939. As given in Table 14 these figures show that, during the period 1936-39, the number of industrial enterprises increased by 52%, the number of employees by 45%, the gross value of production by 99%, the number of hours worked by 40%, and wage payments by 98%.

TABLE 14
JAPANESE MANUFACTURING INDUSTRY, 1936-1939

	1936	1937	1938	1939
No. of enterprises.....	90,602	106,005	112,332	137,422
No. of workers employed (thousands).....	2,592.7	2,936.5	3,217.7	3,766.7
Gross value of production (mil- lion yen).....	12,258	16,356	19,667	24,360
Hours worked by employees (millions).....	7,693	8,750	9,706	11,317
Wages and salaries (million yen).....	971.8	1,152.3	1,442.0	1,927.3

Source: Tokai Geppo (Statistical Monthly). Quoted by A. Grajdanzev, "Japan's Industrial Output Slackens," Far Eastern Survey, April 7, 1941, p. 69.

At first glance these statistics appear to give a picture of substantial industrial growth, but this picture must be qualified at a number of points. In the first place, the statistics reveal

that the average number of workers per enterprise declined slightly, from 28.6 in 1936 to 27.4 in 1939. This indicates that the degree of concentration of production in Japan was still far less than in other industrial nations. It is obvious that this hinders industrial mobilization and regulation for war purposes. It means that the Government must deal with a large number of small enterprises in placing its war contracts, or that the factory which gets the contract must secure the co-operation of hundreds of smaller factory units—a situation which makes rationalization and improvement in the technical processes of production extremely difficult.

The official statistics showing a 99% increase in the gross value of industrial production must also be taken with a considerable grain of salt, inasmuch as they are greatly inflated because of the rapid rise in prices. The official index of wholesale prices, which understates the actual price rise, rose by 52% between 1936 and 1939. Stated in 1936 prices, therefore, the gross value of production in 1939 was only 16 billion yen, an increase of only 31%. Moreover, the prices of metal products and machinery, which have accounted for an increasing proportion of the total output, rose much more than the average price level. Finally, it should be noted that the increase in salaries and wages paid did not represent an increase in real earnings, inasmuch as there was a sharp increase in living costs during this period. The official retail price index increased 39%, but the actual price increases were much higher because many consumption goods could be purchased only on the "black market."

Expansion of the "Strategic" Industries at the Expense of the Peace Industries. The outstanding feature of wartime industrial expansion in Japan, however, is the fact that it differs sharply from the boom period, 1931-36, when a large number of industries in no way connected with the war economy were growing very rapidly. Many of these were linked with Japan's expanding export trade, e.g., cotton, rayon and woolen goods, small metal manufactures and other consumers' goods. Due to the depreciation of the yen and the extremely low production costs prevailing in her small-scale industries, Japan had been able to tap new low-price markets in Asia and Africa, while the growing efficiency of her great textile industry had enabled her to compete successfully in an increasingly wide range of products. The

subsidized development of her heavy industries in the prewar period had thus been accomplished without curtailing the growth of the light industries which formed the basis of her vitally important export trade. This had been possible because Japan's economic resources had not been fully employed and the impoverished rural areas were able to provide the necessary labor force for continued industrial expansion.

But, in the months immediately preceding the outbreak of the war, this situation had begun to change. As noted above, the inflationary policies of the Government and the purchase of large quantities of materials for the war industries had raised Japanese prices, thus slowing down the export boom, and had also produced an import surplus of such proportions as to threaten the stability of the yen, forcing the Government to introduce exchange control measures in 1936. Following the outbreak of the war, inflation continued, production costs increased, labor reserves were depleted by the mobilization of increasing numbers of men for military service, and the "peace" industries were severely hampered by the restrictions placed on the import of raw materials other than those needed by the war industries. After 1937, therefore, the expansion of heavy industry in Japan was achieved only by the diversion of labor, capital and equipment from the light industries and from agriculture, with a resulting decline in the production of goods for home consumption and export.

Because of its urgent need for foreign exchange with which to purchase essential imports, however, the Government was compelled to give some consideration to the needs of the major export industries for raw materials, capital, and labor. The main brunt of wartime restrictions and shortages was therefore borne by the industries supplying the home market, and by the small-scale industries producing cheap export goods. In general, therefore, it may be said that industrial development during the first four years of the war period in Japan was characterized by the subsidized expansion of the munitions and other heavy industries, lowered production in the export industries, particularly those whose principal markets were within the yen bloc and did not yield foreign exchange, and a precipitous decline in the production of goods for home consumption, after 1939.

Volume of Industrial Production During the War Period. Statistically, these trends can be shown only in the figures giving

TABLE 15
VOLUME INDEX OF INDUSTRIAL PRODUCTION
(Monthly average, 1931-33 = 100)

Year	General Index	Consumers' Goods	Consumers' Goods			Producers' Goods
			Textile Materials	Paper	Food & Drink	
1932.....	96.9	97.6	98.6	96.3	93.9	96.2
1933.....	111.9	107.3	107.8	106.0	105.2	116.6
1934.....	126.2	116.1	119.4	116.9	101.4	136.4
1935.....	139.3	125.0	128.4	126.4	109.7	153.1
1936.....	148.8	125.3	127.5	134.1	112.0	171.5
1937.....	167.3	136.5	139.6	156.4	113.6	197.9
1938.....	173.0	125.1	124.6	142.9	117.3	220.4
1939.....	180.8	121.4	117.9	148.2	121.7	239.7
1940						
Jan.....	169.4	106.6	102.2	144.0	109.4	231.6
Feb.....	163.9	106.1	102.6	137.5	107.5	221.2
Mar.....	173.8	120.7	121.5	154.9	101.8	226.4
April.....	171.9	107.6	110.3	147.4	77.8	235.7
May.....	176.3	111.5	117.3	140.4	72.8	240.6
June.....	173.4	101.9	102.8	137.9	81.8	244.3
July.....	181.3	108.9	110.8	151.6	81.4	253.0
August.....	178.5	102.7	105.7	141.2	72.4	253.5

Producers' Goods

Year	Chemical Products	Cement & Glass	Iron, Steel, Machinery	Electricity & Gas	Mineral Products
1932.....	98.7	92.0	95.3	99.5	96.3
1933.....	117.5	118.0	122.8	113.0	106.8
1934.....	131.0	120.0	157.8	122.2	115.4
1935.....	161.8	130.6	184.1	129.2	123.8
1936.....	192.5	132.3	209.5	140.4	137.8
1937.....	220.5	149.2	251.9	153.0	150.0
1938.....	227.5	130.3	295.0	167.5	159.5
1939.....	225.1	117.2	293.4 ¹	144.4 ²	164.5
1940					
Jan.....	191.6	103.0	284.6 ¹	138.4 ²	167.6
Feb.....	206.3	133.5	259.3 ¹	158.5 ²	169.2
Mar.....	222.5	105.6	274.6 ¹	145.4 ²	159.6
April.....	204.8	105.2	286.2 ¹	162.3 ²	171.4
May.....	206.2	105.0	295.0 ¹	162.4 ²	170.2
June.....	218.6	106.7	301.2 ¹	167.1 ²	165.5
July.....	206.1	110.6	314.8 ¹	160.7 ²	172.5
August.....	226.3	113.6	312.9 ¹	169.2 ²	171.2

¹ Includes electric power production.

² Covers gas production only.

Source: *The Oriental Economist*, Tokyo.

the physical volume of production for various industries and the distribution of labor among the different industrial groups. Itemized production figures for certain strategic commodities, such as iron, steel, coal, oil, metals, automobiles, aircraft, and certain kinds of machinery, have not been published since July 1937, but *The Oriental Economist* continued to issue an index of the volume of production, based on reports of the Department of Commerce and Industry, with the addition of certain items. These figures do not, of course, reveal the full extent of the changes which have occurred, because they do not take account of shifts within a given industry from the production of one type of goods to another. For example, many firms in the textile machinery industry shifted to the production of munitions and machine tools when production for the home market was curtailed and exports to countries within the yen bloc were prohibited.

The Oriental Economist index of the physical volume of production from 1932 through the first eight months of 1940 is given in Table 15. According to these figures, the total volume of industrial production in 1939 was 13.5% larger than in 1937 and 32% larger than in 1936. This general increase over 1937 was made up of a 41.8% increase in the volume of producers' goods and a 15.1% decrease in the volume of consumers' goods. The decline of the leading "peace" industries is shown even more clearly in Table 16, in which the base of *The Oriental Economist* index is changed to August 1937:

TABLE 16
INDEX OF THE PHYSICAL VOLUME OF PRODUCTION,
BY INDUSTRIAL DIVISIONS

	August 1937	August 1938	August 1939	August 1940
Metals and machinery.....	100	118	145	138
Chemicals.....	100	99	105	97
Textiles.....	100	86	88	75
Ceramics.....	100	82	73	74
Food.....	100	117	122	74
Paper.....	100	90	94	87

The index of the physical volume of production thus shows that by the end of the third year of war, production in all branches of Japanese industry with the exception of metals and machinery was below prewar levels, and that even in these all-important war industries the output in August 1940 was below

that of August 1939. Conditions in the iron and steel industry were particularly unfavorable in 1940 as a result of the power shortage and the decline in the volume of scrap-iron imports from the United States and of iron ore and pig iron from Malaya and India, owing to a lack of shipping facilities, and to export restrictions imposed in those countries. All production quotas for steel ingots and semi-manufactured goods were reduced by 5% during the last quarter of 1940 in order to conserve existing stocks.

The industries producing consumers' goods, both for export and for the home market, also suffered from shortages of raw materials, and from the additional handicap of a decline in the export trade and increased restrictions on sales in the domestic market. The production of cotton yarns and textiles, silk yarns, and rayon yarns and textiles declined sharply, although silk textiles increased as a result of the growing domestic demand for a substitute for cotton goods. Many export markets for Japanese textiles were cut off as a result of the spread of the European war and the intensification of exchange and import restrictions in the belligerent countries and their overseas possessions. Cotton cloth exports amounted to 1,373,820,414 square yards during the first nine months of 1940, a decline of 22.1% in volume as compared with the same period in 1939.

This stagnation of Japanese industrial production, in the face of ever increasing demands from the armed services, has been generally attributed to the serious shortages in raw materials, coal, and electric power which became acute in the latter part of 1939 and which have continued to prevent Japanese industries from maintaining, much less expanding, the volume of their production. But two other factors should not be overlooked. One was the distrust shown by certain of the large financial interests toward the totalitarian program advocated by the militarists and their reluctance to invest in industrial enterprises which were subject to increasingly strict government regulation and control, unless they were assured of a dominant voice in the formulation of government policies. A second, and less publicized cause of Japan's failure to fulfill the grandiose program of industrial expansion demanded by the militarists was the sharp decline in labor productivity. This can best be shown by dividing the index of the volume of produc-

tion by the index of the number of workers employed, as follows:

	1936	1937	1938	1939	August ³ 1940
A. Index of number of workers ¹	100	113	124	145	149
B. Index of volume of production ²	100	112.4	116.3	121.4	120.0
C. Index of labor productivity (B/A).....	100	99	94	84	81

¹ Calculated from factory statistics given in Table 4, except for August 1940, which is an estimate based upon the Bank of Japan's index of employment.

² Adjusted for seasonal variation.

³ *The Oriental Economist*.

Thus, by August 1940, the productivity of labor in Japan had declined by nearly 20% as compared with 1936. In other words a 49% increase in the number of workers was able to increase the volume of production by only 20%; an increase, moreover, which was marked by a serious deterioration in the quality of many of the goods produced. Important causes of this decline in labor efficiency appear to have been the growing shortage of skilled labor and sharp deterioration in the standard of living of the Japanese worker. According to the official cost of living index, living costs for salaried workers were 17.4% higher in 1940 than in 1939 and the increase in costs for wage earners was 18.3%. But the actual rise in living costs was much greater. In many cases, the official prices were purely nominal, as the goods were simply not available, and a large part of the goods needed for everyday consumption had to be bought on the "black market" where prices were infinitely higher. Furthermore, the quality of the goods available for domestic consumption deteriorated drastically. For example, clothing materials which were formerly of cotton, wool, or silk and gave many years' wear, were now made with a large percentage of staple fiber which reduced their durability to a few months or even weeks.

JAPAN IN 1940

From this survey of some of the outstanding wartime developments in Japanese industry, it is clear that the pressure of wartime demands on Japan's industrial structure brought to a head the difficulties which were latent during the period of gen-

eral industrial expansion from 1931 to 1936. The productive capacity of Japanese heavy industry continued to grow rapidly, but only at the expense of the industries manufacturing consumers' goods and many staple export products. Japan's requirements for industrial raw materials increased enormously as she attempted not only to expand her own war industries but also to exploit the resources of Manchukuo and the occupied areas of China in an effort to establish "yen bloc self-sufficiency." As a result, her dependence upon foreign-currency countries for iron, oil, wool, cotton, and many other essential raw materials, as well as for special steels and precision machine tools, was increased rather than lessened, necessitating the curtailment of imports of all "nonessential" commodities. The figures in Table 17 show that although Japan's trade with the "yen bloc"

TABLE 17
JAPAN'S FOREIGN TRADE WITH YEN BLOC AND FOREIGN
CURRENCY COUNTRIES

(Values in millions of yen and as % of total)

	A. Exports					Foreign Countries		Total	
	Yen Bloc (value)			Total	%	Value	%	Value	%
	Manchukuo	Kwantung	China						
1936	151	347	160	658	24.4	2,035	75.6	2,693	100
1937	216	395	179	791	25.3	2,384	74.7	3,175	100
1938	317	536	313	1,157	43.0	1,524	57.0	2,690	100
1939	536	756	456	1,747	48.9	1,829	51.1	3,576	100
	B. Imports								
1936	206	34	155	394	14.3	2,370	85.7	2,764	100
1937	249	45	144	438	11.6	3,345	88.4	3,783	100
1938	339	60	165	564	21.2	2,099	78.8	2,663	100
1939	406	62	216	683	23.5	2,235	76.5	2,918	100

Source: *Japan Year Book, 1940-41.*

increased substantially in the period from 1936 to 1939, that area was far more important as a market than as a source of imports, and, in fact, represented a serious drain on Japanese resources because of the steadily expanding need for capital and equipment in Manchukuo. Table 17 also shows the extent of Japan's unfavorable balance of merchandise trade with foreign countries; evidence of the continued drain on her dwindling foreign exchange reserves.

The "New Economic Structure." By the summer of 1940 the

economic situation in Japan had deteriorated sharply. Production, even in the vital war industries was below the level of 1939, and the extremist faction in the army and bureaucracy was clamoring for more effective state regimentation of the country's economic life, and particularly for the establishment of bureaucratic control over the great business monopolies. As a part of the drive for a totalitarian regime in the political sphere, these "renovationists" wished to see industry become once more a mere adjunct of a military state, with private profits either eliminated or drastically curtailed. Early in July 1940 the War Minister resigned, precipitating the fall of the Yonai Cabinet, and the second Konoye Cabinet assumed office on a platform calling for the creation of a highly organized "National Defense State" and of a "Greater East Asia Co-Prosperity Sphere"—an independent and self-sufficient economic bloc, comprising large though unspecified areas in Asia, with the Japan-Manchukuo-China bloc as a nucleus. Mr. Naoke Hoshino, one of the leaders in the establishment of Manchukuo's state-controlled industrial structure, was appointed president of the Cabinet Planning Board and made Minister without Portfolio, and Chuichi Ohashi, another Manchukuo bureaucrat, became Vice-Minister of Foreign Affairs, thereby giving the advocates of a totalitarian regime a strong voice in the Government.

In the industrial field, the Konoye Cabinet's initial moves for the setting up of the "New National Structure" precipitated a sharp struggle over the question of State versus private control of industry. The Cabinet Planning Board's original program for the new economic structure called for reorganizing and strengthening the cartels in the major industries with a view to enforcing State control. The Government was to appoint directors of the cartels and lay down "fundamental principles" for their guidance, prominent among these principles being the limitation of profits and dividends. In this way, a "collective planned economy" was to be established under the direction of a Supreme Economic Council. Vigorous opposition to this plan was immediately forthcoming from the big business and financial interests which condemned the idea of allowing "inexperienced bureaucrats" to take charge of important industrial enterprises. The Japan Economic Federation, spokesman for the most powerful industrial interests, advanced an alternative plan whereby the business interests would voluntarily establish

a corporative industrial structure under their own control. Their aim was a strengthening of the cartel system to enable the most powerful interests in every branch of industry to draw all rival enterprises into large vertical organizations, thus creating effective instruments for voluntary and profitable cooperation with the State. Guilds of small-scale enterprises would be affiliated with these cartels, and small, "uneconomic" enterprises would be forced to merge with larger concerns or abandon production, as a means of co-ordinating production and facilitating control. Such a scheme would, of course, strengthen the monopoly position of the big firms and thereby provide compensation for any sacrifices which they might be forced to make in the interests of the new "National Defense State."

While this internal conflict over the control of the "New Economic Structure" was in progress, the deterioration in Japan's economic position continued. By the end of the year, the national debt aggregated nearly 30 billion yen—an amount equal to the total national income and representing a threefold increase in five years. During 1940 there was an increase in note issue of more than 1 billion yen, a decline of 12% in the rate of government bond absorption, and an increase of nearly 7 billion yen in the national debt. Unassimilated national bonds held by the Bank of Japan amounted to over 3 billion yen, and the Bank's note issue, totaling 4,930 million yen on December 30, 1940, had increased by 25% during the year and by more than 250% since 1936. Publication of detailed foreign trade statistics was prohibited as of October 16, 1940, but official figures showed total exports for the year of 3,972 million yen and total imports of 3,709 million, an increase of 1% and 19% respectively over 1939. Thus Japan had a favorable balance of only 263 million yen, and as the excess of exports to yen bloc areas greatly exceeded that amount, it was obvious that the import excess in merchandise trade with foreign-currency countries had increased substantially. (An estimate by the United States Department of Commerce puts Japan's merchandise trade deficit in foreign currency at \$202,400,000 in 1940, as compared with \$93,150,000 in 1939.)

As Japan's economic difficulties became more acute, the political struggle over the form of the "new structure" was intensified. After prolonged debate, the Cabinet at last published, early in December 1940, an "Outline for the Establishment of

the New Economic Structure." The program as finally approved was a compromise which met the chief objections of the business interests. "Private industrial enterprise is to be the basis of the new structure," although in special cases "management of an enterprise by the government is to be permitted." The principles of the new cartel system were set forth as follows:

Operators of industrial enterprises in important industries are to form organizations according to the nature of their business and raw materials handled by them. These economic organizations are to be special juridical persons and their affairs are to be conducted by directors, approved by enterprises affiliated with them and by the government. The government is to supervise these economic organizations.¹⁶

This compromise appears to have marked the beginning of a trend toward closer co-operation between the State, the more conservative elements in the armed forces, and certain representatives of the great financial interests, with neither the ultra-extremists in the army nor the ultra-conservative business interests in power. Evidences of this trend can be found in the reorganization of the Imperial Rule Assistance Association in March¹⁷ and more especially in the partial reorganization of the Cabinet which took place early in April 1941. Masatsune Ogura, chairman of the great Sumitomo interests, was made Minister without Portfolio and charged with the difficult task of "economic co-ordination." General Teiichi Suzuki replaced Mr. Hoshino as president of the Planning Board, and Admiral Teijiri Toyoda supplanted Mr. Kobayashi as Minister of Commerce and Industry. In view of Admiral Toyoda's close connections with Japan's shipbuilding interests, his appointment indicated a move for a closer tie-up between Government and industry. The appointment of General Suzuki, a member of the Araki faction in the army, may also be considered indicative of this trend, because of Araki's known friendship with some of Japan's leading financiers. Similarly, Mr. Ogura, as a close friend of General Araki, and as the representative of the Sumitomo interests with large investments in both light and heavy

¹⁶ *The Japan Weekly Chronicle*, December 12, 1940, p. 756.

¹⁷ Sotaro Ishiwata, a former Finance Minister, replaced Count Arima as director-general; General Heisuke Yanagawa, a member of the Araki faction, became vice-president; and the highest standing committee of the I.R.A.A. headed by Admiral Suetsugu, was abolished, indicating that the influence of the extreme fascists in the army, such as Suetsugu, Colonel Hashimoto and others, had been somewhat diminished.

industry, appeared ideally suited for the difficult task of reconciling the conflicting interests of these two sections of industry and bringing about closer co-operation between the armed forces and the great financial interests.

These shifts in cabinet personnel, however, did not solve the problem of putting into practice the announced aims of the "New Economic Structure," the most important of which was increased production in the war industries. Industrial leaders announced their support for the principles of the new national defense state, but insisted that the national economy "be operated on the basis of initiative and responsibility of business" and argued that the Government's "low-price" policy must be revised before an increase in production would be possible (or profitable). Thus the Government was still faced with the problem of reconciling "public service" and private profit, and of securing an expansion of production without the incentive of high prices, a problem which continued shifting of cabinet personnel could not solve.

During the early months of 1941, Japan's internal economic difficulties grew steadily more acute. But external events were destined to have an even more disastrous effect upon the Japanese war economy. With the spread of the European war, and particularly after the Nazi invasion of the Soviet Union, it became unmistakably clear that Japan's war in the Far East was an integral part of a world-wide conflict, and that Japan was in a position to give direct military aid to her German partner. As a result, the United States which for four years had chosen to treat the Far Eastern war as a separate conflict, and had continued to supply Japan with war materials, at last decided to abandon this appeasement policy and use her great economic power over Japan in an effort to force Japan to abandon her alliance with the Axis.

The first dramatic evidence of this radical change in the international scene came on July 26, 1941, with the freezing of all Japanese assets in the United States, the British Empire, and Netherlands India. As a result of this action, plus subsequent specific embargo measures, Japan was subjected to a virtual economic blockade by Britain and the United States. Japanese industry, already seriously weakened by the strain of four years of war, was thus confronted with the loss not only of its principal sources of supply but also its chief markets.

This new and potentially disastrous threat to Japan's whole industrial structure was met by a series of measures designed to put the National Mobilization Law fully into effect and to mobilize all possible funds, labor, and materials for the war industries. Simultaneously, in the political sphere, Japan adopted a "conciliatory" attitude in conversations with the United States, trying desperately to secure a relaxation of American economic pressure which would enable her to hold out pending the further development of the war in Europe. The political and military aspects of Japan's dilemma, however, are beyond the scope of this survey. All that can be said is that every month of continued warfare means a further concentration of Japan's dwindling resources on the production of munitions and equipment for her armed forces and, consequently, a further distortion of the Japanese economic structure. Mere adjustments between one group and another within the ruling class of Japan cannot solve or modify the fundamental problems inherent in Japan's unbalanced economy.

CHAPTER III

FORMOSA AND KOREA

PART I. FORMOSA (TAIWAN)

Formosa might suitably be termed the charter member of Japan's "co-prosperity sphere" in East Asia. The first colony of the Japanese Empire, Formosa was acquired from China as part of the fruits of Japan's victory in the war of 1894-5. The colony occupies an area of 13,807 square miles, with a population (1938) of 5,747,000, of which 5,392,000, or 94% are Chinese, and the remainder chiefly Japanese. Situated halfway between Tokyo and southern Indo-China, 120 miles east of the coast of Fukien, and 200 miles north of Luzon, Formosa's strategic importance for Japan's program of southward expansion is obvious, and the island has been developed as the main naval base for Japanese operations in the South Seas. For the purposes of this study, however, Formosa is primarily of interest as an example of what nearly half a century of Japanese rule has meant in terms of industrial progress, and the extent to which that progress has benefited the native Chinese population.

The whole aim of Japan's policy toward her colony has been to monopolize Formosa's resources and to develop the country as a useful economic asset to Japan. "Perhaps nowhere else in Southeast Asia can the monopolist drive for empire self-sufficiency be studied with more advantage than on this little island in the Pacific."¹ Under Japanese administration, the volume of Formosa's foreign trade has been increased thirty-fold, while at the same time that trade has been diverted almost entirely into inter-Empire channels. In 1939, 95% of Formosa's imports came from Japan, Manchukuo, and Kwantung, while of her exports only tea and camphor are sold outside the yen bloc in any quantity. Formosa's chief contributions to the yen bloc economy are rice and sugar. As a result of improved methods of cultivation, irrigation, etc., the cultivated rice area has been more than

¹ H. G. Callis, *Foreign Capital in Southeast Asia*, Secretariat, Institute of Pacific Relations, 1941, p. 44.

doubled and the annual production of rice has been quadrupled since 1900, about half the total crop being exported to Japan proper. By means of heavy subsidies and a high protective tariff, Japan has expanded sugar production on Formosa to the point where the Japanese Empire is now self-sufficient in sugar, Formosa supplying about 90% of the total output. Incidentally, the selling price of Formosan sugar is roughly double that of Java sugar, but the Japanese consumer has no choice and the Japanese-owned sugar companies in Formosa prosper accordingly. In addition to sugar and rice, Formosa also produces large quantities of bananas, pineapples, tea, sweet potatoes, and other agricultural products.

Industry's Role in the Formosan Economy. Formosa is predominantly an agricultural country, with nearly 75% of the native working population engaged in agricultural pursuits, and only about 9% employed in industry or mining, including handicrafts and household industries. Though industry's share in the total value of production has increased substantially, rising from 36.1% in 1921 to 44% in 1937 (see Table 18), the

TABLE 18
FORMOSA—GROSS VALUE OF PRODUCTION, 1921-1937

(In million yen and as per cent of total)

	1921		1929		1933		1935		1937	
	Yen	%	Yen	%	Yen	%	Yen	%	Yen	%
Agriculture.....	201.3	55.5	301.9	50.4	237.9	48.6	361.0	53.0	403.0	47.2
Fishing.....	9.6	2.6	21.0	3.5	15.9	3.3	19.4	2.9	21.4	2.5
Forestry.....	10.7	3.0	13.9	2.3	1.5	2.2	12.7	1.9	16.7	2.0
Industry.....	130.9	36.1	246.8	41.3	209.6	42.8	264.9	38.9	374.9	44.0
Mining.....	10.3	2.8	14.8	2.5	15.2	3.1	22.8	3.3	36.2	4.3
Total.....	362.8	100.0	598.4	100.0	489.1	100.0	680.8	100.0	852.0	100.0

Source: *Nogyo Nenkan* (Agricultural Year Book) 1939-40, published by the Imperial Agricultural Society of Japan.

greater part of it is concerned with the processing of agricultural products, and therefore this increase in the value of industrial output does not reflect any real alteration of the agrarian character of the country's economic structure. As shown in Table 19, the food industry, producing sugar, tea, canned pineapples, flour, etc., accounted for more than 70% of the total value of manufacturing production in 1937, while the only other industrial division to show substantial growth—the chemical industry

TABLE 19
FORMOSA—MANUFACTURING PRODUCTION BY INDUSTRIAL
DIVISIONS

(Gross value in million yen and as per cent of total)

	1929		1931		1935		1937	
	Yen	%	Yen	%	Yen	%	Yen	%
Textiles.....	3.0	1.1	2.1	1.0	3.6	1.2	5.0	1.4
Metals.....	5.2	2.0	4.9	2.4	8.8	2.9	12.0	3.3
Machinery.....	5.3	2.0	5.1	2.5	6.7	2.3	8.0	2.2
Ceramics.....	9.4	3.5	6.8	3.3	8.8	2.9	8.8	2.5
Chemicals.....	23.1	8.8	13.3	6.5	27.2	9.3	33.7	9.4
Lumber.....	8.8	3.4	6.5	3.2	9.3	3.2	5.5	1.5
Printing.....	3.6	1.4	3.3	1.6	4.4	1.5	5.0	1.4
Foodstuffs.....	190.1	72.1	152.4	74.3	212.6	72.6	261.3	72.5
Others.....	15.3	5.7	10.6	5.2	12.1	4.1	20.8	5.8
Total.....	263.8	100.0	205.0	100.0	293.5	100.0	360.1	100.0

Source: *Dainippon Teikoku Nenkan* (The Statistical Year Book of the Japanese Empire).

—is engaged chiefly in the processing of agricultural products and the manufacture of agricultural fertilizers:

Principal Manufacturing Industries in Formosa. The food industry towers above all others in Formosa, employing 48,615 workers out of a total of 87,244 industrially employed in 1937, and having a paid-up capital of ¥118 million, or 61% of the total capital investment in Formosan industry. In the food industry, sugar is pre-eminent. In 1937 it accounted for 77% of the total value of foodstuffs produced; tea for 5%; canned pineapples for 5%; and molasses and candy for 4%.² Production of these commodities is almost entirely controlled by a few large Japanese corporations, operating modern mills and canning factories, with which the small, poorly equipped Chinese enterprises are unable to compete. Out of a total sugar production of 1,007,352 tons in 1937, 987,451 tons were the output of modern Japanese-controlled mills, while the Chinese-owned mills produced only 19,901 tons.

The sugar industry is dominated by six Japanese corporations—the Taiwan, Dainippon, Meiji, Ensuiko, Teikoku and Showa companies—which produce approximately 97% of all sugar manufactured in modern mills, and 95% of the total sugar output of Formosa. Most of these companies own their own rail-

² A. J. Grajdanzev, *The Economic Development of Formosa*, Secretariat, Institute of Pacific Relations, 1941, p. 67 (in press).

roads and carry on numerous subsidiary enterprises including alcohol manufacture, lumbering, pulp production, etc. The large government subsidies and heavy protective tariff, plus their own cartel organization for controlling prices and volume of production, have enabled these companies to maintain an extraordinarily high rate of profit, averaging 30%, and to accumulate large reserves for investment in other industrial enterprises in Formosa and elsewhere in the South Seas.⁸

The electric power industry stands next to the food industry in importance, as far as Japanese capital investment is concerned (see Table 20). In 1939, there were 158 private power com-

TABLE 20
CAPITAL INVESTMENT IN FORMOSAN INDUSTRY, 1937

	<i>Total Paid-up Capital</i> (million yen)	<i>Paid-up Capital Per</i> <i>Corporation</i> (thousand yen)
Textiles.....	2.9	671
Machinery.....	4.9	353
Ceramics.....	3.6	276
Chemicals.....	10.1	387
Lumber.....	2.7	163
Foodstuffs.....	118.1	1,509
Printing.....	0.6	101
Gas and electricity.....	47.0	7,836
Others.....	1.6	76
Total.....	191.5	1,127 Av.

Source: Taiwan Jijo, Annual Review published by the Government-General of Formosa. Taihoku, December 1939.

panies and 15 government stations in operation, with a total capacity of 240,000 kilowatts, but the industry is completely dominated by a single, semi-official Japanese concern, the Taiwan Denryoku Corporation, in which the principal shareholders are the Formosan Government and the Japan Life Insurance Company. This company has a paid-up capital of ¥45.8 million, reserves of ¥15.1 million, and debentures totaling ¥76.6 million; the capacity of its stations being 220,000 kilowatts. It controls a subsidiary chemical company engaged in the manufacture of such strategically important products as silicious iron, iron alloys, carbide, etc., and also has a large interest in the Nippon Aluminum Company, which operates aluminum plants at Takao and Karenko. Power is supplied to

⁸ Grajdanzev, *op. cit.*, p. 69.

these and other strategic enterprises at considerably reduced rates.

Only a small part of Formosa's potential hydro-electric power resources—estimated to total 2 million kilowatts—is now being utilized, since Japan's main purpose in developing electric power facilities has been to supply a few strategic industries with cheap power.⁴ With the growing importance of Formosa as a naval base and the reported expansion of the chemical, aluminum, and other strategic industries on the island, however, a further expansion of electric power capacity is probable.

The chemical industry ranks third, both as regards the amount of capital investment and value of production, among Formosa's industries. In 1937 the industry employed 4,988 workers and produced goods valued at ¥33.7 million, the principal items being fertilizers, alcohol, vegetable oils and oil cakes, paper, charcoal, mineral oil, and refined camphor. In 1937 a new Japanese corporation—the Taiwan Chemical Company—was organized with a capital of ¥10 million with the announced aim of increasing Formosa's production of sulphate of ammonia to 100,000 tons annually. Prior to the establishment of this company, Formosa's production of sulphate of ammonia had averaged about 13,000 tons annually, while total consumption averaged approximately 150,000 tons. No information as to the output of the new company is available, but Formosa's imports of fertilizers have shown no appreciable decline.

Since 1935 the pulp industry in Formosa has been greatly expanded by the establishment of two large Japanese pulp companies, the Taiwan Kogyo (1935) and the Taiwan Pulp Kogyo Corporation (in 1938), and there is reported to have been a substantial expansion of certain strategic branches of the chemical industry since the outbreak of the war with China. Japanese sources give the total capital investment in the chemical industry as ¥10.1 million in 1937, but it is probable that this investment has been substantially increased as a result of wartime expansion.

Other manufacturing industries in Formosa which deserve brief mention are those producing textiles and machinery. In 1937 the total capital investment in the textile industry was ¥2.9 million, with one Japanese company, the Jute Dressing Company, capitalized at ¥1.4 million, dominating the field.

⁴ See, *Taiwan Jijo*, 1939, p. 418.

The industry employed about 4,000 workers, and produced goods valued at ¥5 million in 1937. The production of jute and hemp goods is the most important branch of the industry, with silk and cotton textiles in second place. The machinery industry in Formosa employed 4,214 workers in 1937, the total value of production being ¥6.9 million, distributed as follows: agricultural machinery, ¥730,000; other machinery and apparatus, ¥5,071,000; vessels and vehicles, ¥1,135,000. Formosa supplies only a very small proportion of her own machinery requirements, imports from Japan averaging between 30 and 40 million yen annually.

The Mining Industry. Mining occupies a relatively unimportant role in Formosa's economy. In 1936, the latest year for which figures are available, the value of all mineral production was only ¥28.7 million, with gold and coal accounting for more than 80% of the total (see Table 21). Formosa's coal is

TABLE 21
MINERAL PRODUCTION IN FORMOSA, 1936

	<i>Value of Output</i> (¥1,000)	<i>% of Total</i>	<i>Quantity</i>
Gold and gold ores	12,343	43.0	41,608 ozs.
Silver	17	0.1	
Copper	470	1.6	4,000 tons ¹
Coal	11,365	39.6	1,744,000 tons (1937)
Sulphur	87	0.3	1,071 tons
Petroleum	312	1.1	1,780 thous. gallons ²
Natural gasolene	456	1.6	1,480 thous. gallons ²
Carbon black	292	1.0	1,237 tons ²
Others	3,384	11.7	
Total	28,727	100.0	

¹ Approximate estimate

² 1935

Source: *Japan-Manchoukuo Year Book, 1940.*

low-grade bituminous, with reserves estimated to total 400 million tons, although no complete geological survey of the island has yet been made. Coal production reached a peak of 1,850,000 tons in 1927, declined to 1,355,000 tons in 1932, and rose again to 1,744,000 tons in 1937. Because of the lack of industrial development and the extremely low purchasing power of the people, the domestic market for coal is limited, and prior to the outbreak of the Sino-Japanese War, production capacity was considerably in excess of actual production. Although no

figures are available regarding coal production since 1937, it seems probable that the acute coal shortage in Japan beginning in 1939 has resulted in Formosa's reserves being drawn upon more heavily than heretofore, and that Japan's increasingly urgent need for minerals of all kinds has stimulated new capital investment in Formosan mining enterprises. At the end of 1939 the paid-up capital of mining corporations in Formosa was reported to total ¥43.9 million, the three leading concerns being the Taiyo Kogyo, Taiwan Kogyo and the Keelung Tanko.⁵ These mining enterprises have been consistently supported by heavy subsidies, the Government-General and the Japanese Navy being particularly concerned with increasing the output of mineral oil by subsidizing oil producers and oil prospectors.⁶

Control of Corporate Capital in Formosa. How completely Formosa has been made the exclusive preserve of Japanese business and financial interests is revealed by the extent to which the corporate capital of the country is in their hands. In 1929, the Japanese controlled 78.4% of the total capital investment in Formosa, exclusive of investments in government enterprises which should properly be classified as Japanese and which represent a very substantial capital outlay. In industry, the Japanese share was 90.7%; in mining, 71.6%; in agriculture, 47%; in commerce, 43%; in communications, 55%; and in fisheries, 65%. Other foreign capital has been completely excluded from Formosa, the only non-Japanese capital of any importance being that of the native Chinese population. The latter's position was still fairly strong in agriculture and trade, but even in these typically Chinese occupations nearly half the capital was Japanese.⁷

Since 1929 the predominance of Japanese capital has become even greater as a result of the establishment of many large new corporations and increases in the capitalization of older Japanese-controlled firms. In 1939 the total corporate capital in Formosa amounted to ¥357 million, of which ¥320 million, or about 90%, was Japanese,⁸ while in industry and mining the Japanese share was even larger. It should be noted, moreover,

⁵ Callis, *op. cit.*, p. 48.

⁶ In the 1937 government budget, more than ¥1 million was earmarked for this purpose. Cf. Grajdanzev, *op. cit.*, p. 72.

⁷ Grajdanzev, *op. cit.*, pp. 72-73.

⁸ For a more detailed analysis of Japanese capital investment in Formosa, see Callis, *op. cit.*, pp. 45-52.

that neither the Chinese people of Formosa nor foreign interests can acquire an interest in these Japanese corporations by purchasing stock, inasmuch as the shares in these corporations are held by the big trusts, banks, and semi-official companies in Japan and are not subject to free purchase and sale.

The Role of the Chinese. While the Japanese control the capital and draw the profits from Formosa's manufacturing industries, the role of the native Chinese population is that of workers in the factories and mines, Japanese being employed only in the higher positions requiring technical skill and in white collar jobs. In 1936, out of a total of 81,589 workers employed in industrial plants, 93.5% were Chinese. It is frequently claimed by Japanese writers that because of the prosperity of the Chinese farmers, high wages must be paid to induce them to leave their farms to work in factories. These high wages, in turn, are stated to be a major obstacle to the further development of industry in Formosa.⁹ In support of this claim, the Japanese allege that Formosan wages are considerably higher than wages for comparable groups of workers in Manchuria and China Proper. However, the official estimate of the average daily wage for a Chinese worker in Taihoku is only ¥1.27, and figures for specific categories of workers are even lower (see Table 22). A more correct interpretation would therefore seem

TABLE 22
COMPARISON OF DAILY WAGES IN JAPAN AND FORMOSA, 1939
(In yen)

	<i>Japan</i>		<i>Formosa</i>	
	<i>Tokyo</i>	<i>Nagoya</i>	<i>Taihoku</i>	<i>Taichu</i>
Cement workers.....	2.36	2.58	no data	0.95
Millers.....	2.93	2.45	1.15	0.70
Dyers.....	3.07	1.78	1.09	no data
Printers.....	3.33	2.12	1.80	1.00
Day laborer (male).....	2.10	2.20	0.85	0.74
Day laborer (female).....	1.24	1.30	0.60	0.55

Sources: For Formosa: *Taiwan Jijo*; For Japan: *Rodonenkan* (Labor Year Book).

to be that it is the low wage level, not the high, which is an obstacle to industrial development, since it results in an extremely restricted internal market, and, furthermore, that it is this low wage level which enables the great Japanese corpora-

⁹ Grajdanzev, *op. cit.*, p. 77.

tions to make profits of from 20 to 30% on their industrial investment.

Even this brief survey is sufficient to indicate how completely the Japanese have monopolized the economic resources of Formosa, allowing the Chinese population no share in the industrial development of their country other than the privilege of working for low wages in Japanese-controlled enterprises. The Chinese share in the total corporate capital invested in the island, government enterprises included, probably does not exceed 5%, and this chiefly in agriculture and commerce. The banks, railways, shipping services, and air lines, as well as the bulk of all industrial bonds and the government debt, are in Japanese hands. As a typical colony, Formosa's industrial development has been confined to those enterprises needed to increase her contribution to the Japanese economy, notably food processing industries, and there is no evidence that Japan intends to alter the agrarian structure of Formosa's economy or to allow the development of native-owned industries on any important scale.

PART 2. KOREA (CHOSEN)

Japanese policy with regard to the economic development of Korea has gone through a number of phases since the colony was annexed in 1910. In the early years, Korea was considered primarily as a rice granary for the Japanese Empire, and this has continued to be one of its most important functions. In recent years, rice has accounted for about half the total value of Korean agricultural production and of Korean exports to Japan. Subsequently, as the expansion of Japan's textile industries necessitated increasingly large imports of cotton and wool from abroad, the Japanese authorities in Korea announced an ambitious program for expanding Korea's production of textile raw materials, by extending the area under cotton cultivation and encouraging sheep raising. The plan called for bringing an area of approximately 1,236,000 acres under cotton cultivation, with an expected yield of 800 million pounds of seed cotton, and for a stock of some 2,300,000 head of sheep by the early 1940's. According to the most recent reports, the actual area under cotton in 1938 was about 577,000 acres with a yield of about 90 million pounds of ginned cotton, and the stock of sheep amounted to no more than 12,000.

Since 1933, however, the emphasis of Japanese policy has shifted to the exploitation of Korean industrial resources, particularly minerals, and to the development of industries based on these raw materials. This emphasis on "industrialization" is the logical result of Japan's program of military expansion on the continent. Korea has gained new strategic significance as the result of the conquest of Manchukuo and Japanese penetration in North China, and Korean mineral resources have assumed a far greater importance as a result of the drive for yen-bloc self-sufficiency. The present emphasis on the expansion of extractive and other forms of industry in Korea is also evidence of the changing character of Japan's own industrial structure. After 1937, Japanese resources were more and more concentrated on the expansion of heavy industries in order to meet the demands of the military campaign in China and also to provide the capital equipment needed for the industrial development program in Manchukuo. Since Japan's own light industries were being largely sacrificed for the sake of the "national defense state," there was less reason to oppose the development of such industries in Korea. There is, in fact, evidence that Japan's aim is to make Japan Proper the heavy industry center of the "Greater East Asia Co-Prosperity Sphere" and to shift the production of consumers' goods to the continent, in order to take advantage of the vast supply of low-cost labor in Manchuria, Korea, and North China to supply cheap goods not only for Japan but also for the export trade.

The integration of Korea into Japan's war economy, therefore, called for a certain amount of industrial development in Korea and more especially for the intensive exploitation of Korea's raw material resources. In general, the Japanese authorities encouraged the development only of those industries which could utilize Korean raw materials, since they had no desire to increase the dependence of the Japanese Empire on foreign supplies. The wartime program for Korea called for increased production of gold, coal, oil from coal, iron ore, pig iron, iron and steel, aluminum, zinc, magnesium, synthetic nitrates, alcohol, cotton textiles, wood pulp, and electric power, and also for the manufacture of machinery, railway cars, ships and motor vehicles.

Table 23 gives a general picture of Korea's economic development in recent years as compared with her position in 1910.

TABLE 23
ECONOMIC DEVELOPMENT OF KOREA, 1910-1938

	(Values in millions of yen)					
	1910	1933	1935	1936	1937	1938
Value of production:						
Agriculture.....	241.7	707.1	987.7	1,285.7	1,560.5	...
Forest products.....	19.2	79.6	114.0	118.1	138.7	156.7
Marine products.....	8.5	51.4	66.0	79.9		87.0
Minerals.....	6.1	48.3	88.0	110.5	150.0 ¹	...
Manufactures.....	31.0	367.2	607.5	730.8	959.3	1,140.2
Total exports.....	19.9	368.6	550.8	593.3	685.5	879.6
To Japan.....	15.4	315.9	485.9	518.0	572.4	710.5
To foreign countries....	4.5	52.8	64.9	75.3	113.1	169.1
Total imports.....	39.8	404.2	659.4	762.4	861.5	1,055.9
From Japan.....	25.4	339.8	558.8	647.9	735.4	921.3
From foreign countries..	14.4	64.4	100.6	114.5	126.1	134.6
Population (millions).....	13.3	20.8	21.9	22.0	22.4	22.6
Korean.....		20.2	21.2	21.4	21.7	21.9
Japanese.....		.5	.6	.5	.6	.6
Foreign.....		.04	.06	.07	.04	.05

¹ Estimate—detailed statistics not published after outbreak of war.

Sources: *Japan Year Book, 1938-39*; *Annual Reports of the Administration of Chosen*; *Japan-Manchoukuo Year Book, 1939*.

These figures show a very substantial increase in the value of Korean production in the period 1933-37, although these figures must be considered in relation to a rise in prices of some 40% during this period. The figures for manufacturing production, however, give a somewhat misleading idea of the extent of industrialization, as they include the output of household and handicraft industries.

Occupational Distribution. Korea is still a predominantly agricultural country, as far as the occupations of the great majority of her people are concerned.

According to the most recent occupational statistics available (1938), the Korean population of 21,950,616 was distributed as follows: agriculture and fisheries, 77.1%; trade, 6.5%; mining and industry, 3.8%; public service and professions, 2.9%; transportation, 0.9%; miscellaneous occupations, 6.9%; and no occupation, 1.7%. These figures show 698,000 employed in industry, but this includes all those employed in household and other handicraft industries. In 1937 there were only some 200,000 employed in factories with more than five workers. Moreover, in the period 1933-37, the average annual increase in the number of factory workers was only 21,672, whereas the number reaching the age of eighteen each year was about

450,000. Thus even in a period marked by intensive development of communications, mining and manufacturing enterprises, industry absorbed only a very small part of the growing population.

It may be noted that the poverty of the Korean agricultural population is far greater than that of Japanese farmers. In 1937, the gross value of agricultural production in Korea was estimated at approximately ¥1,560 million, which, divided among three million farming families, gives an average gross income per year of only ¥500, or about one third the average Japanese family income. This agrarian poverty indicates that under present conditions the Korean population cannot offer any extensive market for manufactured goods, but that there exists a vast reservoir of cheap labor which might be utilized in the development of light industries, where wages form a high percentage of production costs.

THE CURRENT PROGRAM OF INDUSTRIALIZATION IN KOREA

The current phase of Japanese economic activity in Korea dates from 1933, and has concentrated chiefly on the improvement of communications, the expansion of the metal and chemical industries, the development of power resources and the establishment of a number of factories producing goods for the domestic and Manchurian markets. Railroads have been constructed in the north and along the east coast, and the harbors at Joshin, Seishin, and Rashin on the northeast coast have been improved by means of breakwaters. Regular steamship services now operate from Osaka and Tsuruga in Japan to Seishin and Rashin in Korea. The construction of the railways has opened up new territory and facilitated access to the iron, coal, magnesite, and timber resources of North Korea. By December 1937 there were 4,065.8 kilometers of government railways in operation, as compared with 2,792.5 kilometers in March 1931, and 1,211.8 kilometers of private railways. The private lines are given annual subsidies by the Government and allowed to use government stations and rolling stock. The new railways have also been important in facilitating through traffic from Japan to Manchukuo.

Development of Korean Power Resources. In addition to coal deposits estimated at 1,750 million tons, Korea possesses

large waterpower resources, estimated at between 4 and 5 million kilowatts. The abundance of waterpower has been widely hailed as one of Korea's chief industrial assets, but the severe drought of 1939 suggests that the Korean climate is one which makes reliance on waterpower a somewhat hazardous proposition. In 1933 there were 56 power plants in Korea, with a capacity of 304,000 kilowatts; in 1936 there were 21 plants with a capacity of 524,000 kilowatts. The Joshin River Hydro-Electric Power Company, established in 1933, operates two power stations with a total capacity of 252,000 kilowatts. Power from these stations is transmitted by the Korea Power Transmission Co. to the cities of Heijo and Keijo (Seoul) on the west coast and to Kanko and Seishin on the east coast. The Yalu River Hydro-Electric Power Co. was formed in 1937 for the joint development of the Yalu River by Manchukuo and Korea; the authorized capital of ¥100 million to be subscribed by the Manchukuo and Korean Governments and the Noguchi interests. Construction is now under way on a dam and power station which was expected to generate 300,000 kilowatts by the end of 1941 and 640,000 kilowatts by the end of 1942.

Development of Mining and Manufacturing Industries. Table 24 shows the quantity and value of Korean mineral production

TABLE 24
MINERAL PRODUCTION IN KOREA

Mineral	Unit	Quantity			Value (in thousand yen)		
		1931	1935	1936	1931	1935	1936
Gold.....	kgs.	9,031	14,710	17,490	9,584	45,458	59,354
Silver.....	kgs.	11,404	39,345	58,821	207	2,558	2,830
Gold and silver ore..	metric tons	12,858	58,146	79,029	554	6,503	9,374
Copper.....	metric tons	698	2,170	3,637	225	1,536	3,273
Lead.....	metric tons	97	1,728	2,738	6	389	793
Iron ore.....	metric tons	165,000	228,000	234,000	824	1,279	1,430
Pig iron.....	metric tons	148,000	148,000	156,000	4,589	7,332	7,867
Steel.....	metric tons	...	97,400	87,000	...	6,764	6,553
Tungsten.....	metric tons	16	876	1,707	7	1,389	2,293
Graphite.....	metric tons	14,050	45,118	40,914	232	1,208	1,011
Coal.....	metric tons	936,000	1,999,000	2,282,000	5,191	11,925	13,301
Total (including others).....					21,831	88,685	111,435

Source: *Japan-Manchoukuo Year Book, 1940.*

in 1931, 1935 and 1936. It is known that production has been expanded since the outbreak of the Sino-Japanese war, but no more recent production figures have been made public. The

figures for iron ore production include only the ore which was not utilized for pig iron production in Korea. Prior to 1937, iron ore production was between 500,000 and 600,000 tons annually, about half of which was manufactured into pig iron at the foundry of the Mitsubishi Iron Company at Kenjiho and the remainder shipped to Japan. It is reported that iron ore shipments to Japan have greatly increased as a result of the exploitation of new resources, but no details are available.

The Korean Government has encouraged the expansion of mining industries by granting subsidies for prospecting and the working of low grade ores, by improving roads and communications, and by co-operating in the financing of new gold mines. This policy has resulted in the establishment of many new gold mining ventures, one of the most active companies in this field being the Japan Mining Company, a subsidiary of the Nissan interests, which in 1939 purchased the American-owned Oriental Consolidated Mining Company.

The Noguchi interests have taken the most active part in the recent development of Korean resources. Like the Nissan interests, which are now playing the dominant role in the development of heavy industries in Manchukuo, Noguchi is one of the "New Zaibatsu" which have grown to power as a result of the expansion of Japan's war industries and thus have been more willing to co-operate with the army plans for industrial development on the continent than have the older and more conservative financial groups. The Noguchi interests have virtually monopolized the fertilizer, synthetic fuel and electric power industries in Korea and also control a large share of the mining industry. Their most important enterprise is the Korea Nitrogen Fertilizer Company at Konan, which had a paid-up share capital of ¥106 million at the end of 1939. In 1936, this plant produced 500,000 tons of synthetic nitrates. Korea Nitrogen also operates two bean oil refineries, an acetic acid plant and an explosive works at Konan. Noguchi controls the Japan Magnesium Metal Company at Konan, and the Korea Coal Industry Company which operates plants for the production of synthetic fuel and gasoline at Eian and Agochi. Noguchi is also closely allied with the Korea Petroleum Company and has investments in many other mining and manufacturing enterprises.

Manufacturing Statistics. A general picture of the develop-

ment of factory industries in Korea is given by the following figures:

	<i>Value of Production</i>	<i>No. of Factories</i>	<i>Workers Employed</i>
1931.....	¥ 250,000,000	4,601	104,435
1935.....	607,470,000	5,635	135,797
1938.....	1,140,118,585	6,298 ¹	207,002 ¹

¹ 1937 figures.

The relative importance of the various industries is shown in Table 25 which gives the value of Korean manufacturing pro-

TABLE 25
KOREAN MANUFACTURING PRODUCTION, BY INDUSTRIAL DIVISIONS

(In ¥1000)

	1935	1936	1938
Textiles.....	82,320	99,477	164,821
Metals.....	26,980	33,735	91,966
Machinery.....	11,520	13,503	26,798
Ceramics.....	17,560	21,876	35,877
Chemicals.....	147,830	195,430	352,819
Woodworking.....	8,240	9,936	15,054
Printing and binding.....	12,740	13,133	16,948
Gas and electricity.....	39,800	39,988	24,501
Foodstuffs ¹	169,420	199,883	277,207
Others.....	41,020	103,842	134,123
Total.....	607,470	730,806	1,140,118

¹ Including flour mills, rice mills, breweries, sugar refineries, etc.

Source: *Japan Year Books, 1937, 1938-39, 1940-41.*

duction by industrial divisions. It is undoubtedly true that much of the increase shown is due to wartime inflation of prices, but unfortunately it is impossible to obtain figures showing production by volume.

Recent Development of Korea's Foreign Trade. Recent years have witnessed a sharp increase in Korea's exports to yen bloc areas on the continent and away from Japan Proper. In 1937 Japan took 83.5% of Korea's exports and 14% went to other yen bloc areas. In 1939, Japan's share had dropped to 73.2% and that of the other yen bloc areas had increased to 26%. This illustrates chiefly the growing importance of Korea as an *entrepôt* for the shipment of Japanese goods to Manchukuo and North China, since half of Korea's exports to countries outside Japan in 1939 were re-exports of products imported from Japan, but there has also been a marked rise in the proportion

of Korea's own products exported to continental yen bloc areas. Rice continues to be by far the most important export from Korea, accounting for about 35% of the total, with fertilizer, coal and ores next in order of importance.

In Korea's import trade, Japan's share has increased steadily, with ores and metals, machinery, metal manufactures, vehicles, tissues, and clothing accounting for more than half of all imports from Japan. The fact that Korea's exports of machinery, vehicles, tissues, and iron manufactures in 1939 were almost double those of 1938 indicates that an increasing proportion of these commodities was passed on to Manchukuo and North China.

The Korean Share in the Industrialization of Korea. In view of the claim frequently made by Japanese writers that the present program of industrialization means the emergence of Korea from a purely colonial economic status, it is pertinent to consider whether the share of the Koreans in the economic development of their country has been increasing. During the period 1923-38, the number of Korean-owned corporations increased from 202 to 2,278, and their paid-up capital from ¥34,055,000 to ¥122,660,000. This picture of Korean progress, however, must be qualified by the following facts. There are no railroads under Korean control. In 1923 Korean corporations accounted for about 21% of the total corporate capital in Korea, whereas by 1938 their share was only 11%. In this period the number of Korean banks decreased from twelve to three and their capital from twelve million to five million yen. In 1923 there were three Korean-owned electric stations; in 1938 there were none. In 1923 the average paid-up capital of Korean corporations was ¥169,000; in 1938 it was only ¥54,000.

The fact that Korean-controlled industrial enterprises are mainly small-scale becomes even more evident if they are classified according to the number of workers employed, as follows:

<i>No. of Workers</i>	<i>No. of Enterprises</i>
5- 49.....	2,307
50- 99.....	120
100-199.....	30
200 and more.....	14
Enterprises not using hired workers (co-operatives, etc.)	34

Table 26 compares the Korean and Japanese shares in the

TABLE 26
KOREAN AND JAPANESE SHARES IN KOREAN ECONOMIC
DEVELOPMENT

(Figures for the year 1938)

	Number of Corporations		Paid-up Capital (millions of yen)		Distribution of Capital (percentages)		Average Capital of Corporations (thousands of yen)	
	Korean	Japanese	Korean	Japanese	Korean	Japanese	Korean	Japanese
Banks.....	3	6	5.5	65.9	7.7	92.3	1,827	109,992
Other financial institutions...	94	70	4.6	9.6	30.5	69.5	490	1,358
Insurance.....	1	1	0.1	1.3	9.1	90.9	125	1,250
Manufacture....	740	804	30.2	214.7	12.3	87.7	41	267
Trade.....	846	1,050	23.4	65.8	26.2	73.8	28	63
Electrical stations.....	...	16	...	213.1	...	100.0	...	133
Agriculture and fisheries.....	113	248	14.4	65.3	18.1	81.9	95	243
Mining.....	29	121	12.4	171.1	6.8	93.2	429	1,414
Transport.....	258	274	7.4	90.9	7.5	92.5	35	332
Real estate.....	75	141	18.9	27.7	40.6	59.4	252	196
Others.....	119	405	5.8	33.2	14.9	85.1	49	82
Total.....	2,278	3,136	122.7	958.6	11.3	88.7	54	306

Source: *Shokugin chosa geppo*.

economic development of Korea in 1938. These figures do not include the capital of state enterprises (Japanese) which amounts to several hundred million yen. But even excluding government corporations, they show that in terms of capital investment, 89% of corporate business in Korea was controlled by Japan. Moreover, these statistics refer only to corporations having their head offices in Korea, whereas there are many powerful Japanese concerns with headquarters in Japan which exercise an indirect control over certain branches of Korean economy.

From the foregoing, it is clear that the ownership of the most important industrial and financial enterprises has become increasingly Japanese, and that the role of the Korean people in the industrial development of their country is almost exclusively that of workers in Japanese-financed and Japanese-managed enterprises.

CHAPTER IV

MANCHUKUO

The Japanese-controlled State of Manchukuo represents a unique case in the history of imperialist expansion and the development of an economically backward area by a great imperialist power. We have seen that in Formosa and Korea, Japan followed the traditional policy of colonial exploitation. These two countries were developed as producers of agricultural and mineral raw materials, and their "industrialization" was confined almost entirely to the establishment of enterprises needed for the extraction or processing of these raw materials. In Manchuria, however, Japan abandoned this standard imperialist practice, and instead chose to develop her new possession as an extension of her own industrial economy, with large-scale mining and manufacturing industries of the most modern type, superimposed upon a primitive agrarian system. This policy was not adopted without considerable opposition from the more conservative financial and business leaders in Japan, who were primarily concerned with Japanese export industries rather than with the newer armament industries, and thus had less of a vested interest in a policy of aggressive expansion on the Asiatic continent. But the Kwantung Army and its supporters among the more militant Japanese business interests were determined to create a powerful mainland industrial base which could serve as the spearhead for further expansion. And since the Army had performed the actual work of conquest and was in control on the spot, it was natural that it should be the dominant force in shaping Japanese economic policy with regard to Manchukuo.

It is impossible to say whether Japan's resources would have proved large enough to provide the huge quantities of capital, construction goods, and skilled labor required for large-scale industrial development in Manchukuo if Japan had not been forced to take on the additional burden of an extensive and unexpectedly prolonged war in China. There is no doubt, however, that in attempting to industrialize Manchuria, she was multiplying all the problems of raw material deficiencies, short-

ages of skilled labor, and limited capital resources which had begun to hamper her own industrial expansion program even before the outbreak of the war with China. The history of Manchukuo's industrial development thus revolves around (1) the special circumstances which were responsible for Japan's decision to undertake the huge initial investment required to transform Manchuria into an independent industrial unit; (2) the amount of progress achieved; and (3) the events which, by 1940, compelled Japan to abandon her ambitious program in a half-completed stage and make a radical change in her policy with regard to Manchukuo's economic development and its relation to the Japanese economy.

MANCHURIA BEFORE 1931

At the beginning of the twentieth century, Manchuria was one of the last undeveloped areas in Asia, with rich agricultural, mineral, and forest resources. Because of its strategic position, coupled with this natural wealth of undeveloped resources, Manchuria soon came to play an increasingly important role as the focus of conflicting interests in the Far East. Foreign interests, chiefly Japanese and Tsarist Russian, vied with each other for profitable opportunities for investment. Japan fought the Russo-Japanese War of 1904-5 primarily to prevent further Russian encroachment into southern Manchuria, and emerged with control of the Kwantung Leased Territory, the port of Dairen, and the South Manchuria Railway Zone, while Russian influence was confined to the Chinese Eastern Railway and northern Manchuria.

During the period from the Russo-Japanese War to the Mukden Incident of September 18, 1931, foreign influence and capital dominated Manchuria's economic development. First the Russians and then the Japanese invested large sums in railway construction and harbor development. The extension of communication facilities opened up the country for new settlement and was accompanied by a steady increase in the area of cultivated land and in the volume of Manchurian agricultural exports. Manchurian soya beans and bean products became a staple in world trade; exports of beans, bean oil, and bean cake increasing by 1,970%. Under Japanese control, Dairen became one of the leading ports in the Far East, ranking next to Shanghai in the trade of China. This marked expansion in

agricultural production and exports was made possible by large-scale immigration of poor Chinese laborers from North China, and also by a large seasonal movement of agricultural labor from China each year.

As it developed during this period, however, Manchuria's economy was extremely one-sided, being based primarily on agricultural production for foreign markets, with soya beans as the all-important crop. The two principal industries—oil milling and flour milling—were in reality only agricultural processing industries, while other manufacturing, mining, and pastoral industries were largely neglected except for a few enterprises controlled by Japan, e.g., the Fushun and Yentai coal mines and the iron works at Anshan and Penhsihu. Manchuria's foreign trade was typically that of an economically backward area. Raw materials and foodstuffs were exported, and limited quantities of manufactured goods imported, leaving the country with a large favorable balance of merchandise trade. In 1931, Manchuria's exports were valued at M¥739.3 million and her imports at M¥397.7 million, giving her an export surplus of nearly M¥400 million. In that year Japan took 38% of Manchuria's exports and supplied 43% of her imports, though Manchuria still occupied a relatively unimportant place in Japan's foreign trade, accounting for only 3% of her exports and 1% of her imports.

Prior to 1928, Japanese economic expansion in Manchuria had met with only passive resistance from the Chinese regime which administered the Three Eastern Provinces. But with the establishment of the Kuomintang Government at Nanking, the Manchurian administration, under the "Young Marshal" Chang Hsueh-liang, offered increasing opposition to a further extension of Japanese control. This growing Chinese opposition coincided with the first stage of the world economic depression which, by aggravating Japan's economic difficulties at home, gave a strong incentive for external expansion, and which also created world conditions favorable for such a Japanese advance. Within Japan, the militarists, who had long advocated an aggressive program of territorial expansion on the continent, now gained the support of powerful sections of the Japanese ruling class. Simultaneously, the crisis created an international situation which promised to be extremely favorable for the launching of such a program. Japan's two most important rivals in the

Far East, Britain and the United States, were preoccupied with their own economic difficulties, and the crisis had increased Anglo-American antagonism over questions of trade, currency, and war debts. There was thus little chance of an Anglo-American united front in the Far East before which Japan would have been forced to retreat. The fact that the crisis had heightened the antagonism of the Western Powers toward the Soviet Union also promised to facilitate the Japanese seizure of Manchuria if this seizure were accomplished under the guise of an anti-Soviet maneuver.

This combination of factors—the acute economic crisis within Japan, the growing strength of Chinese opposition to Japanese control in Manchuria, and the preoccupation of Britain and America with their internal difficulties—set the stage for the initial act in the program of militarist aggression which Japan has pursued uninterruptedly for more than ten years. This initial act opened with the Mukden Incident of September 18, 1931, and closed with the Japanese recognition of the new State of Manchukuo on September 15, 1932. With all of Manchuria now under her military control, Japan was ready to undertake the tremendous task of transforming the newly conquered area into a highly fortified and industrialized base from which to launch the next stage in her campaign for the conquest of Eastern Asia.

THE FIRST FIVE YEARS OF MANCHUKUO, 1932-1936

During the first five years of Manchukuo's existence, Japanese activity in the new State was concentrated on centralizing the administrative machinery, unifying and stabilizing the currency at par with the yen, extending the network of railways and roads,¹ surveying the country's mineral and power resources,

¹ 4,000 kilometers of new railways were added to Manchukuo's state railway system between 1933 and October 1939, bringing the total railway mileage to 10,000 kilometers, of which 1,129 were owned by the South Manchuria Railway Co. and the remainder by the State. Of the new lines, one extends from Kirin to the North Korean ports, one into the Tungpientao region on the southeast frontier, a third to the Fuhsin coal mines west of Mukden, a fourth from Hsinking to Halunarshan on the Outer Mongolian frontier, and others to the northern and northeastern border regions. The lines in the south are of considerable industrial and commercial significance, but those in the north appear to have been built solely for strategic purposes. The S.M.R. manages the entire state railway system of Manchukuo. In addition the Company operates the bus lines, water transport on the Sungari River, and administers the harbors of Yinkou and Hulatao. It also administers the North Korean ports of Rashin, Seishin and

and establishing a number of official and semi-official companies to ensure the controlled development of industries possessing strategic value, e.g., iron, steel, coal, oil, gold, light metals, chemicals, automobiles, and aircraft. Agricultural production, the mainstay of the Manchurian economy and the sole source of livelihood for the vast majority of the population, was largely neglected in favor of large capital investment in the construction of factories, railways, and mines which were regarded as essential if Manchukuo was to become the strategic base for the Japanese Army's operations on the continent.

The Industrial Control Policy. The Japanese Kwantung Army, which had been primarily responsible for the decision to industrialize Manchukuo, was equally successful in shaping the economic policy of the Manchukuo Government toward a system of strict state control over all "strategic" enterprises. As noted in Chapter II, the advocates of military-bureaucratic control over industry within Japan had encountered strong opposition from private business and financial interests, but in Manchuria at this time, their views were scarcely challenged. Thus in the General Outline of the Economic Construction Program of Manchukuo, announced on March 1, 1933, the fundamental policy of the new State was proclaimed to be the establishment of national control over all important industries. To achieve this aim, the Government proposed "official management by special companies" for "those enterprises which are important from the standpoint of national defense or which are in the nature of public utility or public benefit." Each of these special or semi-special companies was to have a monopoly in its particular field, and was to be subject to a large measure of government supervision and control. The most important companies organized in accordance with this policy were the following:

Steel Industry. The Showa Steel Works, established in 1933, took over the existing equipment of the Anshan Iron Works and also purchased the iron mines at Kungchuling. Its authorized capital of ¥100,000,000 was provided entirely by the South Manchuria Railway Company.

Coal Mining. Prior to 1932, the leading coal producing concerns in Manchuria were the Fushun and Yentai collieries of

Yuki and the North Korea Railway which connects these ports with eastern Manchuria.

the S.M.R. and the Penhsihu colliery of the Okura Company. For the operation of the Chinese-owned mines and the development of new coal fields, the Manchuria Coal Mining Company was established in 1934 as a joint Japan-Manchukuo corporation with an authorized capital of ¥16 million. Of this capital the S.M.R. provided ¥8 million (¥3 million in cash and the remainder in mine properties), the Manchukuo Government ¥6.8 million in properties, and the Central Bank of Manchu ¥1.2 million, also in properties. The purpose of the new company was to unify under one management all coal production in Manchuria except the S.M.R. and Okura mines.

Gold Mining. The Manchuria Gold Mining Company was established in 1934 as a Japan-Manchukuo joint corporation with an authorized capital of ¥12 million, of which the S.M.R. contributed ¥5 million, the Manchukuo Government ¥5 million and the East Asia Development Company, ¥2 million. This corporation has the monopoly of all state-owned gold mines and alluvial gold beds.

Oil Refining. In line with the Government's policy of securing the unified development and management of sources of heat and power, the Manchuria Petroleum Company was formed in February 1934 as a Japan-Manchukuo joint corporation with an authorized capital of ¥5 million furnished by the Manchukuo Government, the S.M.R., Mitsui, Mitsubishi, the Japan Petroleum Co. and the Okura Petroleum Co., to monopolize the exploitation and refining of crude petroleum. In November 1934, the Oil Monopoly Law was promulgated making petroleum products a government monopoly and permitting their manufacture, export and import to authorized dealers only. The Manchuria Petroleum Company operates a large plant at Kanseishi, across the bay from Dairen, where it refines imported crude oil and sells the products to the Government which has a monopoly on the sale of gasoline, kerosene, heavy oil, benzol and fuel oil substitutes.

General Mining. The Mining Law of August 1935 designated 40 legal minerals, provided that all minerals not yet mined should belong to the State and restricted mining rights to Manchurian subjects and corporations. At the same time, the Manchuria Mining Development Co. was established as a special Japan-Manchukuo joint corporation with an authorized capital of ¥5 million, of which the Manchukuo Government and the

S.M.R. each furnished half. The Company was given the exclusive right to mine twenty-three important minerals, including platinum, lead, zinc, tin, iron, antimony, aluminum, nickel, manganese, petroleum, oil shale, magnesite and asbestos.²

Electric Power Industry. The Manchuria Electric Industry Co. was established in November 1934 as a Japan-Manchukuo joint corporation with an authorized capital of ¥90 million, subscribed by the Manchukuo Government and the S.M.R. for the purpose of amalgamating all Japanese and Manchurian electric companies operating in Manchuria.

Machinery Industry. Two special corporations were established in this field in 1934, the Dowa Automobile Mfg. Co., with an authorized capital of ¥6.2 million subscribed by the Government, the S.M.R. and six companies in Japan, and the Manchuria Arsenal Corporation (the former Mukden Arsenal) capitalized at ¥1.5 million. The purpose of the former was to assemble and distribute automobiles manufactured in Japan, while the latter was to manufacture machinery of all kinds, rolling stock, and cast iron products, as well as armaments.

Chemical Industry. The Manchuria Chemical Industry Company was established in May 1933 with an authorized capital of ¥25 million, of which the S.M.R. subscribed half, and interested firms in Japan the remainder. Its plants at Kanseishi were completed in 1935 with a production capacity of 200,000 tons of ammonium sulphate, 250,000 tons of sulphuric acid and varying amounts of by-products annually.

Among the other official or semi-official companies established during this period were the Central Bank of Manchu, the Manchuria Telephone and Telegraph Co., the Manchuria Air Transport Co., etc. By the end of 1936 there were 26 of these special companies in existence, covering banking, colonization, insurance and agriculture as well as manufacturing and mining. Between 1936 and 1938, 11 special and 4 semi-special companies were established, bringing the total of these corporations

² The monopolistic privileges given to these special companies did not affect mining rights in existence prior to the establishment of Manchukuo. The Showa Steel Works continued to operate coal mines at Fushun and Yentai and iron mines at Anshan and Kungchuling. The Penhsihu Iron Works, controlled by the Okura Co., retained its coal mines at Penhsihu and the Miaoerhkou iron deposits. The Manchuria Lead Co., another subsidiary of the S.M.R., continued to operate its lead mines. In 1938, the controlling interest in these three companies was transferred to the Manchuria Industrial Development Company.

TABLE 27
PRINCIPAL OFFICIAL AND SEMI-OFFICIAL COMPANIES IN
MANCHUKUO, 1938

Name of Company	Year Estab- lished	Capital (¥1,000)		No. of Shares (1,000)	Principal Investors	
		Author- ized	Paid-up		Name	Shares (1,000)
<i>Mining:</i>						
Manchuria Coal Mining Co.	1934	80,000	48,000	1,600	Manchuria Industrial Development Co. Manchukuo Government	1,555 23
Manchuria Gold Mining Co.	1934	12,000	12,000	240	Manchukuo Government M. I. D. C. Oriental Development Co.	100 100 40
Manchuria Mining Development Co.	1935	50,000	20,000	1,000	Manchukuo Government S. M. R.	950 50
Penhsihu Iron & Colliery Co.	1910	10,000	10,000	200	Okura Mining Co. Dept. of Finance and Commerce	119 90
<i>Manufacturing:</i>						
Showa Steel Works	1929	200,000	125,000	4,000	M. I. D. C. S. M. R.	3,100 999
Manchuria Light Metals Mfg. Co.	1936	50,000	31,250	1,000	M. I. D. C. Sumitomo	980 10
Dowa Automobile Co.	1934	6,200	6,200	124	M. I. D. C. Tokyo Automobile Mitsubishi Heavy Industry Kawasaki Loco. & Car Co. Nippon Sharyo	71 18 9 9 9
Mukden Arsenal	1936	4,600	4,600	9	Manchukuo Government Mitsui Bussan Okura Shoji	5 2 2
Manchuria Syn- thetic Fuel Co.	1937	50,000	10,000	1,000	Manchukuo Government Mitsui Manchuria Coal Mining Co.	340 340 140
Manchuria Coal Liquefaction Co.	1938	20,000	7,500	400	Manchukuo Government Industrial Bank of Manchu	200 100
Manchuria Elec- tric Co.	1934	160,000	107,500	3,200	S. M. R. Industrial Bank of Manchu Manchukuo Government	826 844 531
<i>Transport & Com- munications:</i>						
South Manchuria Railway Co.	1906	800,000	676,208	16,000	Japanese Government Bank of Chosen (Korea) Yasuda Bank	8,000 251 170
Manchuria Aero- nautical Co.	1932	13,970	13,970	27.9	Manchukuo Government S. M. R. Sumitomo Mitsui Mitsubishi	10 5 4 4 4
Manchuria Tele- phone & Tele- graph Co.	1933	50,000	36,250	1,000	Japanese Government Manchukuo Government S. M. R.	320 120 69
<i>Banking:</i>						
Central Bank of Manchu	1932	30,000	15,000	300	Manchukuo Government	300
Industrial Bank of Manchu	1936	30,000	15,000	300	Manchukuo Government Bank of Chosen	150 150
<i>Others:</i>						
Manchuria Indus- trial Develop- ment Co.	1937	450,000	396,750	900	Manchukuo Government Nissan interests	450 450

Source: Japan-Manchoukuo Year Book, 1940.

to 41, with an authorized capital of ¥1,600 million and a paid-up capital of ¥1,150 million, of which the Government held about one third. Table 27 lists some of the more important of these companies and their principal investors, as of December 1938.

EXPANSION OF MINING AND MANUFACTURING INDUSTRIES, 1932-1936

This policy of strict State control over industry did nothing to lessen the opposition of those industrial and financial interests in Japan which had originally opposed the industrialization of Manchukuo on the grounds that Japan's own industrial expansion should have first call on her limited capital resources. During the first five years of the new State's existence, these groups continued to criticize the draining of Japanese capital resources into Manchukuo, and limited their own investment to the minimum required to prove their "patriotism." As one Japanese writer pointed out: "Investment in Manchuria by Japanese capitalists had to be carried on side by side with the continual issuance by the Japanese Government of huge sums of 'red ink' bonds to cover deficits in the State budget. Manchurian investment and subscription to the Government bonds had to be undertaken by the same capitalist groups . . . To finance capital, the first consideration for its own interest was preserving the market price of Government bonds, already purchased in large quantity . . . Accordingly, the financiers unhesitatingly restricted investment in Manchuria in favor of investment in bonds at home . . . Industrial capital in Japan was likewise unenthusiastic about Manchurian investment. The Hsingking Government's rigidly enforced economic control made new enterprises in Manchukuo by no means attractive to Japanese industrial capital groups. On top of this, the program for expanding productive facilities in Japan demanded increasing capital funds at home."³

As a result of this "negative" attitude on the part of some of the most powerful financial groups in Japan, capital investment during this early period was only slightly more than one billion yen—a not inconsiderable sum, but one which was far from sufficient to carry out the ambitious program of industrial development envisaged by the creators of Manchukuo. Despite

³ N. Yasuo, "Manchukuo's New Economic Policy," *Pacific Affairs*, Vol. XI, No. 3, September 1933, p. 328.

this continued conflict over the desirability of large-scale investment in Manchurian industrialization, however, considerable progress was achieved both in the expansion of production facilities and in increasing the output of the coal, oil shale, iron and steel, machinery and chemical industries. In the following paragraphs an attempt will be made to indicate the industrial progress made prior to the launching of the Five-Year Industrial Development Plan in 1937, which marked the beginning of a new phase in the economic relations between Japan and Manchukuo.⁴

Since the primary object of the Manchukuo authorities was to lay the basis for the development of heavy industries, the major emphasis during this first five-year period was placed on expanding the production of the essential raw materials, coal, iron and steel, and oil, and increasing the capacity of the machinery, chemical and electric power industries. Coal mining was perhaps the key industry, not only because Manchukuo possessed reserves estimated at 20 billion tons, but because increased coal production was essential for the development of the iron and steel, and liquid fuel industries, and for the extension of railways and electric power facilities. Between 1932 and 1936, coal production was increased from 7.1 million to 13.6 million tons, while exports remained stationary at approximately 3.5 million tons, indicating a steadily expanding domestic demand. (See Table 28.)

TABLE 28
MANCHUKUO—COAL PRODUCTION AND EXPORTS,
1932-1936

(In thousand tons)

	<i>Production</i>	<i>Exports</i>
1932.....	7,132	3,342
1933.....	9,069	3,758
1934.....	10,338	4,303
1935.....	12,187	4,182
1936.....	13,606	3,738

The production of iron and steel was also substantially increased as a result of the development of a special concentration process for the low-grade hematite iron ores at Anshan, and the

⁴ For the material presented in this section, the author has drawn heavily upon a study by Dr. Kurt Bloch, entitled "Seven Years of Manchukuo" (in manuscript), being prepared for the Institute of Pacific Relations.

adaptation of the Krupp concentration process for the magnetite ores found elsewhere in Manchuria. The leading iron and steel producers in Manchukuo are the Showa Steel Works and the Penhsihu Colliery & Iron Works, controlled by the Okura interests. The increase in their production during the period 1931-36 is shown in Table 29.

TABLE 29
MANCHUKUO—PRODUCTION OF IRON ORE, PIG IRON AND STEEL,
1931-1936

(In thousand metric tons)

Year	Iron Ore	Pig Iron			Steel Ingots	Steel Materials ¹
		Showa Works	Penhsihu Works	Total		
1931.....	673	277	66	342		
1932.....	743	287	81	368		
1933.....	770	318	116	434		
1934.....	740	322	153	476		
1935.....	985	457	151	608	137	25
1936.....	1,325	473	160	633	344	135

¹ Manufactured from the steel ingots.

Source: *Japan-Manchoukuo Year Book, 1940*, p. 755-56.

Next in importance to coal and iron among Manchukuo's mineral industries was the production of crude oil from the extensive oil shale deposits at Fushun, estimated to total more than five billion tons with an average oil content of 6%. In 1932, the Fushun plant of the South Manchuria Railway Co. produced 70,631 tons of crude oil, of which 36,283 tons were exported to Japan. By 1936, production had been increased to 123,320 tons, and exports to Japan totaled 84,856 tons.

The bulk of Japanese capital investment in Manchurian industry during this period was directed toward expanding production capacity in the basic industries, rather than increasing the output of manufactured goods. Nevertheless, the value of manufacturing production more than doubled, rising from ¥360.6 million in 1934 to ¥805.9 million in 1936 (see Table 30). Chemicals, including bean oil, bean cake, oil shale, sulphate of ammonia, and oils and fats, headed the list; foodstuffs, chiefly flour, sugar and brewery products, were second; and metals, mainly iron and steel products, were third. Since space does not permit of detailed comment on all these various industries, the

TABLE 30
MANUFACTURING PRODUCTION IN MANCHUKUO, 1934-1936

Industrial Division	1934		1936	
	No. of Factories	Value of Production (million yen)	No. of Factories	Value of Production (million yen)
Chemicals.....	881	103.8	932	167.2
Foodstuffs.....	1,124	69.2	1,208	165.7
Metals.....	856	19.5	986	151.9
Textiles.....	1,267	62.5	2,065	111.0
Machinery and tool.....	509	19.5	628	50.4
Ceramics.....	589	16.1	583	28.4
Lumber and woodworking...	647	16.8	654	24.9
Printing and binding.....	392	8.9	434	15.0
Miscellaneous.....	2,010	28.3	1,540	72.3
Total.....	8,286	360.6	8,146	805.9

Source: *Japan-Manchoukuo Year Book, 1940.*

following paragraphs are intended merely as illustrations of industrial development prior to 1937.

Machinery and Tool Industry. There were six large-scale machinery works in operation in Manchukuo during this period. The South Manchuria Railway Works at Shakako, engaged in the manufacture, assembly, and repair of rolling stock, had a capacity for handling 27 locomotives, 36 coaches, and 130 freight cars at the same time. The Dairen Machinery Works manufactured rolling stock, iron bridges, machinery, pipes, electric cars, automobile bodies, etc. The Mukden Arms Manufacturing Co. (formerly the Mukden Arsenal), in addition to the manufacture of arms, ammunition, and gun powder, also manufactured and repaired various machines and tools. The Manchuria Engineering Works (formerly the Tafeng Iron Works) produced vehicles, machinery, iron towers, bridges, shapes, cast iron pipes, etc., and controlled two subsidiary companies, the Manchuria Machinery Co. and the Greater Manchuria Cast Iron Works, engaged in the manufacture of specialties for the local market, such as boilers and radiators. The Anshan Steel Material Company, affiliated with the Nippon Rail Co., manufactured rails and light rolling stock, and the Manchu Sumitomo Steel Pipe Co. was engaged in the production of high-grade steel pipes from materials supplied by the Showa Steel Works.

The total value of machinery and tool production in Manchukuo increased from ¥19.4 million in 1934 to ¥50.4 million

in 1936, but with the continued development of the industrialization program, the country's dependence upon foreign sources for machinery and machine tools increased rather than diminished, and imports of machinery rose from ¥71 million in 1934 to ¥110 million in 1936, and to ¥159 million in 1937. Germany and the United States were the chief suppliers of machine tools, with Japan providing the bulk of other forms of machinery.

Electric Power Industry. Prior to the establishment of Manchukuo, approximately 75% of the electric power capacity in Manchuria was controlled by the S.M.R. and the remainder by Chinese concerns. After 1931, the S.M.R. took over practically all the Chinese-owned power stations, and in 1934 this monopoly was recognized by the establishment of the Manchuria Electric Co., a special Manchurian-Japanese corporation in which the S.M.R. has a controlling interest. This company was to amalgamate all electric companies operating in Manchukuo, conduct affiliated undertakings and invest in allied enterprises. Between 1932 and 1937, the total generating capacity of Manchukuo's power producing enterprises increased as follows:

<i>Year</i>	<i>Generating Capacity (1,000 KW)</i>	<i>Output (million KWH)</i>	<i>Output of Manchuria Electric (million KWH)</i>	<i>Industrial Supply by Manchuria Electric (million KWH)</i>
1932.....	264	593		
1933.....	271	662		
1934.....	389	772		
1935.....	395	1,084	468	376
1936.....	410	1,351	661	552
1937.....	484	1,600	859	737

Cement. The cement industry in Manchuria had already been developed by Japanese capital prior to 1931. In that year its capacity exceeded 255,000 tons, although production was only about 60% of capacity. The Japanese Onoda Cement Co., with a factory near Dairen, dominated the Manchurian market. With the great increase in domestic demand for cement resulting from the large-scale building program undertaken by the Manchukuo Government, a number of cement factories were established and their aggregate capacity was expanded to the point where Manchukuo became practically self-sufficient in cement. At the end of 1937, eight factories were in operation with a combined annual capacity of 1,010,000 metric tons. Actual

production had increased from 185,000 tons in 1933 to 800,000 tons in 1937, while imports had declined from 155,000 to 50,000 tons.

Sulphate of Ammonia. The production of sulphate of ammonia, manufactured chiefly from Fushun coal, increased from 28,948 tons in 1933 to 179,033 tons in 1937. The largest producer was the Manchuria Chemical Industry Co., with the Fushun shale oil factory and the Showa Steel Works as other important manufacturers. In the case of the latter two concerns, sulphate of ammonia was usually a by-product of other operations, but it was the principal product of Manchuria Chemical. This company was established in May 1933 with a capital of ¥25 million, half of which was held by the S.M.R. and the remainder by other Japanese interests. Its plant was completed in March 1935 with an annual capacity of 180,000 tons of sulphate of ammonia, which was subsequently expanded to 240,000 tons.

THE FIVE-YEAR INDUSTRIAL DEVELOPMENT PLAN, 1937-1941

The foregoing summary of developments in Manchukuo's mining and manufacturing industries during the first five years of the new State's existence is by no means an exhaustive survey. It is, however, sufficient to indicate that by 1936 considerable progress had been achieved despite the reluctance of the more conservative financial interests in Japan to invest in the development of a potential industrial rival, particularly when such investment was subject to Manchukuo's system of arbitrary state control. Undaunted by the continued hostility of Tokyo's banking oligarchy, the Japanese authorities in Manchukuo triumphantly proclaimed that "in the brief span of five years, the youthful State has succeeded . . . in expanding the nation's productive capacity and in laying a solid foundation for its future development,"⁵ and that Manchukuo was now ready for industrial development on a really large scale. Accordingly, in October 1936, the Manchukuo Government announced an ambitious Five-Year Industrial Development Plan for the period 1937-41.

In its original form, Manchukuo's Five-Year Plan called for

⁵ *Sixth Report on Progress in Manchuria to 1939*, The South Manchuria Railway Company, Dairen, 1939, p. 58.

the extensive expansion of mining, manufacturing, and agricultural production, transport and communication facilities, and hydro-electric power capacity, at an estimated cost of 2.5 billion yen to be supplied by the Manchukuo Government, the South Manchuria Railway Co., and the special corporations. The principal goals of the industrial section of the plan were as follows:

1. To increase the annual coal production to 27 million tons by 1941, chiefly by expanding the output of the mines operated by the Manchuria Coal Mining Company and opening up the extensive coal deposits which had recently been discovered in the Tungpientao region on the southeastern frontier. To this end the capital of the Manchuria Coal Mining Company was raised from ¥16 million to ¥80 million.

2. To make Manchukuo self-sufficient in iron and steel, with a production of 2.3 million tons of steel, 2.4 million tons of pig iron, and 6.6 million tons of iron ore by 1941. The exploitation of extensive deposits of high grade iron ores in the Tungpientao region, estimated to total 1,300 million tons, was expected to facilitate the achievement of this ambitious program.

3. To establish coal liquefaction plants at Fushun, Fuhsin, Holung, and Szupingkai, and to expand the output of the oil shale industry, with the aim of producing 1,300,000 tons of liquid fuel by 1941; 500,000 tons from coal and 800,000 tons from oil shale.

4. To develop a light metals industry with an output of 200 tons of magnesium and 20,000 tons of aluminum by 1941.

5. To increase the generation of electricity from 420,000 kilowatts to 1,200,000 kilowatts by 1941, by the construction of three giant hydro-electric power stations and the expansion of coal-generated plants.

It was expected that the successful completion of this plan would provide Japan with a mainland industrial base strong enough to support the vast program of continental conquest to which her militarists had long been committed, and, viewed in historical perspective, it is now clear that the Japanese invasion of North China in July 1937 was in reality an integral part of this industrial expansion program, since North China's iron, coal, cotton, and other natural resources were needed to provide the raw material base for Manchukuo's expanded industrial structure.

The initiation of the Five-Year Plan was followed by a far-reaching change in the policy of State control over important industries, in an effort to placate Japanese financial interests and encourage the investment of Japanese capital on a greatly increased scale. The first step was taken in May 1937, when the Manchukuo Government promulgated the Important Industries

Control Law, which set legally defined limits to the control of the Government; gave primary consideration to the development of vital war industries; and established a definite policy for adjustment between Japanese and Manchurian industries, in line with Japan's announced policy of the "parallel" development of industry in the two countries. Nineteen industries were declared subject to the new law, while all other industries were henceforth to be treated as free enterprises.⁶ It was not until after the outbreak of the Sino-Japanese war, however, that the policy of restricting private enterprise was virtually abandoned in favor of a policy of encouraging the active participation of private capital in the industrial development of the country, a change which was marked by the formation of the Manchuria Industrial Development Company.

In October 1937, the Manchukuo Government announced that a new holding company, the Manchuria Industrial Development Company, would be established to develop Manchukuo's heavy industries. The new company was to be capitalized at ¥450 million, equally subscribed by the Manchukuo Government and the Japan Industry Company, the second largest holding company in Japan (popularly known as the Nissan interests). The ¥225 million subscribed by the Manchukuo Government was largely in the form of plant equipment purchased from the South Manchuria Railway Co., which turned over the bulk of its heavy industrial enterprises to the M.I.D.C. The new company was given a controlling interest in the iron, steel, light metals, automobile and aircraft industries, and in gold, coal and other mining industries. In addition to the privileges guaranteed to all "national defense" industries under the Important Industries Control Law, the Manchuria Industrial Development Company was guaranteed by the Government a profit of 6% a year on all its investments in Manchuria for a ten year period. Other special privileges granted to the M.I.D.C. were: (1) the company was exempted from any Manchukuo taxes on profits accruing out of its investments in other countries and no profit tax was to be imposed on dividends

⁶ Industries subject to the new law were: arms and ammunition, aircraft, automobiles, refining of iron, steel, aluminum, magnesium, lead, zinc, gold, silver and copper, production of liquid fuel, coal mining, woolen and cotton textiles, cotton spinning, flour milling, production of beer, sugar, pulp, soda, cement, matches and fertilizers, tobacco manufacturing enterprises (producing more than 10 million cigarettes annually) and oil refineries.

paid to shareholders outside Manchukuo; (2) the Government undertook to prevent the company from being affected when financial burdens were increased by a change in the tax system of Manchukuo; (3) the company was not to be restricted in any way as to its dividend rate; and (4) both the Manchukuo and Japanese Governments were to ensure the negotiability of the shares held by private investors. Here was a shift all the way from strict restrictions on private profits to a government guaranty of those profits.

The reason for this modification of the policy of State-controlled industry has already been mentioned, namely the unwillingness of Japanese financial interests to invest in Manchukuo when more profitable opportunities were available within Japan. A concrete evidence of this reluctance was the fact that in 1937 the South Manchuria Railway Company was able to issue only ¥21 million out of a total of ¥130 million of projected debentures. With the launching of the China campaign, the Kwantung Army and its civilian colleagues in Manchukuo believed that a more rapid expansion of the basic heavy industries in Manchuria was imperative, and that drastic measures were therefore necessary to induce an increased inflow of Japanese capital. Hence the wholesale importation of the powerful Nissan interests. The choice of Nissan instead of some of the older financial groups—Mitsui, Mitsubishi, Sumitomo—is easily explained in view of the fact that it had been these older groups which had been blocking Manchurian development by their "passive" attitude toward Manchurian investment and their preference for safer investment at home. The "younger" financial groups, on the other hand, such as Nissan, Noguchi, and Mori, found opportunities for investment in Japan largely monopolized by the older interests, and were more enthusiastic about launching new enterprises on the continent. The structure of the Nissan interests, being that of a "public" holding company with 50,000 shareholders, was also more acceptable to the Manchukuo Government than a company owned by a few large capitalists or a single family, since it could be made to appear that the profits would be widely distributed in line with Manchukuo's proclaimed policy. The Nissan interests, starting from an obscure holding company capitalized at ¥50,000,000, had risen in less than a decade to become the second largest holding company in Japan, exceeded only by

Mitsui, and had been foremost in heavy industry. As of June 1937, the total capitalization of the Nippon Industry Company stood at ¥225 million, of which ¥198 million was paid up. The Company controlled eighteen direct subsidiaries with a nominal capital of ¥502,950,000 of which ¥381,288,000 had been paid up. These subsidiaries controlled their own subsidiaries, totaling 130, with a nominal capital of ¥118,608,000 of which ¥96,489,000 had been paid up. The Nissan interests thus controlled a total capital of approximately ¥850 million.

The principal Manchurian companies controlled by the Manchuria Industrial Development Company are given in Table 31.

TABLE 31
MANCHURIA INDUSTRIAL DEVELOPMENT COMPANY (1940)
(Capital, ¥450,000,000)

<i>Principal Affiliated Companies in Manchukuo</i>	<i>Capital (million yen)</i>	
	<i>Authorized</i>	<i>Paid-up</i>
Showa Steel Works.....	200	200
Penhsihu Colliery & Iron Works.....	100	100
Manchuria Coal Mining Co.....	300	275
Manchuria Mining Development Co.....	50	50
Manchuria Light Metals Co.....	80	80
Manchuria Mining Co.....	100	90
Manchuria Lead Co.....	30	10.5
Tungpientao Development Co.....	140	91.2
Dowa Automobile Company.....	30	30
Manchuria Magnesium Industry Co.....	10	10
Manchuria Aircraft Mfg. Co.....	100	50
Manchuria Automobile Mfg. Co.....	100	25
Manchuria Heavy Machine Co.....	50	50

With the transfer of the Nissan interests to Manchukuo, the stage was set for the long-planned expansion of Manchurian heavy industry when a new and unforeseen obstacle presented itself, namely the unexpected prolongation of what had been planned as a quick and relatively simple campaign for the conquest of the resources of North China. The acquisition of these resources, as has already been pointed out, was intended to supply the raw material base for the new Japan-Manchukuo industrial structure and there seems little doubt but that Japan counted on being able to set up a Japanese-controlled regime in North China within a few months. Instead, as the war developed rapidly into a major conflict, Japan was compelled to

adopt a system of import and exchange control and simultaneously to expand the production of her war industries. The former accentuated the already serious shortage of construction goods and raw materials in Japan, while the latter greatly increased Japan's own need for skilled labor and capital. Since Manchukuo was almost wholly dependent upon Japan for capital, construction materials, and technicians, this situation was certain to prove a severe handicap in the carrying out of her industrial program, but at the same time, the increasing strain imposed by the war on the Japanese economy made it imperative that Manchukuo, like Japan, should be converted into an ever greater producer of armaments and other war supplies. Accordingly, early in 1938, the goal of the Five Year

TABLE 32

PRODUCTION OF INDUSTRIAL RESOURCES IN MANCHUKUO, 1933-1936 COMPARED WITH GOAL OF FIVE-YEAR PLAN, 1937-1941

(Quantities in 1,000 metric tons)

	1933	1934	1935	1936	Goal of Five-Year Plan	
					Original	As revised in 1938
Iron ore.....	1,777	1,133	1,478	1,795	6,600	12,000
Pig iron.....	434	476	608	647	2,400	4,800
Steel ingots.....	...	...	137	344	2,500	3,500
Coal.....	9,063	10,619	11,187	12,082	27,000	38,000
Coke.....	476	521	667	712	...	...
Oil shale.....	2,683	2,106	3,228	3,648	...	...
Crude oil.....	87	58	120	123	...	...
Liquid fuel:.....	...	...	...	...	1,356	2,500
Coal liquefaction.....	...	...	...	...	500	1,700
Shale oil.....	...	...	...	...	800	650
Alcohol.....	...	...	...	...	56	150
Magnesite.....	71	100	225	192	...	...
Fire clay.....	112	79	138	148	...	...
Limestone.....	693	419	651	1,002	...	...
Aluminum.....	...	...	...	...	20	...
Cement.....	...	331	371	650	...	...
Sulphate of ammonia...	...	26	156	181	...	...
Salt.....	607	405	901	891	875	1,000
Pulp.....	...	...	...	...	300	400
Electricity generated (in million KWH).....	...	782	949	1,248	...	...
Electric power (in thousand KW).....	...	...	...	...	1,445	2,600
Hydraulic.....	...	...	...	...	575	1,260
Coal.....	...	...	...	...	870	1,340

Sources: *Fifth and Sixth Reports on Progress in Manchuria; Manchuria Economic Year Book for 1938*, published by South Manchuria Railway Co., Tokyo, 1939, pp. 92-4.

Plan was revised substantially upward, and the estimated capital outlay was increased to approximately five billion yen, of which the Japanese Government was to supply ¥1.4 billion and the Manchukuo Government ¥2.1 billion, while it was hoped to obtain the remainder from foreign countries. Of this amount, ¥3.8 billion were to be devoted to mining and industry, including ¥1,100 million for steel, ¥500 million for electricity, and ¥300 million each for coal and pulp. Table 32 gives the production of the most important industrial resources in Manchukuo for the years 1933-36, compared with the goal of the original plan and of the 1938 revision.

INDUSTRIAL PROGRESS, 1937-1939

Only the most general account of industrial progress in Manchukuo after 1937 is possible, because no statistics on the volume of production in "strategic" industries have been made public since the outbreak of the Sino-Japanese war. Developments in the most important lines of industry may be summarized as follows:

Coal Mining. The original Five-Year Plan called for the expansion of coal production and exports as follows:

	<i>Production (1,000 tons)</i>	<i>Exports (1,000 tons)</i>
1937.....	15,686	4,800
1938.....	18,046	5,440
1939.....	20,836	7,160
1940.....	23,373	6,250
1941.....	26,945	6,800

In 1938, the goal for production was revised upward to 38 million tons for 1941, no plan figures for intervening years being given. Actual production increased somewhat, rising from 13.6 million tons in 1936 to 14.1 million in 1937 and to approximately 15 million tons in 1938, but lagged behind even the original Five-Year Plan. Exports were also below the level of the Plan, being 3.8 million tons in 1937 and 2.9 million tons in 1938. This unfavorable trend in coal production appears to have been due partly to the labor shortage in Manchukuo, and partly to the failure of the Manchuria Coal Mining Company to achieve the expected expansion in output from the mines under its control. As noted above (p. 71), this company took over all formerly Chinese-owned mines and was also charged with the development of new mining properties. According to

the Five-Year Plan, Manchuria Coal Mining was to supply most of the increase in coal production, with smaller increases expected from the S.M.R. mines at Fushun and the Okura mines at Penhsihu. For this purpose the capital of Manchuria Coal Mining was raised from ¥16 million to ¥80 million in 1936. During the first three years of the Plan, however, the Manchuria Coal Mining Co. appears to have devoted a large part of this new capital to acquiring mining properties and expanding production facilities, rather than to increasing actual output.

Though no production figures are available for the years since 1938, there is no doubt that coal production failed to keep pace with the rapidly increasing domestic demand arising from the industrialization program, and that Manchukuo was unable to provide the increased supply of coal for Japanese industries called for under the Five-Year Plan. Coal exports to Japan were only 753,000 tons in 1939, although the Plan called for exports of more than 6 million tons. Moreover, in 1938 and 1939, Manchukuo itself experienced a severe coal shortage, which necessitated restrictions on the industrial consumption of coal, causing a decline in the production of iron, steel, sulphate of ammonia, cement, etc., and preventing the planned development of the liquid fuel industry.

Iron and Steel Production. In 1937, Manchukuo produced 762,000 tons of pig iron, and 427,000 tons of steel ingots, from which 370,000 tons of steel products were manufactured. No production figures have since been published, but according to official reports, pig iron production increased by 17%, steel ingots by 18% and rolled steel by 50% in 1938 as compared with 1937. In 1939 pig iron production appears to have declined slightly, owing to the acute coal shortage, and to have totaled just under 1 million tons. By the beginning of 1939, the Showa Steel Works had completed four expansion programs, bringing capacity up to 1,700,000 tons of pig iron and 580,000 tons of steel. The fifth and sixth expansion programs, which were intended to achieve the production of 3.6 million tons of pig iron by 1942, had to be abandoned because of lack of materials and the coal shortage. The Penhsihu Iron Works was expected to reach a pig iron capacity of 2 million tons in 1941, but its expansion program has also been hampered by shortages of coal and construction materials. The opening up of the Tungpientao

or Eastern Frontier District made available to the Manchurian iron and steel industry large deposits of high grade iron ore in close proximity to mines from which coking coal could be obtained. The Tungpientao deposits are estimated to contain one hundred million tons of rich ore (60-65%) and several hundred million tons of low-grade ore of the type now utilized at the Showa Works. In its original announcement, the Tungpientao Development Co. stated that it planned to produce 1.5 million tons of iron ore and 1.3 million tons of coal by the end of 1941, but in view of the shortage of labor and construction materials with which all Manchurian heavy industry is beset, it seems most unlikely that anything approaching this volume of production has actually been achieved.

Coal Liquefaction. The only coal liquefaction plant actually in operation in 1940 was that of the S.M.R. at Fushun, with a reported capacity of 20,000 tons of oil a year. Three other plants are in process of construction at Szupingkai, Fuhsin, and Kirin, but their completion was prevented by the cutting off of supplies of machinery from Germany after the outbreak of the European War. Three companies have been established in this field: the Manchuria Synthetic Fuel Co. (Fuhsin), the Manchuria Coal Liquefaction Co. (Szupingkai) and the Kirin Artificial Oil Co. The capital for these enterprises was provided by the Manchukuo Government, the Imperial Japanese Fuel Co., and various private Japanese interests. The Mitsui interests furnished part of the capital and will manage the Manchuria Synthetic Fuel Co., and the Noguchi interests played a similar role in the Kirin Artificial Oil Co. The capital investment in these various enterprises indicates that the cost of production of oil from coal was expected to be about 500 yen per ton of oil, in contrast to an estimated cost of 200-300 yen per ton of oil derived from shale.⁷ The original Five-Year Plan called for the production of 500,000 tons of oil from coal liquefaction by 1941, and this goal was subsequently revised upward to 1,700,000 tons. Here again the continuing coal shortage, plus the difficulty of obtaining the necessary equipment from abroad, made even the partial fulfillment of the plan impossible.

Oil Shale Production. The original Five-Year Plan provided for the expansion of shale oil production to 800,000 tons by 1941, but in the first revision of the plan this goal was reduced

⁷ Bloch, *op. cit.*

to 650,000 tons. In March 1939 the S.M.R. announced an expansion program to increase productive capacity to 500,000 tons by 1941, and to 1,000,000 tons by 1943, at an estimated cost of ¥150 million. In 1939, annual production capacity was reported to have been brought up to 360,000 tons. Production figures have not been announced since 1936, but owing to the continuing coal shortage it seems probable that the volume of production is much less than the reported capacity. Crude oil exports from Manchukuo to Japan, however, increased in value from ¥1.7 million in 1936 to ¥5.4 million in 1939 which, even taking into account the increase in price, would indicate some increase in the volume of production.

Light Metals. Magnesite is the most important nonferrous metal in Manchukuo, total deposits being estimated at 5,000 million tons. Production of magnesia amounted to 330,000 tons in 1937 and 400,000 tons in 1938. The Japan-Manchuria Magnesium Co., organized in 1933 as a joint enterprise of the S.M.R., the Sumitomo interests, and the Physical and Chemical Institute, operates two plants in Japan where metallic magnesium is produced from Manchurian magnesite. The actual mining of magnesite ore appears to be a monopoly of the South Manchuria Mining Co., a subsidiary of the S.M.R. In 1938, the Manchuria Magnesium Industry Co., a subsidiary of the M.I.D.C., was established with a capital of ¥10 million to undertake the production of metallic magnesium in Manchukuo. Its factory at Yinkow was completed in the spring of 1940 with an initial production capacity of 1,000 tons and an ultimate goal of 30,000 tons.

Next in importance to magnesite ore is the raw material for the production of aluminum. Manchukuo apparently possesses no bauxite but has large deposits of fire clay which are said to contain a fairly high aluminum content, and which are sometimes referred to as alumina shale. The first company to undertake the production of aluminum was the Japan-Manchuria Aluminum Co., organized in 1933, with a reported capacity (1939) of 7,000 tons annually. In 1936, the Manchuria Light Metals Co. was established by the S.M.R. and the Manchukuo Government with a plant at Fushun. This company later became a subsidiary of the M.I.D.C. and its capital was increased from ¥25 million to ¥80 million. The Fushun plant began operations in May 1939 with a capacity of 4,000 tons. Construc-

tion work on a second plant at Antung with a proposed productive capacity of 30,000 tons annually was abandoned in 1940 owing to shortages of equipment and funds.

Expansion of Electric Power Facilities. The program for the development of the coal liquefaction, chemical, and light metals industries called for a vastly increased supply of electric power, and the goal of the revised Five-Year Plan was accordingly placed at 2,600,000 kilowatts, of which 1,340,000 were to be supplied by steam, and the remainder by water power. The three major hydro-electric power projects now in process of construction are: (1) a hydro-electric plant on the Chingpai Lake with a proposed capacity of 40,000 kilowatts; (2) the hydro-electric plants along the Second Sungari River above Kirin which were planned to supply 450,000 kilowatts by the end of 1941 and ultimately 600,000 kilowatts; and (3) a series of plants along the Yalu River. The first two projects are being constructed by the Manchukuo Government. The Yalu River power project is being carried out by the Yalu Hydro-Electric Power Corporation, a joint Japanese-Manchurian company, the capital for which has been supplied by the two Governments and the Noguchi interests. The Yalu River forms the boundary between Manchukuo and Korea and the power from this project is intended to aid in the development both of the Tungpientao district in Manchukuo and the mining areas in North Korea. The original plan for the first Yalu River power station called for a generating capacity of 300,000 kilowatts by the end of 1941. This goal was subsequently raised to 360,000 kilowatts, and to 640,000 kilowatts by the end of 1942. Eventually, other power stations are to be constructed along the Yalu River, bringing the total generating capacity to 1,600,000 kilowatts. All of these hydro-electric power projects were still in various stages of construction in 1941, and have experienced constant delays owing to the difficulty of obtaining the necessary equipment which was ordered from Germany, Japan, and the United States. No recent information on electric power generation is available, but there would seem to be little chance that Manchukuo can achieve the production goal set by the Five-Year Plan for some years to come.

Automobiles and Aircraft. Aircraft and automobile production in Manchukuo was still in the planning stage in 1940. In the automobile field two companies had been established, both

subsidiaries of the Manchuria Industrial Development Co. The Dowa Automobile Co. is engaged chiefly in the assembling of parts of trucks and busses imported from Japan, the manufacture of car bodies, and the repair of automobiles and parts. The Manchuria Automobile Co., established in 1939 with a paid-up capital of ¥25 million, was to construct a large plant at Antung for the manufacture of motor vehicles, but this plan was temporarily abandoned as a result of the failure to obtain the necessary capital and equipment. The Manchuria Aircraft Mfg. Co., also a subsidiary of the M.I.D.C., was established in 1938, its authorized capital being ¥100 million of which ¥50 million has been paid up. This concern does not appear to have begun production.

During the first three years of the Five-Year Plan, more than two billion yen of Japanese capital and huge quantities of construction goods were poured into Manchukuo, and during 1937 and 1938 considerable progress was achieved. By 1939, however, as indicated in the foregoing survey, the expansion program had begun to bog down all along the line, primarily because of the coal shortage but also because capital, equipment, and labor could not be provided in sufficient quantities. Nevertheless, the Plan was once more revised upward in August 1939, the production schedules for iron, steel, coal, liquid fuels and light metals being raised and the period of the Plan extended to 1943. The necessary machinery which could not be produced in Japan or Manchukuo was to be obtained from Germany and paid for by the export of soya beans and other Manchurian agricultural products. The outbreak of the European war, however, cut Manchukuo off entirely from the German market and German sources of supply. Japanese industry, struggling under the growing burden of war requirements, was in no position to fill the gap caused by the severance of Manchukuo's trade relations with Germany and the rest of Europe; the hoped-for supplies of capital from other foreign countries, notably the United States, had failed to materialize, and Manchurian industrialization was being further hampered by an acute shortage of labor.⁸

⁸ After the establishment of Manchukuo, Manchuria was closed to further Chinese settlement and the areas of unused arable land were earmarked for Japanese colonization. In addition, the seasonal movement of Chinese labor into Manchuria was strictly regulated through a government corporation which issued certificates to those "deemed safe to enter Manchukuo." Under this system of control, the movement of Chinese into Manchuria declined sharply, creating an

In addition to these problems of labor, capital, and material shortages, Manchukuo began in 1939 to experience an acute shortage of foreign exchange with which to finance imports of machinery, petroleum, and construction materials which Japan could not supply. Manchukuo's trade balance with yen bloc areas had been heavily adverse for several years, but with foreign currency countries she had had a favorable balance of ¥78 million in 1936 and of ¥28 million in 1937. In 1938, however, her exports to countries outside the yen bloc declined sharply and this trend continued in 1939, with the result that her trade balance with these areas was unfavorable to the amount of ¥24 million in 1938 and ¥65 million in 1939. (See Table 33.)

TABLE 33
MANCHUKUO'S TRADE WITH YEN BLOC AND WITH FOREIGN
CURRENCY COUNTRIES—1936-1939

	(In million yen)		
	<i>Exports</i>	<i>Imports</i>	<i>Trade Balance</i>
<i>1936</i>			
Yen bloc.....	415	582	-167
Outside yen bloc.....	188	110	+ 78
<i>1937</i>			
Yen bloc.....	435	706	-271
Outside yen bloc.....	210	182	+ 28
<i>1938</i>			
Yen bloc.....	539	1,064	-525
Outside yen bloc.....	187	211	- 24
<i>1939</i>			
Yen bloc.....	691	1,607	-916
Outside yen bloc.....	144	209	- 65

Source: The Oriental Economist Supplement, March 1941.

The Five-Year Plan Curtailed. Thus, by the end of 1939, Japan had invested more than three billion yen in Manchukuo for the construction of an industrial structure which was still

increasingly severe labor shortage, with the result that many industrial plans were seriously impeded by the lack of an adequate labor supply. In 1939, therefore, Japan was forced to take steps to stimulate the movement of labor from North China. The quota for labor immigration for 1939 was increased from 470,000 to 1,000,000 and the Manchuria Labor Association put on an intensive labor-recruiting campaign. As a result of these efforts, plus the serious economic deterioration in North China, Chinese migration into Manchuria in 1939 reached a gross total of 986,000 and a net total of 595,000. Manchukuo continued to suffer, however, from a serious shortage of skilled labor and technicians which Japan, beset by a similar shortage, could do nothing to alleviate.

incomplete and which would clearly require a still greater investment of capital and construction goods before it could become the industrial base required for a vast program of continental expansion. However, the continued and increasing strain imposed upon Japan's own industrial resources by the unexpectedly prolonged war in China made it impossible for her to make this additional outlay, and no outside aid appeared likely to be forthcoming. This growing shortage of both funds and materials thus necessitated a downward revision of Manchukuo's Five-Year Plan early in 1940, when it was decided that for the coming year Manchukuo should concentrate on the production of coal, iron, steel, and light metals for *export to Japan*—a significant change from the previous emphasis on industrial self-sufficiency for Manchukuo.

During 1940, the drain imposed upon Japan's depleted capital resources by her Manchurian investment became the subject of increasingly sharp criticism by powerful Japanese financial interests. At the joint Japan-Manchukuo Economic Conference in May 1940, for example, the vice-president of the Bank of Japan declared that Manchukuo should reduce its borrowing in Japan so that more Japanese funds might be available for investment in Japanese government bonds, and his stand was approved by other prominent bankers. These were the same interests which had originally opposed the industrialization of Manchukuo, but this time their objections carried far greater weight because they could point to the urgent need of employing all Japan's financial and industrial resources to sustain Japan's own weakened economic structure. The opposition of these banking interests was not confined to verbal criticism. Early in 1940, the Tokyo banks refused a short-term loan of only ¥30 million to the South Manchuria Railway Company. Furthermore, the S.M.R. budget for the fiscal year 1940-41 called for the sale of 900,000 shares of Showa Steel at ¥70 a share to the Japan Iron & Steel Manufacturing Company, but the latter refused to buy. Thus the S.M.R. was deprived of ¥93 million of expected income.

Despite this open opposition from Japanese financial interests, it was agreed at the Joint Economic Conference that Japan would supply half of Manchukuo's estimated foreign exchange requirements of ¥200 million for the fiscal year 1940-41, in return for increased shipments of Manchurian raw materials to

Japan, and would also continue her capital investment in Manchukuo at the rate of ¥1.2 billion annually. Neither country, however, was able to live up to its side of the bargain. Japanese investments were ¥65 million short during the first quarter of the fiscal year, and reached only 20% of the quota during the second quarter, while Manchurian exports to Japan during the first six months of 1940 were 11% less than in the corresponding period in 1939. This led to a second sharp curtailment of Manchukuo's industrial expansion plan at the end of 1940. Even the activities of the Manchuria Industrial Development Company were greatly reduced. The Manchuria Automobile Manufacturing Co. and other machinery industries which relied on foreign sources for equipment either closed down or suspended operations for a year. The Manchuria Light Metals Manufacturing Co. was forced to abandon construction of its half-finished plant at Antung. Coal mining and steel companies were ordered to economize strictly, and even the Showa Steel Works was compelled to postpone its fifth and sixth expansion programs.

Measures were also taken during 1940 to reorganize the system of special corporations in Manchukuo in the interests of greater efficiency. All these corporations were forbidden by government order to take on any new employees during the fiscal year, overhead expenses were cut down, and large paper plans were ordered dropped in favor of immediate profits. This new emphasis on operating efficiency was accompanied by efforts to accelerate the investment of private Japanese capital in various Manchurian enterprises through their merger with Japanese concerns, especially in coal and gold mining. The Manchukuo Government also undertook to stimulate the export of staple agricultural products by a series of measures designed to increase agricultural production and control the collection and prices of crops.⁹

These developments are sufficient evidence of the effect of four years of costly and inconclusive warfare in China on Japan's attitude toward Manchurian industrial development. By 1941, the original ambitious program had been abandoned in a half-completed stage in favor of a program which would bring some

⁹ For an analysis of the agrarian policy of the Japanese authorities in Manchukuo, see John R. Stewart, "Monopoly Control of Agriculture in Manchuria," *Far Eastern Survey*, Vol. X, No. 7, April 21, 1941.

immediate return to Japan and would not constitute such a heavy drain on Japanese resources. After years of relative neglect, new stress had been put on expanding agricultural production and the export of staple crops, not merely to secure foreign exchange with which to finance imports of industrial equipment, but primarily to cope with the growing food shortage in the yen bloc. It is significant that in the ten-year economic plan for Great East Asia, announced by the Japanese Government at the end of 1940, great emphasis was placed on Manchukuo's role as a supplier of food, fodder, and fertilizers to Japan and China, and as a producer of agricultural crops for the world market. This would seem to indicate that, for the time being at least, Japan intended to revert to a traditional colonial policy and to treat Manchuria primarily as an agricultural appendage of the Japanese industrial economy.

This does not mean, of course, that all plans for the industrialization of Manchukuo have been or are likely to be abandoned, but it does suggest that before Manchukuo can become the independent industrial unit originally envisaged by its military creators, Japan will have to be in possession of far greater material resources than she controls today. Manchukuo's industrial development is in a state of suspended animation. Whether or not Japan will ever be able to complete the unfinished structure in which she has already invested so much, depends upon the outcome of her war against China and thus upon the outcome of the world-wide struggle with which that war is inextricably linked.

CHAPTER V

CHINA

During the latter half of the eighteenth century and early in the nineteenth, China's economic structure was in process of rapid decay. Merchant-usury was playing its traditional role of undermining the position of the old feudal aristocracy, and landownership was becoming concentrated in the hands of merchants and bureaucrats. The all-important irrigation systems were allowed to fall into disrepair, and droughts, floods, and famines became common phenomena. An increasing number of peasants, struggling under a huge burden of debt, lost all or part of their tiny land holdings; banditry flourished, and peasant revolts against the oppressive system of landownership, taxation and usury became more frequent and widespread. But whereas in the past, the feudal system in China had managed to survive periods of weakness, this time there were new circumstances which made it impossible to bolster up an outmoded and inefficient social and economic structure. These circumstances were the industrial revolution in the west and the breaking down of China's isolation from the western world.

The forceful opening of China's markets to western trade, and the subsequent penetration of foreign enterprise into China's coastal cities, accelerated the collapse of the Manchu Dynasty and with it the Chinese feudal bureaucracy. Opium played a leading role in this breakdown of Chinese feudalism and isolation. China's reserves of precious metals were drained off to pay for opium imports, administrative morale was weakened, and the general economic and political demoralization which followed the Opium Wars of 1839-42 dealt a death blow to the ancient Chinese economic system of small-scale peasant production, which for centuries had been able to support a dense population. Simultaneously, the Opium Wars and the subsequent wars and negotiations with the western powers in the 1850's and 1860's, laid the basis for China's present semi-colonial status by establishing the system of treaty ports, concessions, extraterritoriality, etc., which gave foreign business enter-

prises a strangle-hold over China's economic life and prevented her from following the normal course of development from a feudal into an industrialized and independent capitalist nation.¹

In its early stages, foreign penetration of China proceeded with comparatively little friction among the various powers concerned, chiefly because during the nineteenth century world capitalism was still in the stage of free competition. But with the Sino-Japanese War of 1894-95, a new era in Far Eastern political history began. This "second-class" war between two semi-colonial countries occurred at a time when the era of free competition was being supplanted by the era of imperialism and the struggle for monopoly control over resources and markets. From that time onward, the game of international power politics in the Far East, with Japan as an additional participant, was played for monopoly domination over separate parts of China.

Her defeat of China established Japan as a competitor to be reckoned with by the western powers in the struggle for "spheres of influence" in China. It also enabled Japan to throw off the yoke of unequal treaties, regain tariff autonomy, and emerge as a fully independent nation, committed to a program of rapid industrialization and eager to join in the game of imperialist expansion so that, by obtaining control over foreign markets, she might compensate for the fact that the retention of feudal elements in her own economic structure prevented her from developing a large internal market. By the Treaty of Shimonoseki (April 17, 1895) China was required to recognize the full independence and autonomy of Korea; to pay an indemnity of Tls. 200 million; and to cede to Japan the Liaotung peninsula, Formosa and the Pescadores Islands.² Equally, if not more, important was the Treaty of Commerce signed at Peking on July 21, 1896, which not only granted to Japan all the concessions which had been previously given to other foreign powers,

¹"Modern industry was established in China nearly a quarter of a century later than in Japan, and under very different auspices. The systematization and planning which characterized the rise of industry in Japan . . . had no parallel in China, where State direction of economic activities hardly existed at all, and where the process of modernization was to a great extent determined by the extra-territorial rights and privileges of foreigners, which included foreign control of the principal ports." G. E. Hubbard, *Eastern Industrialization and its Effect on the West*, Oxford University Press, 1938, p. 185.

²At the intercession of Russia, Germany and France, Japan was forced to return the Liaotung peninsula to China in November 1895, China's indemnity being increased to Tls. 230,000,000 in partial compensation.

but for the first time specifically conceded the right of foreign powers to carry on trade, industry and manufacturing in the treaty ports, a right previously refused by the Chinese.³ This concession opened the way for the investment of foreign capital and the establishment in the treaty port areas of foreign-owned manufacturing industries, which provided the pattern for such Chinese-owned modern industries as were subsequently developed. This artificial concentration of modern industries in the coastal cities continued to be a feature of China's industrial structure right down to the outbreak of the Sino-Japanese war in 1937.

Defeat at the hands of her infinitely smaller neighbor revealed the full extent of China's internal weakness and was the signal for a scramble by all the powers for a share of this rich and powerless prize. From 1895 onward, the "battle for concessions" was waged with increasing intensity as Tsarist Russia, Japan, Britain, Germany, and France sought to establish their spheres of influence in which each could enjoy a monopoly of railway construction and the exploitation of Chinese resources. During this period China was forced to accept numerous foreign loans carrying with them varying degrees of foreign control, to allow foreign capital to construct and operate railways and mines, and to consent to the establishment or extension of a large number of foreign settlements and concessions.⁴

Within a few years, foreign penetration of China's economic life had increased enormously. From 1894 to 1911, concessions were granted for the construction of approximately six thousand kilometers of railways under foreign control.⁵ During the same period, China's total foreign indebtedness including the Boxer Indemnity, reached the sizable figure of US\$ 2,027 million. Foreign trade figures also reveal the breakdown of China's economic isolation. The opening up of the China market for foreign goods was reflected in an increase in the value of Chinese

³ H. B. Morse and H. F. MacNair, *Far Eastern International Relations*, New York, 1931, pp. 407 ff.

⁴ Morse and MacNair, *op. cit.*, pp. 422-431. Among the most important territorial concessions were the lease of Kiaochow Bay to Germany; Port Arthur to Russia; Kwangchowwan to France; the Kowloon peninsula and Weihaiwei to Great Britain; the establishment of new foreign concessions at Newchwang, Tientsin, Amoy and Foochow, and the extension of the International Settlement at Shanghai from 1,500 acres to 5,584 acres.

⁵ Grover Clark, *Economic Rivalries in China*, 1932. See, especially, pp. 18-33 for a detailed account of foreign capital investment in railway construction in China.

imports from Tls. 209.6 million in 1898 to Tls. 570.2 million in 1913, while Chinese exports increased from Tls. 159 million to Tls. 403.2 million as a result of a growing western demand for China's agricultural and mineral products. That the western powers were at the time primarily interested in China as a market, however, is indicated by the fact that whereas in the period 1885-98, China's excess of imports over exports was only Tls. 200 million, in the four year period 1899-1903, her import excess amounted to no less than Tls. 1,650 million.⁶ Cotton piece goods constituted the leading item in China's import trade, with the result that the first modern factories introduced into China were almost all established for the manufacture of cotton products.

Prior to the Treaty of Shimonoseki, the Chinese had established no more than two or three power driven factories, the first being a cotton mill built in 1890. After 1895 four foreign-owned mills were established in Shanghai by British, German, and American interests, and this stimulated the establishment of Chinese-owned mills which numbered 13 by 1905. Between 1905 and 1915, there was a steady increase in the number of modern factories in China including cotton mills, flour and oil mills, and soap, candle, glass, match, and cigarette factories. Although foreign interests took the lead in initiating these various enterprises and the largest and best financed factories were generally foreign-owned, the process also resulted in the emergence of a Chinese capitalist class, anxious to secure a share in the profits being reaped by western and Japanese merchants and manufacturers. These Chinese industrialists, however, were too weak financially and too inexperienced to compete successfully with the strongly organized and financed enterprises of the foreign powers, and were for the most part compelled to accept the role of compradores.⁷ The revolution of 1911 which caused the final downfall of the Manchu Dynasty was in part a product of the dissatisfaction of this young Chinese capitalist class with its position of subservience to foreign business and finance, and may be said to mark the beginning of China's struggle to modernize her economic structure and escape from the yoke of foreign domination over her industrial and financial life.

⁶ C. F. Remer, *The Foreign Trade of China*, 1926, pp. 209 and 246-47.

⁷ See, H. D. Fong, *Industrial Capital in China*, Nankai Institute of Economics, Bulletin No. 9, April 1936, especially pp. 41-63.

During the First World War and the immediate postwar period, the pressure of western capital on China was temporarily weakened and exceptional conditions were created for the entire Far Eastern area. The scarcity of shipping facilities, the increase in freight rates, the trade restrictions applied by the various belligerent powers, and the resultant paralysis of European export trade, all served to stimulate industrial development in the countries of the Far East. Though these conditions had their most important effect in the expansion of Japanese industry and exports, they also stimulated the development of Chinese industries manufacturing not only for the domestic market but even for export to the colonial and semi-colonial areas of South-eastern Asia. During the war period China maintained an excess of exports over imports for the only time in the history of her foreign trade relations.⁸

This period, however, did not result in any substantial degree of industrialization in China in the sense of the establishment of large-scale or heavy industrial enterprises. Chinese manufacturing continued to be confined to light industries, organized on a small scale and retaining many handicraft characteristics, and much of the industrial development which occurred was organized and financed with foreign capital, principally Japanese. Nevertheless, the First World War period can be said to have given a definite stimulus to Chinese industrialization and the expansion of modern factory enterprise. In 1915 China possessed 31 cotton textile factories, with one million spindles and 4,500 looms; in 1921 there were 60-70 factories with two million spindles and 14,000 looms, and 50 of these factories were Chinese-owned. In 1913 there were 40 flour mills; in 1921, 125. While there were not more than 600 factories using mechanical power in 1913, by 1921 the number was nearly 2,000.⁹

But just when China's industrial development was making some progress as a result of the temporary relaxation of the pressure of western capital, it encountered a new obstacle in the form of Japanese economic penetration of China Proper, particularly in the cotton textile industry, as well as the rapid expansion of Japanese-controlled industrial enterprises in Southern Manchuria. Thus when Britain and the United States were

⁸ See chapter on Industry, by D. K. Lieu, *The Chinese Year Book, 1936-37*, p. 1157.

⁹ Remer, *op. cit.*, p. 202.

able to turn their attention once more to the Far East, they found that Japanese competition for control over China's economic resources had become far stronger and in the intensified rivalry among the three powers for the dominant share in the China market, the position of the Chinese industrialists was once more weakened, a fact which had much to do with the rise of the revolutionary movement after 1923.

Disappointed at the Paris Peace Conference in 1919, and at the Washington Conference in 1922, neither of which did anything effective to remove the most oppressive features of the system of "unequal treaties," the nascent capitalist class in China joined with the national revolutionary forces in the struggle against foreign domination during the 1923-27 period. Unfortunately for China, however, the reactionary and militarist wing of the Chinese ruling class sabotaged the revolutionary movement and split it, and in the process the foreign powers increased their control over China's economy. Thus in 1923, 54% of the coal industry was controlled by foreign capital, but by 1928 the foreign-controlled share had increased to 82%. In metallurgy the increase in foreign control during this period was from 70% to 90%. In the textile industry, the number of foreign-owned looms increased from 8,000 in 1922 to 16,000 in 1928, and foreign capital also obtained a strong foothold in the tobacco, flour milling, sugar refining, and other manufacturing enterprises.

Some idea of the relative importance of foreign and Chinese capital in the development of modern industries in China is provided by a summary of capital investment in factory industries in Shanghai at the end of 1929, according to statistics compiled by the Shanghai Municipality Bureau of Social Affairs (see Table 34). These figures cover only 1,500 out of the 1,781 factories which the Bureau estimates were in operation at the time, and it is also true that foreign investment in Shanghai was proportionately much higher than for the country as a whole. Nevertheless, the predominant position of foreign capital in the chief industrial center of China is indicative of the extent to which Chinese industrialization had been initiated, controlled and limited by foreign interests.

The Role of Foreign Enterprise in Chinese Industrialization. Foreign economic penetration of China not only determined the character of modern industries in China, but also their

TABLE 34

NATIONALITY OF CAPITAL INVESTMENT IN SHANGHAI FACTORIES,
1929

(In thousands of Chinese dollars)

	Chinese			Foreign			Total	
	Amount	% of Chi- nese Invest- ment	% of Total Invest- ment	Amount	% of For- eign Invest- ment	% of Total Invest- ment	Amount	% of All Invest- ments
Textiles.....	44,997.3	43.5	22.8	152,676.8	80.4	77.2	197,674.1	67.3
Tobacco.....	17,390.1	16.8	42.7	23,350.0	12.3	57.3	40,740.1	13.9
Electric power and water supply.....	8,930.0	8.6	47.2	10,000.0	5.3	52.8	18,930.0	6.5
Printing.....	10,457.1	10.1	94.4	615.8	.3	5.6	11,072.9	3.7
Chemicals.....	7,394.7	7.1	78.9	1,976.9	1.0	21.1	9,371.6	3.2
Foodstuffs.....	8,502.9	8.2	94.7	472.2	.2	5.3	8,974.9	3.1
Machinery.....	2,441.5	2.4	100.0	.....	.....	.....	2,441.5	.8
Building materials..	1,532.0	1.5	100.0	.....	.....	.....	1,532.0	.5
Articles for daily use	419.1	.4	36.3	743.0	.4	63.7	1,162.1	.4
Tools and furniture .	972.0	.9	87.0	145.0	.1	13.0	1,117.0	.4
Others.....	496.5	.5	100.0	.....	.....	.....	496.5	.1
Total.....	103,532.8	100.0	35.3	189,979.7	100.0	64.7	293,512.5	100.0

Source: *Shanghai Industries*, Shanghai Bureau of Social Affairs, 1930. See also, Clark, *op. cit.*, pp. 81-82.

geographical location by concentrating them in the treaty port cities where, at first, foreigners alone had the right to reside and do business under the laws of their own countries. Here foreign interests could combine modern methods of production and organization with an abnormally cheap labor supply and could also enjoy the special advantages of the system of extra-territoriality. Industrial development in the treaty port areas was further stimulated by the influx of both Chinese population and Chinese capital seeking security from the political and military disturbances of the interior, and by the existence of foreign merchant communities which established banking, shipping, insurance, and other facilities for the handling of overseas trade.¹⁰ "The treaty ports, being the emporia for foreign

¹⁰ "The concessions in the open ports gave facilities for a secure investment in industry which other parts of China did not have. They were already governed by the laws of industrial nations, and in connection with transport and communications, with the requirements of trade and finance, institutions had arisen which could be utilized with advantage for the promotion of industries. . . . The financial resources of individual firms and of groups sufficed to establish plants of adequate dimensions to reap the advantages of division of labor, modern equipment, and the necessarily high overhead cost of competent management. In time the concessions came to attract population to such an extent and of such a kind that, as large cities, they became themselves large consumers of manufactured commodities many of which could be more cheaply made on the spot than imported from abroad." H. D. Fong, *Industrial Capital in China*, p. 3.

trade and having for this reason, and because of the greater security existing in foreign-controlled territory, drawn to themselves a disproportionately large part of the wealth and enterprise of China, are the nuclei of industrial development both foreign and Chinese."¹¹

As a result, all the modern industries which prewar China possessed were concentrated in six main industrial areas: southern Manchuria, northeastern Hopei, eastern Shantung, the Yangtze delta, the area around Hankow and Changsha, and the Pearl River delta around Canton.¹² And these industries were, furthermore, under the strong influence, if not domination of foreign manufacturing, trading and banking enterprises.

The dominant role played by foreign capital is the most important characteristic of China's prewar industrial structure, since it in turn was chiefly responsible for the other main features, i.e., that China's interior, unable to compete with the more highly developed foreign controlled coastal centers, remained backward and undeveloped; that Chinese enterprise where it could exist was confined almost wholly to the field of light industries; that Chinese factories were for the most part small and undercapitalized; that Chinese-owned industry had little chance to compete in the domestic market against the products of the more strongly organized and financed foreign firms; and, finally, that the Chinese Government was unable to offer protection for domestic industries because of the pressure which could be exerted by foreign interests through their control of China's mines, railways, and shipping, and their hold on government revenues as security for China's foreign debt.

The extent of foreign control over China's economy before July 1937 may be illustrated by the following facts. Foreign-controlled coal mines supplied almost half of China's total annual production of some 20 million tons. Most of the iron mining in China Proper was controlled by Japanese capital and practically the entire output was earmarked for export to Japan. Out of a total of 5,032,700 cotton spindles in China, the Chinese controlled 2,627,700; the Japanese, 2,183,600 and the British, 221,300. With regard to cotton looms, the figures were: Chinese,

¹¹ G. E. Hubbard, *op. cit.*, p. 201.

¹² Since the Japanese invasion of China began in July 1937, five of these areas plus approximately half of the Hankow-Changsha area have fallen under the domination of Japan's army of occupation.

25,100; Japanese, 30,800; and British, 4,000. Foreign interests controlled more than two-thirds of all the steam tonnage engaged in Chinese shipping, more than half the capital invested in cotton mills, and a substantial share of the capital in oil mills, tobacco factories, and other manufacturing enterprises. A large share of China's foreign trade was handled by foreign import and export firms and financed by foreign banks. China's 10,731 kilometers of railway had been built almost entirely with foreign capital, and on January 1, 1937, the outstanding principal indebtedness of China's national railways amounted to Ch. \$955,776,667.¹⁸ Finally, the Government's financial and industrial policies were subject to foreign pressure through the intricate structure of foreign loans; foreign supervision of revenues on which those loans were secured, notably the Customs and Salt Administrations; control of the foreign exchange market by foreign banks, and the close relation between financial credits extended by foreign countries and economic and political privileges enjoyed by foreign commercial and manufacturing interests in China.

GENERAL CHARACTER OF CHINA'S ECONOMIC STRUCTURE

Some writers date the most recent phase of modern industrial development in China from 1929, when China gained tariff autonomy and for the first time was able to provide some degree of tariff protection for her infant industries. Others date it from the Japanese invasion of Manchuria in 1931 which robbed China of her chief heavy industrial center, in South Manchuria, and initiated Japan's campaign to achieve monopolistic control over China's political and economic development. In either case, the history of China's subsequent industrial progress falls natu-

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China's Railway Debts, January 1, 1937

£ 28,656,293	or	Ch. \$477,413,841
£ 93,600,000	or	Ch. \$ 90,873,388
Fr. Frs. 49,084,887	or	Ch. \$ 7,781,864
Bel. Frs. 587,743,000	or	Ch. \$ 67,472,896
Glds. 30,750,000	or	Ch. \$ 57,401,531
U.S. \$ 3,943,393	or	Ch. \$ 13,399,229
C.G.U. 2,331,000	or	Ch. \$ 5,328,666
Ch. \$236,105,272	or	Ch. \$236,105,272

Total \$955,776,667

Source: *Chinese Economic Journal*, Shanghai, Jan. 1937. Conversion at average rates for Dec. 1936.

Note: Obligations in the currency of foreign countries are not necessarily held by nationals of those countries.

rally into two divisions, with July 7, 1937, as the dividing line. Before attempting to outline the principal industrial developments of the past decade in China, however, some reference must be made to the chief characteristics of China's economic structure.

China was and is a predominantly agricultural country with four-fifths of her vast population dependent upon farming, and her industrial resources largely undeveloped. Despite the beginnings of modern industrial enterprises in a few coastal cities, China's economic organization had remained essentially medieval and colonial in character, with handicraft industries accounting for by far the greater part of her total manufacturing production. China's lack of a system of modern transport was a major factor in obstructing her transition from a local or regional to a national economy. It was also responsible for the fact that many coastal areas in China remained dependent upon imported foodstuffs, despite surplus food production in the interior provinces, since the difficulty and high cost of internal transport made it cheaper to rely on imports from abroad.

China's agricultural system was characterized by its intensive use of hand labor, the complete absence of mechanization, and the strip system characteristic of medieval farming. As a result of the extreme parcelization of the land, the average size of farm units in many parts of China was too small for profitable use or for the introduction of modern methods of cultivation which would, in any event, be far beyond the means of the great majority of Chinese peasants to accomplish. The bulk of consumers' goods produced in China was derived from small-scale handicraft industries, situated mainly in the rural areas, with local fairs and markets constituting the most important channels of distribution.¹⁴

Such modern industries as had developed in China were almost exclusively light industries, with textiles occupying the dominant position. In 1933-34 a survey of 1,038 Shanghai factories, measuring up to the standard of the Chinese Factory Law,¹⁵ revealed that out of 200,417 workers employed in these factories, 112,190, or 55%, were employed in the textile in-

¹⁴ Cf. H. D. Fong, *Toward Economic Control in China*, China Institute of Pacific Relations, 1936, pp. 2-3.

¹⁵ The Chinese Factory Law defines a factory as a manufacturing establishment using power and employing more than 30 workers.

dustry. The value of the total production of these factories was Ch. \$600,907,511, of which Ch. \$211,471,615 represented that of textile products. The textile industry utilized 72,962 h.p. out of a total power utilization of 128,430 h.p., and the capital investment in textiles equaled Ch. \$62,238,724, or approximately 40% of the total capital investment in these industries which amounted to Ch. \$156,061,246.¹⁶ In addition to textiles, i.e., cotton weaving and spinning, silk reeling, woolen spinning and weaving, and hosiery knitting, other modern industries in China included flour milling, sugar refining, oil pressing, cement, glass, cigarette and match manufacture, printing and paper manufacture. Heavy or basic industries, such as iron and steel, machine making, shipbuilding, electric power generation, etc., had made little or no progress, and even in the light industries, e.g., woolen, glass, paper and sugar, China was dependent upon imports for from 50 to 75% of her needs. One important feature of modern industries in China was the fact that in many instances the preliminary processing of a raw material, such as cotton or silk, was carried out in modern plants, while its final manufacture into consumers' goods was still accomplished by handicraft workers using the most primitive equipment. This concentration of modern industrial methods in the processing industries is a further evidence of the dominant influence exercised by foreign interests in the shaping of China's industrial development. Foreign manufacturing enterprises in China were not primarily concerned with producing consumers' goods for the local market or in exporting finished products; their earliest interest had been in the preliminary processing of Chinese raw materials so as to save heavy freight taxes on exports. Since Chinese-owned modern industries were largely patterned on those established by foreigners, they too tended to concentrate on the production of semi-manufactured goods, leaving the production of consumers' goods largely to the small-scale industries and household workshops which operated without benefit of modern machinery or modern methods of organization.¹⁷ A second characteristic of Chinese industries was that they were for the most part organized on a very small scale, the only exceptions being cotton spinning, wool spin-

¹⁶ *The Chinese Year Book*, 1936-37, pp. 1158 ff.

¹⁷ H. D. Fong, *Industrial Organization in China*, Nankai Institute of Economics, Bulletin No. 10, 1937.

ning, flour milling, sugar refining, and cement manufacture. The relatively small size of all modern Chinese industries is indicated by the statistics on employment production, capitalization and horse power of industries in Shanghai, as given above. These figures show that the average number of workers per factory was 193; value of production Ch. \$583,726; capital, Ch. \$150,348; and horse power, 123. Moreover, these averages include a few very large factories. If these were excluded, or if factories employing fewer than 30 workers were included, the average size of Chinese industrial establishments would be shown to be extremely small.

PRINCIPAL MANUFACTURING INDUSTRIES IN CHINA BEFORE 1937

The Cotton Textile Industry. Of all the modern industries established in China before 1937, cotton textile manufacturing was by far the most important from the point of view of volume and value of production and the use of modern, mechanized equipment. Modern textile mills were first established in China after the Treaty of Shimonoseki by British, American, and German interests, and within a short time Chinese-owned mills made their appearance. The First World War, by checking exports from Europe, provided a boom period for both Chinese and Japanese-owned mills, and between 1915 and 1920 the number of cotton mills doubled, the spindleage increased by nearly 50% and the number of looms more than doubled. During the post-war slump a large number of the smaller Chinese mills were forced out of existence or bought up by the Japanese, who thus greatly increased their share in the industry; although between 1919 and 1933, the number of spindles in Chinese-owned mills increased from 889,000 to 2,885,786, in Japanese-owned mills the number increased from 333,000 to 2,098,176. Chinese mills had 7,740 looms in 1920 and 20,926 in 1933, while the number of looms in Japanese mills increased from 1,486 in 1920 to 18,017 in 1933. The relative position of the Chinese, Japanese, and British-owned mills in 1934, with regard to capital, equipment, and production is shown in Table 35. The larger capitalization and superior equipment of the foreign-owned mills, indicated in this Table, enabled them to survive the depression period after 1931 far more successfully than the smaller, undercapitalized Chinese mills, many of which were forced to suspend operations or were bought up by Japanese

concerns, which were playing an increasingly dominant role in the textile industry in China. By 1937, nine out of ten cotton mills in Tsingtao were under Japanese control, representing over half a million spindles and about 12,000 looms. A large

TABLE 35
COTTON MILLS IN CHINA IN 1934

	Chinese	Japanese	British	Total
No. of mills.....	87	40	5	132
Capital.....	Tls. 18,500,000	Tls. 30,000,000	Tls. 500,000	Tls. 50,000,000
	\$125,577,300	\$12,000,000	\$8,251,748	\$145,829,048
Spindles.....	2,642,974	1,803,484	261,908	4,708,366
Looms.....	19,605	18,717	3,720	42,313
Power—KW.....	77,533	60,907	3,000	141,460
Power—H.P.	29,347	4,000	5,300	38,647
Cotton consumption (1,000 bales).....	1,410.2	750.1	98.7	2,238.9
Yarn production (1,000 bales).....	1,586.8	575.8	110.2	2,272.8
Cloth (1,000 40 yd. rolls).	9,039.9	12,584.9	1,840.5	23,465.4

Source: *Reconstruction in China*, China United Press, 1935, p. 57.

proportion of the Chinese mills in Tientsin had also been acquired by the Japanese, who controlled about 200,000 spindles and more than 1,000 looms, as compared with some 65,000 spindles and 500 looms in Chinese-owned mills. By July 1937, the control of cotton-spinning equipment in China is estimated to have been as follows:

		Spindles (1,000)	Looms (1,000)
Chinese management	Shanghai.....	1,114.4	8.8
	Tientsin.....	64.2	0.5
	Others.....	1,449.1	15.9
	Total.....	2,627.7	25.1
Japanese management	Shanghai.....	1,357.7	17.4
	Tsingtao.....	592.4	11.2
	Tientsin.....	208.7	1.9
	Others.....	24.8	0.3
	Total.....	2,183.6	30.8
British management	Shanghai.....	221.3	4.0
Total.....		5,032.7	59.0

The rapid development of the cotton textile industry in China was reflected in the sharp drop in imports of cotton yarn and piece goods which, until 1930, constituted China's principal import. Imports of cotton yarn dropped from 187 million pounds in 1919 to 3 million in 1934, and to slightly under 1 million in 1936. Meanwhile, local production of yarn increased

from 440 million pounds in 1919 to a high of 943 million in 1929 and then declined as a result of the depression to an estimated 882 million pounds in 1936. In the latter year China even exported 17 million pounds of cotton yarn. Power weaving developed more slowly than spinning and it was only after 1930 that the increase in the local production of cotton cloth caused a marked decline in imports. The value of China's imports of cotton goods declined from Ch. \$268 million in 1929 to Ch. \$16 million in 1936, or less than 2% of China's total imports, while China's cloth production increased from 577 million square yards in 1930 to 991 million in 1935. There was a marked recovery in the cotton industry during the latter part of 1936 and early in 1937, but expansion was most marked in the Japanese-controlled section of the industry, while many Chinese-owned mills continued to suffer from lack of capital and from antiquated equipment. Government efforts to aid Chinese mill owners in improving their plants and the quality of their products were still largely in the planning stage, and were cut short by the outbreak of the war.

Other Textile Industries. Other branches of the textile industry included hosiery knitting, silk reeling and spinning, and woolen spinning and weaving. Knitting machines operated by electricity were introduced into China just before the First World War and had become quite prevalent, although many factories still used hand-operated machines entirely or in part. The small size and low cost of the hosiery knitting machine made it adaptable to the requirements of cottage industries and in many cases knitting factories rented machines to peasant families, supplied them with yarn and purchased their product on a contract basis. There are no estimates available of the number of household workshops engaged in the knitting industry, or of their production; but of organized shops there were, in 1935, 1,714 knitting mills in China, with a total capitalization of Ch. \$6,511,806, and an annual production valued at Ch. \$27,718,081.

China's modern silk industry may be said to date mainly from the Treaty of Shimonoseki; the number of silk filatures in Shanghai increasing from 12 in 1895 to 61 in 1916, and 107 in 1930, while many silk reeling establishments were also developed in other parts of China, namely Kiangsu, Chekiang, and Kwangtung. The silk industry was hard hit by the world de-

pression, by increasing Japanese competition, and by the invasion of artificial silk in the domestic market. By 1934, only five out of the 100 silk filatures in Shanghai were operating and the plants in Chekiang had almost completely suspended operations. In 1935 a sudden rise in silk prices on the international market brought a brief boom to the raw silk industry, with the result that by October, 94 filatures with a total of more than 24,000 reeling machines were in operation in Kiangsu and Chekiang. Total production of raw silk for 1935 was 95,000 piculs, of which Kiangsu and Chekiang contributed about 60,000; Kwangtung, 25,000; and Szechwan, Hupeh, and Shantung, 10,000.

China's woolen industry was composed of eight woolen yarn factories, of which two were British and two Japanese-owned, and about a dozen factories with modern equipment producing coarse woolen textiles. There were also a number of small weaving establishments producing blankets, carpets and rugs. *The Chinese Year Book* for 1937 gives the total number of woolen mills as 39, with a combined capital of Ch. \$5,069,770, indicating that most of these enterprises were on a very small scale. The production of Chinese-owned mills was far from sufficient to supply either military or civilian requirements, and annual imports of woolen fabrics exceeded 10 million Customs Gold Units.

The Tobacco Industry. In the period before July 1937, the cigarette manufacturing industry in China was dominated by the British American Tobacco Co. although Japanese-owned companies were beginning to compete seriously with the B.A.T. in North China. The B.A.T., a powerful commercial organization with a total paid-up capital (in 1936) of £34,182,000, operated huge cigarette factories in the coastal cities and a leaf-baking and leaf-collecting system of its own in the tobacco-producing regions of the interior. In contrast to this large-scale, powerfully financed organization, most Chinese tobacco factories were very small establishments, their combined capital amounting to only a small fraction of the capitalization of the B.A.T.

"The Chinese cigarette industry, like any other national industry, has had to bear pressure from foreign capital in collecting raw materials as well as in marketing its finished products. . . . Tightly sandwiched between foreign competition and governmental taxation, its future is anything but bright. After a

brief period of prosperity during the European War, it began to decline and decay. The Chinese cigarette industry has always been concentrated in Shanghai, and, according to the statistics of the Consolidated Tax Bureau, the number of Chinese cigarette factories in Shanghai dropped from 186 in 1927 to 67 in 1935."¹⁸

Chinese-made cigarettes are not only unmarketable abroad, but have been unable to hold their own in the domestic market against foreign competition. In 1935, more than 60% of the cigarettes sold in China came from foreign-owned factories, or from abroad. (See Table 36.) In 1935, as compared with 1934, the market for Chinese cigarettes shrank by 18% while that for the products of foreign factories in China rose by 37%.

TABLE 36
SALES OF CHINESE AND FOREIGN CIGARETTES, 1932-1935
(in billions)

Year	Total Number Sold	From Chinese Factories		From Foreign Factories in China	
		Number	Per Cent	Number	Per Cent
1932.....	58.7	23.9	40.7	34.1	58.0
1933.....	88.6	25.5	28.8	62.8	70.9
1934.....	53.0	27.9	52.7	24.9	46.9
1935.....	57.4	23.1	40.3	34.1	59.4
Total.....	257.7	100.5	38.9	155.9	60.5

Source: Chen Han-seng, *Industrial Capital and Chinese Peasants*, p. 38.

The Chinese cigarette manufacturers have also had to struggle under an increasingly heavy tax burden. Following the introduction of the two-rate taxation system in 1932, there was a sharp drop in the tax rates on highgrade cigarettes, while the tax rates for lowgrade cigarettes, the chief product of the Chinese factories, were steadily increased, rising from 14.7% in 1929 to 57.9% for the period 1933-37, a discrimination which indicated the influence of the foreign tobacco companies over the National Government. In 1934, twenty-four cigarette factories in Shanghai in a petition to the National Government pointed out that "the majority of Chinese factories are engaged almost exclusively in the production of low-grade cigarettes. Past experiences have shown that the original seven-rate system

¹⁸ Chen Han-seng, *Industrial Capital and Chinese Peasants*, Shanghai, 1939, p. 36.

of taxation was most favorable to the Chinese firms; the revised three-rate system was less favorable, but the present two-rate system is favorable only to the foreign factories."¹⁹

In addition, with the exception of the Nanyang and Huacheng tobacco companies, Chinese tobacco firms were not able to establish regular collection offices in the regions producing American seed tobacco, because of the superior power of the B.A.T. and other foreign firms. Dr. Chen describes the methods used by the B.A.T. against the Chinese collecting agencies as follows:

It either purposely starts leaf collection before the arrival of the Chinese agencies, or deliberately raises the collection price when Chinese agencies collect in the same region. Since the B.A.T. raises the prices of only the medium and low grade leaves, the Chinese collecting agencies who do not buy the high grades cannot secure enough for their purposes. . . . Often, after the Chinese collecting agencies are driven out of a region, the B.A.T. again lowers prices and monopolizes the final collection. For this reason, though the production of American seed tobacco in China has increased yearly since 1927, the modern Chinese tobacco industry has on the contrary run rapidly downhill.²⁰

Dr. Chen's conclusion that "the increase of raw materials in a semi-colony has not helped to promote national industry, but has materially extended the influence of foreign industrial capital instead," is not only an apt description of the status of the Chinese tobacco industry, but is also applicable to other agricultural and mining enterprises in China.

Flour Milling. In 1936, there were 94 modern flour mills in China with a total capital of Ch. \$26,890,200, nearly all of which were entirely Chinese owned. Shanghai and Tientsin were the principal producing and distributing centers for the flour industry. Table 37 shows China's production of wheat flour for the period from July 1933 to June 1936.

Except for the years 1915-21, China's imports of flour have always greatly exceeded her exports, reaching their high point in 1929 when 7,459,543 quintals were imported, as against exports of only 16,717 quintals. In subsequent years this import excess was gradually reduced, and in 1936 China imported only 310,068 quintals while exporting 92,172 quintals.

Paper Manufacture. China before 1937 possessed about eighteen paper mills equipped with modern machinery, located for

¹⁹ Quoted by Chen, *op. cit.*, p. 39.

²⁰ *Ibid.*, p. 42.

TABLE 37
 PRODUCTION OF WHEAT FLOUR IN CHINA, 1933-1936
 (In 1,000 bags of 49 lbs. each)

District	1933-34	1934-35	1935-36
Kiangsu, Chekiang and Anhwei.....	46,485	52,384	36,258
Shantung and Honan.....	3,135	13,034	12,225
Hunan, Hupeh, Kiangsi.....	11,322	5,373	4,289
Hopeh, Shansi, Suiyuan and Chahar.....	9,204	8,276	9,169
Total.....	76,147	79,068	61,942

Source: *The Chinese Year Book, 1937.*

the most part in Chekiang and Kiangsu. Most of these were engaged chiefly in the production of Chinese paper and cardboard, although the manufacture of foreign types of printing paper was increasing, being valued at approximately Ch. \$10,000,000 in 1936. In that year, however, China imported foreign-style paper to the amount of Ch. \$50,000,000, as compared with imports of Ch. \$41,000,000 in 1934; the increase being largely due to larger purchases of printing paper. This growing demand was responsible for two officially supported efforts to establish paper mills equipped to produce printing paper. The Wenchi Paper Mills in Chekiang, a joint undertaking of the Government and private interests, capitalized at Ch. \$7,000,000, was in process of organization, and the Kwangtung Paper Mills at Canton had completed the construction of its plant. Both these mills were to specialize in the manufacture of newsprint from Chinese raw materials.

Chemical Industry. A beginning had also been made in the manufacture of chemical products. Heavy acid plants were in operation at Shanghai, Canton and in Honan. Early in 1937, a government-owned synthetic nitrogen factory was opened near Nanking, with an annual capacity of 50,000 tons of sulphate of ammonia. There had been a steady expansion in alkali production, and China was producing more than half her total requirements of alkalies. Two sulphuric acid plants and two electrochemical plants in Shanghai supplied a large proportion of China's consumption of sulphuric, nitric, and hydrochloric acids. Simple dyestuffs were also being manufactured in small quantities.

Cement Industry. China's consumption of cement had been increasing steadily in the immediate prewar period as a result

of the extensive building and public works program of the Central and Provincial Governments. But the keen competition of foreign cement in the market had prevented the Chinese cement companies from profiting from this increased demand. Japanese dumping of cement at extremely low prices, with a view to monopolizing the China market, was the chief factor in this foreign competition.

During 1936, however, efforts by government and privately-owned cement plants to improve marketing conditions and manufacturing processes enabled the principal companies to increase their sales, and expand their productive capacity. The Chih Chin Cement Company in Shantung resumed operations and expanded its annual production capacity from 2.5 million to 5 million barrels. New machinery was installed by the China Portland Cement Co. and the Hsitsun Cement Works, increasing their annual production capacity from 900,000 to 1,350,000 barrels. Three new cement works were also established, with a combined production capacity of 1,950,000 barrels. China's cement production in 1936 totaled 4,350,000 barrels and this was expected to rise, as a result of expanded capacity and the completion of the new plants, to a total annual production of 7,300,000 barrels—an amount sufficient to meet China's requirements for building purposes.

Iron and Steel Manufactures. There was a considerable increase in the number of small machine shops and foundries in China during the years immediately preceding 1937, of which the most important was the government Central Machine Works—including an iron works, steel works and machine works—which was approaching completion in the spring of 1937. Orders had been placed with a German firm for the construction of a large government iron and steel works at Chuchow in Hunan, and in April 1937 a contract was signed with British interests for the construction of a central railway workshop in the same area. There was also a growing tendency on the part of foreign engineering firms toward partial manufacture in China, finished products being assembled from imported special parts and locally made simpler parts.

In 1936 there were 270 machine shops and factories registered under the Chinese Factory Act, their size being indicated by the fact that their total capital consisted of only Ch. \$3,550,000. A survey by the National Economic Council, published in 1936,

showed a total of 625 machinery makers, including the 270 subject to the Factory Act, in the industrial centers of Shanghai, Tientsin, Tsingtao, Hankow, Canton, and Wusih. Although most of these were extremely small and poorly equipped, a fair number were sufficiently well equipped to produce a wide variety of the simpler types of machinery, e.g., generating motors, pumps, boilers, presses, lathes, textile machinery, and machinery for the knitting, printing, flour, vegetable oil, tobacco and rice-milling industries. The total value of machinery produced in China was estimated at Ch. \$20 million annually. This figure is, of course, minute in comparison with China's needs, and by no means indicates even the beginnings of heavy industry. It does represent, however, an increase in the knowledge of engineering and mechanics so essential for the future development of modern industry in China.

The foregoing list is by no means inclusive of all manufacturing enterprises in prewar China. Others which might be added are the production of electrical appliances, rubber and leather goods, matches, tiles, bricks, etc. But descriptions of these industries would merely provide additional illustrations of the main features of China's industrial structure, namely small-scale organization, undercapitalization, severe competition from foreign manufactures and the products of foreign factories in China, and the lack of any large-scale planning or control over the development of a particular industry, frequently resulting in local overproduction and bankruptcies.

CHINA'S MINING AND METALLURGICAL INDUSTRY

China is fairly well endowed with mineral resources, but much of her mining industry is carried on by primitive handicraft methods. China is the world's largest producer of tungsten and antimony, and ranks fifth in the production of tin. Her coal reserves, according to the estimate of the National Geological Survey, total approximately 240 billion tons, or about one seventh of United States reserves. Of this total, about 2% is located in Manchuria, 50% in Shansi and 30% in Shensi, with smaller deposits being found in almost every province. The total reserves are made up of 45.5 billion tons of anthracite; 185.2 billion—bituminous; and 3.4 billion—lignite. In its 1934 survey, the N.G.S. estimated China's iron reserves at approximately 1,200 million tons, with Manchuria and Jehol account-

ing for 883 million tons, or more than 70% of the total. Recent discoveries of sizable deposits in Szechwan and Sikang, however, may necessitate an upward revision of the estimates for China Proper. Reserves of manganese ore are estimated at 22,500,785 tons, located chiefly in Hunan, Kiangsi, Kwangtung, and Kwangsi provinces. Tungsten ore deposits in Kiangsi, Hunan, and Kwangtung are estimated at 949,489 tons, and smaller deposits found elsewhere probably make the total reserve more than one million tons. Known reserves of pure antimony, located almost entirely in Hunan, are stated to be 3,677,040 tons. China also possesses substantial deposits of tin ore, and smaller amounts of copper, lead, zinc, gold, mercury, and other minerals, but no exact estimates of the size of these reserves are available.

Coal. Coal mining was the principal mineral industry in pre-1937 China, but about half of China's total coal production was controlled by foreign capital. The largest single coal producer in China Proper was the Kailan Mining Administration in northeast Hopei, a Sino-British enterprise with an average yearly production of between 4 and 5 million tons. The second largest producer was the Chungfu Joint Administration in Honan, also a Sino-British concern, producing about 1 million tons of anthracite annually. A third Sino-British enterprise was the Mentoukou Co. operating west of Peiping, with an annual production of about 30,000 tons. The largest Sino-Japanese coal mining enterprise was the Luta Co. in Shantung, with an annual production of about 700,000 tons. The Chinghsing Coal Mine on the Shansi railway was a Sino-German enterprise, producing about 800,000 tons. This company also operated a coking plant at Shihchiachwang with a production of about 80 tons of coke daily—the only by-products plant of this kind in China Proper. The principal Chinese-controlled coal companies were the Chunghsing Co. in south Shantung, with an annual production of about 1,500,000 tons, and the Hwainan Mining Administration in north Anhwei, with a production of about 1 million tons. In 1936, there were 31 large collieries operating in China, of which 9 were in Manchuria, 14 in North China, 6 in Central China and 1 in South China.

The figures for coal production in China Proper for the years 1931-36 are given in Table 38.

TABLE 38
COAL PRODUCTION IN CHINA PROPER, 1931-1936

	(In thousand tons)					
	1931	1932	1933	1934	1935	1936
Hopei.....	7,660	7,350	6,600	7,740	7,028	6,658
Shansi.....	2,266	2,600	2,400	2,700	1,850	2,000
Shantung.....	2,094	2,300	3,600	3,504	3,950	4,377
Honan.....	1,845	2,020	2,100	2,130	1,014	1,765
Total (including other provinces).....	18,027	18,665	19,450	20,897	21,613	22,250

Source: *The Chinese Year Book, 1935-36, 1937.*

Iron. According to the National Geological Survey's estimate, China Proper possesses only 323 million tons of iron ore, an amount equal to one three-hundredth of the iron ore reserve of the United States. And of this amount, more than half is situated in Chahar, Suiyuan, and Hopei and therefore since 1937 subject to Japanese control.

The most important iron producing center in China (excluding Manchuria), the Yangtze Valley, had a total annual output of slightly more than 1 million tons, the bulk of which was exported to Japan under contract. Table 39, which gives production and exports of iron ore for the years 1934-36, shows that a minute fraction of the ore produced was used locally. Of the mines listed, only the Hsiangpishan mine, operated by the Hupeh Provincial Government, was not under contract to sell its production to Japan and supplied ore to the Liuhokou blast furnace at Hankow and other domestic consumers.

TABLE 39
IRON ORE PRODUCTION BY PRINCIPAL MINES IN CHINA PROPER

	(In thousand tons)		
	1934	1935	1936
Hanyenping Co., Hupeh.....	465.7	536.7	541.7
Hsiangpishan, Hupeh.....	39.8	196.3	200.0
Yufan Co., Anhwei.....	142.3	168.2	140.1
Paohsing Co., Anhwei.....	130.1	195.5	181.0
Fulimin Co., Anhwei.....	128.3	217.1	237.2
Yihua Co., Anhwei.....	26.6	51.0	40.2
Total production.....	932.8	1,364.9	1,340.2
Total exports.....	857.6	1,316.1	1,302.7

Source: *The Chinese Year Book, 1937, pp. 747-8.*

Small iron mines, worked by native methods, are scattered all over China, but their total production of ore was estimated at not more than 400,000 tons annually, with approximately 138,000 tons of pig iron manufactured from this ore.

The manufacture of iron and steel products in China Proper was almost nonexistent. The only blast furnaces in operation were those of the Liuhokou Co. at Hankow and the Paoching Co. in Shansi, with a combined capacity of only 120 tons of pig iron per day. Even these furnaces were worked only intermittently owing to high manufacturing costs and the difficulty of obtaining regular supplies of coke from the distant mines in North China. Steel production was confined to a few small plants in Shanghai, producing steel castings and bars for the local market.

However, events following Japan's invasion of Manchuria in 1931 had given China both a strong incentive and new opportunities for the establishment of basic defense industries. As it became increasingly evident that Japan would sooner or later strike again against China, the struggle for economic supremacy in China between Great Britain, Japan, and the United States had grown sharper. This rivalry gave China her opportunity, for it was clear that China could resist further Japanese aggression only if she possessed the means for iron and steel and armament production. Great Britain recognized this fact and, with American acquiescence, was prepared to assist in the establishment of a few such production centers. Thus the construction of three new iron and steel plants was underway or planned. The Government was building a plant in Anhwei with a daily capacity of 300 tons. The Shansi Provincial Government was completing a plant at Taiyuan with a daily capacity of 240 tons; and the Kwangtung Provincial Government was planning a steel mill near Canton with a capacity of 250 tons. These developments, like every other aspect of the reconstruction program, e.g., railway building, public works, roads, bridges, etc., were cut short by the outbreak of the war.

Tungsten. Of the total annual world production of some 15,000 tons of tungsten during the period 1934-36, China contributed about 40%. During the war period tungsten assumed new importance as one of the principal exports by which Free China could make payments on the wartime credits advanced by the United States. As a result, the Government assumed con-

trol over tungsten production and export, and the volume of production is reported to have increased from 7,050 tons in 1936 to 12,358 tons in 1938.

Antimony. China produces about 70% of the world's antimony. Production reached its peak during the First World War when exports averaged more than 30,000 tons annually, and subsequently declined sharply, as a result of the falling off of demand in foreign countries, particularly in the United States.²¹ The average annual production in the period 1934-37 was about 15,000 tons.

Tin. The principal tin producing areas in order of their importance are the provinces of Yunnan, Kwangsi, and Hunan, and the Island of Hainan, with the bulk of China's production coming from the Kochiu district in southern Yunnan. Modern methods of mining have been introduced to some extent, but primitive methods still predominate. The bulk of the ore is shipped to Hongkong and Haiphong for refining, but in 1932 a modern tin smelting plant was established at Kochiu by the semi-governmental Yunnan Tin Corporation, with an annual capacity of 800 tons of metallic tin. This plant was subsequently enlarged and it is reported that smelter production at Kochiu in 1935 was about 2,000 tons. The second largest producing area is in Kwangsi and small quantities are also mined in Hunan. China's estimated tin production in recent years was as follows:

TABLE 40
CHINA—TIN PRODUCTION, 1930-1939
(In long tons)

1930	1932	1934	1936	1937	1938	1939
6,860	7,406	8,145	10,664	10,457	11,246	11,000

Source: Statistical Year Book, 1939. International Tin Research and Development Council, p. 35.

ECONOMIC RECONSTRUCTION IN CHINA, 1935-1937

The Japanese conquest of Manchuria in the latter part of 1931 had ushered in a new period in China's industrial, as well as political, development. The loss of Manchuria not only de-

²¹ The Texas Mining and Smelting Co., organized in 1931, produced antimony at ten cents less per pound than the Chinese product, with the result that by 1934, Chinese exports to the United States were only 2,000 tons, instead of the usual 6,000-10,000 tons.

prived China of one of her most important potential centers of industrial development, but also marked the beginning of an aggressive campaign on the part of Japan to establish monopolistic control over the economic and political development of China Proper, exemplified by persistent attempts to establish a Japanese-controlled autonomous regime in North China, and by unremitting pressure on the Chinese Government for the adoption of economic policies favoring Japan, at the expense of China's national interests as well as those of western powers.

The years following 1931 were also a period of severe economic depression in China. The depreciation of the pound sterling, the yen, and the American dollar in terms of gold, coupled with the American silver purchase policy, caused a sharp rise in the price of silver which, in turn, resulted in serious deflation in China and a drastic drop in the prices of China's principal commodities. Extreme fluctuations in the exchange value of the Chinese dollar also served to discourage Chinese industry and trade, both foreign and domestic. The value of China's foreign trade declined steadily through 1935, and though the decrease in imports caused a reduction in her heavily adverse balance of payments, this was chiefly the result of depressed conditions and large-scale smuggling through Japanese-controlled areas, and not a sign of expanding domestic production.

During this period, the Government's major efforts were concentrated on establishing effective political control within China Proper by compelling all provincial authorities and opposing political groups to acknowledge the supremacy of the Central Government under the leadership of the Kuomintang. At first this objective was sought by purely military measures, but in 1934-35 a program of economic reform and reconstruction was associated with military unification. This program emphasized the improvement of transportation facilities as essential to effective administration and military maneuvers within the country; financial reforms to improve the Government's credit standing abroad and stabilize the exchange value of the dollar; and a number of elaborate plans for the expansion of industrial and agricultural production so as to achieve greater economic self-sufficiency.

Underlying this whole economic reconstruction effort, how-

ever, were a number of limiting factors. In the first place, China was capital poor, and funds for investment in new industrial enterprises were extremely meager. In the second place, the huge standing armies maintained by the Kuomintang not only drained the national and provincial treasuries, but also diverted from more constructive enterprises a large share of the country's resources in personnel, equipment, and materials. A third, and in some ways, the most important factor limiting the reconstruction efforts of the National Government was its own political and financial position. Financially, the Government was dependent upon the support of the Chinese industrialists and bankers in Shanghai and the other treaty ports, and politically it rested upon a combination of these capitalist groups and the landlord class which still dominated the vast rural areas of the country. It was therefore impossible for the National Government to support and carry out the fundamental reforms in the agrarian structure which were so essential to any program for the modernization of China's economy.

Despite the limited scope and relatively superficial character of the Government's reconstruction program, and despite the expenditure of a large part of its financial resources on a series of military campaigns against the Chinese Soviets, the Government's achievements in the fields of financial reform and the expansion of transport facilities were considerable. Although general world recovery and a rising demand for Chinese products were in part responsible, economic recovery in China may be said to have dated from the currency reforms of November 1935 and to have owed much to the extension of the Government's control over ultra-reactionary provincial authorities and warlords.

The abandonment of the silver standard and the successful adoption of a managed currency, together with reforms in the banking structure and the gradual unification of the currency, improved the Government's credit standing both at home and abroad. The remarkable exchange stability maintained by the Chinese dollar, plus rising prices for Chinese commodities, stimulated a general revival of trade and industry. As a result of the Government's measures for the readjustment of outstanding foreign debt obligations, as well as the increasingly dominant position of the Central Government in Central and South-east China, foreign capital began to show a renewed interest

in investment in Chinese railway construction and other industrial enterprises on far more favorable terms than had characterized the earlier era of financial penetration. Foreign loans and credits totaling approximately a quarter of a billion Chinese dollars were obtained for new railway projects, with foreign firms competing sharply for the privilege of supplying materials.²²

In addition to foreign capital, considerable sums of Chinese capital were also secured by the flotation of five issues of 6% railway bonds, totaling Ch. \$105 million, between 1934 and January 1, 1937, in addition to which credits totaling Ch. \$7.5 million were advanced by Chinese banks and the China Development Finance Corporation for railway construction. At the end of 1936, the Government announced a railway building program calling for the construction of 1,700 kilometers of railway per year for a five-year period beginning in 1937. Actual achievements included the completion of the line between Canton and Hankow in 1936; the extension of the Lunghai line to Lungkwan, Sian, and Paochi; and the construction of a connecting line from Soochow to Kashing. Work on the Nanking-Canton, the Hunan-Kweichow, and the Chungking-Chengtu lines was begun but had to be discontinued after the outbreak of the war.

Prospects for Industrial Expansion in 1937. In the eighteen months preceding the outbreak of war on July 7, 1937, the prospects for an era of rapid development of industry in China appeared brighter than ever before. The effects of the currency reforms, exchange stability, general world recovery and good crops were seen in a sharp rise in commodity prices, substantial trade recovery, and a growing demand for a wide range of manufactured products which resulted in the establishment of many new industries. This trend was further accelerated by the depreciation of silver and the imposition of higher import duties which served to raise the price of foreign manufactures and encourage the use of home-made goods. The increasing variety and improved quality of Chinese-made manufactures were stressed by many foreign observers in China, and although cotton mills,

²² Cf. Chen Han-seng and Miriam S. Farley, "Railway Strategy in China, New Style," *Far Eastern Survey*, Vol. VI, No. 15, July 21, 1937, for a detailed analysis of Chinese railways and foreign capital in the period just prior to the outbreak of the war in July 1937.

silk filatures, and flour mills still occupied the leading position among Chinese industries, this period witnessed many new additions to the list of "made-in-China by Chinese" products. Among these new products, as described above, were electrical appliances, nitrogen products, artificial fertilizers, and various acids and dye-stuffs. The increasing production of machinery, electric batteries and transformers, motors and generators—although of small size and mainly imitations of foreign products—represented an important advance in Chinese industrial development. Although heavy or basic industries were still non-existent, the increasing quantity and variety of consumption goods being manufactured in China were creating a growing market for factory equipment and other forms of capital goods.²³

Prospects for a greater geographical diffusion of industry also appeared good, for as the authority of the Central Government was extended, the need for security from military disturbances became less of a factor in determining the location of plants. For example, of the 480,000 spindles which Chinese cotton mills planned to install in 1937, 407,000 or 84% were to have been situated in the interior.²⁴ Unfortunately for China, however, little had actually been accomplished in the way of industrial development in the interior before the war broke out. The only important exceptions to the concentration of modern industries in the highly vulnerable coastal areas were the few enterprises founded by provincial authorities, notably in Kwangtung, Kwangsi, and Shansi, and by the Central Government.

At the beginning of 1937, the Kwangtung Provincial Government owned and operated eleven industrial plants with a total capital investment of Ch. \$41 million, including four sugar refineries, a paper mill, a cement works, a sulphuric acid and soda works, a cotton mill and an artificial fertilizer plant. In Shansi, provincial enterprises with an aggregate capital investment of Ch. \$87.2 million included a machine shop, a flour mill, two leather tanneries, two match factories, a cotton mill, etc. The Kwangsi Provincial Government operated sugar mills, an alcohol plant, a leather tannery, a machine shop, etc.

The Central Government had drawn up an extensive program for the development of basic industries outside the treaty

²³ Leonard G. Ting, "War and Industry in China," *Nankai Social and Economic Quarterly*, Vol. XI, No. 1-2, January 1940, p. 66.

²⁴ *Ibid.*, p. 68.

ports as a part of its national defense program. Unfortunately, it chose to concentrate its activities in Hunan, Hupeh, and Kiangsi, an area which it mistakenly believed could be defended against foreign invasion. In August 1936, the National Resources Commission announced an ambitious three-year program calling for the establishment of machine shops for the manufacture of airplane motors, electric generators, and machine tools; a number of plants for the manufacture of electrical equipment, and mining and metallurgical plants capable of an annual production of 2,000 tons of ferro-tungsten, 300,000 tons of iron, 300,000 tons of steel, 3,600 tons of copper, 5,000 tons of lead and zinc, 1,500,000 tons of coal, 25,000,000 gallons of gasoline, and 50,000 tons of ammonium sulphate. It was estimated that this program would require a capital outlay of Ch. \$230 million which was to be provided partly by the Government and the remainder secured from foreign sources. The ammonium sulphate plant had been completed; the Central Machine Works was nearing completion, and work had been begun on a number of other projects when the spread of the war from North China to Shanghai compelled the Government to abandon its activities and transfer such equipment as could be salvaged to the interior.²⁵

WARTIME INDUSTRIAL DEVELOPMENT IN CHINA, 1937-1940

The foregoing summary is of necessity extremely general, both because of the lack of detailed industrial statistics and the difficulty of distinguishing between actual accomplishments and paper plans in government reports on industrial progress. Nevertheless, it seems clear that by the spring of 1937 the prospects for industrial progress were good. On the political side, too, China had made great progress. The Sian Incident of December 1936, and the subsequent improvement in relations between the Central Government and the leaders of Soviet China on the basis of a program of resistance to Japan, had set the stage for a political and economic unity which ultimately proved to be a decisive factor in China's ability to withstand Japanese aggression.

This prospect of an increasingly strong and unified China, however, did not fit into Japan's plan for an East Asiatic bloc

²⁵ Cf. H. D. Fong, "War-time Economic Reconstruction in China," *Nankai Social and Economic Quarterly*, January 1940, pp. 102-3.

economy in which China would play the part of a colonial appendage to Japanese economy by supplying the markets, raw materials, and low-cost labor for Japanese industries. If China were allowed to continue unchecked in her program of reconstruction, Japan's plans for establishing her hegemony in East Asia were doomed. Japan, lacking capital and with her own heavy industries not yet fully developed, could not hope to compete successfully with the more advanced industrial nations of the West in supplying China with capital, machinery, and other heavy industrial goods. To the advocates of Japanese expansion, therefore, it appeared essential that China should be prevented from achieving real political unity and economic strength. Accordingly, in July 1937, they launched their campaign for the amputation of China's five northern provinces, apparently confident that this would prove a relatively quick and simple means of undermining the newly developing strength of the Chinese Government.

Wartime Industrial Losses. In the first year and a half of the war, Japan captured China's chief industrial centers and approximately 95% of all the modern industrial equipment she possessed. In Shanghai, property destruction was enormous. Estimates of total industrial losses at Shanghai range from Ch. \$350 million to Ch. \$4.4 billion. The Shanghai Municipal Council estimated that in the Hongkew and Yangtzepoo areas alone, 905 factories and workshops, ordinarily employing 30,868 workers, were totally destroyed and thousands of others seriously damaged. According to figures compiled by the Bureau of Social Affairs of the Shanghai City Government, the damage suffered by Chinese-owned factories in Shanghai amounted to Ch. \$800 million, with 5,255 industrial establishments damaged or demolished.

Chinese-owned concerns suffered far more severely than foreign enterprises. The Japanese estimated their own industrial losses in Shanghai at Ch. \$7.6 million. Of the 30 Japanese-owned cotton mills, only three were seriously damaged, whereas of the 30 Chinese-owned mills, 23 were destroyed or rendered inactive. The Chinese-owned dyeing industry suffered the loss of 190 establishments. Practically all the silk filatures and 300 out of 400 small silk-weaving plants were destroyed. The Japanese also accomplished the destruction of nine chemical plants, six large soap factories, a number of paper mills, many printing plants,

eight out of eighteen Chinese tobacco factories, twenty-two Chinese-owned saw mills, and numerous small machine shops. Nineteen out of the twenty-five shoe factories and about half the twenty-six glass factories in the Shanghai area were destroyed, as were many factories and workshops producing a variety of consumers' goods.²⁶

The various modern-style factories in Shanghai normally employed about 175,000 workers; but by the end of the three months of hostilities some 125,000 of these workers and an even larger number of those employed in the small handicraft shops were without work. The paralysis of industry was also reflected in the consumption of electric power which fell from a monthly average of about 61.3 million KWH during the period April-July 1937, to an average of 13 million KWH during the period September-December 1937, and of 20 million KWH for the first four months of 1938.

Nor was the industrial destruction in Shanghai solely the result of actual hostilities.

They (the Japanese) deliberately ruined several Chinese mills by sabotaging the machinery. They also systematically collected, for export to Japan, more than merely scrap iron from the debris of ruined buildings, but machinery of all kinds from Chinese owned properties. Groups of coolies under Japanese direction went from house to house and factory to factory, stripping them of every kind of metal, including engines and other machinery in an intact condition, for transportation to Japan. . . . The main purpose underlying these "tidying up" operations, as a Japanese spokesman euphemistically termed them, might be presumed to be the elimination of industrial competition on the part of the Chinese in Shanghai.²⁷

Nothing more clearly illustrates not only Japan's determination to reduce China to complete economic dependence on Japanese industry, but also her desperate need for an immediate return on her conquest, than her systematic looting of Chinese industrial equipment and her refusal to share the spoils of the conquest with the Chinese compradore-banker class whose partial support she might have enlisted by a more generous policy.

Industrial losses in cities other than Shanghai have not been estimated with any accuracy. In Tientsin, where the Japanese were already strongly entrenched, destruction of industrial property was relatively slight. At Wusih, seven cotton mills,

²⁶ Ting, *op. cit.*, pp. 72-75.

²⁷ Royal Institute of International Affairs, *Survey of International Affairs, 1937*, London, Vol. I, pp. 319-20.

several flour mills, a power plant, and a modern silk-reeling factory were destroyed or severely damaged. Similar destruction occurred at Wuchin, Soochow, Taichang, Changshu, and Kiangyin. Factories which escaped destruction were confiscated by the Japanese. In only one important instance was the Chinese "scorched earth" policy applied to industrial equipment. This was in Tsingtao where nine Japanese-owned cotton mills, operating more than half a million spindles and 9,000 looms, were burned by the Chinese before they abandoned the city.

Transfer of Industrial Equipment to the Interior. With the fall of Canton and Hankow in October 1938, China lost the last cities possessing even the beginnings of a modern industrial plant. In order to carry on the war, the Government was therefore compelled to develop new industrial bases in the interior, to explore the hitherto uncharted industrial resources of China's vast hinterland, and to find some means of financing imports of essential war supplies and industrial equipment despite the loss of the most important sources of Government revenue, e.g., the Customs duties, and the land taxes and other internal levies in the rich agricultural and industrial areas now controlled by Japan.

The feats performed by the Chinese in transporting machinery and other industrial equipment thousands of miles into the interior were remarkable in view of the enormous physical difficulties encountered. The task was further hampered by the unwillingness of many factory owners and creditors to act promptly in moving their plants from cities threatened by the Japanese advance. Owing to the peculiar "compradore" character of much of Chinese capital, few Chinese industrialists were eager to cut their ties with the foreign concessions and in many cases equipment was lost which might have been saved by quicker action.²⁸ Yet by the end of November 1938, more than 51,000 tons of industrial machinery and materials, representing the property of more than 300 privately-owned factories and mines, had been removed into the interior. By the end of 1940, according to a report by the Ministry of Economic Affairs, more than 100,000 tons of machinery and other equipment had been

²⁸ For example, the cotton mill owners at Wusih and Wuchin failed to take action when requested to do so by the Government in September 1937. When, in November, they at last began to dismantle their plants, transport facilities were no longer available and only a small portion of the equipment from one cotton mill at Wusih was brought out in time. Ting, *loc. cit.*, p. 82.

transferred, and some 12,000 skilled workers and foremen brought from the coastal areas. In selecting plants for removal to the interior, the Chinese Government gave preference to those which would be of special value in developing industry and to those of military importance. About 40% of the equipment removed was from machinery and metal industries; others included textile, chemical and electrical goods factories and a variety of miscellaneous light industries.

The Industrial and Mining Adjustment Bureau, a subsidiary unit of the Ministry of Economic Affairs, was charged with the task of assisting and supervising the removal and re-establishment of industrial plants. Provision was made for the extension of loans at low rates of interest to factory owners, about Ch. \$9 million being granted to various enterprises. The Bureau also undertook to purchase and transport supplies into the interior for sale to factories and mines at cost price.²⁹

In quantity, the amount of salvaged machinery was small in comparison with the quantity destroyed or captured by the Japanese, but its transfer to areas where industrial development was nonexistent may be considered of tremendous importance; more particularly as it was accompanied by the migration of large numbers of skilled workers who could assist in training new industrial workers in the interior. The rich resources of China's hinterland, so long neglected because of the concentration of foreign enterprise, trade, industry, finance, and communications in the coastal areas, had at last been recognized as the essential basis in China's fight for national independence, and the first step taken toward the establishment of modern industries in areas less subject than the treaty ports to the economic domination of foreign capital.

Industrial Resources of China's Interior. Although by no means all of the so-called "occupied" areas in north, central, and southeastern China are, in fact, under effective Japanese control, the wartime industrial development program of the Chinese Government was of necessity confined almost entirely to the ten provinces in the northwest and southwest which were considered relatively secure from attack. These ten provinces occupy an area slightly larger than that of the United States,

²⁹ Wong Wen-hao, "China's War Economy," *The China Quarterly*, Spring, 1939, p. 210.

exclusive of Alaska and outlying territories, and have a population of more than 100,000,000. (See Table 41.)

TABLE 41
AREA AND POPULATION OF NORTHWEST AND
SOUTHWEST PROVINCES

	<i>Area (sq. km.)</i>	<i>Population</i>
<i>Northwest Provinces</i>		
Shensi.....	183,394	10,112,230
Kansu.....	378,059	6,080,559
Ningshia.....	274,910	666,890
Chinghai.....	697,194	1,195,054
Sinkiang.....	1,828,418	2,453,393
Total.....	3,361,975	20,508,126
<i>Southwest Provinces</i>		
Szechwan.....	431,309	46,823,665
Sikang.....	371,599	1,048,091
Yunnan.....	320,051	11,795,486
Kweichow.....	179,478	7,022,804
Kwangsi.....	217,578	13,385,215
Total.....	1,530,015	80,075,261
Grand Total.....	4,891,990	100,583,387

Note: Figures on area are based on *The Quarterly of Statistics* published by the Ministry of the Interior, January 1937. Population figures are from a compilation by L. K. Tao and Wang Shih-tu. See *Chinese Year Book, 1938-39*, pp. 32-35.

These ten provinces are well supplied with agricultural raw materials for industry, with the exception of cotton. Among the agricultural commodities already produced in substantial quantities and capable of further expansion are tung oil, tea, pig bristles, hides and skins, wool, vegetable oils, peanuts, ramie fiber, tobacco, sugar, and pharmaceutical products. Most of these provinces also possess large timber reserves, especially Sikang, Chinghai, Ningshia, and western Szechwan, where the reserves are ample for the development of a substantial paper and pulp industry. The cotton shortage, however, presents a serious problem for the newly established cotton mills in Szechwan, since Shensi is the only important cotton-producing province in Free China and the cost of transporting Shensi cotton to Chungking is extremely high.

With regard to mineral resources, China's hinterland produces coal, iron, tin, antimony, tungsten, and undetermined

amounts of copper, lead, zinc, gold, mercury, petroleum, and manganese. Coal reserves in the interior provinces are estimated to total about 94 billion tons, of which 71,950 million tons are located in Shensi and 9,874 million tons in Szechwan. Of these ten provinces only Szechwan and Sikang possess substantial reserves of iron ore which, according to the most recent geological surveys, are estimated to total 145 million tons. This estimate includes the Loku deposit, largest in the Southwest, which is believed to contain nearly 100 million tons.

The province of Yunnan contains some of the most valuable tin reserves in the Far East; about 90% of China's tin production coming from the mines in Kochiu county near Mengtsu. Yunnan also possesses important deposits of copper, mercury, lead, zinc, manganese, and tungsten. China's chief tungsten deposits are located in Kiangsi and Hunan, which, though not included in the ten provinces under discussion, are largely under the control of the Chinese Government. Most of the northwestern provinces contain deposits of lead, copper, nickel, zinc, gold, gypsum, asbestos, graphite, and sulphur, in addition to varying amounts of coal and iron. The gold deposits in Chinghai are reported to be especially rich.

The exact extent of these mineral resources is not yet known, since surveys have been only superficial in many areas, but it is certain that basic minerals needed for modern industry can be found in almost every part of China's interior. The major obstacles to the development of these industrial resources in China's hinterland have been lack of transportation facilities and capital equipment. In 1940 there were less than 50,000 miles of dry-weather roads, and less than 800 miles of railway in the interior. The total number of motor trucks did not exceed 20,000; yet to operate even half this number an average of 100 miles a day required 43 million gallons of gasoline a year, at a cost (1940) of nearly half a billion Chinese dollars. Much of China's motor transport, urgently needed for the transport of munitions, troops, medical supplies, export commodities and imports of gasoline and industrial equipment, has been forced to stand idle because of lack of gasoline. This problem of transportation is closely related to that of increasing industrial production, because in order to establish modern industries in the interior, China must import large quantities of heavy equipment which must be transported from the ports of entry.

Furthermore, the expansion of railways and roads is essential for the effective exploitation of the rich but widely separated natural resources in the four areas which have been chosen as the focal points for industrial development, namely southeast Szechwan, around Chungking; southwest Szechwan, around Kiating; Yunnan, east of Kunming; and Kansu, around Lanchow.⁸⁰

Southeastern Szechwan. This industrial area is based on the Kialing River and Nanchwan coal fields and the Chikiang iron deposits. The Kialing River coal field, situated near Chungking, has a reserve of 490 million tons, but owing to its high phosphorus content, this coal cannot be used for coking purposes without special treatment. The Nanchwan field, which is located much nearer the Chikiang iron reserves, contains about 33 million tons of coal suitable for metallurgical purposes, in addition to large deposits of bituminous coal. The Chikiang iron deposits, estimated at approximately 15 million tons, are of good quality, but at present these deposits are worked chiefly with native handicraft equipment, although a government plant of the National Resources Commission recently began operations. Moreover, before this area could be developed as the basis of an iron and steel industry, the construction of a railroad from Chungking to Chikiang is essential. Such a railroad would not only link Kialing River coal with Chikiang iron, but would also connect Nanchwan coal and Chikiang iron with Chungking which is ideally suited, from the point of view of transport and power facilities, to be the location of manufacturing enterprises.

Southwestern Szechwan. This potential industrial area, located around Kiating (Loshan) is densely populated and the inhabitants enjoy a higher standard of living and greater purchasing power than those living in other parts of the province. The main water routes in this region are linked with the Szechwan-Yunnan railway (now under construction) at the intersection of the Min and Yangtze rivers at Suifu, and these lines of communication are being supplemented by a network of new highways. The potential power resources of the area consist of bituminous coal and hydro-electric power. The Chienwei coal

⁸⁰ For a detailed discussion of the industrial resources of these four areas, see: Chi Chao-ting, *Wartime Economic Development in China*, Institute of Pacific Relations, New York, 1941 (in press), on which this summary is based.

field contains approximately 2.4 billion tons of low phosphorus content. The average annual production of the Chienwei field was about 500,000 tons before the war, an amount far short of meeting the current demand in this area which has been greatly increased as a result of the wartime expansion of local industries. In December 1938 a new corporation, the Kiayang Coal Mining Co., was organized with a capital of Ch. \$1.2 million for the exploitation of the coal reserves of Chienwei, Kiating, Pingshan, Huangtan, and Shihling, but there are no figures available to show how much coal production has increased, or the extent to which the expanding demand for electric power has been met. The water power resources of Szechwan have been estimated at 4.6 million horse power, but the Government has not yet been able to undertake the development of hydro-electric power stations because of the large initial capital investment required and the difficulty of importing heavy and expensive equipment.

The chief weakness of the Kiating industrial area is the lack of extensive iron deposits. The rich Loku deposits are located only 200 kilometers away, but are inaccessible, pending the construction of a branch railway which would link Loku with Wutungchiao or Suifu. The Government's present plans therefore call for the development of the Kiating area as a light industry center without an iron and steel base. The chief industrial resources are salt, sugar, paper, and silk. Two important chemical industries have been moved from North China to the Kiating area, and it is planned that the further expansion of the chemical industry will solve the market problem for Szechwan salt. The Kiating area produces about one sixth of China's total production of cane sugar and this output could be greatly increased by the introduction of modern methods of production. It is estimated that without any increase in acreage, production could be expanded from an annual average of 40,000 tons to 70,000 tons—enough to make China independent of foreign imports.

Kiating also possesses all the necessary raw materials and technical skill for paper manufacture. Before the war, there was only a handicraft industry, producing about 4,000 tons of paper annually, but three modern-style paper mills have now been established, and the Government has also taken steps to improve the organization and increase the output of the small handi-

craft mills. In addition to paper manufacture, the Kiating area also has match, pottery, cotton textile factories, and a few small iron foundries. Most of these industries are in process of expansion and new industries are still being moved into this area from the war zones.

Yunnan and Kansu. The two other potential industrial areas have not as yet received the attention which has been lavished on Szechwan. Yunnan possesses important coal deposits, with total reserves estimated at 167 million tons, but much of this is inaccessible until new railways can be built. No extensive iron deposits, however, have yet been discovered in Yunnan. Yunnan's chief contribution to China's war economy is as a tin producer, approximately 90% of China's tin production coming from the Kochiu mines near Mengtsu. In the northwest there are known to be large coal and iron deposits near Lanchow, but these resources are still unexploited. Few reconstruction projects have been sponsored in this area, and the Government appears to have made little effort even to ascertain the nature and extent of the industrial resources.

Petroleum Resources. The importance of these four areas as bases for future industrial development is enhanced when considered in conjunction with the potential oil resources of West China. Regarding these, H. Foster Bain wrote as follows:

The North Shensi basin, comprising a narrow strip along the western margin of Shansi, the northern part of Shensi, and northern Kansu and a part of southern Mongolia, is the most favorable region in North China for petroleum development. . . . Oil seepages occur and a definite possibility of developing commercial fields exists in this basin. The portion of Kansu west of the Shensi basin has some oil possibilities but conditions are apparently much less favorable than those in the basin. . . . Next to Shensi, the most important petroleum deposits thus far discovered in China have been found in the western province of Szechwan. . . . This region may produce oil in considerably larger quantities if modern methods of petroleum development should be employed. . . . In summary, therefore, it may be said that only two areas in China proper seem to have possibilities of commercial petroleum production, and in neither of these can we feel at all certain of the development of a field of the first magnitude. . . . Making every allowance for deficiencies in present knowledge of the economic geology of China, its oil reserves are still probably less than 1% of those in the United States.³¹

The shortages of liquid fuel resulting from the war led to the

³¹ H. Foster Bain, *Ores and Industry in the Far East*, Council on Foreign Relations, New York, 1933 edition. pp. 126-9.

establishment of a number of government-sponsored organizations for the exploration and development of petroleum resources. The National Resources Commission established a company, capitalized at Ch. \$1 million, for the development of the petroleum reserves of Kansu. Recent reports state that oil production in Kansu now totals 60,000 gallons per month, and that when the installation of new machinery has been completed, production is expected to total 450,000 gallons monthly.³² In Szechwan, the National Geological Survey and the Szechwan Provincial Geological Survey jointly organized a Petroleum Research Expedition to ascertain the exact nature of the oil reserve in the territory around Weiyuan and Junghsien counties, and the National Resources Commission is carrying out exploratory drilling in other parts of Szechwan. The Sikang reserves are also being explored, and in 1939 it was reported that substantial reserves had been discovered at Ningsinshan.³³ This same report stated that Szechwan and Shensi are estimated to have 1,357 million barrels, or 56,994 million gallons, of petroleum underground, and that Szechwan alone should be able to produce some 80 million gallons per year. This report also stated that the Ministry of Economic Affairs was planning to establish a large-scale oil-refining plant at Chungking. These developments, although of significance for China's long term industrial development, cannot, of course, achieve results sufficient to meet China's immediate needs for motor fuel and the Government is also endeavoring to develop fuel substitutes by manufacturing synthetic gasoline from alcohol and vegetable oil.

THE GOVERNMENT'S ROLE IN INDUSTRIAL DEVELOPMENT

The development of government enterprises in China has been officially viewed as a means of supplementing rather than supplanting private industry, and has therefore been accompanied by efforts to promote the growth of private enterprises. For the first eighteen months of the war, government aid to private industry was confined largely to the transfer of equipment and materials from the war zones to the interior and to assisting factory owners to resume operations, by providing them with land, cheap credit, exemption from certain taxes, etc. Be-

³² *News Release*, China Information Committee, Chungking.

³³ *Chinese Economic and Statistical Review*, Shanghai, March 1939.

ginning in 1939 the emphasis was shifted to stimulating production of factories already settled in the interior. A number of measures were passed, of which the most important are the Regulations Governing Government Aid to Special Industries (June 7, 1938) and the Regulations Governing the Encouragement of Wartime Industry and Mining (November 25, 1938). The first provides government aid to enterprises owned and operated by Chinese that have a paid-up capital of more than a million dollars and manufacture motors, dynamos, electrical equipment, tools, machines, or transportation equipment, or engage in various forms of metallurgical work or the refining of liquid fuel. To these industries the Government guarantees profits limited to 5% per annum on paid-up capital and 6% per annum on bonds issued within a period of seven years, and grants cash subsidies on the basis of production cost and the market price of industrial commodities during the year.

The second law provides for government assistance to all important industries and mining enterprises related to national defense, which have a paid-up capital in excess of Ch. \$50,000. Methods of assistance include guaranteed profits limited to 5% per annum on paid-up capital and 6% per annum on bonds issued within a period of five years; cash subsidies; reduction of, or exemption from export, raw material, and transit taxes; reduction of freight charges on government-owned transportation lines; exemption from rent on leased public land for a period of five years, and the reduction of rent thereafter to 50% of the standard rent for the locality concerned; and government aid in obtaining loans at low rates of interest and in securing transportation facilities from shipping concerns.

Unlike the situation in more advanced countries, where the chief task in time of war is to secure the efficient utilization of existing equipment and the transfer of productive resources from peacetime to wartime needs, China's chief need has been to create a new productive plant and expand the volume of production of both military supplies and consumers' goods. Because of China's status as a semi-colonial country, with her modern industrial plant concentrated in the treaty ports, and with her private industries relatively weak both financially and organizationally, the Government was forced to take the lead in organizing a new industrial base in the interior. Private enterprise in China could not be relied on to meet the needs of

national defense; nor was it possible for the Government to ensure control of exports, imports, foreign exchange, etc., by working through an already established framework of private manufacturing and trading organizations. The establishment of government enterprises, rather than the placing of private enterprise under government control, has therefore been the principal feature of wartime economic policy in China.⁸⁴ It is too early to estimate the exact effect which this policy of government sponsorship and control will have on China's future industrialization, but it is certain to be of great importance.

The Regulations Governing Wartime Administration of Agriculture, Mining, Industry, and Commerce list three types of enterprise designated for operation by the Government alone, or by the Government jointly with private interests: the mining of strategic metals, the manufacture of military supplies, and electrical enterprises. The official position on the aims and methods of government enterprise, in relation to private industry, was more fully described by the Minister of Economic Affairs as follows:

The purpose of government enterprise is to create wealth for the State and not to compete with the people; it should be confined, therefore, to the following types of enterprise: (1) enterprises urgently needed by the Government and requiring specialized management; (2) enterprises requiring large-scale planning or control; (3) enterprises too large or difficult to be undertaken by private entrepreneurs; (4) enterprises urgently needed for national defense but offering no prospect of profit to the private entrepreneur; (5) enterprises supplying power and fuel to private industries.

Only enterprises that can be classified in any of the above categories will be undertaken by the Government. If private investors wish to put their money in government enterprises, agreement should be reached for joint operation. The Government will allow private entrepreneurs complete freedom to engage in fields of enterprise in which it also is engaged, except in cases where restrictive action is justifiable for special reasons. . . . Our most urgent need at present is to increase production enormously to meet the demands of the front and the rear. If we define the scope of government enterprise too broadly, and if the resources of the Government are not sufficient to develop to the fullest extent the enterprises assigned to it, there is danger that the country's productive power will be needlessly curtailed. Thus, while we are trying our best to establish government enterprises, we are also paying close attention to the encouragement and promotion of private enterprise.⁸⁵

⁸⁴ Chi, *op. cit.*

⁸⁵ See P. Ming, "The Relation between Government Enterprise and Private Industry," *Hsin Chin Chui*, July 16, 1939, pp. 55-6.

Thus the National Resources Commission of the Ministry of Economic Affairs is operating two coal mines in Szechwan, two in Hunan, one in Kiangsi, one in Kwangsi, and two in Yunnan. An iron and steel works has been built in Szechwan, using equipment brought from the Hanyang Iron Works, and two other government iron and steel plants are planned. The production and export of tungsten and antimony are controlled by the Government, which is also endeavoring to improve the methods of production in the tin mining industry. The Government operates copper mines in Szechwan, Sikang, and Yunnan, and has constructed two copper refineries, one in Yunnan and one at Chungking.

The Central Machine Works, which was moved from Hunan to Yunnan after the outbreak of the war, is engaged in turning out 2,000 kilowatt turbine electric generators, boilers, gas engines, etc., as well as in supplying equipment to the Army. Several government-owned electrical equipment factories have been established, the largest being the Central Electrical Manufacturing Works with factories in Kwangsi and Yunnan. Their products include copper and iron wire, lamp bulbs, radio receiving, and transmitting tubes, military and ordinary telephone sets, motors, generators, transformers, telegraph wires and cables, and battery and dry cells. The Central Insulation Works, a joint enterprise of the Ministry of Communications and the National Resources Commission, has been in operation since the beginning of 1938 and produces insulators of high and low tension. The Central Radio Manufacturing Works began operations in September 1937, its chief products being broadcasting receivers and code transmitting and receiving sets. The National Resources Commission operates a few chemical works of which the most important are the Vegetable Oil Cracking Plant, producing lubricating oil, gasoline, kerosene, and Diesel oil, and the Szechwan Alcohol Distillery. It also operates eighteen power plants and has announced plans for the construction of seven additional plants.

Up to the end of 1940, the Chinese Government was reported to have invested a total of Ch. \$343,000,000 in industrial enterprises in Free China; Ch. \$133 million in government enterprises and Ch. \$210 million in enterprises organized jointly with private companies. Government loans to private industry amounted to Ch. \$50,000,000.³⁶

³⁶ *News Release*, China Information Committee, Chungking, Feb. 3, 1941.

INDUSTRIAL PRODUCTION IN WARTIME CHINA

Although a considerable amount of information regarding the Chinese Government's plans and policies with respect to industrial development is available, details as to actual achievements in the way of industrial production are extremely scanty. There appears to be a serious shortage of all forms of manufactured goods, and the Government's efforts to attract private capital for investment in new industries in the interior had not met with much success by the latter part of 1941. Much Chinese wealth remained in Shanghai and Hongkong, or fled overseas,⁸⁷ and the landlords and militarists of Szechwan appear to have preferred the profits to be derived from hoarding and speculation in rice and other commodities to investment in new industrial ventures. One of the chief aims of the stabilization agreements concluded in April 1941 between China on the one hand and the United States and Great Britain on the other was to make Chungking a foreign exchange center and encourage Chinese capital to invest in the economic development of the interior. Shortages of capital and equipment, the extremely inadequate system of transport, and the lack of skilled workers and technicians, have also constituted a tremendous obstacle to the development of large-scale manufacturing enterprises in the interior.

According to reports by the Ministry of Economic Affairs, 448 private factories were in operation in Free China at the end of 1940, excluding home industries and small-scale workshops. Of these, 254 were in Szechwan, 121 in Hunan, 27 in Shansi, 23 in Kwangsi, and 23 in other provinces. Production of these factories is reported to have totaled Ch. \$255,600,000, divided as follows:

Spinning and weaving.....	\$119,300,000
Metal industries.....	42,600,000
Food products.....	38,900,000
Machinery.....	21,700,000
Chemicals.....	21,300,000
Electrical industries.....	11,800,000

The value of production in government-owned factories

⁸⁷ It is estimated that more than Ch. \$600,000,000 was lying idle in Hongkong during 1940; that some Ch. \$2,000,000,000 was stagnating in unproductive security in the International Settlement at Shanghai; and that some U.S. \$90,000,000 of Chinese capital had fled to the United States through the foreign banks over which the Chinese Government could exercise no control.

was reported to be Ch. \$55,000,000 and mining output, Ch. \$740,000,000 or a total of Ch. \$1,050,600,000.⁸⁸

Another report from the Ministry of Economic Affairs, which presumably includes all industrial enterprises regardless of size, estimates the total number of factories in Free China as 1,378, and the increase in the total value of industrial production as follows:⁸⁹

1938.....	Ch. \$ 700,000,000
1939.....	1,450,000,000
1940.....	3,400,000,000

Much, if not all, of this increase, however, can be accounted for by the tremendous rise in the price of all industrial raw materials and manufactured products, and no comprehensive figures on the volume of production are available by which to gauge the real trend in industrial production during this period.

It is clear, however, that the volume of production in West and Southwest China has fallen far short of meeting the demand either for industrial materials or essential consumers' goods. Pig iron production was increased to 50,000 tons in 1940, but steel production was still only about 60 tons per day and not all of this was sufficiently high grade to be suitable for munitions. The failure to expand production of iron and steel more rapidly appears to have been due to the Government's policy of planning large modern works, requiring elaborate imported equipment, in preference to the exploitation of local iron deposits and the construction of a large number of small Bessemer process and open hearth furnaces.

Most of the industry which has been established in West and Southwest China is engaged in supplying the army's needs, and the shortage of consumers' goods is reflected in the enormous rise in the retail price level, not all of which can be attributed to the effects of currency inflation. The index for retail prices in Chungking in March 1941 was 1,209.7 (Jan.-June 1937 = 100), and is reported to have increased to 1700 by September, with the result that even when goods are available few have the money with which to buy. Another evidence of the failure of industrial production to meet consumer demand is the reported

⁸⁸ *News Release*, China Information Committee, Chungking, Dec. 2, 1940, p. 751.

⁸⁹ *Ibid.*, April 14, 1941. The factories are reported to include 361 chemical works; 313 machine shops; 294 textile mills; 93 metallurgical plants; 48 electrical works, and 269 miscellaneous factories.

large-scale influx of manufactured products from Shanghai and other occupied areas, despite official efforts to maintain an effective blockade. Japan's economic penetration of China has outdistanced that of her armies, owing to the inability of the Government to provide the people of Free China with sufficient quantities of such essential commodities as clothing, shoes, blankets, matches, soap, candles, etc.

The Chinese Industrial Co-operatives. Achievement of self-sufficiency in consumers' goods was a recognized prerequisite if Free China was to win her economic war against Japan and prevent the extension and consolidation of Japan's economic control in areas which she was unable to conquer by military means. It was to provide this economic basis for continued resistance, as well as to give employment to the tens of thousands of refugees in the hinterland, that the Chinese Industrial Co-operatives movement was launched in 1938. Although the founders of the C.I.C. recognized the need for large-scale industries in the interior if China was to produce heavy armaments and other capital goods, they believed that an equally essential task was to provide the people of Free China with their daily necessities by establishing a large number of small, decentralized, industrial units which could produce goods with relatively little capital and the simplest of equipment. The scattering of productive units over wide areas, moreover, was believed to constitute the most practical industrial defense against Japanese bombing, since it avoided the concentration of machines and workers into large, easily-discovered targets for bombardment from the air.

By the autumn of 1940 there were some 2,300 of these "vest-pocket" factories spread over 16 provinces and under the technical direction of 70 branch headquarters. C.I.C. industries include weaving, spinning, knitting, printing, and transport units; flour mills, paper mills, machine shops, glass making, coal, iron and gold mining, leather tanning, sugar and oil refining, chemicals, etc. C.I.C. factories produce medical supplies, uniforms, hand grenades, electrical equipment, wagons, tents, stretchers, and other supplies for the army. Forty thousand C.I.C. weavers supply the entire Chinese army with blankets. Schools have been established to train accountants, organizers, and technicians. Loans are made to Co-operatives at rates ranging from 6 to 10 per cent annually, and paid back on the in-

stallment plan through the deduction of a percentage of wages and profits. The members of the Co-operative thus become owner-operators.

Space does not permit a detailed description of the activities of the C.I.C. throughout Free China, but a few examples may suffice to indicate the importance of the movement in augmenting China's inadequate industrial production. At Paochi, its Northwest Headquarters, the C.I.C. operates its own wholesale and retail stores, schools, and training classes. Co-operatives in the vicinity manufacture shoes, clothing, tools, soap, dyes, electrical goods, uniforms, cots, tents, blankets, etc., and the Co-operative store carried over 200 different articles in 1940, representing the work of 63 shops and factories.⁴⁰ Retail sales averaged Ch. \$5,000 a day and wholesale business was even larger.

The "shoestring" sums on which these Co-operatives operate are almost unbelievable when expressed in terms of western currency. A spinning and weaving co-operative, for example, was established in Paochi for approximately U.S. \$300—this sum including the cost of food and books for 40 women during a preliminary training period of two months, and the wages of four teachers, as well as the capital investment in 14 spinning wheels, four looms, raw material, and the rental of a farmhouse for a workshop.⁴¹

Given adequate financial support and freedom to continue their program of co-operative production, it seems certain that the Co-operatives could in time make Free China practically self-sufficient in the most essential consumers' goods, as well as in a number of military supplies. Unfortunately, however, the growth of the movement has been seriously hampered by lack of capital and also by political opposition from certain elements in the Kuomintang which distrusted its democratic, worker-owner form of organization and its independence from party control. In April 1941, the Central Executive Committee of the Kuomintang announced that henceforth the Ministry of Social Welfare would take over the supervision of the C.I.C. and also issued a manifesto condemning attempts by popular movements to improve the people's livelihood as "incompatible

⁴⁰ Edgar Snow, *The Battle for Asia*, New York, 1941, p. 231.

⁴¹ *Ibid.*, p. 236. The overhead of the entire C.I.C. administration, including nearly 1,000 technicians and organizers, was only about U.S. \$6,000 monthly in 1940.

with the welfare of the nation and military principles" and as leading to "social turmoil." Although the Government subsequently stated that the Ministry would merely exercise legislative authority over the Co-operatives, defenders of the Co-operatives protested that to bring the movement under bureaucratic control would destroy its democratic character and stifle its growth.

The original prospectus of the C.I.C. called for the establishment of 30,000 Co-operatives as the minimum essential to supply Free China's needs, so that the 2,300 in operation in 1940, while representing a triumph over tremendous obstacles, was also a sign of the Government's refusal to give adequate support to the movement. Moreover, the capital resources of many of the Co-operatives were inadequate to meet the sharply increased cost of tools and materials.⁴² At the outset, the Government made the C.I.C. a capital grant of Ch. \$5 million, but a year later, in the autumn of 1939, only Ch. \$2 million had actually been paid. By 1941, the C.I.C. had received a total of Ch. \$11 million from the Government, but because of the inflation, this actually represented much less in terms of real purchasing power than the original Ch. \$5 million grant. In the summer of 1940, the C.I.C. signed a contract with the Bank of China for a loan of Ch. \$20 million, but none of this money appears to have been made available by the latter part of 1941.

Thus the Co-operatives, although doing invaluable work insofar as their limited resources permitted, were seriously handicapped not only by lack of funds but also by the fact that they were being gradually brought under the control of the Kuomintang bureaucracy. As a result, they were unable to provide more than a small percentage of the manufactured goods required by the people of West China.

JAPAN'S INDUSTRIAL OFFENSIVE IN THE "OCCUPIED" AREAS

The inability of the C.I.C. to function fully, especially in its efforts to organize a sufficient number of producing units in the "occupied" areas in Central and South China, enabled Japan to achieve a certain amount of success in her campaign for economic penetration of these areas, since the people were forced to buy Japanese-made goods when no others were avail-

⁴² For example, a bale of cotton which could be bought for Ch. \$500 in 1939, cost Ch. \$3,000 by 1941.

able, and to sell their silk, wheat, cotton, and other products to Japanese-controlled factories when no other markets were open to them.

The areas in which Japan was able to establish most effective control comprise chiefly the important coastal cities and towns and the regions adjacent to the main lines of communication. The principal industrial tendencies apparent in these areas are increasing Japanese domination over all forms of industrial enterprise, with both Chinese and other foreign manufacturing interests being gradually driven out; increasing dependence on Japan for supplies of manufactured goods; a decline in commercial contacts with Europe and America; and a sharp decrease in the volume of production and consumption by Chinese peasants and handicraft workers.

It is in these areas that Japan's program for transforming China into a colonial appendage of Japanese industry has made the greatest progress. With the exception of a few Chinese factories located in the International Settlement and the French Concession at Shanghai, all Chinese industrial establishments were brought under the direct or indirect control of the Japanese. All factories which were not destroyed were seized outright and either entrusted to Japanese companies for operation or reorganized as Sino-Japanese enterprises to be operated under "joint management" with the Chinese contributing the plant and equipment and the Japanese occupying all the key positions. The Japanese made it impossible for Chinese factory owners to regain control of their plants, even if they promised co-operation with the Japanese, by demanding that owners first pay "protection fees" or "repair expenses" amounting to sums many times greater than the total cost of the factories.⁴³

By operating these seized factories, the Japanese were able to avoid the problem of new capital investment and also to utilize the cheap labor and raw materials requisitioned from the countryside. Chinese cotton and flour mills in the International Settlement were forced to import cotton and wheat from the United States, Canada, and Australia, but the mills operated by the Japanese were supplied with native cotton and wheat collected in the occupied areas of Central China at prices fixed by the Japanese. Large amounts of native cotton were also sent

⁴³ See, Frederick Fang, "Japan's Industrial Offensive in China," *Amerasia*, June 1941, pp. 158-162.

to North China, Manchuria, and Japan to supply the Japanese mills; the North China peasants having effectively sabotaged Japan's ambitious program for raw cotton production in that area. In 1937 Shanghai imported only 141,151 quintals of foreign cotton; in 1940, imports were 2,301,801 quintals—a sixteen-fold increase. Out of a total cotton production of 3,000,000 piculs in Central China in 1940, only 300,000 piculs reached the Chinese and foreign mills in Shanghai, while 2,700,000 piculs were sent to Japanese mills in Shanghai, North China, Manchuria, and Osaka.

By January 1941, Japan had control of practically all the cotton mills in North and Central China, with the exception of five British mills and 22 Chinese mills in the International Settlement at Shanghai. (Six of these Chinese mills have been reorganized as British firms to protect them from Japanese interference.)

TABLE 42

CHINA'S COTTON INDUSTRY, 1941 (EXCLUDING FREE CHINA)

	<i>No. of Mills</i>	<i>No. of Spindles</i>	<i>No. of Doubles</i>	<i>No. of Looms</i>
Chinese mills.	16	333,702	18,160	2,676
British mills.	11	541,972	50,680	6,527
Japanese mills.	46	2,161,764	400,220	33,899
Chinese mills under Japanese control	20	848,112	21,138	6,367
	<hr/>	<hr/>	<hr/>	<hr/>
	93	3,885,550	490,198	49,469

Source: F. Fang, "Japan's Industrial Offensive in China," *Amerasia*, June 1941.

The Flour Industry. In 1937 Shanghai was the center of China's flour industry, its fourteen mills producing 115,075 bags of flour per day, or 39% of China's total production. All these mills were Chinese-owned and operated. By 1940, the Japanese had taken over five of these mills as well as 17 Chinese flour mills in other parts of occupied China, and controlled the bulk of the flour output in Central and North China, as well as the entire wheat supply. Since the entire 1940 wheat crop in Central China, amounting to 11,500,000 piculs, was purchased by the Japanese for their own mills, the Chinese mills have found it extremely difficult to obtain sufficient raw materials to continue operations. They are reported to have operated only 10 to 15 days a month in 1940 and were forced to buy 1,335,238 quintals of foreign wheat. North China, which in prewar days

obtained its flour from the Shanghai mills, is now a market for Japanese flour only.

The Tobacco Industry. Through the destruction and confiscation of Chinese tobacco factories, and by breaking down the monopolistic position of the B.A.T., particularly in North China, the Japanese greatly increased their share in the China tobacco market. During the first three months of hostilities, 21 out of 44 Chinese-owned tobacco factories in Shanghai were destroyed and nine others were forced to suspend operations. As the war spread to other areas, more Chinese factories were seized, and the Japanese began to organize their own plants. In the latter part of 1937, the Manchuria Leaf Tobacco Co., through which the Japanese had already established a virtual monopoly of the Manchurian tobacco market, organized a branch in China known as the North China Tobacco Co. with an authorized capital of ¥50 million. This company operates factories in Tientsin, Tsinan, and other cities in North China, and has a selling monopoly in the entire area along the Tientsin-Pukow railway. One of its subsidiaries, the North China Tobacco Co., is capitalized at ¥10 million (one-fourth paid-up) and has a selling monopoly along the Peiping-Hankow railway. In August 1938, the Japanese organized the Oriental Tobacco Company, with a capital of ¥10 million, to penetrate the Central and South China markets. This company seized or "leased" a number of Chinese tobacco plants in Shanghai and Hankow, and during 1940 was reported to be rapidly expanding its operations in Kwangtung and Fukien provinces.

This expansion of Japanese control over the tobacco industry was achieved at the expense both of the Chinese factories and the B.A.T. In 1935, 86% of the rolled tobacco consumed in North China was manufactured by the B.A.T. and its subsidiaries; 2% by Japanese companies and the remainder by Chinese firms. The situation in Central and South China was similar, with the B.A.T. dominating the market. By 1940, however, the Japanese share in tobacco production had increased to approximately 50% in all three areas. Out of a total of 640 billion cigarettes produced in 1940, 350 billion came from Japanese factories, including Chinese plants confiscated by the Japanese.

The Silk Industry. A similar development took place in the silk industry in Japanese-controlled areas. The Central China Silk Company, a subsidiary of the Japanese Central China De-

velopment Co., was organized in August 1938 with a paid-up capital of ¥6 million to "co-operate" with the Chinese in rehabilitating the silk industry in the occupied parts of Kiangsu and Chekiang provinces. Central China Silk controls not only all Chinese silk filatures, but also the purchase and sale of silk, the distribution and production of silkworm eggs, and the collection and purchase of cocoons. All cocoons collected by the Company are sold at a profit to its own filatures, with the result that most of the Chinese-owned filatures in the International Settlement were forced to suspend operations.

CHINA'S ECONOMIC COUNTER-OFFENSIVE IN THE "OCCUPIED" AREAS

From the foregoing brief summary of Japanese accomplishments, it is clear that by 1941 Japan's industrial offensive in China had attained a not inconsiderable degree of success in the cities and railway zones where the Chinese guerrilla forces were relatively weak. Judged purely in terms of statistics, Japan had acquired control over more than 70% of the cotton industry, 50% of the tobacco industry, 80% of the silk industry, practically all the flour mills, and most of the other Chinese-owned industries in the areas dominated by her armed forces. She had seized all Chinese Government properties, established monopolies over all distributive services, and confiscated all the means of industrial production on which she could lay her hands. She had flooded the hinterland with the products of these confiscated factories in an effort to reduce China to complete economic dependence on Japan, and had achieved considerable success in many parts of Free China where the people had not been provided with any other source of supply.⁴⁴

⁴⁴ The threat of Japanese economic penetration, and the need to provide the people with the means to combat it is fully recognized by leaders of the C.I.C., as indicated in the following comments by an inspector of front line units of the C.I.C.: "If resistance were to give out in the guerrilla areas there is no doubt China would lose the war. It is clear that the C.I.C.'s task in these areas is not merely to set up cooperatives but to combat Japanese economic penetration and to help the army and guerrilla forces to attain economic self-sufficiency. One of the characteristics of Japanese 'mopping up' movements in Shansi . . . is that wherever they go they try systematically to destroy every kind of means of production. . . . At the same time they try to dump certain kinds of goods and blockade the importation of others. They seek to undermine resistance from the bottom; they want to break our strength and morale through economic methods. And for want of any alternative source of goods, Japan's economic offensive in Shansi is showing good signs of success." Quoted by Edgar Snow, *The Battle for Asia*, pp. 328-9.

In estimating the real significance of Japan's economic offensive in relation to China's industrial development, however, the most important questions to be considered are not so much what Japan had achieved by her program of systematic looting of Chinese industrial property, but (1) what general type of economic structure Japan proposes to establish in a conquered China, (2) what type of productive system is being developed in the guerrilla areas to counteract the Japanese economic offensive, and (3) the extent to which the Chinese Government can extend and strengthen this economic counteroffensive.

The long-term aims of Japan's war in China have been made unmistakably clear. Like Formosa and Korea, China Proper was slated to become a colonial appendage of a highly industrialized Japan, supplying industrial raw materials and cheap labor and providing a monopoly market for Japanese manufactures. The development of light industries, under Japanese management, was to be allowed in order to take advantage of the abundant supply of cheap labor; but for the products of heavy industry China was to remain entirely dependent on Japan. In her economic war on China, therefore, Japan sought to prevent the import of the means of production into Chinese-controlled areas, while at the same time facilitating the import of Japanese manufactures in exchange for raw materials such as cotton, wool, wheat, coal, salt, etc. In this way the Japanese planned to make the Chinese in the war zones completely dependent on Japanese-controlled urban centers both as markets for their products and as sources of supply for essential consumers' goods.

By 1941, however, Japan, despite the large amounts of capital equipment acquired through her program of looting and confiscation, had made little real progress in reorganizing the "occupied areas" as economic tributaries to Japanese industry. The situation in North China, the area which Japan is most anxious to control and which has been longest subject to Japanese armed rule, provided ample evidence of Japan's inability to organize and exploit the areas which she had nominally conquered. North China is rich in coal, iron, cotton, wheat, wool, and salt—all items which were sorely needed by Japan's hard-pressed industries—yet in practically every instance production declined sharply in the years following the Japanese invasion. It is true that exports to Japan of such commodities as coal, salt, and wool were higher in 1939 than in 1937, but this increase repre-

sented a diversion of shipments which formerly went to other parts of China or abroad, rather than any increase in production.

In the exploitation of North China's mineral resources, Japan was handicapped not only by lack of capital and equipment and the inaccessibility of the principal coal and iron mines, but above all, by the incessant disruption of railway lines and wrecking of mines by Chinese guerrilla forces. The development of the rich Lungyen iron deposits in Chahar and the Tatung coal mines in Inner Mongolia, on which the Japanese were concentrating much of their attention, requires the construction of a railway from Tatung to the port of Tangku—a distance of some 500 kilometers. This project, which is expected to take four years and cost ¥190 million, is not only an indication of the amount of time and capital required before the Japanese can hope to transform North China's mineral resources into actual exports to Japan, but is a project which the continual raids and sabotaging operations of the guerrillas may make it impossible to complete.

In the case of cotton, Japan's failure was even more dismal. The cotton harvests in North China in 1938 and 1939 were less than one-fourth those of prewar years, and cotton exports to Japan were maintained only at the expense of the local mills which were forced to curtail their operations. Two factors were chiefly responsible for the sharp decline in cotton production: the Japanese policy of compelling the peasants to sell their cotton at abnormally low, controlled prices, and, second, the activity of the Chinese guerrillas who placed definite limits on the amount of cotton which could be grown in areas under their control and encouraged the peasants to plant food crops rather than cotton.

The general economic deterioration in the Japanese-controlled areas of North China is manifested in many ways. In prewar days, North China had a favorable balance of trade; by 1940 imports exceeded exports by three to one, and foodstuffs had to be imported into this agricultural region to feed the urban population because the peasants in the hinterland refused to sell their grain to the Japanese. Prices rose enormously and the local dollar became worth less than one-fourth its prewar value as a result of the steady inflation of the Japanese-sponsored currency issued by the Federal Reserve Bank.

Lack of commodities is another cause of soaring prices; the result both of declining domestic production and the curtailment by Japan of exports to North China. This latter development is peculiarly interesting in view of the Japanese claim that the need for markets was a principal reason for Japan's program of expansion. Now that she had acquired a market, she refused to ship goods to it, because the income from such trade was useless for purchasing materials from abroad, and because exports to China constituted a drain on Japanese material resources. This particular complication in Japan's economic position proved an important asset to the Chinese guerrilla forces in their efforts to prevent the consolidation of Japanese economic control throughout North China.

The Role of "Guerrilla Industry" in Chinese Resistance. Although Japan's economic failures in North China can be attributed in part to shortages of capital and equipment, and to natural disasters such as flood and famine, the principal credit must go to the pattern of guerrilla warfare, economic as well as military, which was developed by the people within the areas nominally under Japanese control. The best known of these guerrilla bases are the Shansi-Hopei-Chahar Border District centering on Wutai; the Shansi-Hopei-Honan District around Changchih; and the Chung Tiao Shan area. There are numerous other guerrilla bases behind the Japanese lines throughout China which, though smaller and less highly organized, are developing along the same lines as the leading areas.

To meet the Japanese economic offensive, these guerrilla bases and border governments instituted complete control over "foreign" trade, under which imports were limited to absolute essentials and exports to commodities which could be of no substantial value to the Japanese. Of even greater importance was the establishment and co-ordination of "guerrilla industries"—small, co-operative producing units with the dual function of providing the regular troops and partisans with uniforms, blankets, and small arms, and of supplying the peasants with such essentials as cloth, shoes, paper, candles, flour, etc. The organizers of these guerrilla industries recognized the urgent necessity of restoring production in the war zones not only to prevent the penetration of Japanese goods, but also to provide employment for the vast numbers of homeless refugees who would otherwise go to the cities to find employment in

Japanese factories or would be conscripted into Japanese puppet armies. Industries were also needed to absorb the local supplies of raw materials and thereby prevent their being sold to the Japanese.

The use of small, decentralized, industrial units for purposes of military and economic defense against a surrounding enemy force has its modern antecedents in the original Chinese Soviet areas in Southeast China. There the people, lacking a seaport and cut off from any modern industrial base by the Central Government's blockade, built up a network of small, co-operative industries, using local raw materials, which included weaving and spinning plants, machine shops, small arsenals, etc. When the Soviet Army was finally forced to make its "Long March" to the Northwest in 1935, it carried with it lathes, turning machines, stampers, dyes, printing presses, and other light equipment, and by 1936 the Soviet co-operatives in the Northwest were producing clothing, uniforms, cotton and woolen fabrics, shoes, paper, soap, candles, and light armaments. Following the outbreak of the war, and the reorganization of the Soviet area into the officially recognized Shensi-Kansu-Ninghsia Border District, the production system developed by the Soviets became the model for industrial organization in the main guerrilla areas and its influence is also apparent in the organization and technique of the Chinese Industrial Co-operatives, though there was no organizational connection between the two.

Although the development of production in the war areas was the principal goal of the C.I.C. and the Border Governments, the system of co-operative industrial units which grew up throughout North and Central China as a result of their efforts acquired great potential importance for China's post-war industrial development. These small units, operating with limited capital and simple equipment, are providing training and employment to thousands of Chinese who had never before been taught the arts of production, marketing, accounting, and industrial management. Their form of organization is one of the few examples of genuine democracy existing in China, and as such, exercises a political and social influence which equals, if not surpasses in importance the purely economic aspects of their work. There seems to be no reason why this development cannot continue parallel to the development of heavy industries

and large-scale manufacturing which the Government has undertaken to initiate, support and, in many cases, control. Both developments are recognized as essential not only to continued Chinese resistance but also as a base for China's industrialization at the conclusion of hostilities.

China's industrial future will, of course, be profoundly affected by the outcome of the world struggle, but above all, it will depend upon her powers of internal cohesion and the quality of the democratic institutions which will have developed in the process of meeting the dual challenge of foreign conquest and internal disintegration. The completion of her agrarian revolution is a recognized prerequisite not only to the development of a strong industrial economy, but also to China's ability to establish and maintain her economic independence. It is obvious that at the end of her struggle against Japan, China will need extensive material aid to rebuild and develop her economy. At that time much will depend upon whether China is sufficiently united and strong to ensure that whatever aid she receives from foreign powers will be granted not on the terms of a mother country to a dependency, but on conditions of equality which will enable China to develop an independent economic structure and to utilize her industrial resources for the benefit of the Chinese people.

CHAPTER VI

FRENCH INDO-CHINA

The French colony of Indo-China forms part of the region known as the "rice granary of the Orient." Or, to use the more picturesque Chinese description, Indo-China is a pole balanced by two baskets of rice; the pole being the Annamite mountain range which parallels the coast, and the rice baskets being the two great deltas of the Mekong and Red Rivers. The French acquisition of their "balcony on the Pacific" was a piecemeal affair, beginning with the conquest of Saigon in 1859 and culminating in the establishment of control over Tonkin some thirty years later. It was inspired partly by the desire to secure a larger share in the trade of southern China, partly by the valuable coal deposits of Tonkin, and throughout by the perennial colonial rivalry with Great Britain who at that time was rapidly extending her control over the rich resources of the Malay peninsula.

In keeping with traditional French colonial policy, Indo-China was developed strictly as an appendage to the economy of France, and has long been known as one of the most intensively exploited colonial areas in the world. French capital investment in the colony was concerned exclusively with the production of agricultural and mineral raw materials for export, and French policy ruled out the development of any local industries which might in any way compete with the products of French manufacturers. As a result, the great majority of Indo-China's population of some 23 million remained in a state of extreme poverty, dependent for their meager livelihood on rice-growing and handicraft industries; the only market for imported manufactures being provided by the European residents, the wealthy Chinese, and the small group of "Europeanized" natives.

Indo-China possesses valuable natural resources. Her coal reserves, chiefly of high grade anthracite, have been estimated to total twenty billion tons, and the country also has large potential hydro-electric power resources. There are substantial

tin deposits in Tonkin and Laos, and smaller amounts of iron, tungsten, manganese, antimony, zinc, and lead. Agricultural raw materials include rubber, cotton, silk, vegetable oils and fibers, timber, and a variety of chemicals, all of which might have served as the basis for light industries. But it was an axiom of French colonial administration that a colony should confine itself to the production of raw materials and to the purchase of manufactured products from the mother country. "It has not been given to any colony to develop its industries freely; even the possibility of such a development has always seemed paradoxical, almost inconceivable. Indo-China has not escaped this law."¹

Under French rule, therefore, Indo-China became primarily a producer of raw materials for export. Rice was the backbone of the country's economy, both as the staple food and the principal source of revenue, accounting for from 40 to 45% of the total value of the export trade. In 1939, rice exports amounted to 1,692,000 metric tons, valued at 1.2 billion francs (US\$ 35.4 million), out of a total export trade valued at 3.5 billion francs. In 1940, rice exports were slightly smaller in volume, 1,603,000 tons, but increased in value to 1.8 billion francs. Indo-China's total rice crop in 1940-41 amounted to 4,600,000 tons, of which Cochin-China (the southern "basket") supplied 2,700,000 tons, and Tonkin, 1,900,000 tons.

In recent years, rubber has been the second most important export product. Record shipments of 68,880 metric tons in 1939 were valued at 956 million francs (US\$ 24.4 million), or 25% of the total export trade. In 1940, rubber shipments declined in volume to 64,900 tons, but increased in value to 1.1 billion francs, or 27% of the total. Although far behind Malaya and Netherlands India, Indo-China ranks third among the rubber exporting countries of the world, supplying approximately 6% of total world production. The country's other leading exports are corn, coal, tin ore, iron ore, and miscellaneous minerals.

With a consuming market severely limited both by the poverty of the people and an extremely high protective tariff designed to preserve the Indo-Chinese market for French goods against outside competition, Indo-China has regularly main-

¹ C. Robequain, *L'Evolution Economique de l'Indochine Française*, Paris, 1939, p. 300.

tained an excess of exports over imports, amounting to 1.1 billion francs in 1939 and 1.9 billion in 1940. Prior to 1940, France normally supplied more than 50% of the colony's imports and took about one-third of its exports. In 1940, however, shipments to Japan increased by 430%, due mainly to greater Japanese purchases of rice, corn, and coal, and Japan for the first time surpassed France as Indo-China's leading market. In the import trade, France still retained first place in 1940, but her share in total imports declined to 37%, as compared with 56% in 1939. Indo-China's principal imports in recent years have been textiles, petroleum products, iron and steel, machinery and parts, raw cotton, metal goods, paper and paper products, yarn and thread, and chemicals.

Survival of Native Handicrafts. Native handicrafts have survived in Indo-China to a far greater extent than in many other colonial areas because of the exceptionally intensive character of French colonial exploitation, which precluded any form of economic development that might have raised the purchasing power of the native population. As a result, the great majority of the people were far too poor to buy French manufactured goods of any kind, and were therefore compelled to rely on the products of their traditional handicrafts. Indo-China's high protective tariff also played a part in this survival of native handicrafts by preventing the large-scale penetration of low-priced Japanese manufactures which would have been within the buying power of a larger section of the population.

Thus, Professor Robequain estimates that in 1938 no less than 1,350,000 people were completely dependent upon traditional handicraft industries for their livelihood, while a very large proportion of the farming population was compelled to seek some supplementary income from household or handicraft industries. In the northern part of the country, these rural and domestic industries included the preparation of foodstuffs, cotton and silk spinning, lacework and embroidery, the manufacture of fishing nets, twine, rope, etc., wood and metalwork, pottery, and tilemaking. In Cochin-China and eastern Cambodia, the greater abundance of land and the relatively more prosperous condition of the peasants made the supplementing of agricultural income less essential, but here too, a wide variety of handicraft industries continued to flourish, including silk

and cotton weaving, metalworking, pottery, and furniture making. In the more remote districts of Laos and western Cambodia, purely domestic industry predominated, with each family, or at most each village, producing all its requirements in the way of manufactured goods.²

DEVELOPMENT OF MODERN INDUSTRIES PRIOR TO 1940

Since French economic policy was strongly opposed to any form of industrialization, practically all modern industries established in Indo-China were either extractive or engaged in the preliminary processing of raw materials for export. In addition to investment in the production of agricultural raw materials such as rubber, coffee, tea, cotton, and silk, French capital was primarily concerned with the exploitation of the colony's mineral resources, and it was the mining industry which first introduced modern industrial techniques into Indo-China.³

The Mining Industry. Coal mining was begun in the late nineteenth century, and the large-scale working of tin and zinc in Upper Tonkin began in 1905. Until 1926, the mining industry was confined almost entirely to Tonkin, where the mineral deposits were the most easily accessible and the labor supply most abundant, but in the years immediately prior to the depression it was extended to the mountainous regions of Laos which, by 1937, were producing approximately 12% of the total mineral output. Foreigners were not allowed to own or operate mining concessions in Indo-China, with the result that the capital in the mining industry was almost entirely French, although there was no specific restriction on the investment of foreign capital. In 1938, the industry employed some 47,000 workers, chiefly Tonkinese and Annamite, with some Chinese being used for specialized types of work.

Coal has always been by far the most important mineral product, the 1937 production of 2,308,000 tons accounting for 63% of the total value of Indo-China's mineral output. In recent years, approximately 75% of the total coal production has been

² See, Jack Shepherd, *Industry in Southeast Asia*, Institute of Pacific Relations, 1942, (monograph) for a detailed description of handicraft industries in Indo-China.

³ For a detailed survey of the mining industry in Indo-China, see P. Guillaumat, "L'Industrie Minière de l'Indochine en 1937," *Bulletin Economique de l'Indochine*, 1938, pp. 1245 et seq.

exported, exports totaling 1,790,000 tons in 1939, and 1,566,400 tons in 1940. In the former year Japan took 37%, China 28%, and France 9% of the coal exports. Countries of destination were not reported for coal shipments in 1940, but in view of the loss of Indo-China's European markets, together with Japanese activity in Tonkin, it may be assumed that Japan's share increased substantially. Two large French companies have virtually monopolized the production of anthracite coal, the Société des Charbonnages du Tonkin supplying some 72%, and the Société des Charbonnages du Dong Trieu about 25% of the total output. The extensive deposits of soft coal in Tonkin have been mined by a few smaller firms.⁴

The exploitation of other mineral resources was on a relatively small scale compared with coal mining. Tin production increased substantially in the postdepression period, accounting for 29.5% of the colony's mineral production in 1937. The first tin mines to be worked by the French were those of northern Tonkin, but after 1923 the deposits in Laos were opened up and the output of the Laotian mines now exceeds that of Tonkin. Tin concentrates are prepared on the spot and then shipped to Singapore. The yield of pure tin from the colony's mines amounted to 1,500 tons in 1939. Indo-China's iron ore deposits have not been completely surveyed and production has been hampered by the inaccessibility of the mines. The output of each of the two major iron mining companies averaged approximately 30,000 tons annually prior to 1940, and practically all the ore was exported to Japan, exports totaling 85,450 metric tons in 1939, of which Japan took 75,560 tons. Japan was also the chief market for Indo-China's production of manganese, exports of which increased from 480 tons in 1938 to 2,752 tons in 1939, of which 2,750 tons went to Japan.⁵ The production of zinc has never reached very substantial proportions, although it has been mined since 1905. Prior to 1924 zinc ore was exported in the crude state, but since that time most of the ore is refined at the Quang-Yen refinery in Tonkin. Zinc ore production reached its peak in 1926 when 61,900 tons were mined, but by 1937 production had declined to 10,600

⁴ Cf. V. Thompson, "Indo-China in Suspended Animation," *Far Eastern Survey*, Vol. IX, No. 17, August 14, 1940.

⁵ "French Indo-China's Economic Position in 1940," *International Reference Service*, U.S. Dept. of Commerce, Vol. I, No. 61, September, 1941.

tons. Production of commercial zinc by the Quang-Yen refinery totaled 4,200 tons in 1937 and 5,436 tons in 1939.

Processing Industries. The economic expediency of carrying out the preliminary processing of raw materials on the spot to save freight costs was responsible for the growth of a number of industrial enterprises in Indo-China, of which the most important were the European-style factories for the husking and polishing of rice for export. Rice for domestic consumption continued to be handled chiefly by the small native mills. In 1939, there were twenty-seven large, mechanized mills in the Saigon-Cholon area, and others at Haiphong and other coastal ports. Of these large mills, only four were controlled by French companies, the remainder being owned and operated by Chinese, who dominated the colony's rice trade. At the height of their seasonal activity, the Cholon mills employed about 3,000 workers.

Another processing industry based on rice was the distillation of alcohol. The industrial manufacture of alcohol was a government monopoly until 1933, when restrictions on the private manufacture of alcohol were removed, subject to the payment of fixed duties. The government-controlled Société des Distilleries de l'Indochine continued to dominate the industry, however, operating five large plants, three in Tonkin, one at Cholon, and one at Phnom Penh in Cambodia. In 1938 there were about fifty other modern-style distilleries operated either with French, Chinese, or Annamite capital, and the whole industry employed some 4,000 workers. The total production of alcohol for human consumption amounted to 403,000 hectoliters in that year.⁶

The postdepression efforts of the French authorities to introduce new types of agriculture and thus lessen the colony's dependence on rice, led to the establishment of a number of new processing industries, of which the most important were sugar refining and the preliminary processing of rubber. In 1939 there were three modern sugar refineries near Saigon—two French and one Chinese—the largest of which (French) employed about 700 workers. Indo-China's production of refined sugar increased from 3,000 metric tons in 1930 to 15,066 tons in 1938—a quantity sufficient to supply the domestic demand and even permit

⁶ For details see "L'Industrie de l'alcool en Indochine," *Bulletin Economique de l'Indochine*, 1938, pp. 957 et seq.; also, Shepherd, *op. cit.*

of exports on a small scale.⁷ An industrial development similar to that resulting from the extension of sugar production is that which followed the expansion of rubber growing. By 1938 most rubber plantations were equipped to transform latex into commercial sheet rubber, and two small factories had been established for the manufacture of a variety of finished rubber goods, employing about 150 workers.

Manufacturing Industries. In addition to these processing and extractive industries, a few manufacturing industries had been established in Indo-China by 1939, despite the opposition of the French authorities to any form of industrialization. The distance from France, the abundance of low-cost labor, and the consumers' market provided by the European residents, the wealthy Chinese, and the western-educated natives were the principal causes for the growth of these light industries. They included the manufacture of a variety of articles not competitive with French imports, such as building materials, certain varieties of textiles, paper, matches, soap, and cigarettes, as well as the electric power plants, breweries, etc., which had been established to meet the needs of the urban communities.

Building Materials. The most important industry in this field is the manufacture of cement, largely monopolized by the Société des Ciments Portland artificiels de l'Indochine. In 1938 this company employed 4,000 workers and was able not only to supply the bulk of the domestic requirements but also to export large quantities of cement to other parts of the Far East. Actual production totaled 266,000 metric tons in 1938, and the company's furnaces have a maximum capacity of 300,000 tons. A subsidiary company operated another cement works at Hue, and a number of smaller, independent concerns were engaged in the manufacture of bricks, tiles, pipes, tanks. The extensive program of public works, the construction of roads, bridges, dams, and docks, and the erection of modern buildings in the main urban centers, created a large demand for products of this kind, and the abundance of conveniently located raw materials—coal, clay, and limestone—meant that this demand could be most easily and cheaply met by the establishment of local factories. "Even the most ardent opponent of colonial in-

⁷ For details regarding Indo-China's sugar industry, see "La Culture de la canne et l'industrie sucrière en Indochine," *Bulletin Economique de l'Indochine*, 1939, pp. 207 *et seq.*

dustrialization could scarcely argue under these conditions that the market for bricks, cement, and the like, should be reserved for factories in distant France."⁸

Textiles. The processing of local agricultural products and the manufacture of building materials from local raw materials were obviously industries which could offer no serious competition to French imports. It is less easy to reconcile the existence of a number of modern textile factories in Indo-China with the French theory that the colony existed primarily for the benefit of the mother country, since textiles constituted one of the four major imports from France. The explanation, however, is a simple one. When the French occupied Tonkin, they found that the native weavers were importing large quantities of cheap yarn from foreign countries, particularly British India, with which expensive French yarns could not compete. The only way in which France could secure for herself the profits offered by the Tonkinese demand for yarn was to establish a modern spinning factory in Tonkin itself, where labor was as abundant and cheap as in Bombay, and where it was hoped that locally-grown cotton could provide the necessary raw material. Accordingly, factories were established with French capital at Haiphong and Nam Dinh under the control of the Société Cotonnière de l'Indochine, primarily to supply yarn for the native weavers, although the company later undertook the manufacture of cloth for the local market. The products of these factories did not compete in any way with the costly fabrics imported from France, which were purchased only by the very small "moneyed" class.

In 1938, the company operated 30,000 spindles at Haiphong and 54,000 at Nam Dinh, the latter mill operating its own power plant, and its own bleaching and dyeing works. About 10,000 workers, full and part-time, were employed in these two mills. The modern cotton industry had far outgrown the local supply of raw cotton, and the bulk of its requirements were imported from abroad, chiefly from India, the United States, and China, locally grown cotton being consumed chiefly by the native textile industry.

As in the case of the cotton textile industry, western-style silk mills were established in Indo-China to take advantage of a demand for low-cost fabrics which the silk industry of France

⁸ Shepherd, *op. cit.*

was unable to satisfy. In the case of silk textiles, however, the French entry into the field was an attempt to secure a share of the profits formerly accruing to native Indo-Chinese enterprise, rather than foreign textile companies, the modern silk industry having been superimposed upon the traditional handicraft industry. In 1939, only two of the modern-style silk mills were in operation, the industry having been hard hit by the depression and the competition of imported rayon factories. The larger of these mills, located at Phu Thang in the province of Binh Dinh, employed about 1,200 workers, while the other factory at Nam Dinh employed about 800. These two factories were engaged solely in weaving, the manufacture of yarn being left to the domestic craftsmen in the surrounding villages. A large part of their yarn requirements, moreover, had to be imported, principally from China, as a result of the decline in the cultivation of raw silk in Annam in recent years.

Miscellaneous Industries. Indo-China's rich forest resources formed the basis of another group of industries catering to the local market and not competitive with French imports. There were a large number of sawmills scattered throughout the country, and three match factories in Tonkin, which produced 304 million boxes in 1938. There were also a number of paper mills, the two largest being operated by the Société des Pape-teries de l'Indochine, with a total output of all types of paper amounting to about 3,500 tons per year. Among the industries developed to serve the needs of the urban communities, the most important were the electric power industry and the manufacture of aerated waters and beer. The larger cities in Indo-China are electrically lighted and served by electric tramways, and there is also a considerable demand for electric power for industrial purposes, for refrigeration, and air-conditioning. The electric power industry is highly centralized, four closely associated French companies with a power capacity of 88,000 kilowatts in 1936, controlling the supply of electricity. In that year the industry employed about 4,000 workers. Small brewing enterprises have been established in Hanoi, Haiphong, Cholon, and Phnom Penh, and the annual production of beer in recent years was approximately 50,000 hectoliters.

Other industries based on local raw materials of a specialized character included the manufacture of soaps and oils from copra, cotton-seed, kapok-seed, pal-seeds, and ground nuts. This

industry was largely in the hands of the native population, although there were a few modern, French-owned factories and one Sino-Annamite concern which operated a modern soap factory at Cholon with an annual production capacity of 6,000 tons. Cigarette manufacturing is another industry which developed rapidly in the postdepression period, the production of cigarettes and packaged tobacco increasing from 193 metric tons in 1932 to 3,347 tons in 1938. In the latter year there were four cigarette factories in operation, all in the Saigon-Cholon district, which employed approximately 4,000 workers.

Detailed statistics on the volume of manufacturing production in Indo-China are not available, but some indication of the increase in industrial activity in the years following the world depression may be gained from Table 43, which gives the

TABLE 43
CAPITAL ISSUES IN INDO-CHINESE ENTERPRISES
(In millions of francs)

	1934	1935	1936	1937
Agriculture.....	20.7	24.7	52.5	36.4
Mining.....	3.4	0.2	12.7	10.8
Industry.....	3.9	4.3	24.3	32.9
Public works.....	0.2	1.1	0.3	43.7
Transportation.....	2.4	6.0	1.8	20.1
Commerce.....	4.6	3.3	5.4	4.2

Source: Robequain, *op. cit.*

amount of capital issues for various types of enterprise, and Table 44, which shows the volume of exports of manufactured products from Indo-China during the period 1934-38. It may also be noted that Indo-China's coal consumption, about two-thirds of which was used to supply power for industry, increased from 428,000 tons in 1934 to nearly 800,000 tons in 1938.

The scarcity of information regarding industrial enterprises in Indo-China is in itself an indication of the very minor importance of industries other than mining in the Indo-Chinese economy. The information regarding the larger industries in the colony, given above, merely serves to prove how limited a degree of industrial development was possible under a French administration that was strongly opposed to any attempt, by French as well as by native or Chinese capital, to develop secondary industries. This attitude on the part of the authorities

TABLE 44
EXPORTS OF MANUFACTURED GOODS FROM INDO-CHINA
(In metric tons)

	1935	1936	1937	1938
Sugar.....	802	1,716	4,826	1,137
Rum.....	992	1,003	1,194	880
Beer.....	143	149	147	257
Cigarettes.....	14	44	98	161
Cement.....	32,400	59,200	124,500	143,200
Matches.....	69	477	509	468
Bottles.....	262	133	1,309	1,050
Soap.....	97	233	477	326
Cotton fabrics.....	234	669	852	843
Other cotton goods.....	100	149	263	203
Rush matting.....	3,751	3,489	4,060	4,347
Fiber matting.....	1,051	971	815	747
Cordage.....	481	442	869	977
Basketware.....	938	900	1,231	1,334

Source: *Annuaire Statistique de l'Indochine*, Hanoi.

did not go entirely unchallenged, however, particularly after the world depression, which underlined the dangers of an economy entirely dependent on the export of a few raw materials. An increasingly influential school of thought in France argued that some form of "industrialization" program was essential for the solution of the acute problem of unemployment in the densely populated delta regions, and that, furthermore, such a program would raise the purchasing power of the Indo-Chinese people and thereby enable them to buy more French goods. French manufacturing interests, however, remained unconvinced, maintaining that the markets for the proposed new industries would not be sufficiently large to justify the capital investment required; that industrialization would increase rather than lessen unemployment by wiping out native handicraft industries; and, finally, that there was no assurance that any increased purchasing power would be applied to the purchase of French goods.⁹

By 1938, however, the French Government had slightly altered its attitude toward "industrialization" in Indo-China, to the extent of approving a program for the economic development of the colonial empire formulated by M. Georges Mandel who became Minister of Colonies in April 1938. As finally adopted, however, the plan for Indo-China was an extremely

⁹ Cf. Robequain, *op. cit.*, pp. 318-335 for a discussion of the arguments for and against industrialization; also, D. Borg, "French Considering Industrialization of Indo-China," *Far Eastern Survey*, February 15, 1939, pp. 44-6.

limited one; proposals for expanding the local production of the colony's four major imports—metals, machinery, textiles, and chemicals—being ruled out. Official encouragement was given only to the expansion of existing light industries, such as paper, cigarette, silk, cement, and glass manufacture, and to the initiation of industries producing silk thread, jute bags for rice exports, and rubber tires. The Government, like the Dutch authorities in Netherlands India, showed a strong preference for the encouragement of native handicraft industries rather than the expansion of European enterprises, the promotion of handicraft industries being described officially as "one of the best methods of combatting the rural pauperism resulting from overpopulation."¹⁰ Early in 1939 an Office Indochinois du Credit Artisanal was established "to support existing handicraft industry and promote its development wherever possible by means of advances," in order to free the native handicraft workers from their dependence on usurers. Native workers were also to be encouraged to form co-operatives to organize the marketing of their products and assist in the development of improved techniques.

WARTIME ECONOMIC DEVELOPMENTS IN INDO-CHINA

From the foregoing survey of industrial development in Indo-China prior to 1940, it is clear that though the ingredients for industrialization existed in the form of raw material resources and an abundant labor supply, the actual development of modern industrial enterprises had been negligible. At the outbreak of the European war in September 1939, however, Indo-China's economic situation was relatively prosperous as a result of the high prices prevailing for her rice and other export products, and during the early months of the war, economic activity was further stimulated both by increased demands from France for her raw materials, and by the speeding up of the colonial defense program which gave a new impetus to various forms of industrial enterprise.

With the collapse of France in June 1940, however, Indo-China lost her only protected market, as well as the only source of capital for the further development of her infant industries. By July 1940, Japan had replaced France as the principal buyer

¹⁰ For a discussion of the Dutch policy regarding "industrialization" in Netherlands India, see *infra*, chapter X, pp. 200-7.

of Indo-China's coal, iron, salt, rubber, phosphates, and rice, while Indo-China, cut off from Europe by the cessation of French shipping services, was forced to turn increasingly to Japan for her supplies of manufactured goods, raw silk, and chemicals. In August 1940, France granted Indo-China complete tariff autonomy, but the Japanese invasion of Tonkin in September removed any possibility of Indo-China adopting an independent economic policy. The territorial dispute with Thailand in the autumn of 1940 still further disrupted economic conditions in Indo-China and led to a further tightening of Japan's hold over the colony.

In May 1941, Indo-China was virtually incorporated into the yen bloc by the signing of the Japan-Indo-China Economic Agreement which provided, *inter alia*, for the development of the colony's agricultural, mining, and hydraulic enterprises by Japanese capital, and granted free entrance into Indo-China for 40 Japanese commodities and minimum duties on 400 others. A prior agreement, signed on January 20th, assured Japan of the right to purchase Indo-China's exportable rice supply on highly favorable terms. On July 29th, the Vichy Government yielded to Japanese pressure and signed an agreement for the "joint defense" of Indo-China which opened the way for Japanese military occupation of the southern part of the country, and on August 10th the Japanese press reported that Indo-China's economy was to be subjected to a "drastic reorganization" which included the following four points:

- 1) A survey of the development of underground resources by joint (i.e., Japanese-French) capital and technical co-operation.
- 2) The restriction or complete prohibition of the use of "strategic" materials such as iron, manganese, etc. for nonessential purposes.
- 3) "Co-operation" between the Government and those private companies that had hitherto monopolized the major resources of the colony, e.g., rubber, rice, and coal, through the imposition of State control over their production, sale, and export.
- 4) The creation of a price-control commission with executive powers, and a permanent economic control board with Japanese representation.

Japan's intention to convert Indo-China into a virtual colony of the Japanese Empire was also evidenced in the appointment of Kenkichi Yoshizawa as Ambassador-at-Large to Indo-China, charged with co-ordinating all Japanese military, economic, political, and cultural activities in the colony. Mr. Yoshizawa

departed for his new post on October 31, 1941, accompanied by sixty members of a staff which was expected eventually to number three hundred. A Japanese mission charged with the investigation of Indo-China's natural resources had been dispatched previously, and private Japanese interests were reported to be acquiring large tracts of land suitable for the cultivation of rice, rubber, and cotton.

Thus, by the end of 1941, Japanese control was being rapidly extended to every phase of economic activity in Indo-China. Should that control continue, there is little likelihood of the further development of any modern industries other than mining in Indo-China, since Japan, perhaps even more than France, wants Indo-China as a source of raw materials, and as a market for Japanese manufactured products.

CHAPTER VII

THAILAND

The Kingdom of Siam—since July 1939 the Kingdom of Thailand—is notable as the only politically independent nation in Southeastern Asia. In the latter part of the nineteenth century, it seemed inevitable that Siam would be partitioned between Britain and France. The British were steadily extending their control over the Malay Peninsula at Siam's expense, and the French were advancing with equal vigor in Cambodia and Laos. The Franco-Siamese treaty of 1907 and the Anglo-Siamese treaty of 1909, however, put an end to these territorial encroachments, and Siam was allowed to survive as a buffer State between the British and French Empires in the East. The extra-territorial rights granted by Siam during her early trade relations with the western powers were gradually relinquished in the years following the First World War, and in the fourteen agreements signed with foreign powers in 1937, Siam finally gained international recognition of her complete political, financial and juridical autonomy.¹ Economically, however, Siam remained a semi-colonial nation, being little more than an economic satellite of the British Empire. The greater part of her industry and commerce was carried on by foreigners, with British capital occupying the dominant position in the country's economy. Her public debt, though small, was held entirely in Great Britain, and most of her currency reserves were in sterling securities and notes. Her major export industries—teak, tin, and rubber—were controlled by European (chiefly British) and Chinese capital, and all Siamese tin ore was shipped to British plants in Malaya for smelting. The British ports of Singapore, Penang, and Hongkong were the chief entrepôts for Siamese foreign trade, and during the five-year period, 1934-39, 70.7% of Siam's total foreign trade was carried on with the British Empire as a whole, as compared with 10.7% with the

¹ See, Virginia Thompson, *Thailand: The New Siam*, The Macmillan Co., New York, 1941, Chapter VI, for a detailed history of Siam's foreign relations.

Japanese Empire, Britain's nearest rival.² Within the country, the Chinese controlled the rice trade and the fishing industry, and supplied the bulk of the labor in the tin, teak and other industries. Siam possessed virtually no manufacturing industries, being dependent upon imports for all types of manufactured goods. Her economic structure was, in fact, very similar to that of her colonial neighbors—a primitive agricultural economy coupled with a few, foreign-controlled, extractive industries producing raw materials for export, in which neither native capital nor labor participated to any appreciable extent.

Following the revolution of 1932, which overthrew the rule of the princes and established a constitutional monarchy, the political trend in Siam was toward a conservative military dictatorship with a strongly nationalistic outlook. In Siam, as elsewhere in the Far East, this period was marked by a rising tide of nationalist sentiment in opposition to the political and economic domination of the western powers, and the economic program of the new regime was therefore aimed primarily at lessening the country's dependence upon foreign trade and achieving a greater degree of economic self-sufficiency, as well as reducing insofar as possible the extent of foreign control over the nation's economic resources. The fact that the political revolution in Siam coincided with the world economic depression, during which Siam suffered severely in common with all raw material exporting countries, provided a further incentive for a program designed to diversify the country's agricultural and industrial production, and to secure for the Siamese a larger share of the profits from the exploitation of their national wealth.

It is significant that the intense nationalism of the Government and the National Assembly in Siam throughout this period coincided with the development of increasingly close political and commercial relations between Bangkok and Tokyo. In the ten years between 1925 and 1935, Japan's share of total Siamese imports rose from 3.4% to 29%. In 1933, Siam was the only member of the League of Nations to abstain from censuring

²It is impossible to state the exact volume of Siam's trade with the British Empire, since no statistics are available on the final destination of exports consigned to Singapore, Penang, and Hongkong which together accounted for 55.8% of total Anglo-Siamese trade during this period. But though a considerable proportion of such exports represented only entrepot trade, all three ports also retained important quantities of Siamese products.

the Japanese invasion of Manchuria, and the new treaty with Japan signed in March 1936 granted Japanese subjects full liberty to reside in Siam on the same footing as native subjects, permitting them to own, lease, and occupy houses, factories, warehouses, and shops, and to lease land for residential, commercial, industrial, religious, and other lawful purposes in the same manner as natives. This evidence of growing Japanese influence in Siam was particularly alarming to Great Britain, for strategic as well as economic reasons; that alarm being manifested most dramatically in the Kra Canal issue which provoked frequent and perturbed discussion in the press and the House of Commons from 1934 onwards. Though the Bangkok Government repeatedly denied that it had ever contemplated allowing Japan to construct a canal and naval base on the Kra Isthmus, and the Siamese Foreign Minister proclaimed that "this progress in industrial and commercial intercourse between the two countries . . . does not contain the least semblance of a political alliance,"⁸ the Government's skill in capitalizing on Britain's fear of this potential menace was true to the Siamese tradition of balancing one power against another, and undoubtedly explains why Siam was allowed to enact measures to the detriment of British and other foreign interests which would normally have been impossible for such a weak and economically dependent nation.

Throughout this period, therefore, the Bangkok Government did its best to avoid antagonizing either Britain or Japan, and to retain a position of obscure neutrality in the Far Eastern conflict, while at the same time initiating an economic program designed to promote the participation of native capital and labor in the development of manufacturing industries based on local raw materials, and to acquire a larger share in the profits of the foreign-controlled industries by restricting and taxing the activities of foreign companies. In the following paragraphs an attempt will be made to describe the principal developments in the industrial field up to 1941, when the march of world events put an end to the country's long-cherished obscurity, and Thailand found herself in the dangerous and uncertain position of a potential battleground in the struggle against Axis aggression in the Pacific.

⁸ Laung Pradit, "Siam's Foreign Policy," *Siam Today*, July 1936, p. 11.

GENERAL CHARACTER OF THAILAND'S ECONOMY

Thailand's chief products are rice, tin, rubber, teak, vegetables, and fish; the first four comprising the bulk of the export trade, with rice as the most important item. Thailand produces an exportable supply of approximately 1,600,000 tons of rice yearly. She is the world's fourth largest producer of tin, supplying about 9% of total world production, with an output of 17,416 tons in 1940. She ranks fifth among the world's rubber exporting countries, with an output of about 40,000 tons, or 4% of the world total. The country's other mineral resources include antimony, tungsten, copper, lead, zinc, molybdenum, gold, and silver, but of these only gold, antimony, and tungsten are mined on a commercial basis. She possesses almost no iron, no known petroleum deposits, and her coal is poor quality lignite. Moreover, the country is too flat to provide extensive hydro-electric power. This lack of fuel resources is one of the greatest single obstacles to industrialization on any extensive scale, Thailand being dependent upon imported petroleum and rice husks for fuel.

In terms of occupational distribution, the country is overwhelmingly agricultural. According to J. M. Andrews, "over 80% of the population, and probably an even greater percentage of the utilized land of the nation, are engaged in agricultural productivity. Not all of the crops raised are sold, but farming and its allied activities form the direct source of most of the people's income and the ultimate source of most of the nation's revenue."⁴ Agriculture has remained practically synonymous with rice-growing, despite the Government's efforts to encourage the production of other crops, and it is estimated that at least three-fourths of Thailand's population of 14,000,000 are dependent upon rice monoculture. Fishing ranks next to farming as a source of livelihood for the population, the census of 1937 showing that 88.5% of the people were engaged in agriculture or fishing while only 5.2% had commercial occupations.

Before the opening of the country to foreign trade in the latter part of the nineteenth century, many handicraft or "cottage" industries provided a supplementary income for the farming population. Most of these handicrafts were abandoned,

⁴ J. M. Andrews, *Siam, Second Economic Survey*, Bangkok, 1935, p. 1.

however, as a result of increased competition from imported manufactures, and the concentration on rice production for export, following the development of steam navigation and the opening up of foreign markets for Siamese rice. Improved communication facilities within the country also contributed to the decline of handicrafts by lessening the need for a self-sustaining village or farm economy. After 1932, the Government endeavored to revive certain domestic industries in order to alleviate rural poverty and unemployment, a policy similar to that adopted in other monocultural countries which were hard hit by the world depression. Weaving was considered the most promising industry for this purpose, since there was a large domestic market for textiles, but Japanese textiles were so cheap and colorful that the home-made fabrics, though more durable, were unable to compete with them in the local market. A further obstacle to the revival of a native hand-weaving industry was the fact that the raw materials were produced only in small quantities, despite government efforts to encourage the cultivation of silk and cotton. By 1940, hand-weaving had almost disappeared from the central and southern parts of Thailand, although it was still carried on by the Chinese in the north-east.⁵

Dyeing was another local industry largely wiped out by the competition of cheaper and more colorful aniline dyes imported from abroad. A few Siamese dyes continued to be manufactured, however, and a considerable quantity of Chinese silk was imported to be dyed with the special black dye produced from the maklus berry and then re-exported to China or Singapore. Other handicraft industries which have survived in Thailand include the manufacture of lacquer articles, metal work, basketry and wickerwork, carpentry, pottery and boat-building. No statistics are available as to the volume of production or the number of persons who derive all or part of their livelihood from these domestic industries. They produce only for a small, local market, however, and there seems to be little prospect that any of them will be developed on a commercial scale in view of the competition from imported goods which, in most cases, are not only superior in quality but also cheaper than the local product.

As already noted, Thailand's chief exports, in addition to

⁵ Thompson, *op. cit.*, p. 443.

rice, are tin, rubber, and teak—all three of these industries being largely controlled by foreign capital and employing principally Chinese labor. In recent years, the Government has attempted to increase its control over these industries, in accordance with its general policy of replacing foreign with native capital and labor, but its efforts have not yet resulted in any appreciable lessening of foreign control.

Tin. The major tin mining companies in Thailand are British and Australian, with the Chinese operating numerous smaller holdings. The Chinese mine owners use primitive methods, preferring to rely on cheap and abundant labor rather than costly machinery, but the British and Australian companies have installed dredges and hydraulic equipment, the efficiency and low operating costs more than compensating for the large initial investment required. Prior to the depression, the Siamese Government did not participate actively in the tin industry, merely taxing the output for revenue purposes. In addition to collecting licensing fees and a 5% duty on imports of mining machinery, the Government levied a royalty on all exported ore, based on a sliding scale, with a minimum of 10% and maximum of 25%, calculated on the price in the Singapore market. In the period 1925-29, government revenues from this source averaged 3,500,000 baht annually.⁶ In 1931, however, the Government intervened arbitrarily in the industry by announcing that Siam would join the International Tin Restriction Agreement with a quota of 10,000 tons, although production in that year was running at the rate of 13,000 tons. This action, which was taken despite strong protests from the tin mining companies in Siam, was presumably the result of pressure from British tin interests in Malaya who feared that smuggling across the Siamese frontier would neutralize the effect of their own restriction measures, and who were able to enforce their wishes because of Siam's dependence on Malayan smelters. In 1936, however, after lengthy and acrimonious negotiations with the International Tin Committee, and over the vehement protests of the Malayan producers, the Siamese Government was granted a standard quota of 18,500 tons for five years. The foreign tin companies in Siam, however, were far from satis-

⁶ Siamese currency is linked to sterling at the rate of approximately 11 baht to the pound. In 1941, the baht-dollar exchange rate has averaged approximately 1 baht = \$0.36.

fied by the new agreement since the Government, acting on the basis of the law that all minerals were State property, reserved to itself 70% of the new quota, with the right to transfer its percentage to producers at will. Furthermore, in May 1939, it was announced that the Government itself would begin mining operations in the near future, and in January 1940 it was reported that operations had already been started on two small islands off the east coast. Members of the National Assembly were urging that the Government take over some of the foreign tin concessions, and the foreign tin companies were further alarmed when, in 1940, it was announced that the Government was planning the construction of a State-owned tin smelter in South Thailand.⁷ But though there was no doubt of the Government's desire to extend its control over this industry, and to secure a share of the profits accruing to the British smelters in Malaya, it had not made much progress by 1941. Foreign capital remained firmly entrenched, private Thai capital had shown no interest in investing in the tin industry, and no adequate supply of trained native labor was available to replace the Chinese in the mines.⁸

Teak. The teak industry, though nominally controlled by the Government through its ownership of the teak forests, was financed and developed by foreign interests, who leased teak concessions from the Government and paid varying rates of royalty on the logs cut. Between 1897 and 1926, the year when the teak market collapsed, government revenues from both foreign and Siamese teak concerns averaged one million baht annually. In 1936, approximately 88% of the teak industry was in foreign hands, 5% under government control, and 7% owned by individual Siamese. Of the six most important companies, four were British, one Danish, and one French, namely the Bombay-Borneo Corporation, the Borneo Company, the Anglo-Siam Company, the L. T. Leonowns Company, the Danish East Asiatic Company, and La Compagnie Est Asiatique Française. The chief Chinese firms were the Lam Sam and Khun Chamrong Chinarak Companies.

In November 1939 all teak leases to foreigners, with one exception, were renewed for fifteen years, but the number of trees

⁷ Cf. K. P. Landon, *The Chinese in Thailand*, New York, 1941, p. 255.

⁸ For a detailed description of Thailand's tin industry, see, Hilda Austern, *Raw Materials*, Institute of Pacific Relations, 1942 (in manuscript).

granted to each lessee was considerably reduced, and a new government premium of 4 baht per tree was imposed in addition to the regular royalty. A far larger percentage of the teak forests was also reserved for working by Thai nationals, and the Government recently took over a number of sawmills.⁹ Even the most ardent Thai nationalists, however, admit the impossibility of nationalizing the teak industry completely, because of the lack of capital and technical knowledge. Foreign participation in the teak industry may be curtailed, but it is not likely to be eliminated for many years to come.

Rubber. Thailand's rubber industry is largely financed and operated by Chinese who have migrated from Malaya. Siamese rubber is far inferior in quality to Malayan rubber, however, because of the failure to adopt scientific methods and the inefficient organization of both production and marketing. The industry has been further handicapped by numerous taxes and transport charges, and by the lack of roads. In 1934, Siam was invited to become a party to the International Rubber Restriction Agreement, with a quota of 15,000 tons per year. The National Assembly, however, resented the idea of being compelled to restrict production and refused to ratify the agreement. Since Siamese abstention threatened the whole restriction scheme because of the opportunities for smuggling Malayan rubber into Siam, the Restriction Committee finally consented to allow Siam a basic quota of 40,000 tons, which was approved by the Assembly in April 1935. Stimulated by the rise in rubber prices effected by the restriction scheme, Siam's rubber exports increased rapidly, from 7,000 long tons in 1933 to 41,600 tons in 1938. In March 1938, when the Restriction Agreement was renewed for a five-year period, Siam was granted the following substantial increase in her basic quota: 1939, 54,000 tons; 1941, 55,700 tons; 1942, 56,000 tons; and 1943, 60,000 tons. During the first three years of this period, Siam produced approximately 77% of her full allotment.

With net exports of 43,940 long tons in 1940, Thailand ranked fifth among the rubber exporting countries of the world, but her production was still insignificant when compared with that of Malaya or Netherlands India, constituting only 3% of total world production, while Malaya and Netherlands India.

⁹ Thompson, *op. cit.*, p. xviii.

each supplied 38%, Ceylon 6%, and Indo-China, 4%.¹⁰ There is no rubber manufacturing industry in Thailand, although in 1939 the Government announced its intention of building a rubber factory and of training Siamese labor for this industry.

FACTORY INDUSTRIES IN THAILAND

Modern-style manufacturing industry in Thailand is confined to a few light industries producing almost exclusively for the local market. Of these, rice mills and sawmills are the most important. Until recently, the rice-milling industry was wholly controlled by the Chinese, but in 1939 the government-sponsored Thai Rice Company took over eleven mills in Bangkok from their Chinese owners. In that year, there were some 72 rice mills in Bangkok, and about 600 mills scattered through the various provinces. Sawmills rank second among Thailand's modern industries. There are seven large teakwood mills in the Menam valley above Bangkok, producing chiefly for the export trade. Five of these are owned by the principal European teak companies and two by Chinese firms. There are also a number of smaller sawmills, producing chiefly for the domestic market. The only important private industrial enterprises in which Siamese capital predominates are the Siam Cement Company and the Boon Rawd Brewery. The former operates a factory outside Bangkok, and, aided by a heavy protective duty on foreign cement, has steadily expanded its output. Between 1936 and 1939, Siam's production of cement increased by 26,000 tons and imports declined from 12,800 to 4,300 tons. The Boon Rawd Brewery, established in 1934 by private Siamese interests with government backing, is capitalized at 1,000,000 baht, and has a capacity of 30,000 bottles per day. In 1938, the company earned a profit of 12% on its paid-up capital.

Government Participation in Industry. With the few exceptions noted above, however, Siamese capital has proved unwilling or unable to undertake the establishment of manufacturing enterprises. The lack of liquid capital for such investment is indicated by the fact that the income tax of 1937-8, which exempted incomes under 2,400 baht, netted only 383,000 baht, and it was estimated that the aggregate of private fortunes in the country did not exceed 46 million baht. Furthermore, the majority of those paying income taxes were government offi-

¹⁰ Austern, *op. cit.*

cial or foreigners. In 1939, only 2,731 Siamese paid any income tax at all, i.e., out of a population of more than fourteen million, less than 3,000 individuals had incomes of more than 2,400 baht, and the largest single income was only 39,000 baht.¹¹ Because of this scarcity of capital, and also because the few "wealthy" Siamese still preferred to invest their money in land or usury, the Government was forced to assume the responsibility for financing and managing the new industrial enterprises called for in its program of nationally controlled economic development. In 1939, therefore, it announced its intention of financing the establishment of factories for the production of silk, steel, rubber goods, cement, paper, and cigarettes, a textile mill, a soya bean oil distillery, several sugar refineries, several sawmills and canneries, a hydro-electric plant, and a number of abattoirs. A new internal loan of 20,000,000 baht was to be used for the encouragement of local industries, a number of vocational, commercial, and agricultural schools were established, and promising students were sent abroad for technical training. Import duties on all items which contributed to agricultural or industrial development were abolished, and duties on imports of food, textiles, and alcohol were raised.

The year 1939 also witnessed a large number of "anti-foreign" legislative measures, two of which—the Siamese Vessels Act and the Liquid Fuel Act—may be mentioned as illustrations of the economic nationalism that characterized the Government's policies during this period. The Siamese Vessels Act was inspired by resentment at the monopolistic position attained by a British firm, the Siam Steam Packet Company, which by 1938 had absorbed six small Siamese companies and induced one of its two remaining foreign competitors to sell its three largest ships to the Steam Packet Company. Early in 1939, therefore, the National Assembly passed an Act providing that henceforth the capital of ship-owning companies must be at least 70% Siamese, the crews 75% Siamese, and the vessels registered as Siamese. This measure, in conjunction with the Government's newly acquired control over oil distribution, resulted in the liquidation of the Menam Boat Company and the Siam Navigation Company, and also forced the sale of the Siam Steam Packet Company to the Government at the latter's price. The Thai Maritime Navigation Company was thereupon or-

¹¹ Thompson, *op. cit.*, p. 589.

ganized, with an authorized capital of 10,000,000 baht; its promoters being exclusively army and government officials.

The Liquid Fuel Act of March 1939 was the most far-reaching of all the anti-foreign measures, and resulted in the withdrawal of the two companies which had previously supplied all Siam's requirements for petroleum products—the Asiatic Petroleum Company and the Standard Vacuum Company. The distillation of liquid fuel, which was defined as all refined products of petroleum, was reserved exclusively to the State. The Government announced that its intention was merely to enter the distributing field in competition with the foreign companies, but the provisions of the new law so drastically curtailed the activities of these companies that they threatened immediate withdrawal.¹² Efforts to reach some basis of agreement failed, and in the summer of 1940 both foreign oil companies withdrew from Thailand, leaving the unprepared and inexperienced Oil Fuel Department of the Ministry of Finance to procure and distribute petroleum products throughout the country, a task which was rendered extremely difficult by the fact that Thailand's former sources of crude oil in Netherlands India and British Borneo were controlled by the departing companies, and that import of oil from other sources across the Pacific was hampered by the shortage of oil-tankers, particularly Danish and Norwegian, resulting from the spread of the European war. A new refinery plan, built with Japanese technical advice and equipment, began operations early in 1940 and is intended eventually to supply all Thailand's needs with the exception of kerosene. The capacity of the refinery is 200 tons per day, well in excess of the Government's requirements for the army, official motor transport, and other purposes, except in gas oil and Diesel oil.

With regard to the Government's announced program for the development of manufacturing enterprises, most of the projects were still in the blueprint or experimental stage in 1941, with the exception of a few alcohol distilleries, a silk-spinning factory at Korat, a modern sugar refinery at Lampang with an annual output valued at approximately 1,200,000 baht, and

¹² The Law, closely modeled on the Japanese Oil Control Law of 1934, included a storage provision and a strict system of import permits on a quota basis, and also empowered the Minister of Economic Affairs to fix wholesale and retail prices, either for the whole country or for a given locality. See Thompson, *op. cit.*, p. 351; also, A. Barber, "Siam Moves Toward Government Oil Monopoly," *Far Eastern Survey*, July 5, 1939, pp. 167-69.

the factory of the Siam Paper Company, Ltd., 80% government-owned, which has a capacity of ten metric tons per day and produces printing, writing, and wrapping paper from bamboo. The further development of industries based on local raw materials has been delayed because of the Government's inability to secure the necessary machinery and equipment from abroad, and the difficulty of overcoming the average Siamese' aversion to any but administrative employment. Since the end of 1940, moreover, the Government's attention had been fully occupied with the new situation created by the defeat of France, the undeclared war with Indo-China, the rapid advance of Japan's armed forces to the Thai frontier, and the growing pressure from Tokyo for Thailand's entry into the yen bloc.

THAILAND'S NEW INTERNATIONAL IMPORTANCE

From the standpoint of her economic resources and industrial development, Thailand is a country of negligible importance to the world at large, and one which under normal conditions might never have emerged from a position of obscurity on the international stage. Judged in terms of wealth, power, or prestige, Thailand is a nonentity, yet during 1941 she became almost overnight one of the key areas in the Second World War. Thailand's new importance derived in the first place, from her geographic position as the gateway to Malaya, the ideal territorial base for a Japanese attack on Singapore and the Dutch East Indies and thus the logical objective of Japan's next southward move. In the second place, her raw material resources, though relatively small in comparison with the vast riches of her southern neighbors, had become of vital importance to an economically weakened Japan, desperately trying to counteract the effects of an Anglo-American-Dutch embargo.

Japan's grip on Thailand began to tighten early in 1941, when the Thais embarked on their "war" to recover from Indo-China the territory seized by France in the late nineteenth century. Japanese planes and equipment aided the Thai army, and in the Japanese-mediated settlement of March 1941 Thailand gained an area of 21,000 square miles in Laos and Cambodia, including the rich rice and corn producing districts of Battambang. But Thailand's satisfaction with these gains was overshadowed by the advance of Japanese forces into southern Indo-China late in July, and the stationing of Japanese troops and planes on the Thai border. Simultaneously, Japan's eco-

conomic penetration of Thailand proceeded rapidly, a trend resented and feared by many Thai officials and businessmen, but one which they were powerless to prevent. In September it was reported that nearly all Thailand's rubber and wolfram, a fourth of her tin, and practically all her rice exports were going to Japan. Moreover, the Japanese were paying 30 to 100% above world market prices for Thai products, and were trying to buy up mining properties and real estate with "apparently unlimited finances."¹³ On August 1, a Japan-Thailand agreement was signed providing for a loan of 10,000,000 baht to Japan to facilitate payments for Thai raw materials, and on August 5, the Bangkok Government recognized Manchukuo, and the Japanese press triumphantly hailed the entry of Thailand into the select company of Japanese-controlled states.

Great Britain and the United States did not sit idly by and wait for Thailand to drop into the Japanese basket. A new and very able American Minister was dispatched to Bangkok, and both the British and American Governments were reported to be urging Thailand to resist any Japanese demands for military or economic concessions. It was hopefully reported that their officials were "increasingly fearful of being steam-rollered into a likeness of Manchukuo or Indo-China by the southward advance of Japanese imperialism," and to be displaying a "marked desire to cultivate the friendship of the United States and Britain."¹⁴ The Bangkok Government refused to join the yen bloc, declined to grant further credits to Japan except on the basis of Japanese gold deliveries to Thailand, and announced its determination to defend the country against an attack from any quarter. But there seemed little prospect that Thailand would offer any effective resistance should the Japanese decide upon an overland advance against Malaya.

Thus, by the autumn of 1941, Thailand's skillfully maintained position of obscure neutrality was no longer tenable. No longer could she rest secure as a buffer state between two "satisfied" empires, for she was now a buffer between a Japan bent on southward expansion and a Britain preparing to resist a Japanese attack on British Malaya, one of the most vital units in her empire, whose economic importance to Great Britain will be discussed in the next chapter.

¹³ F. Tillman Durdin in *The New York Times*, September 22 and 24, 1941.

¹⁴ *Ibid.*

CHAPTER VIII

BRITISH MALAYA

"British Malaya" is the collective name for the Straits Settlements, the Federated Malay States, and the Unfederated Malay States, a group of colonies in which the form of British control varies, but which for the purposes of this study may be considered as a single economic unit. The Straits Settlements, comprising Singapore, Penang, Malacca, Labuan, Christmas Island, and the Cocos Islands, are a Crown Colony directly under the Colonial Office in London. The Governor of the Straits Settlements is also High Commissioner of the Federated Malay States of Perak, Selangor, Negri Sembilan, and Pahang, in each of which there is a responsible British "resident adviser." A similar form of control is exercised over the Unfederated States of Johore, Kelantan, Trengganu, Kedah, and Perlis, although these are officially described as "independent native States under British suzerainty." British Malaya occupies an area of 53,197 square miles, with a population (in 1939) of 5,396,708, of which 2,259,333, or less than half, were Malays; 2,332,058, Chinese; 744,283, Indians; and 30,081, Europeans.

Because of its geographic position halfway between India and China, the Malay Peninsula early became an object of intense rivalry among the European nations engaged in Far Eastern trade. First the Portuguese and then the Dutch obtained footholds on the Malayan coast, but after nearly two centuries of commercial and naval warfare, these passed into the hands of the British East India Company during the Napoleonic wars. Having won control over the coastal settlements of Singapore, Penang, and Malacca by 1824, Britain's next step was to penetrate into the Malayan hinterland in order to exploit the rich tin deposits which were already being mined on a small scale by the Chinese. The areas which later became the Federated Malay States were first brought under control, and the Sultan of Johore, finding himself surrounded by British-controlled territory, signed a treaty accepting British "suzerainty." The remaining Unfederated States, which had been penetrated by

British development companies and administrative advisers, were formally detached from Siamese sovereignty in the Anglo-Siamese Treaty of 1909, signed just at the time of the first big rubber boom.

The history of Malaya's economic development under British rule falls into a number of definite stages. The ports of Singapore and Penang were first developed primarily as trading centers for the exchange of sea-borne commerce. Railways were then built to link these coastal trading centers with the tin mines of the interior, and Malaya became a market for the products of British heavy industry. At the beginning of the twentieth century, a new source of wealth and opportunities for investment were opened up with the expansion of the automobile industry, particularly in the United States, which created a market for large-scale rubber production. Finally, came the growth of processing industries and the establishment of various types of light industry in the main cities, catering to the needs of the local population. Thus, the original importance of Singapore and Penang as entrepôts and distribution centers was gradually overshadowed by Malaya's importance as a producer of essential raw materials, and in recent years the Malayan economy has been based primarily on the production and export of two commodities—rubber and tin. Malaya is the largest single exporter of both in the world, accounting for nearly half the total world production of rubber, and providing approximately one-third of the world's supply of tin ore.

This development of a highly specialized economy, dependent upon fluctuating markets in distant parts of the world, is responsible for the peculiar feature of Malaya's population already mentioned, namely that less than half are Malays, while the Chinese and Indian population is not only large, but has grown at a far more rapid rate.¹ Labor in the tin mines is predominantly Chinese, while labor for the rubber plantations is supplied principally by Indians brought from southern India. A Singapore editorial once stated it to be a "commonplace that the prosperity of this country depends almost entirely on an abundant supply of labor from India and China. Without these two great reserves of cheap and efficient labor, the tin and rubber industries would never have developed as they are, and

¹In the decade 1921-31, the Malayan population increased by 12.8%; the Indian by 32.3%; and the Chinese by 45.5%.

certainly they would be unable to cope so easily with the increased demands for their products which come from time to time."² In other words, it was essential for the tin and rubber companies in Malaya to have at their disposal a flexible labor force whose volume could be adjusted to correspond with the constant rise and fall of the tin and rubber markets. Thus thousands of Indians and Chinese were imported under contract during boom periods, and returned to their homelands in times of depression, thereby relieving the Malayan authorities of a serious unemployment problem.³

GENERAL CHARACTER OF MALAYA'S ECONOMIC STRUCTURE

Only two-fifths of Malaya's 50,000 square miles is inhabited, and of the settled area, one half (i.e., one-tenth of the total area) is devoted to rubber growing. The remaining three-fifths of the total area is primeval evergreen forest inhabited only by a sprinkling of jungle tribes. The predominance of rubber in Malayan agriculture is indicated by the fact that in 1938, out of five million acres under agricultural cultivation, 3,297,000 acres were devoted to rubber, while rice lands covered only 727,000 acres and supplied not more than one-third of Malaya's rice requirements, the balance being imported chiefly from Siam, Netherlands India, and southern Burma. Coconut products, oil palm products, and pineapples are other export crops of some importance, but the total net exports of agricultural products other than rubber in 1938 amounted to only 325,000 tons valued at S\$ 33,748,000, as compared with rubber exports of 370,810 tons, valued at S\$ 198,650,206.

In 1939, Malaya's rubber production totaled 377,000 tons, and in 1940, stimulated by the greatly increased wartime demand from the United States, production reached a record high of 540,000 tons, or approximately 40% of total world production, and slightly in excess of Netherlands India's production of 537,000 tons. Production is divided between "estates" and small holdings (under 100 acres), approximately 75% of the estates being European-owned, while the small holdings are operated by Asiatics. In 1939, rubber estates comprised 2,107,117

² Quoted by M. Greenberg, "Malaya—Britain's Dollar Arsenal," *Amerasia*, June 1941, p. 148.

³ For a detailed description and analysis of British Malaya's labor force, see Lennox Mills, *British Rule in Eastern Asia*, Oxford University Press, London, 1941. pp. 218 ff.

acres, and employed 324,193 laborers, most of which were Tamils from southern India.⁴ The small holdings totaled 1,335,532 acres, and accounted for approximately 34% of the total output.

Mineral Resources. Although tin is by far the most important mineral, Malaya also possesses valuable deposits of iron ore, bauxite, manganese, and phosphates. The volume of Malayan mineral production during the five-year period 1935-39 is shown in Table 45. In terms of value, tin ore surpassed all other minerals combined, accounting for £10.9 million out of a total mineral production of £13.7 million in 1939, and for 83% of the value of Malayan mineral production in the period 1934-38. With regard to the other mineral industries, the mining of iron ore, manganese, and bauxite was undertaken exclusively by Japanese interests, which owned and operated extensive concessions in the Unfederated Malay States, and the output was exported entirely to Japan until the freezing of Japanese assets in Malaya compelled Japanese mining companies to abandon operations. Iron ore was mined in the States of Kelantan, Trengganu, and Johore; manganese in Kelantan and Trengganu; and bauxite in Johore. Japan also took the bulk of the exports of phosphate of lime from Christmas Island for use as fertilizer.

Malayan production of tungsten ore, averaging 1,373 tons annually during the five-year period 1934-38, came mainly from a large deposit of scheelite at Kramat Pulai in the State of Perak. This deposit was worked out in 1939, after the extraction of 8,301 tons, with the result that the production of tungsten ore declined to 514 tons in 1939, consisting chiefly of wolfram ore mined in Kedah and Trengganu. The only coal deposits of any importance are those of the Batu Arang Coalfield in Selangor, worked by the Malayan Collieries, Ltd. The coal is of low calorific value and thus not suitable for export, but it is an important source of power for the tin mining industry, and is also used by the Federated Malay States Railways and for other industrial purposes. The output of coal tends to fluctuate in close relation to the rise and fall of tin production.⁵

⁴ For a history of the Malayan rubber industry, see, Austern, *Raw Materials*, *op. cit.*

⁵ Fermor, *op. cit.*

TABLE 45
MALAYA—MINERAL PRODUCTION, 1935-1939
(In 1,000 tons)

	1935	1936	1937	1938	1939
Tin ore.....	42.3	66.7	77.2	43.4	55.0
Iron ore ¹	1,411.6	1,654.9	1,560.8	1,616.1	1,940.6
Coal.....	392.2	520.8	629.0	477.9	441.0
Tungsten ore.....	1.6	1.6	1.1	1.9	0.5
Bauxite ¹	—	—	12.6	55.8	84.4
Manganese ¹	28.0	36.8	32.8	31.9	31.5
Phosphates.....	147.9	161.4	162.6	159.7	174.3

¹ Total production exported to Japan throughout this period.

Source: Sir Lewis Fermor, "Malaya's Mineral Resources and the War," *The Asiatic Review*, April 1941, p. 382.

*The Tin Industry.*⁶ Tin mining and smelting is Malaya's premier industry. Prior to 1892, when the first British tin company was founded, tin mining was almost exclusively in the hands of the Chinese, and as late as 1920, 64% of the total tin output came from Chinese-owned mines. The richer and more easily worked deposits owned by the Chinese have gradually declined in productivity, however, and the necessity of using more efficient and costly mining equipment has favored the western mining companies, which are better able to obtain the large amounts of capital required. In 1939, 69% of the tin production in the Federated Malay States, which account for about 95% of the total Malayan output, came from European-owned mines and 31% from Chinese-owned properties.

Among the Federated States, Perak is the leading tin producer, the Kinta District alone supplying about 45% of Malaya's total production, and the Larut fields in the north and the Batang Padang fields in the south constituting other important producing areas. In 1939, Perak produced 30,755 tons of tin ore. Selangor ranks second, with an output of 15,159 tons in 1939, the most important tin fields being located at Kuala Lumpur, Ulu Selangor, Klang, Ulu Langat, and Kuala Selangor. In the State of Pahang, the Sungei Lembing mine, operated by the Pahang Consolidated Company, Ltd., is the largest tin-lode mine in the world. Lode-mining at present accounts for only about 4% of Malaya's total production but will become of greater importance as the alluvial deposits are worked out and

⁶ For a detailed analysis of Malaya's tin industry, see Austern, *op. cit.*

mining is shifted to the granite outcroppings.⁷ Tin fields of lesser importance exist in other parts of Pahang and in the State of Negri Sembilan. The Unfederated States are of very minor importance as tin producers. Labor in the tin mines is supplied chiefly by the Chinese. In 1939, the tin mining industry employed 76,125 workers, of which 65,570 were Chinese, 13,430 Indians and 7,125 Malays.

The smelting of tin in Malaya is the virtual monopoly of two British companies, the Straits Trading Company at Singapore, and the Eastern Smelting Company at Penang. Besides monopolizing the smelting of tin ore mined in the Malay States, these plants also treat large quantities of ore imported from Netherlands India, Siam, Burma, French Indo-China, Japan, Australia, and several African countries; total imports of ore averaging 25,975 tons annually in the period 1934-38. Thus, during this five-year period, Malaya's annual production of tin ore averaged 52,701 tons, or 33.2% of the world's total output, but exports of metallic tin from the Straits Settlements averaged 70,044 tons annually, or 43.5% of the world's total supply. In 1939 exports of metallic tin amounted to 82,090 tons, and in 1940 they reached the record high of 130,930 long tons (an increase of 60% over the preceding year), of which 84,750 tons represented locally mined tin, and 46,183 tons imported tin ore.⁸

TABLE 46
MALAYA—TIN SMELTER PRODUCTION
(In long tons)

1930.....	96,762
1932.....	49,945
1934.....	49,637
1936.....	84,616
1937.....	95,372
1938.....	63,746
1939.....	82,090
1940.....	130,930

Sources: *Statistical Year Book, 1939*, International Tin Research and Development Council, p. 38; *Economic Conditions in British Malaya During 1940*, International Reference Service, U.S. Dept. of Commerce, September 1941, Vol. 1, No. 58.

⁷ H. B. Harris and E. S. Willbourn, *Mining in Malaya*, London, 1936, pp. 47, 96.

⁸ *Economic Conditions in British Malaya During 1940*, International Reference Service, U.S. Dept. of Commerce, Vol. 1, No. 58, September 1941.

The increase in imports of tin ore for smelting, from 27,070 tons in 1939 to 46,183 tons in 1940, was largely the result of the diversion of Netherlands Indian tin ore exports from the Netherlands to Singapore after the German invasion (see below, p. 207).

British dominance of the world's tin smelting industry has been maintained by the imposition of prohibitive export duties on tin ore exports from Malaya except when destined to be smelted in the United Kingdom or Australia. This policy has effectually blocked various efforts by the United States to establish its own smelting industry.⁹ Since the United States is by far the greatest consumer of smelted tin in the world, and imports the bulk of its requirements from Malaya, the smelting plants of Singapore and Penang constitute a highly important factor in Anglo-American economic relations, which will be discussed below.

Capital Investment in Malaya. The bulk of foreign capital investment in Malaya is in the form of direct investments in tin and rubber companies. In 1936, the total outstanding foreign investment was estimated at £106,206,000, of which only 26% consisted of public debts, many of which were incurred for purposes calculated to assist the exploitation of the colony's resources by private capital. £55,271,000, or 52% of the total investment, was in rubber companies; £13,789,000, or 13%, in tin mines; and £9,719,000 in miscellaneous enterprises including smelting plants, trading companies, breweries, collieries, electricity, and power.¹⁰

British capital is predominant in every field of economic activity, the British share being estimated at well over 70% of the total business investment, although no statistics are available to show the exact distribution of capital by nationalities.¹¹ American capital investments, valued at US\$ 23.7 million in 1936, are mainly in rubber plantations, petroleum distributing companies, tin mines, and various trading organizations. Japan,

⁹In 1940 the United States Government began the construction of a tin smelter in Texas which will handle 50,000 tons of Bolivian tin concentrates yearly—enough for about 18,000 tons of fine tin, i.e., about one-fifth of the United States' annual consumption. For the remaining four-fifths the United States was still dependent on Southeast Asian sources of supply.

¹⁰*Capital Investment in Colonial Territories*, United Kingdom Memorandum No. 8, submitted to the tenth session of the International Studies Conference, prepared by the Royal Institute of International Affairs, London.

¹¹H. G. Callis, *Foreign Capital in Southeast Asia* (cited), p. 58.

as indicated above, has substantial investments in iron, manganese, and bauxite mines in the Unfederated Malay States, and the Dutch have considerable investments in trade, banking, and various agricultural crops other than rubber.

Chinese capital investment in Malaya is in a slightly different category from that of other foreigners, since approximately half the Chinese population were born in Malaya, and they now represent the major racial group in the colony. In the field of business investments the Chinese are second to the British, with holdings valued at approximately US\$ 200 million.¹² As noted above, the output of tin mines owned and operated by Chinese still accounts for more than 30% of Malaya's total production, and another 11% comes from properties sublet to Chinese operators. A number of wealthy Chinese have invested heavily in rubber plantations, and the acreage of Chinese-owned plantations has increased steadily in recent years, amounting to 16% of the total estate holdings in 1938. The Chinese also control the fishing industry, and a large share of such industries as pineapple canning, sawmilling, and the cultivation of and trade in tapioca and areca nuts.

MANUFACTURING INDUSTRIES IN BRITISH MALAYA

With the exception of tin smelting, Malayan industries are of very minor importance in the country's economic structure. There are no large-scale manufacturing enterprises of any kind, and the small-scale industries are engaged either in the processing of agricultural products or the production of various types of consumers' goods for the very limited local market which do not compete with imports from the United Kingdom.

The Straits Settlements. The large, modern, tin smelting works of the Straits Trading Company is the leading industrial enterprise in Singapore, but there are also a fairly large number of engineering works and foundries (54 in 1938) engaged in civil, electrical, and mechanical engineering, and in ship-building and repairs. Small-scale factory enterprises, many of which are little more than household workshops, include the manufacture of shoes, tires, belting, and other rubber goods, soap, candles, pottery, bricks, tiles, furniture, paints and varnishes, etc. In 1938, there were thirteen sawmills, eight dye works, six tanneries, eleven fruit canning plants, fifteen fish cur-

¹² *Ibid.*

ing and storing works, eight aerated water factories, twenty-two rubber factories, and sixteen rubber smoke houses, and various other small industrial establishments, e.g., carpenter's shops, blacksmiths, bakeries, sauce factories, etc.

There are far fewer industrial establishments in Penang than in Singapore. In addition to the smelting plant of the Eastern Trading Company, there is one large rice mill, eight small rubber factories, twenty-one rubber smoke houses, four coconut oil factories, ten tanneries, a few small workshops engaged in the manufacture of soap, candles, cigarettes, etc., and a number of fish curing and storing works, bakeries, smithies, and nine engineering works and foundries. Industries in Malacca are limited to a few rubber factories, ice and aerated plants, copra factories, bakeries, fish curing and storing works, and small tobacco and cigar factories.

Federated Malay States. In 1938, there were 77 manufacturing concerns in the Federated Malay States employing ten or more laborers, of which 38 were sawmills and 15 were engineering works and foundries, located chiefly at Kuala Lumpur and Ipoh. The remaining industrial establishments included 4 aerated water factories, 1 brick works, 1 cement works, 1 tobacco factory, 3 ice works, 2 match factories, 2 coconut oil mills, 2 pineapple packing plants, 1 plywood factory, 2 rice mills, 4 rubber factories, 1 shoe factory, and 1 factory making pipes. All these enterprises were organized on a small scale, the majority being owned and operated by Chinese. In the Kinta District of Perak, the principal tin mining center, a foundry industry supplying machinery for the tin mines employed 565 workers in 1938. Many handicraft industries still flourish in the Federated Malay States, of which the most important are the making of mats and baskets, weaving, embroidery, and the manufacture of silverware, jewelry, gold ornaments, and pewter ware.

Unfederated Malay States. The principal industries in the State of Johore are those engaged in the processing of local raw materials, e.g., rubber, tapioca, palm oil, and pineapples. In 1938, there were 5 palm oil factories, 7 pineapple canning factories, 38 rubber factories, 49 tobacco factories producing low-quality cheroots and cigarettes, 4 tapioca factories, 8 brick works, and one small match factory. There were also 10 aerated water factories, 9 engineering and repair shops, 4 ice works, 8

sawmills, and 15 printing plants. Iron and bauxite mining in Johore have been developed entirely by Japanese capital, and the output was exported exclusively to Japan prior to 1941. In 1938, Johore produced 515,699 tons of iron ore and 55,081 tons of bauxite.

Industrial enterprises in the State of Kelantan are limited to 1 match factory, 2 sawmills, 1 rubber factory, 1 rice mill, and a sarong factory using British-made cotton fabrics. Iron and manganese mines, operated by Japanese, produced 159,900 tons of iron ore and 8,916 tons of manganese in 1938. Handicraft industries in Kelantan are engaged chiefly in the production of silverware and hand-woven silk, rayon, and cotton goods.

The only manufacturing enterprises in the State of Trengganu, other than handicrafts, are 5 sawmills and a modern distillery at Samsoo. The natives of Trengganu are famous as craftsmen, principally metal workers, weavers in gold thread, silk, or fiber, and wood carvers. Trengganu is the largest producer of iron ore and manganese in Malaya, Japanese-controlled mines producing 905,316 tons of iron ore and 23,054 tons of manganese in 1938.

The State of Kedah is the largest rice producing state in Malaya; its other products including rubber, tapioca, tea, and tobacco. In 1938, there were 70 rubber factories, 37 rice mills, 7 tapioca factories, 12 tobacco factories, 5 sawmills, and one tea factory. All these enterprises were small and produced chiefly for the local market. The State of Perlis is entirely agricultural, padi and rice forming the main items of export. There are no manufacturing industries of any kind.

This brief survey of industrial development in British Malaya up to the outbreak of the European war is sufficient to indicate that Malaya possesses almost no secondary industries of any size; that her economy is a highly specialized one, developed with foreign capital and, to a large extent, by a foreign labor force, which is dependent almost entirely upon the world market for two commodities—rubber and tin. The country is not even self-sufficient in rice, the staple food for the great majority of the population, and relies upon foreign sources for all heavy industrial products as well as for many types of consumers' goods. A few processing and small-scale light industries have developed, based on local raw materials, but these cater

only to a very limited local market and are of little economic significance in comparison with the tin and rubber industries and the entrepot trade of Singapore and Penang.

It must also be emphasized, however, that Malaya's economic importance to Great Britain rivals if not surpasses the strategic importance of the great naval base at Singapore, since control of Malaya enables British capital to dominate the world market in two materials essential to modern industry, for both of which the United States is by far the greatest market. During the past twenty-five years America has imported roughly half the world's tin production and two-thirds of its rubber, the bulk of these imports coming from Malaya; the large export surpluses thus accumulated by Malaya have appreciably mitigated the normal adverse trade balance of the sterling bloc in relation to the United States. In the three-year period, 1936-38, for example, American imports from Malaya were more than equal in value to those from the United Kingdom, while American exports to Malaya were less than 2% of the value of exports to Great Britain.

Following the outbreak of the European war, Malaya's role as a source of dollar exchange for Britain assumed greatly increased significance. The American Government's purchases of rubber and tin for reserve stocks, as well as greatly increased buying by private American firms, carried production, exports, and prices to record highs in 1940. Gross rubber exports from Malaya, including re-exports of about 220,000 tons, amounted to 772,767 long tons, an increase of 40% over 1939, and as a result of higher prices, rubber shipments increased in value from S\$374,140,840 in 1939 to S\$631,167,026 in 1940.¹³ The United States took 57% of Malaya's total rubber exports in 1940, as compared with 54% in 1939. The tin industry likewise benefited enormously from the increased demand in the United States, total exports amounting to 130,935 long tons, as compared with 82,090 tons in 1939, with the United States taking 78% of the total. Malaya's total exports to the United States during 1940 were valued at S\$591,931,000 while American exports to Malaya were only S\$38,037,000, with the result that US\$264,090,180 was made available to the United Kingdom to aid in financing imports of American war supplies. Malaya was therefore able to make a very important contribution

¹³ S\$1 = US\$0.47 in 1940 and US\$0.517 in 1939.

toward lightening the enormous economic burden of the United Kingdom whose trade balance with the United States during 1940 was unfavorable to the amount of US\$873,932,000.¹⁴

The war has thus brought great prosperity to Malaya's basic industries, and enhanced the importance of her trade relations with the United States, which is not only her chief market but is becoming increasingly important as a source of manufactured goods previously imported from Britain and other European sources cut off by the war. The rise in tin and rubber prices has meant increased purchasing power for the Malayan population, but these advantages have been offset to some extent by wartime restrictions on business and trade, and by the increased cost and scarcity of imported goods. Restrictions have been imposed on the import of a long list of non-essential commodities, and the attempt to conserve foreign exchange has necessitated the curtailment of purchases from non-sterling areas. Furthermore, the expansion of industrial enterprises which are not considered essential to the war effort has been prevented by the impossibility of importing the necessary construction goods and raw materials. Wartime prosperity in Malaya has therefore been confined largely to the tin and rubber industries and to those engineering firms which have obtained military contracts. The import of consumption goods of all kinds is increasingly limited, and there seems to be no plan and little prospect for the development of local manufacturing industries to fill the gap.

¹⁴ This summary of Malaya's role as a source of dollar exchange is taken from the article, "Malaya—Britain's Dollar Arsenal," by Michael Greenberg, published in *Amerasia*, June 1941, p. 148.

CHAPTER IX

BURMA

Burma—a Crown Colony of the British Empire since its separation from India in April 1937—occupies an area of 250,000 square miles with a population of some sixteen million, including one million Indians, 193,000 Chinese and 30,050 Europeans, nine-tenths of whom are British.¹ The colony is one of the great rice-producing areas of the world, with an annual production of about 6,000,000 tons, and an exportable surplus which averaged 3,500,000 tons annually during the decade 1930-40. Burma's other export products include petroleum, high-grade teak, and various ores and metals, of which silver, lead, tungsten, tin, and zinc are the most important. Though as a raw material producing area Burma does not compare in importance with Malaya, the colony is nevertheless of decided economic value to Great Britain, and it may be assumed that economic as well as strategic considerations played an important part in the British Government's decision to detach Burma from India, since by this separation India was deprived of 13% of her territory, 4% of her population, 25% of her forests, 46% of her rubber-growing area, 15% of her rice, 99% of her silver, 68% of her petroleum, and her entire production of wolfram (tungsten-ore), zinc, tin, lead, and antimony.²

Burma's economic structure is very similar to that of the other colonial areas of Southeast Asia. A predominantly agricultural country, with a largely monocultural economy (more than 70% of the total cultivated area is devoted to rice-growing), and important forest and mineral resources, Burma has been developed by British capital into an important producer of raw materials for export, with virtually no modern industries other than the extractive and processing enterprises required to exploit the country's resources and prepare them for mar-

¹ *The India Year Book*, 1939-40, Bombay.

² *Foreign Commerce Year Book, 1938*, United States Department of Commerce, p. 311.

keting.³ More than 70% of the gainfully employed population are engaged in agriculture, while factory industries employ less than 100,000, a factory being defined as an establishment employing twenty or more laborers, or ten in the case of rice mills. Handicrafts still play an important part in the Burmese economy, providing full or part-time employment for many thousands of persons in cotton spinning and weaving, the production of cheroots, etc. There is very little manufacturing of consumers' goods on an industrial scale, the bulk of Burma's requirements being imported from India and Japan. The large mining, manufacturing, trading, shipping, and banking enterprises in the colony are controlled by European capital, principally British, while the smaller enterprises and retail trade is mainly in the hands of Indians and Chinese, the Burmese themselves having little share in the economic development of their country apart from their role as farmers, artisans, and industrial laborers.

The exploitation of Burmese resources by British capital dates back to the late nineteenth century, but received its chief impetus during the First World War when both government and private interests began to recognize the tremendous importance of such key industrial materials as petroleum, rubber, wolfram, lead, and tin. Between 1914 and 1940 capital investment in Burma tripled, and now totals approximately £50 million, of which more than £47 million represents direct business investments. These are divided roughly as follows: oil companies, £16 million; other mining companies, £15 million; transport and communications, £6 million; teak and lumber companies, £3.5 million; banking, trade, and manufacturing, £5.5 million; and rubber, tea, and other plantations, £1.2 million.⁴

At least 90% of this investment is British or British-controlled, with some smaller American, Dutch, Japanese, and Indian holdings, chiefly in banking and trade. An interesting feature of British economic activity in Burma is that a few large corporations have extensive interests in many fields, an outstanding example being the famous Steel Brothers and Company, Ltd., which has extensive teak interests, and also owns rice

³ For a detailed description of Burma's economic structure, see J. L. Christian, *Modern Burma*, University of California Press, 1942.

⁴ Callis, *op. cit.*, p. 105.

mills, oil refineries, a cement works, rubber estates, and textile factories, as well as a general import and export business. This company has averaged a net profit of £400,000 per year on a paid-up capital £2,400,000. The Bombay-Burma Trading Corporation is another organization of this type.⁵

The Burmese Mineral Industry. As indicated above, investments in oil and other mineral enterprises account for more than 60% of the total foreign capital investment in Burma, making the mineral industry a highly important factor in Burmese economy. The annual average volume and value of production of Burma's principal minerals during the five-year period 1934-38 are given in Table 47.

TABLE 47
BURMA—MINERAL PRODUCTION, 1934-1938

	<i>Average Volume</i>	<i>Average Value</i>
Petroleum (million gallons).....	262	£3,871,350
Lead (tons).....	73,687	1,219,233
Tungsten-ore (tons).....	4,414	419,982
Tin-ore (tons).....	6,216	744,300
Silver (ounces).....	5,933,986	582,010
Zinc concentrates (tons).....	71,706	285,817
Copper-matte (tons).....	8,220	163,663
Nickel-speiss (tons).....	4,032	98,062
Antimonial lead (tons).....	1,269	24,493
Iron-ore (tons).....	23,361	7,018
Gold (ounces).....	1,205	7,089
Rubies and sapphires (carats).....	131,499	7,346

Source: Sir Lewis Fermor, "Burma's Mineral Resources and the War," *The Asiatic Review*, Vol. XXXVII, No. 129, January 1941, pp. 158-9.

The extraction and distribution of petroleum is virtually monopolized by three great British corporations, the Burma Oil Company, the British Burma Petroleum Company, and the Burma Shell Oil Storage and Distributing Company of India, half the capital of which is owned by the Burma Oil Company. The Burma Oil Company, a giant holding corporation capitalized at £18,500,000 with assets totaling £26,800,000, has numerous subsidiaries and interests outside Burma, notably the Assam Oil Company of India and the Anglo-Iranian Share Trust, Ltd.

Burma's principal petroleum products are gasoline, kerosene, and fuel oil, and though Burmese oil production accounts for only 0.5% of total world output, the oil industry is an impor-

⁵ *Ibid.*

tant factor not only in supplying India's requirements of kerosene and gasoline, but also in providing high octane gasoline for British aviation forces operating in India, Malaya, and elsewhere in the East. The Burma Oil Company is the largest single employer of labor in Burma, with more than 20,000 workers in its oil fields along the Irrawaddy River, in addition to the employees in its modern oil refineries at Rangoon. The company holds about 205 square miles on mining leases or prospecting licenses from the government; owns 275 miles of pipe line, and operates a fleet of oil tankers aggregating about 25,000 tons.

The production of minerals other than oil is also controlled largely by a few British corporations. Chief among these is the Burma Corporation, Ltd., which owns the Bawdwin mines in the Northern Shan States and operates crushing and smelting works at Namtu, west of Lashio. This company is one of the largest silver and lead producers in the world; its ore reserves are estimated at 3,700,000 tons in 1939, with an average composition of 24.2% lead, 15.1% zinc, 0.87% copper, and 18.7 ounces of silver. Virtually all Burma's production of silver, lead, zinc concentrates, copper-matte, nickel-speiss, and gold come from the Bawdwin-Namtu area.

Tin and tungsten are the other two minerals of which Burma is an important producer. Before the First World War, Burma was the largest producer of tungsten in the world, and with the interruption of mineral exports from China the mines of Mawchi and Tavoy have again assumed great importance as sources of wolfram ore, with production reported to be steadily expanding. Tin production has also increased considerably in recent years, the most important tin mines being located in the Tavoy and Meigui districts. Some of the tin is smelted locally by Chinese, using small native furnaces, but the bulk of the output is controlled by British companies and is shipped to Singapore for smelting. In 1939, Burma exported 5,400 long tons of tin-ore, or 2.9% of total world production. The most important companies engaged in tin and tungsten mining are the Tavoy Tin Dredging Corporation, the Anglo-Burma Tin Corporation, the Consolidated Tin Mines of Burma, Ltd., and the High Speed Steel Alloys Mining Company, all of which are British-controlled.

Industrial Enterprises Other Than Mining. As is to be ex-

pected in a predominantly agricultural country such as Burma, the majority of industrial enterprises come under the heading of processing or extractive industries, e.g., rice-milling, sawmilling, oil refining, sugar refining, cotton spinning and weaving, etc., with rice mills accounting for more than half the total number of factories and providing nearly 50% of the factory employment (see Table 48).

TABLE 48
BURMA—NUMBER OF FACTORIES AND EMPLOYEES

	<i>Total Factories</i>	<i>Total Employees</i>	<i>Rice Mills</i>	<i>Employees</i>
1928.....	968	101,586	606	41,327
1930.....	980	98,701	613	42,137
1932.....	948	90,578	609	43,254
1934.....	946	85,829	637	42,555
1936.....	985	89,230	657	42,817
1938.....	1,019	86,352	683	41,564

Source: O. H. Spate, "Beginnings of Industrialization in Burma," *Economic Geography*, Vol. 17, No. 1, January 1941, p. 78.

Rice-milling is widely distributed throughout Burma, with most of the large British-controlled mills located in the four ports of Rangoon, Moulmein, Akyab, and Bassein, and the smaller, up-country mills being owned by Indians, Chinese, and Burmese. In the boom period following the First World War, the number of small mills expanded rapidly, and the industry came to be dangerously overdeveloped. By 1930, it was estimated that on the basis of the padi available, the excess milling capacity was no less than 32%.⁶ During and after the world depression, the dangers of this over-expansion were emphasized by the decline in the European demand for Burmese rice as a result of efforts on the part of various European nations to reduce their dependence upon foreign food supplies. Furthermore, rice exports to Netherlands India, which had averaged 200,000 tons annually between 1920 and 1930, steadily decreased in the post-depression period as a result of the diversion of some 250,000 acres in the Indies from sugar plantations to rice-growing, and by 1940 had reached the vanishing point. India remains the chief market for Burmese rice, importing about one million tons annually; and it may be noted that Burma's dependence upon the Indian market for rice has been one of the chief obstacles to the imposition of a protective

⁶ Spate, *op. cit.*, pp. 84 ff.

tariff against imports of Indian manufactured goods, a measure which Burmese leaders regard as essential for the encouragement of industrial development in Burma.

As a result of this concentration on rice-milling, other agricultural industries in Burma have been largely neglected. There are two sugar refineries, one at Zeyawadi and the other at Moguang, the former having an annual production of about 20,000 tons and employing 800 workers. Two small rubber factories have been established since 1935, but their output is small and they cannot compete with the cheap rubber goods imported from India.⁷ The extraction of vegetable oils is important in the Myingyan, Thayetmyo, and Prome districts. Three or four large mills, employing 200 to 300 workers each, are owned by Consolidated Cotton and Oil Mills, Ltd., a subsidiary of Steel Brothers, and there are a large number of small native mills producing vegetable oils from ground nuts and sesamum. The flour-milling industry, which depends entirely on imported raw material and a very narrow market, is confined to Rangoon, where there are three or four medium-sized mills.

The textile industry employs about 7,000 workers in factories, in addition to an estimated 45,000 handicraft workers engaged in full or part-time spinning and weaving. There are about 50 cotton ginneries, employing between 3,500 and 4,000 workers, the remaining textile workers being employed in weaving establishments. About half the 2,600 weavers are employed in one cotton mill at Myingyan, owned by Steel Brothers, the only other large-scale enterprise being an Indian-owned knitwear factory in Rangoon, employing 600 workers.

Sawmilling is the largest extractive industry, employing from 12,000 to 13,000 workers, and petroleum refining is second, with 9,000 to 10,000. Apart from the oil fields, and the Namtu silver-lead area in the north, most of Burma's engineering industry is concentrated in or near Rangoon and Mandalay, where the Burma Railway shops and the Irrawaddy Flotilla dockyards employ a total of some 4,500 workers. The manufacture of consumers' goods is confined almost entirely to Rangoon, and consists of a few small-scale factories producing furniture, leather

⁷ Rubber growing in Burma is confined to a small area on the Tenasserim coast, and production is limited under the International Rubber Restriction Agreement to less than 10,000 tons annually.

goods, matches, rope, soap, and other products which do not require great technical skill or elaborate factory processes. Perhaps the most successful manufacturing enterprise in this category is the Burma Cement Company, another subsidiary of Steel Brothers, whose works at Thayetmyo have a capacity of 60,000 tons a year, and produce cement of an excellent quality.

Thus, apart from one fairly large but over-expanded industry—rice-milling—and a few extractive industries such as sawmilling and petroleum refining, Burma's industrial development is negligible. Obstacles in the way of any extensive industrial development are the absence of extensive coal and iron deposits, the Burmese' lack of capital and technical experience, the unchecked competition of cheap manufactured goods from India and Japan and, above all, the solidly entrenched position of the great foreign concerns which dominate every important field of economic activity in Burma and have shown no desire to encourage the transformation of the colony from a purely raw material producing area into a more self-sufficient economic unit.

Since 1938, however, Burma has assumed a new international significance as the only maritime port of entry to Free China, and the development of the Burma Road as a great traffic artery between China and the western world may mean the beginning of a new era in Burma's economic development.

CHAPTER X

NETHERLANDS INDIA

Netherlands India is one of the richest colonial areas in the world, and occupies a position of immense importance in the economic and strategic relations of the Pacific area. This fertile archipelago, with an area of 733,000 square miles and a population of some 70,000,000, developed under its Dutch rulers from a country of subsistence agriculture and handicraft industries into a large-scale producer of raw materials for export, dependent for its prosperity upon an expanding world market for its products. The importance of Netherlands India in world economy is indicated by the fact that in recent years the colony's approximate share in total world production of certain important commodities was as follows: quinine, 90%; pepper, 80%; kapok, 75%; rubber, 37%; coconut products, 28%; agave and sisal fiber, 22%; tin, 18%; tea, 18%; coffee, 6%; and sugar, 5%. The Indies also export between seven and eight million tons of petroleum products annually, and possess valuable deposits of iron, bauxite, manganese, gold and silver.¹

In view of this abundance of raw material resources which could be readily and profitably sold on the world market, Dutch and foreign capital investment in the colony was confined almost exclusively to mining and plantation agriculture, the processing of raw materials for export, and the banking, shipping, and wholesale trading enterprises required to carry on a large and highly lucrative foreign trade. Until the world economic depression brought about a drastic decline in the demand for Netherlands Indian products, and necessitated a sharp curtailment of production in the great exporting industries, there was little official interest even in the preservation of native handicraft industries, and no attempt to develop modern manufacturing industries, a development which would lessen the country's value as a market for imported manufactures.

¹ Amry Vandenbosch, *The Dutch East Indies*, published in co-operation with the International Secretariat, Institute of Pacific Relations, by the University of California Press, 1941, p. 235.

Capital Investment. The first three decades of the twentieth century witnessed a rapid increase in Dutch and foreign capital investment in Netherlands India. By 1929, the total of private business investments in the colony was estimated at approximately four billion florins, divided as follows: Dutch, 2.6 billion; British, 370 million; American 240 million; Franco-Belgian, 120 million, and German, Italian, and Japanese investments totaling about 10 million florins each.² More than half of this huge investment was in plantation agriculture: about 800 million in sugar, held chiefly by the Dutch; 700 million in rubber, where the Dutch share was only 44%, the British, 29%, the French, 10%, and the American, 8%; 200 million in tea; 130 million in coffee; 120 million in tobacco; 89 million in oil palms; 25 million in cinchona, and 5 million in coconuts. Next to plantation agriculture, foreign capital was most heavily invested in the petroleum industry—total investments in 1929 amounting to approximately one billion florins, with the Royal Dutch Shell combine controlling about 75% and the Standard-Vacuum Oil Company most of the remainder.³ The balance of the capital investment, chiefly Dutch, was distributed among banking, shipping, public utilities, railways, private industry, and mining enterprises.⁴ European and American capital thus

² A. Vandenbosch, "The Netherlands Colonial Balance Sheet," *Southern Economic Journal*, January 1938, p. 329.

³ The present Dutch share in the petroleum industry is estimated to be 500 million florins, of which 360 million represents the Dutch holdings in the Batavia Petroleum Company, the most important subsidiary of Royal Dutch Shell. British capital controls about 40% of the capital in the two main oil companies—the Batavia Oil Company for production and the Anglo-Saxon Petroleum Company for marketing; the total British investment in oil being estimated at 240 million florins. The Standard-Vacuum Oil Company, a subsidiary of Standard Oil of New Jersey and Socony Vacuum, has greatly increased its investments in recent years, and is now reported to control nearly 40% of the oil interests in the Indies, its properties being valued at US\$70 million in 1939. See H. G. Callis, *Foreign Capital in Southeast Asia*, Institute of Pacific Relations, 1941, p. 31.

⁴ For a recent estimate of private capital investments by nationality, see Callis, *op. cit.*, pp. 28-37. Mr. Callis arrives at the following conclusion with regard to the distribution of these investments in 1937:

NETHERLANDS INDIA—BUSINESS INVESTMENTS BY NATIONALITY¹
(In millions of U. S. dollars)

Dutch.....	1,040
British.....	200
American.....	95
French.....	35

¹ Since the bulk of these investments were made before 1932, conversions have been made on the basis of the par value of the florin—40 U. S. cents. The Dutch figure includes island-Chinese capital which is estimated at 150 million U. S. dollars.

controlled plantation agriculture, mining, banking, shipping, and a large part of the wholesale trade. The Chinese population was active in the distributing trade and in many medium and small-scale industries, and also acted as "middlemen" in financing native handicraft production and marketing the finished products.⁵ The role of the native population in the country's economic structure was that of farmers, handicraft workers, or laborers on the plantations and in the mines.

Industrial Development Prior to 1930. During the period of expanding world trade and high prices for raw materials, the extremely one-sided economy of Netherlands India yielded large profits for foreign investors and operators, and provided the native population with employment and relatively good prices for their crops, thus developing a market for imported manufactures. No effort was made to develop a more balanced economic structure or to establish large-scale industries other than those engaged in the extraction or processing of raw materials for export; manufacturing production being confined to native handicrafts and small-scale industries turning out consumers goods, plus a few modern, light industries which had grown up to serve the needs of the local European population.

Most of the western-style industries which existed prior to 1930 had been established during the First World War when European sources of supply were cut off and export markets reduced, thus stimulating the development of local manufacturing to fill the gap. A few factories were established for the production of foodstuffs, building materials, soap, vegetable oils, and paper. The increasing mechanization of agriculture and the expansion of the processing industries resulted in the establishment of small engineering works and repair shops, which numbered 186 by 1929. Cigarette production also increased rapidly in the postwar period, both as a western-style industry and as a small-scale industry producing "strootjes" (straw-wrapped cigarettes) for native consumption. According

Japanese.....	12
German.....	10
Italian.....	10
Belgian.....	9
Total.....	1,411

⁵ For an account of the role of the Chinese in the economic life of Netherlands India, see W. J. Cator, *The Economic Position of the Chinese in the Netherlands Indies*, Oxford University Press, 1936.

to the 1930 census, there were 2,208,851 persons employed in industries other than mining, or 10.6% of a total working population of 20,871,050. The number of those engaged in the production of raw materials was 14,363,846, or 68.8%. Table 49, based on data from the 1930 census, gives a general idea of the relative importance of the various industries, including both handicrafts and modern industries.

TABLE 49
INDUSTRIAL EMPLOYMENT IN NETHERLANDS INDIA IN 1930

	<i>Natives</i>		<i>Chinese</i>		<i>Other Foreign Asiatics</i>	
	<i>Java and Madura</i>	<i>Outer Provinces</i>	<i>Java and Madura</i>	<i>Outer Provinces</i>	<i>Java and Madura</i>	<i>Outer Provinces</i>
Foodstuffs, tobacco, etc....	431,376	108,779	12,639	13,622	445	1,789
Textiles.....	496,443	180,751	—	—	284	278
Wood and wickerwork....	339,144	85,821	10,762	18,048	—	—
Clothing.....	180,495	28,079	5,051	9,142	379	630
Metal work.....	—	—	3,228	6,523	118	292

Source: Indisch Verslag, 1940.

The Effects of the World Economic Depression. During the early years of the twentieth century, Dutch officials from time to time expressed alarm at the unbalanced character of the Indies' economic structure, but it was not until the onset of the world depression and the collapse of the world market for the Indies' staple products that "industrialization" became a major plank in the Government's program. The severity of the depression in Netherlands India is indicated by the fact that between 1929 and 1933 the value of exports declined by 67%, although their volume fell by only 17%. Moreover, tariff barriers were raised against the Indies' products in many important markets as country after country resorted to a policy of economic nationalism. "Exports which could not be sold meant imports which could not be purchased, and the home market for these commodities was left unsupplied. An important impetus was thus given to the development of domestic industries for the local market."⁶ A further incentive was the need to

⁶ Alvin Barber, "Six Years of Economic Planning in Netherlands India," *Far Eastern Survey*, Vol. VIII, No. 17, August 16, 1939. For a detailed discussion of the effects of the depression in Netherlands India see, also, A. N. deWilde and J. Th. Moll, *The Netherlands Indies During the Depression*, Netherlands Council, I. P. R., Amsterdam, 1936.

provide employment for the thousands of natives thrown out of work by the curtailment of production on the great estates. During the "crisis years" 1929-33, employment on plantations dropped from an estimated 1,200,000 to 600,000, while many other workers lost their jobs in the agricultural processing industries. As destitution among the native population reached alarming proportions, the full danger of an economic structure based upon the export of a few raw materials was revealed. The Dutch authorities were thus confronted with the necessity of providing a more stable economy, of creating new sources of income for an impoverished people, and of supplying the manufactured products which could no longer be imported from abroad. For all these problems, the revival or expansion of native handicrafts and small rural industries was felt to be the answer.

Official advocacy of this form of industrial development in Netherlands India may therefore be considered a depression-born phenomenon, resulting from the collapse of an economy based primarily upon large-scale agricultural production for export. Additional stimuli to the "industrialization" program were (1) the problem of population pressure in Java, and (2) the rapid displacement of imports from western countries by low-priced Japanese goods. The population of Java was estimated to be increasing by half a million annually, while the intensification of agriculture was thought to be approaching its limit, especially in the case of food crops. It was imperative therefore, that some form of employment other than agriculture should be provided for the Javanese population.⁷ The rapid Japanese invasion of the Netherlands Indian market provided a further incentive for the local manufacture of consumers' goods. In 1929, Japan supplied 10.9% of Netherlands India's imports; by 1934 her share had increased to 31.8%. In the latter year, Japan supplied 83% in volume and 77% in value of the Indies' textile imports, and Japanese products also dominated the local market for glass, pottery, timber, cement, and a wide variety of other consumers' goods. At first, the Dutch authorities were inclined to tolerate this influx of cheap Japanese goods, since it offered some compensation for the

⁷ Java and Madura, with an area equal to that of the State of New York, support approximately 68% of the total population of Netherlands India, estimated at about 70,000,000 in 1940, and only about 6% of this population is urban. In 1930, the population density of Java was 816 per square mile.

lowered purchasing power of the native population, and also because Japanese imports were competitive in the main with those from foreign countries rather than with imports from the Netherlands. But there was no corresponding increase in Japanese purchases from the Indies, whose chief markets continued to be in western countries. These countries were thus in a position to demand a corresponding share in the Netherlands Indian market. Moreover, Dutch imports too began to feel the steady pressure of Japanese competition, the Netherlands' share in the value of total imports into the Indies dropping from 18.3% in 1929 to 12.4% in 1933. A further cause of friction was the Japanese demand that the transport, import, and distribution of Japanese products should be handled exclusively by Japanese firms. This aroused vigorous opposition from the shipping lines, the import houses, and other European-controlled trading enterprises, as well as from the Chinese middlemen and retailers who dominated the distributive trade.

In 1933, therefore, the Dutch abandoned their traditional attitude toward industry and trade in favor of a temporary program of regulation and control which involved: participation in international restriction schemes designed to raise the prices of export products;⁸ the establishment of a quota system to regulate imports; and the encouragement of native industries as a solution for the problems of population pressure, unemployment, and curtailed agricultural production. The "industrialization" program envisaged by the Government called for the establishment of a large number of widely scattered, small-scale industries in the rural areas, producing consumption goods for the local market. There was no thought of establishing large-scale, modern industries which would draw the people from the land and permanently reduce the Netherlands Indian market for foreign manufactures. The object was rather to provide supplementary occupations for the native population without disturbing the basic features of the colonial economy more than was absolutely necessary. The main emphasis was therefore placed on the revival of native handicrafts and the development of new industries which could be carried on by native enterprise with a small amount of capital. The author-

⁸ Netherlands India belongs to the British-controlled international cartels for rubber, tin, and tea, and to the American-controlled sugar cartel. Cf. Barber, *op. cit.*, pp. 197-8.

ities did not specifically prohibit the establishment of large, western-style factories, but such development was given no official support or encouragement.

Government Assistance to Industry. The major obstacles to the development of small-scale native industries were the lack of technical skill, the scarcity of capital, and competition from imported manufactures. To offset the first, the Government initiated an extensive program of technical education. Branches of model government plants were established for the training of workers and overseers. Advisory centers were set up throughout Java and on some of the Outer Islands to furnish data on the small-scale production and marketing of a wide variety of products, e.g., batikwork, textiles, wickerwork, woodwork, cigarettes, leather and metal work. To meet the difficulties of uneven quality and irregular output characteristic of handicraft industries, finishing centers were established for a number of industries, where buffer stocks were accumulated and half-finished articles brought in from the surrounding villages were worked up, graded and packed for sale.⁹ Some effort was also made to provide the native industries with more adequate credit facilities than those offered by the money-lenders and Chinese middlemen. A Government Small Industry Fund was established which assisted many new small-scale enterprises, the finishing centers, and several native textile co-operatives. Disbursements from this fund totaled f105,000 in 1938 and f99,000 in 1939.¹⁰ In 1936, the Netherlands Government made a loan of f25,000,000 to the Netherlands Indian Government which was applied in part to industrial promotion, as well as to irrigation and colonization projects.¹¹

The new tariff policy adopted by Netherlands India in 1933 also served to assist domestic industries through the raising of customs duties and the establishment of import quotas for certain classes of manufactured goods. The promotion of industry was not a primary consideration in this new tariff policy, the main object of the quota system being to check the influx of Japanese goods and preserve a share in the Netherlands Indian market for Dutch manufactures, while the general raising of im-

⁹ Cf. Jack Shepherd, *Industry in Southeast Asia*, Institute of Pacific Relations, 1942 (monograph).

¹⁰ *Economisch Weekblad*, April 26, 1940, p. 748.

¹¹ J. van Gelderen, *The Recent Development of Economic Foreign Policy in the Netherlands Indies*, London, 1939, p. 33.

port duties was largely a revenue measure. In practice, however, the protective effect of the new tariff was much greater than was expected or intended. The new high duties applied equally to goods of Dutch or foreign origin, and even Dutch manufacturers found it difficult to compete with protected industries in the colony. In 1936, for example, an advisory commission on the extension of economic co-operation between the Netherlands and Netherlands India found that production of semi-rayon sarongs had developed in the Indies to such an extent that Dutch manufacturers could dispose of only a small portion of their quota for this commodity. Imports of Dutch-made cotton sarongs were similarly threatened. In its report the Commission recommended reductions in the duties on sarongs and certain other items, urged that a sound evolution of Indian industry required that it be able to meet competition from similar imported articles, and pointed out that from the point of view of general trade policy it was necessary to permit the import of goods from foreign countries in order that these countries might continue to buy the Indies' agricultural exports. The report did, however, recognize that "with native agriculture in Java less and less able to provide the means of subsistence for an increasing population, industrialization must be regarded as essential, first as a means of increasing production for the (Netherlands Indian) domestic market and second as a method of increasing the purchasing power of the population."¹²

Government assistance to industry also included the control exercised under the Regulation of Enterprise Ordinance of 1934, which was extended in 1937. This ordinance gave the Netherlands Indian Government power to intervene in all branches of industry, to control the development of existing industries and the establishment of new ones. In practice it was used to limit the extent of Japanese participation in the industrial life of the colony; to ensure the prosperity of industries that were considered useful to the country by preventing an increase of production beyond effective consumer demand; to guard against the extinction of small-scale native industries by competitive large-scale concerns; and to prevent local production from entirely displacing imports in categories for which

¹² *Rapport nopens Economische samenwerking*, 1938, pp. 54-6. Quoted in Shepherd, *op. cit.*

trade agreements had been concluded.¹³ The Government also permitted exemption from or remission of import duties on machinery and raw materials for many domestic industries. For example, import duties on cotton and rayon yarns for the rapidly growing textile industry were abolished in 1935.

Among the native population, the Government's efforts to promote small-scale industries and the revival of native handicrafts met with a ready response since widespread unemployment, the drastic curtailment in their money incomes, and the necessity of finding some means of subsistence, had compelled large numbers to fall back on handicraft production. Among the more politically conscious native groups, the movement was welcomed on nationalistic grounds, and the widespread hostility against the great foreign exporting interests which had hitherto dominated the country's economic life and drained its wealth created further support for local industrialization. The Chinese population also welcomed the new opportunities for industrial enterprise, and in their role as middlemen for groups of native handicraft workers, and as operators of small and medium sized factories, they proved a factor of great importance in the development of the industrialization program. Western capital, too, was transferred to some extent from the agricultural export industries to new industrial undertakings, and several large foreign manufacturing concerns, unable to maintain their export trade with the Indies over the new tariff wall, established branch plants within the colony.

Development of Small-Scale Industries under the Industrialization Program. The most important of the small-scale, handicraft industries which the industrialization program was intended to revive or expand were batikwork, weaving, and the manufacture of plaited goods, cigarettes, furniture, leather and metal goods, bricks, and tiles. Detailed production figures are not available, but in all these industries output was increased and the quality and diversity of the articles produced was substantially improved as a result of the Government's program of technical education and other forms of assistance mentioned above. The batik industry, which was already functioning on a fairly large scale before the industrialization program was launched, constituted a logical starting point, and by 1937 its output, chiefly of sarongs and other native garments, was esti-

¹³ Barber, *op. cit.*, pp. 200-1.

mated at 70 million units, valued at f41.3 million. Of this amount, f30.4 million represented the cost of the raw materials and f7 million, the amount of wages paid. Batikwork is largely a household industry, carried on by women in their spare time, but there are a number of workshops employing several hundred full-time workers.¹⁴

The native textile industry, unlike batikwork, had declined almost to the vanishing point prior to the initiation of the industrialization program, but the Government's efforts to revive this ancient handicraft resulted in a large increase in the volume of production. An indication of the expansion of textile output is given by the figures for imports of yarn, which increased from 5,686 metric tons in 1932 to 21,323 tons in 1939. Sarongs constitute the chief product of the small-scale textile workshops, but since 1937 the Government is reported to have made considerable progress in developing the production of new fabrics and other articles, such as towels, handkerchiefs, etc.

Small-scale cigarette manufacturing also expanded rapidly; the value of native-produced *strootjes* rose from f14.2 million in 1933 to f18.8 million in 1939, while the native production of European-style cigarettes and cigars rose from f1 million to f14.2 million in the same period.¹⁵ In 1937 it was estimated that the native tobacco industry gave employment to about 10,000 workers. This industry was considered especially useful for the purposes of the industrialization program because, unlike the textile industry which depended upon imported yarns, its raw materials were almost all produced locally, only the paper for European-style cigarettes being imported.

Development of Large-Scale Industries in the Post-Depression Period. Although the officially-sponsored industrialization program was confined entirely to the promotion of small-scale, rural industries, the years 1933-39 also witnessed a considerable increase in the number and output of large-scale enterprises, either Dutch or foreign-controlled, in the mining and processing industries, and in a number of light industries such as textiles, cigarette manufacture, foodstuffs, soap and

¹⁴ Cecile Rothe, "Industrial Development and Home Consumption in the Netherlands Indies," *Bulletin of the Colonial Institute of Amsterdam*, November 1938, Vol. II, No. 1, p. 8.

¹⁵ *Economisch Weekblad*, April 26, 1940, p. 742.

vegetable oils, etc. Though the development of this type of manufacturing industry took place without official assistance or encouragement, and represented no basic change in the colonial, agrarian character of the economic structure, it nevertheless constituted an important phase of the colony's economic growth, since it was responsible for the introduction of modern methods of mechanized production and factory organization. A brief survey of some of the more important mining and Western-style manufacturing industries is therefore essential to round out the picture of industrial development in Netherlands India prior to the outbreak of the European war.

The Mining Industry. The mineral resources of Netherlands India are widely scattered throughout the archipelago and are difficult of access, with the result that their large-scale exploitation required substantial capital investment and is a comparatively recent development. Tin and petroleum are by far the most important mineral products and are produced primarily for export. The Indies supply about 18% of the total world tin production, the chief deposits being located on the islands of Banka, Billiton, and Singkep. The Banka and Singkep mines are government-owned, and the Government also has a controlling interest (62.5%) in the Billiton Company. Banka tin is smelted locally, but the rest of the tin ore is shipped abroad for smelting. Prior to the outbreak of the European war, an increasing share of the tin ore exports was going to the Arnhem smelting plant in Holland, but after the German occupation, all the ore which could not be handled locally was sent to British smelters in Singapore. The development of Netherlands Indian tin production for the five-year period, 1935-39, is given in Table 50.

TABLE 50
NETHERLANDS INDIA—TIN PRODUCTION
(Metallic content in long tons)

	1935	1936	1937	1938	1939
Banka	10,667	17,934	23,085	15,318	16,700
Billiton	8,915	11,984	13,705	8,837	11,630
Singkep	1,506	2,227	1,992	1,350	1,797
Total (incl. native mining)	21,089	32,145	38,750	25,033	30,135

Source: *Indisch Verslag*, 1940.

The tin mines employ about 20,000 workers, chiefly Chinese,

many of whom are recruited directly from China under contract.¹⁶

Petroleum is the second major mineral product of Netherlands India, and its exploitation has involved the use of elaborate mechanical equipment, the employment of large numbers of workers in centralized plants, and large-scale capital investment—chiefly Dutch, British, and American. In addition to plants for the primary extraction of crude oil, there are a number of large refineries for the production of finished petroleum products. Out of a total crude oil production of 7,948,694 metric tons in 1939, only 697,426 tons were sold directly as fuel oil, the remainder being treated in local refineries before export. The increase in the production of crude oil, and of crude oil derivatives, is shown in Tables 51 and 52. As in the case of tin, a large part of the labor force in the petroleum industry is Chinese; total employment being 30,849 in 1939.

TABLE 51

NETHERLANDS INDIA—CRUDE OIL PRODUCTION
(In thousand metric tons)

1931.....	4,698
1933.....	5,535
1935.....	6,082
1936.....	6,438
1937.....	7,262
1938.....	7,398
1939.....	6,949

TABLE 52

NETHERLANDS INDIA—PRODUCTION OF CRUDE OIL DERIVATIVES
(In thousand metric tons)

	1935	1936	1937	1938	1939
Gasoline.....	1,577	1,632	1,837	1,851	2,099
Aviation gasoline.....	173	230	309	401	416
White spirit.....	37	64	75	58	52
Kerosene.....	816	988	1,090	931	1,037
Residue, solar and Diesel oil....	2,072	2,217	2,707	2,793	2,902
Lubricating oil.....	23	23	33	25	29
Impregnating oil.....	6	5	8	17	19
Paraffin.....	58	63	83	78	92
Asphalt.....	10	16	21	25	29
Other products and loss.....	283	360	339	441	569

Source: *Indisch Verslag*, 1940.

The only other minerals mined on a commercial basis are coal, bauxite, and manganese. The Indies possess large deposits

¹⁶ Cator, *op. cit.*, pp. 180-211.

of medium-grade iron ore, but practically no coking coal. No effort has yet been made to develop the mining of iron ore, and coal is mined chiefly for local consumption and as a source of power for the colony's industries. The capital in the coal industry is exclusively Dutch, with government-owned mines accounting for the larger share of total production. The production of government-owned mines increased from 626,000 tons in 1933 to 1,222,000 tons in 1939, while that of privately owned mines rose from 409,000 to 558,000 tons. The mining of bauxite was only begun in 1935, and through 1939 all the ore was exported; exports totaling 227,195 tons in 1937 and 246,150 tons in 1939. The Government's industrial plans for 1941, however, called for the establishment of an aluminum manufacturing industry in the Indies to utilize the bauxite ore. (See below, p. 217.)

Factory Industries. The manufacturing enterprises, other than agricultural processing industries, registered under the Factory Act at the end of 1939 are shown in Table 53. These figures indicate a considerable increase in the number of industrial establishments producing various types of consumers' goods, as compared with 1935, although heavy industries are conspicuously absent. One reason for the increase in the number of modern factories was the attempt on the part of several foreign concerns to evade the tariff and quota restrictions introduced in 1933 to check the influx of Japanese goods, by establishing branch plants within the colony. Among the large foreign corporations which adopted this policy were the General Motors Corporation, Ford Motor Company, Goodyear Rubber Company, Unilever and Colgate-Palmolive-Peet, the Ever Ready and National Carbon Companies, the British-American Tobacco Company, and German and Belgian brewing interests. There was almost no Dutch capital in these new enterprises, Dutch industrial interests having apparently been content with assured import quotas for their products. The only important exception was in the textile field where several large factories were established by Dutch firms, of which the most important are located at Tegal and Garoet in West Java.

The large-scale textile industry, under government regulation, was developed for the most part along lines which would complement the native handicraft industry rather than compete with it, and the large and small-scale industries between

TABLE 53
 NUMBER OF MANUFACTURING ENTERPRISES BY INDUSTRIAL
 DIVISIONS
 (1939 as compared with 1935)

	<i>Java and Madura</i>		<i>Outer Provinces</i>		<i>Total</i>	
	1939	1935	1939	1935	1939	1935
Engineering workshops.....	51	50	11	8	62	58
Repair shops.....	131	89	71	55	202	144
Printing works.....	197	184	43	41	240	225
Cement, lime and tile factories..	16	27	2	2	18	29
Electric power stations.....	212	144	246	168	458	312
Sawmills.....	61	52	87	64	148	116
Paper factories.....	5	3	—	—	5	3
Cigar and cigarette factories....	30	25	—	—	30	25
Ice plants.....	108	75	100	56	208	131
Weaving mills.....	64	17	3	2	67	19
Mineral water plants	77	68	64	71	141	139

Source: *Indisch Verslag*, 1940.

them were soon able to supply the greater part of the domestic demand. In 1936 it was estimated that the total local production of sarongs had risen to 5.6 million kg. while imports had fallen to 2.35 million kg. Production data for later years are not available, but imports of sarongs in 1939 were only 333,000 kg., indicating that a very large degree of self-sufficiency has been achieved in this item which constituted the chief textile requirement of the native population.

A large-scale mechanized cigarette industry also developed, and here again, a form of division of labor was arranged between the large plants and the small-scale producers, the big factories leaving the production of *strootjes* to the handworkers, and concentrating on the production of European-style cigarettes. The total retail value of machine-made cigarettes produced in 1939 was f27.6 million, as compared with a production of handmade European-style cigarettes valued at f11.2 million. Between them the factories and the native cigarette producers supply the bulk of the domestic demand, the retail value of cigarette imports in 1939 having been only f1.7 million.¹⁷

In Netherlands India, as in Indo-China, a number of light industries were developed to meet the needs of the local European community, e.g., the manufacture of building materials,

¹⁷ *Economisch Weekblad*, April 26, 1940, p. 740; Rothe, *op. cit.*, p. 9.

foodstuffs, and beverages. The manufacture of building materials, especially cement, bricks, and tiles, was given a new impetus by the industrialization movement. The local cement industry enjoyed substantial protection, as cement imports were restricted under the quota system and also paid a specific duty which in 1936 was equivalent to 30% of their landed value. Netherlands Indian cement production increased from about 50,000 tons in 1929 to more than 110,000 tons, or 60% of the colony's total requirements, in 1936.

Many of the foodstuff industries which originated during the First World War were also revived and stimulated by the industrialization movement and subsequently by the cutting off of supplies from Europe. The older food industries included the manufacture of biscuits, cocoa, chocolate, and confectionary; the preparation of farinaceous foods such as macaroni and vermicelli; mineral water production, and the distillation of arak and other spirits. The progress of these industries is indicated by the decline in imported foodstuffs during the recovery period after 1936. Imports of biscuits decreased from 3.3 million kg. in 1936 to 2.5 million kg. in 1939, while imports of farinaceous foods declined from 3.9 million kg. in 1934 to 2.5 million kg. in 1939. The expansion of the distilling industry is indicated by the increase in *arak* exports from 207,010 liters in 1935 to 472,986 liters in 1938. A new food industry which assumed considerable importance was the production of margarine from local vegetable oils. This industry supplied the biscuit industry, and its products served to an increasing extent as a substitute for imported butter, butter imports having declined from 7,246 tons in 1935 to 5,574 tons in 1939. Two large new breweries steadily expanded their output and locally-made beer largely replaced imports which declined from 27,546 tons in 1931 to 4,300 tons in 1938.

Precise details are lacking on the development of numerous other light industries which grew up during this period. These included the manufacture of soaps, perfumes, and certain medicines from local vegetable fats and essential oils; the manufacture of paints, varnishes, sealing wax, printer's ink, and mucilage for local consumption; the manufacture of leather and rubber shoes; printing, and paper making.

Engineering and Electric Power Industries. Two other industries are of special importance as indications of the extent of

TABLE 54
NETHERLANDS INDIA—EXPANSION OF ELECTRIC POWER SUPPLY, 1935-1939
(In kilowatts)

	1935			1937			1939		
	Water Power	Steam Power	Total	Water Power	Steam Power	Total	Water Power	Steam Power	Total
Public power stations: ¹									
Java and Madura.....	37,900	35,000	72,900	39,600	35,200	74,800	53,300	31,600	84,900
Outer Provinces.....	600	21,800	22,400	700	21,900	22,600	700	22,200	22,900
Total.....	38,500	56,800	95,300	40,300	57,100	97,400	54,000	53,800	107,800
Government power plants:									
a) Supplying public utilities:									
Java and Madura.....	50,200	8,700	58,900	51,700	8,700	60,400	51,700	8,700	60,400
Outer Provinces.....	1,500	2,400	3,900	1,500	2,400	3,900	1,500	2,400	3,900
b) Supplying government factories: ²									
Java and Madura.....	400	900	1,300	400	900	1,300	400	900	1,300
Outer Provinces.....	100	25,300	25,400	100	25,300	25,400	100	27,300	27,400
Total.....	52,200	37,300	89,500	53,700	37,300	91,000	53,700	39,300	93,000
Grand total:									
Java and Madura.....	88,500	44,600	133,100	91,700	44,800	136,500	105,400	41,200	146,600
Outer Provinces.....	2,200	49,500	51,700	2,300	49,600	51,900	2,300	51,900	54,200
Total Netherlands India ³	90,700	94,100	184,800	94,000	94,400	188,400	107,700	93,100	200,800

¹ Utilities owned by local governments, private persons or utility companies supplying power to the public.

² Mines, railway shops, prison workshops, etc.

³ Exclusive of power plants owned by private industries for own power supply, concerning which no complete data available.

Source: *Indisch Verslag*, 1940, p. 328.

mechanized industrial development in Netherlands India: the engineering and the electric power industry. At the end of 1939 some 62 engineering workshops and 202 small repair shops were registered under the Factory Act, their activities ranging from the repair of bicycles and automobiles to the manufacture, assembly, servicing and repairing of mechanical equipment used in factories and workshops. Netherlands India also possessed a number of well equipped shipyards and drydocks where small vessels were built and ships of the navy and merchant marine were serviced.

The development of electric power plants in Netherlands India was of importance both as a major industry in itself and as a source of power for other industries. In 1929 there were 128 power stations in Java and Madura and 105 in the Outer Provinces. The power capacity of stations owned by local governments and private companies supplying power to the public had increased from 48,800 Kw. in 1925 to 88,800 Kw. in 1930, while that of government stations supplying public utilities and government factories had increased from 59,800 Kw. to 79,100 Kw. during the same period. The expansion of the electric power supply was slowed down during the depression years, but after 1936 there was a steady increase in production and in the number of consumers. See Tables 54 and 55.

TABLE 55
NETHERLANDS INDIA—CONSUMPTION OF ELECTRICITY

	<i>Java and Madura</i>		<i>Outer Provinces</i>		<i>Total</i>	
	<i>Number of Consumers</i>	<i>Consumption (1,000 KWH.)</i>	<i>Consumers</i>	<i>Consumption (1,000 KWH.)</i>	<i>Consumers</i>	<i>Consumption (1,000 KWH.)</i>
1931.....	207,476	212,624	40,408	31,818	247,884	244,442
1933.....	185,573	197,304	39,679	33,284	225,252	230,588
1935.....	165,530	199,917	40,758	36,774	206,288	236,691
1937.....	185,139	237,249	47,959	44,146	233,098	281,395
1939.....	229,067	275,539	60,177	56,867	289,244	332,406

Source: Indisch Verslag, 1934, 1938, 1940.

But though the progress indicated in these figures is substantial, it should be noted that in 1939 the average consumption of electricity per capita was still only about 6 kwh., or between one and two per cent of the average for industrially developed countries.

Thus, by 1939, there had been a considerable expansion of native handicraft industries, and a limited development of modern light industries catering to the local market, but Netherlands India remained predominantly a raw material producing, colonial area, economically dependent upon foreign capital and upon foreign markets for the sale of her staple products. The foreign-controlled industrial enterprises which had been established had been carefully regulated so as not to interfere with or alter the agrarian and handicraft economy of the native population.

Industrial Employment. It is impossible to determine how much new employment was created by the government's industrialization program, since the decennial census was not taken in 1940, and there are therefore no figures comparable to those of the 1930 census given above. An estimate of industrial employment was made in 1936 by the Industrial Service of the Department of Economic Affairs, but this was based on a much narrower definition of "industry" than that adopted by the census officials in 1930.¹⁸ The 1936 figures, however, do serve to illustrate the special character of the "industrialization" movement, namely the emphasis on native handicraft industries rather than large-scale modern factories. Excluding persons employed in agricultural and "extractive" industries, the number of workers in modern factories in 1936 was estimated to be only about 120,000, while full-time handicraft workers numbered approximately 1,535,000. Of this latter group, some 667,000 were engaged in household industries; about 642,000 worked for middlemen, and about 226,000 were employed in small workshops. As between the various types of handicrafts, employment was estimated to be as follows:

Textiles	461,000
Foodstuffs, beverages, tobacco, etc.	405,000
Wood and wickerwork, etc.	319,000
Clothing	170,000
Bricks, earthenware, tiles, etc.	40,000
Metal work	60,000
Miscellaneous	80,000

These figures did not include the large number of persons,

¹⁸ The census figures included some workers engaged in industry as a part-time employment, and also employees of agricultural and "extractive" industries; both of these groups were excluded in the 1936 estimate. See, Shepherd, *op. cit.*

chiefly women, who devoted part of their time to handicraft production.¹⁹

Value of Industrial Production. The official estimate of the value of production by the above groups of full-time handicraft workers in 1936 was f72.4 million, of which f15 million represented the cost of imported materials, f20.2 million the value of local raw materials, and f37.2 million the wages paid to the workers. The value of large-scale factory production in the same year was somewhat larger, estimates ranging from f78 to f80 million, but of this amount wages accounted for only about f30 million, and local raw materials for only f12.4 million.²⁰ The much greater relative importance of wages and local raw materials as factors in handicraft production was one of the arguments frequently used in an effort to justify the Government's preference for small-scale enterprises in its industrialization program and its unwillingness to assist in the establishment of modern, large-scale industries in the colony. Little reliable data is available on the output of the thousands of part-time handicraft workers, but the total has been estimated at f100 million for 1936, of which f23 million went for imported raw materials, and f77 million for wages and local raw materials.²¹ On the basis of these estimates, Dutch authorities place the total value of Netherlands India's industrial production in 1936 at f260 million and the total amount paid for wages and local raw materials at about f186 million. These figures may be compared with the total value of agricultural exports in 1936 which was f363,351,000. They are admittedly rough estimates, and no figures are available for earlier or later years which would provide a basis for judging the progress made during the whole period of the industrialization movement, but they do provide a general indication of the place held by manufacturing production in Netherlands Indian economy prior to the outbreak of the European war.

WARTIME ECONOMIC DEVELOPMENTS

Following the invasion of the Netherlands in May 1940, Netherlands India's foreign trade was badly disorganized and many industries found themselves entirely cut off from essential

¹⁹ *Indisch Verslag 1937*, Part I, p. 139; also, Shepherd, *op. cit.*

²⁰ *Ibid.*

²¹ J. van Gelderen, *op. cit.*, p. 86.

raw materials, equipment, or markets. The disruption of communications left the colony largely on its own, and new economic policies were formulated to meet the emergency. In June 1940 the Governor-General, acting under the broad powers conferred on him by the General Authorization Ordinance of September 1939, issued an Industrial Co-operation Ordinance, calling on all industries to co-operate in the Government's defense effort. If voluntary co-operation were not forthcoming, the Government was empowered to use compulsion or even, in urgent cases, to confiscate industrial enterprises. Regulations were also promulgated for the control of prices and profiteering, foreign trade, foreign exchange, and all other assets.²²

Netherlands India's agricultural export crops, particularly sugar, copra, coffee, and tobacco, were hard hit by the loss of European markets and the shortage of shipping facilities, but rubber producers benefited from the increased demand for war purposes, and especially from large-scale buying by the United States. Rubber exports in 1940 accounted for 40% of the value of Netherlands India's total export trade, amounting to 544,150 metric tons as against 378,000 tons in 1939, with the United States purchases totaling 327,120 tons, as against 171,150 tons in 1939. The tin mining industry also benefited from wartime demands, exports increasing by 60% over 1939, with the United States again the chief purchaser. Moreover, as a result of the shifts in foreign trade caused by the war, the United States in 1940 became the leading source of Netherlands India's imports as well as the colony's chief export market. Trade with Japan also increased substantially; exports by nearly 100% and imports by about 20%. Trade with European countries, however, showed a decline of some 25% in imports and 35% in exports.

Netherlands India's infant industries, many of which were wholly or partially dependent upon raw materials imported

²² A monetary agreement was reached between the British and Netherlands Governments in June 1940 whereby Netherlands India became in fact, though unofficially, a member of the sterling bloc. The florin was pegged at 7.60 to the pound sterling and 1.875 to the United States dollar. The Netherlands Government also agreed that the surplus accruing to Netherlands India from transactions within the sterling bloc—estimated at 100 million florins annually—should be left frozen in the Bank of England for the duration of the war.

chiefly from Europe, experienced considerable difficulties during the early months of the war, but these difficulties were met to a considerable extent through the work of a special government bureau which was set up to deal with raw material problems. The export of certain strategic raw materials was either prohibited or restricted; special measures were adopted to promote the development of local raw material production; and the distribution and prices for all raw materials of which supplies were restricted was made subject to Government control.

While the war thus led to intensified government control over industry in Netherlands India, it also resulted in far more active official support for the development of large-scale manufacturing industries. With supplies from the Netherlands completely cut off, there was no longer a tendency on the part of the Netherlands Indian Government to restrict certain colonial industries because of their competition with those of the mother country. The Indies' defense program, furthermore, required the rapid expansion of manufacturing industries of all kinds, particularly such basic industries as steel, copper, aluminum, and chemical products, including the manufacture of fertilizers and explosives. Plans for new enterprises, announced early in 1941, include the construction of a plant in Sumatra for the manufacture of aluminum from domestic bauxite, requiring a capital investment of between 25 and 30 million florins. This enterprise is to be operated jointly by the Government-controlled Billiton Company and private interests. Power will be supplied by a hydro-electric plant in process of construction on the Asahan River. A scrap-iron melting plant and rolling mill for the manufacture of thin steel plate, structural steel, and reinforced bars is to be established in Java with a capital of 3 million florins, and is expected to utilize substantial quantities of scrap iron formerly exported to Japan and Singapore.

The 1941 plans also provided for the establishment of a sulphate of ammonia factory, capitalized at 7 million florins, and a factory for the production of natron lye, capitalized at 6 million florins. Nitric acid and sulphuric acid, by-products of the sulphate of ammonia plant, will be used in the manufacture of gunpowder and other explosives. Natron lye is used in the manufacture of soap, mineral oils, and aluminum, and its by-products are useful in the paper, textile, and various defense

industries. Other proposed industries include a glass factory, a paper factory, and a plywood factory. The plans also call for the expansion of textile spinning and weaving mills. The Netherlands Indian Government appropriated the sum of 10 million florins in the 1941 budget to help subsidize these new industrial enterprises. This was the first time that the Government had ever extended financial assistance for the establishment of large-scale private industries, and the action indicates the significant change which the war had made in the character of the industrialization program.²³

Thus, under the pressure of wartime necessity, the official industrialization program, which was originally initiated as a temporary measure to alleviate the economic distress of the native population, and which had consisted of little more than the revival and expansion of native handicraft industries, had been transformed, by the end of 1941, into a genuine effort to establish modern, mechanized industries, the immediate purpose of which was to strengthen the country's defenses, but which would also serve in the long run to give Netherlands India greater self-sufficiency in manufactured goods.

It may be noted, however, that this development had taken place under the abnormal and by no means permanent conditions created by the conquest of the Netherlands and the growing menace of Japanese expansion in the Pacific. Large quantities of Dutch capital had been transferred from the mother country to the colony, and Netherlands India had become vitally important as a producer of materials essential to the American and British war effort. But despite the severance of physical ties with Holland, and the industrial stimulus provided by the defense program, Netherlands India is still a colonial area dependent for her economic life upon foreign capital and export trade. The survival of the new industries which are being established to meet the war emergency thus depends to a large extent on the relations which are established between Netherlands India and the great western powers in the postwar period.

²³ Ellen van Zyll de Jong, "New Industries for Netherlands India," *Far Eastern Survey*, Vol. X, No. 12, July 30, 1941, p. 143.

CHAPTER XI

THE PHILIPPINE COMMONWEALTH

The Philippine Islands, America's one colonial possession in the Western Pacific, form part of the barrier reef of island groups which lie between the United States and the continent of Asia. Through the sea lanes commanded by the Philippines passes the trade which supplies the United States with a number of key commodities, e.g., tin, rubber, tungsten, quinine, etc., while Manila itself has become increasingly important as a link in American air communications with Asia. But despite their strategic location, the Philippines have not been subjected to as intensive exploitation by American or other foreign capital as Malaya and Netherlands India, or even Indo-China and Thailand. Moreover, while the other western powers were doing everything possible to strengthen their control over their colonial possessions in Southeast Asia and to expand their production of industrial raw materials, the United States' policy was one of restraint, culminating in the passage of the Philippine Independence Act in 1934. A study of the Philippine economy as it has developed under American rule, and of the economic provisions of the Independence Act, may serve to explain this seeming anomaly.

The principal industries in the Philippines are those engaged in the processing of agricultural products for export, and their growth and prosperity have depended almost entirely on their right of free access to the American market. The four great agricultural industries are sugar, coconuts, abaca (manila hemp), and tobacco, these four alone providing the main source of livelihood for about 70% of the Filipino people. The chief products of the Philippines are centrifugal and refined sugar, coconut oil, copra, desiccated coconut, hemp, cordage, and cigars. Embroideries, manufactured from cotton cloth imported from the United States, are another important export product. The mineral industry is concentrated chiefly on gold production for sale to the United States, though the output of iron,

chromium, and manganese has increased substantially in recent years.

As a result of concentration on "money crops" for export to a free American market, the Philippines, despite rich agricultural resources, are not self-sufficient in foodstuffs; approximately 18% of their imports in recent years has consisted of food products, e.g., wheat flour, meat and dairy products, canned goods, fish, and rice. Other leading imports are iron and steel products, cotton and rayon textiles, automobiles and parts, chemicals, paper and paper products, electrical machinery and appliances, petroleum products, and leather goods. Because of the free trade relations existing between the two countries, the United States is by far the most important market for Philippine products, normally taking about 80% of Philippine exports, and supplying the bulk of the imports (77% in 1940).

Thus the Philippine economy, as it developed under the American regime, had the one-sided character of all colonial areas, being dependent upon the large-scale export of a few agricultural products to pay for imports of foodstuffs and manufactured goods. But it had two features which distinguished it sharply from other colonial economies: first, that its export trade was made possible only by the existence of a free American market; and, second, that its principal export products were competitive with rather than complementary to American production.

But with the passage of the Independence Act and other recent American legislation restricting or taxing Philippine products entering the United States, the chief sustaining factor in the Philippine economy was removed and the Philippines, unprepared for such a drastic change, were suddenly faced with the imperative need for a greater diversification of their economic structure, for the development of industries which could supply some of the local needs formerly filled by imports, and for the establishment or expansion of industries which could compete successfully in unprotected markets.¹ A study of indus-

¹In a report issued by the United States Tariff Commission in 1938, the probable effects of the Philippine Independence Act were summarized as follows:

"A number of enterprises in the Islands may be forced to liquidate more rapidly than new enterprises can be developed to replace them. Certain industries exporting primarily to the United States will be obliged to discontinue or to curtail their operations, and so likewise will a number of others directly dependent on them. The Islands may not be able to find profitable outlets elsewhere for

trial development in the Philippines, therefore, must deal not only with the present degree of industrialization, which is infinitesimal, but must also consider the following questions: (1) the extent to which the great export industries can survive, either by holding some of their present markets or by adapting themselves to production for local consumption; (2) the extent to which other infant industries can aid in maintaining the export trade or in serving local needs; and (3) what new industries might be developed in order to achieve a greater degree of economic self-sufficiency for the country.

Extent of Industrialization in the Philippines. As regards industrialization in the sense of large-scale manufacturing production, the Philippines may be classified as a non-industrialized country which has changed very little during the last forty years. In 1903 there were some 5,000 industrial establishments, employing 64,000 workers, with a capital investment of ₱170 million. According to the census of 1918, there were some 8,000 industrial concerns with an investment of approximately ₱220 million, employing 143,000 workers. At that time the basis of Philippine industry was the small-scale or household workshops which produced a wide variety of specialized products for local consumption, and in some cases, for export. Following the First World War, however, the cultivation and processing of the big export crops took precedence over both sustaining agriculture and household industries as the chief industry of the Islands and the principal source of livelihood for the great majority of the Filipino people.

Present Occupational Distribution. The present population of the Philippines is estimated to be about sixteen million, including some 70,000 Chinese, 19,000-25,000 Japanese, 7,000 Americans, 5,000 Spaniards, and 3,000 of other foreign nationalities. According to a preliminary report on the 1939 census,² 3,456,370 persons, or 65% of the total gainfully employed, were

many of the goods which they now sell to the United States, and they may find it difficult to develop quickly new varieties of exports which they can market either in the United States or elsewhere, without granting subsidies to private producers or without obtaining tariff concessions from foreign countries. With the loss of a preferential treatment for their products in the United States, the Philippines will be obliged to fashion an economy which will be much more self-sufficient than the present." *United States-Philippine Trade*, Washington, 1938, p. viii.

² Ray Hurley, "The Philippine Census: A Preview," *Philippine Year Book*, 1940-41.

engaged in agriculture, and 601,335, or 11.3% were employed in manufacturing industries. Much of this employment in "manufacturing" industries, however, consisted of work in small-scale or household industries, since of the sixty-four industries listed in the census of industrial occupations, only seventeen employed a total of more than 5,000 workers. It is estimated that not more than 250,000 workers were employed in manufacturing enterprises of any size, and that those were concentrated almost entirely in Manila, Cebu, and Iloilo. Furthermore, a large part of this industrial employment was part-time or seasonal, and there was undoubtedly a wide overlapping between the manufacturing and agricultural groups, since many farmers and field laborers customarily undertake some form of industrial occupation in the periods between harvest and planting. The principal industrial occupations and the number of workers employed in each, according to the 1939 census, are shown in Table 56.

Capital Investment in Manufacturing Industries. There are no complete statistics available to show the exact capital investment in industrial plants and equipment in the Philippines. It was estimated at more than ₱400 million in 1938, in contrast with an investment of some ₱1,200 million in the four major agricultural industries. Filipino capital controlled the larger share of the sugar centrals, approximately 43% of the shoe industry, 40% of the cordage, 25% of the embroidery industry, more than 20% of the sawmills, and five coconut oil plants. Chinese capital controlled all the rice mills, 10% of the sawmills, about 6% of the cordage, about one-fourth of the shoe business, a number of soap factories, several coconut oil plants and some of the candy-making. Spanish capital controlled about 60% of the tobacco business and some of the gold mining.³

Japanese interests in the Philippines were originally concentrated in the province of Davao in southern Mindanao, where the Japanese community, numbering about 14,000, is actively engaged in the growing of abaca, the export of hemp, and the buying and selling of copra. The Japanese in Davao also carry on a large general importing, exporting and merchandising business, operate extensive timber concessions and control most

³ C. Porter, "Philippine Industries Today and Tomorrow," *Far Eastern Survey*, Vol. VII, No. 13, June 29, 1938.

TABLE 56
EMPLOYMENT IN MANUFACTURING INDUSTRIES

	<i>Total Workers Employed</i>	<i>Male</i>	<i>Female</i>
All manufacturing industries.....	610,335	333,976	267,359
Most import industrial divisions:			
Embroidery and dressmaking.....	113,810	2,630	111,180
Textiles.....	55,836	1,043	54,787
Mats.....	27,318	1,120	26,198
Fiber hats.....	23,296	2,848	20,448
Sugar centrals.....	22,044	21,762	282
Saw and planing mills.....	21,785	21,747	38
Shoes.....	20,271	14,523	5,748
Nipa (alcoholic drink).....	11,058	5,311	5,747
Cigars and cigarettes.....	11,027	5,272	5,755
Bakeries.....	10,374	9,509	865
Rice and corn mills.....	9,249	7,971	1,278
Garage and repair shops.....	7,126	7,116	10
Clay, brick, tiles, pottery.....	6,733	2,307	4,426
Building.....	6,128	6,122	6
Bamboo.....	5,274	2,746	2,528
Ship and boat building.....	6,226	6,197	29
Printing.....	4,169	3,798	371
Clock, watch and jewelry mfg.....	4,749	4,612	137
Furniture.....	3,522	3,184	338
Desiccated coconut.....	4,311	3,059	1,252
Salt manufacture.....	3,571	2,857	714
Shirts.....	2,492	433	2,059
Cordage.....	2,929	1,419	1,510
Coconut oil.....	1,933	1,844	89

Source: R. Hurley, "The Philippine Census: A Preview," *Philippine Year Book*, 1940-41.

of the deep sea fishing. After 1931, the Japanese steadily increased their numbers and investments throughout the Philippines. At present they operate retail stores in most of the larger towns and a wholesale distributing system which covers most of the country. The offshore fishing industry is chiefly in their hands, and they also have substantial investments in the textile industry, shoemaking and in iron and manganese mines. According to the 1939 census, the Japanese now hold real property in 34 out of the 49 provinces which is assessed at ₱20,394,950. The total of Japanese investments in the Philippines is estimated at from ₱50,000,000 to ₱100,000,000.⁴

In 1935 an analysis made by the United States Tariff Com-

⁴ J. R. Hayden, *The Philippine Policy of the United States* (mimeographed) issued for private circulation by the International Secretariat, Institute of Pacific Relations, 1939.

mission gave the American net investment in Philippine industries as \$163.5 million, including investments in mining, public utilities and transportation, as well as general manufacturing. Portfolio investments totaled approximately \$36 million. A more recent estimate places total American investments in the Philippines as \$218 million (as of January 1940), of which \$70 million was in mining, about \$42 million in portfolio investments, and the remainder in general business enterprises. American capital controls the major part of the gold and chromium production, two of the largest coconut oil plants, six desiccated coconut factories, about half of the sawmills, one-third of the sugar centrals, 75% of the embroidery business, 25% of the shoe business, one large pineapple canning factory and a soap factory, to name only the most important industrial enterprises. In addition, American capital controlled more than 40% of the public service enterprises in the Islands, including railways, bus lines, electric power plants, ice plants, and telephone, water, and gas companies.⁵

In general, however, the United States showed no interest in the intensive economic exploitation of the Philippines comparable to that displayed by the European powers in other parts of Southeast Asia. The chief reason for this disinterested attitude was the fact not only that the Philippines did not produce any materials of vital importance to American industry, but also that several of their principal export products were competitive with commodities produced in the United States. As a result, certain influential American producers, notably the sugar, dairy, and tobacco interests, were able to capitalize on the desire of the Filipino leaders for political independence without serious opposition from any important section of American industry, and to secure the passage of an independence act which deprived the Philippines of their preferential position in the American market.

THE INDEPENDENCE ACT AND PHILIPPINE INDUSTRY

Certain Philippine industries are faced with serious loss or complete extinction when they can no longer rely on free access to the American market. Others stand a fair chance of survival during and after the Commonwealth transition period,

⁵ C. Porter, "The Philippines as an American Investment," *Far Eastern Survey* Vol. IX, No. 19, September 25, 1940.

either because they are able to compete in unprotected markets or because they produce chiefly for home consumption. Finally, there are a number of industries which have recently been initiated or are being considered as part of the Government's program for adjusting the Philippine economy to meet the situation created by the Independence Act. Before discussing the development and prospects of these various industries, however, it seems advisable to summarize briefly the chief provisions of the Independence Act and other American legislation as they affect Philippine industries.⁶

The Philippine Independence Act of 1934, establishing a ten-year transition period beginning November 15, 1935, made the following provisions for the gradual elimination of dependence upon the free American market. An export tax equaling 5% of the American tariff was to be charged on all Philippine products except those on the American free list; this tax to be increased by 5% annually until 1946 when the Islands would no longer enjoy any preference. In addition the Act established a duty-free quota of 850,000 long tons for sugar, and of 200,000 long tons for coconut oil, and an absolute limit for cordage of 6,000,000 pounds annually. It soon became apparent that many Philippine industries would not be able to survive the imposition of even the first 5% duty, and a Joint Preparatory Committee on Philippine Affairs was appointed to investigate the situation thoroughly. The recommendations of this Committee⁷ were largely responsible for the Tydings-Kocalkowski amendments to the Independence Act, passed by the United States Congress in August 1939. Under the new program the all-inclusive export tax was dropped, and four of the Philippines' principal exports were exempted from export taxes and put on a diminishing quota basis beginning January 1, 1940; the quota to be reduced by 5% for each calendar year through 1945. For the period January 1, 1946-July 3, 1946, the quota for each product is to be half the quota for 1945. These four commodities, together with the original quota and the volume of exports to the United States in 1938, are as follows:

⁶ For a detailed summary of the provisions of the revised Independence Act, see: *Philippines*, Vol. 1, No. 2, February, 1941, published by the office of the Philippine Resident Commissioner to the United States; also *American Chamber of Commerce Journal*, Manila, September, 1939, and February, 1941.

⁷ See Joint Committee on Philippine Affairs, *Report of May 20, 1938*, Vol. I-III, published by United States Government Printing Office, Washington, 1938.

	<i>Original Quota</i>	<i>Exports to U. S. A. in 1938</i>
Cigars.....	200,000,000	180,237,000
Scrap and filler tobacco.....	4,500,000 lbs.	4,092,000 lbs.
Coconut oil.....	200,000 long tons	162,000 long tons
Buttons, pearl and shell.....	850,000 gross	578,114 gross

The original quantitative duty-free limitations on sugar and cordage were retained, with the additional stipulation that no cordage above the 6 million pound limit could be shipped even if producers were willing to pay the full American duty. Another change of great importance to the Philippine embroidery industry provided that the export duty on embroideries should be based on the actual increase in valuation resulting from work done in the Philippines, instead of upon the total value of the product, in recognition of the fact that the embroidery is done on cloth or semi-manufactured clothing imported from the United States.

The principal Philippine exports which are subject to the graduated export tax, beginning January 1, 1941, are: sugar, cordage, desiccated coconut, copra cake and meal, timber and lumber, embroideries, canned pineapple, hats, peanuts, leaf tobacco, manganese, furniture, and vegetable lard and butter.⁸ Exports on the United States free list, which are not subject to export duties or quotas, include abaca, copra, copper, chromite, crude rubber and Philippine mahogany. Assuming that Philippine exports to the United States remain at their present volume, the new export taxes are expected to yield approximately \$35,000,000 during the 1931-36 period, 90% of which would be paid by sugar exporters. The money is to be paid into the United States Treasury for the retirement of the Philippine bonded debt in the United States. The revised Independence Act of August 1939 also provides for an economic conference between representatives of the United States and Philippine Governments to be held not later than 1944 to discuss trade relations between the two countries after July 4, 1946. Unless the recommendations of this conference result in legislation to the contrary, all Philippine products will be subject to the full American tariff duties on that date.

⁸ During the calendar year 1941, the export tax is to be 5% of the U.S. duty. During each succeeding calendar year, it is to be increased by an additional 5% of the U.S. duty, except that during the period January 1, 1946-July 3, 1946, the tax is to remain at 25% of the U.S. duty.

The Coconut Oil Excise Tax. As a result of pressure from American dairy interests, the Internal Revenue Act of 1934 imposed a three cent processing tax on coconut oil imported as such from the Philippines or pressed in the United States from Philippine copra. On oil received from other countries, the tax is five cents per pound, giving the Philippine industry a two cent differential during the Commonwealth period. The amounts collected from this excise tax are refunded to the Philippine Treasury. The Philippine Government is forbidden to use these funds for the direct or indirect subsidizing of producers of copra, coconut oil or allied products, but may use them for bona fide production loans to copra producers, or in any other ways which are deemed "necessary to adjust Philippine economy to a position independent of trade preferences in the United States." From 1937, when the first excise refund was made, through the fiscal year ending June 30, 1940, payments to the Philippines from this source totaled ₱178,000,000.

ANTICIPATED EFFECTS OF INDEPENDENCE ON PRINCIPAL EXPORT INDUSTRIES

Sugar. The outlook for the Philippine sugar industry is considered to be extremely bad, since Philippine producers claim that when, in 1946, the duty-free quota is no longer available, they will not be able to compete with Cuban and Hawaiian sugar in the American market. And even between January 1941 and July 1946, the sugar industry must bear the burden of the graduated export tax, which means that, at the basic U. S. rate of 1.875 cents a pound, Philippine sugar producers will have to pay \$1,800,000 in taxes during 1941 and \$3,600,000 in 1942 if the full quota is shipped to the American market.

The Philippine sugar industry represents an investment of some ₱170 million, of which 45% is Filipino, 30% American and 25% Spanish capital. The industry occupies about 750,000 acres, operates 46 sugar centrals and four refineries, and employs some 350,000 workers. Sugar has headed the list of Philippine exports since 1923, and in 1932, 1933 and 1934, sugar exports accounted for 63%, 61% and 59% respectively of the total export trade. Since 1934, sugar exports have declined because of the American quota restrictions, but are still in first place.

Coconut Processing. The coconut industry as a whole, including the production of copra, represents an investment of

TABLE 57

PHILIPPINE SUGAR EXPORTS, 1938-1940
(Value in millions of pesos and as % of total exports)

	<i>Exports</i>	<i>% of Total</i>
1938.....	100.0	43
1939.....	99.3	42
1940.....	91.9	39

Source: American Chamber of Commerce Journal, Manila, February 1941.

some ₱440 million, occupies an area of 1½ million acres and employs about 800,000 workers. It is expected that the copra industry will survive because it has markets outside the United States and is also on the American free list. The desiccated coconut industry is also expected to be able to meet the added burden of export taxes and, eventually, full American tariff duties. This section of the industry operates 11 factories, six of which are owned by American capital, two by British and one each by Chinese and Japanese. The American-owned factories are responsible for about 80% of the total production. The coconut oil industry, with 18 factories representing an investment of ₱24 million, is considered doomed after independence unless it can retain its preferential excise tax in the American market. About 97% of all Philippine exports of coconut oil go to the United States.

TABLE 58

PHILIPPINE EXPORTS OF COCONUT PRODUCTS, 1938-1940
(Value in millions of pesos)

	1938	1939	1940
Copra.....	24.5	26.8	18.8
Coconut oil.....	21.5	18.3	19.7
Desiccated coconut.....	7.6	8.8	7.4
Copra cake and meal.....	5.5	4.3	2.7

Source: American Chamber of Commerce Journal, Manila, February, 1941.

Since copra cake and meal are by-products of oil-expressing, their future will be determined by the fate of the oil industry.

The Tobacco Industry. There are 92 cigar factories and 17 cigarette factories and 25 other tobacco plants in the Philippines, employing some 20,000 workers and representing a capital investment of approximately ₱28 million. Cigars are the most important product, about 72% of the total production being exported, chiefly to the United States. Cigars and scrap and filler tobacco now enjoy duty-free quotas in the American

market, with leaf tobacco being subject to the export tax provisions of the Independence Act. It is considered unlikely that low-priced Philippine cigars will be able to compete in the American market once import duties are imposed. Leaf tobacco, which goes chiefly to Spain, Japan, and China, may continue to find a market. The production of cigarettes, which are manufactured largely for domestic consumption, is expected to increase since it is probable that the Philippines will be unable to continue the present large purchases of American cigarettes.

The Embroidery Industry. Embroidering is predominantly a household industry which provides supplementary income and part-time employment to a large number of Filipino families in addition to those employed in the sixteen plants in Manila. In these plants, which are chiefly distributing centers, the imported cloth is cut and stamped and then delivered to the workers through contractors. The finished products are returned to the plants by the contractors, assembled, inspected, laundered, and packed for export. Practically all the cotton cloth used in this industry is imported from the United States in order that the finished product may enjoy free entry into the American market. The industry as a whole is reported to represent an investment of some ₱8 million, of which 75% is American capital and the remainder Filipino. Exports of embroidery, more than 99% of which go to the United States, were valued at ₱10.7 million in 1939 and ₱9.2 million in 1940.

Between January 1, 1941 and July 3, 1946, exports of embroidery to the United States are subject to the graduated export tax, and since most of these embroideries are sold in retail markets where the demand is for low-priced goods, it is unlikely that prices can be raised sufficiently to absorb the export tax without the loss of a large part of the American market.

Hemp and Cordage. The hemp-growing industry employs some 600,000 workers and represents a capital investment of approximately ₱37 million. The bulk of the hemp is exported as fiber, but there are five cordage factories employing about 2,900 workers with a capital investment of about ₱6 million. In view of the Philippines' virtual monopoly on hemp-growing, it is expected that the production of both hemp and cordage can be maintained, although cordage shipments to the United

States are subject to the graduated export tax beginning in January 1941.

Lumber and Timber. The lumber and timber industry can rely on a large and relatively stable domestic market—about 80% of total production being consumed at home—and also on a fair-sized market in the United States and Japan. The standing commercial timber in the Philippines is estimated at 464,470,000,000 board feet, and the timber cut in 1938 was more than a billion board feet. In that year there were 131 sawmills in operation, with a total investment of about ₱30 million and employing about 20,000 workers.

The Mining Industry. The mining industry is counted on to exercise a stabilizing effect on the Philippine economy during the transition period, although mining interests fear that they may be called on to assume a large part of the tax burden now carried by the agricultural export industries. At present the mining industry is concentrated chiefly in gold production, but the output of base metals—iron, chromite, manganese and copper—has advanced substantially in recent years. The Philippines also possess small deposits of asbestos, gypsum, molybdenum, lead, zinc, coal, petroleum, asphalt, salt, sulphur and clay.

During 1940, a total of 79 mining companies, with a combined paid-up capital of approximately ₱79,000,000, reported mineral production valued at ₱92,832,911—an increase of 9.58% over 1939. Total cash dividends, however, were only ₱18,335,215, as compared with ₱23,091,868 in 1939, presumably because of rising production costs and purchases of additional equipment. The value of Philippine exports of base metals—chrome ore, copper ore, copper concentrates, iron ore, manganese ore, and lead concentrates—totaled ₱14,009,121 in 1940, an increase of 29.9% over 1939. Copper production is reported to have increased by 49% during 1940, as a result of the expansion of production by Lepanto Consolidated, the largest copper property in the Islands. Exports of manganese ore are reported as more than double those of 1939, i.e., about 72,000 tons, 88.6% of which went to the United States and only 8.7% to Japan which had been the chief importer in recent years.⁹

⁹ The facts in this paragraph are taken from a review of the Philippine mining industry in 1940 by the Chamber of Mines, as summarized in the *American Chamber of Commerce Journal*, Manila, June 1941, pp. 18-19.

The Government's revenue from taxes paid by the mining industry amounted to ₱7,447,690 in 1940, as compared with ₱2,203,700 in 1936, and the industry employed 42,931 workers, wage payments totaling ₱21,984,900.

Gold Mining. The gold mining industry is by far the most important mineral industry of the Philippines, not only because of the value of production but because, unlike some other Philippine mineral products, gold finds a ready market in the United States and contributes substantially to the credit balance in favor of the Commonwealth. Between 1931 and 1940, the volume of gold production increased over five times, while the value increased by more than ten times, owing largely to the United States Gold Reserve Act of 1934 by which the value of gold was raised to \$35.00 per fine ounce troy.

TABLE 59
PHILIPPINE GOLD PRODUCTION, 1931-1940

	<i>Fine Ounces</i> (1,000)	<i>Value</i> (million pesos)
1931.....	182.0	7.5
1933.....	279.5	14.2
1935.....	446.0	31.2
1936.....	599.4	41.9
1937.....	692.4	48.5
1938.....	903.3	62.6
1939.....	1,040.5	72.2
1940.....	1,100.0	76.8

Source: Philippine Year Book, 1940-41, p. 52; The Philippine Mining Year Book for 1940 and 1941.

Iron Mining. Philippine production of iron ore has been greatly stimulated by Japanese buying, especially after the outbreak of the Sino-Japanese war. Prior to the extension of the American export control system to the Philippines in May 1941, practically the entire output was shipped to Japan, exports having increased from 7,239 metric tons in 1934 to 1,236,000 tons in 1940 (see Table 60). The present iron mining industry is based on relatively small contact metamorphic deposits. The largest single producer is the Philippine Iron Mines, Inc., at Larap, with an output of 708,531 tons in 1939, all of which was shipped to Japan under contract with Iwai & Co., Ltd., of Tokyo. The ore reserves of this company are estimated at between 4 and 5 million tons, averaging better than 60% iron. The second largest producer is the Samar Mining Co. with ore

reserves on the island of Marinduque estimated at between one and ten million tons, averaging 63% iron; it has a contract with the Pacific Mining Co. of Osaka. The fourth principal producer is Augusan Gold Mines, Inc., with ore reserves totaling some 2 million tons, averaging 60-69% iron, in the Mambula-Paracale gold mining district. This company made its first shipments in 1939, totaling 96,000 tons. All these companies export hematite, or a hematite-magnetite mixture, and all are ostensibly controlled by local capital, either Filipino or American, although Japanese interests exercise a considerable amount of control through contracts, loans, and the use of dummies. In addition, the Ishihara interests control 40% of the stock in the Augusan Co. and have a management contract under which they supply technical direction.

In addition to these comparatively small deposits of high grade hard ore, the Philippines also possess a vast deposit of lateritic ore in the province of Surigao, Mindanao, estimates of the amount available in this field ranging from 500 million to one billion tons. The exploitation of these reserves, however, has been prevented by the peculiar smelting difficulties presented by soft lateritic ore.¹⁰ The ore carries 47% iron on an air-dried basis, and by nodulizing or sintering a 52% product can be obtained. But the cost of this process of driving out the moisture has thus far been prohibitive. In addition to excessive moisture, the Surigao ores also contain substantial amounts of nickel and chromium—a liability in the manufacture of common steel. The Surigao deposits are government-owned, and the National Development Company is investigating the various problems which have thus far prevented its utilization. In general it still may be said that “the big deposits of iron ore in the Philippines are not of usable quality (at least in competition with good hard ore), and the ones of usable grade are all small.”¹¹

Coal. The Philippines possess no extensive coal deposits. Coal production increased from 23,429 tons in 1935 to 55,585 tons in 1939, but coal consumption increased during the same period from 273,957 tons to 428,255 tons (see Table 61). The chief need for coal is for the railways and the production of electric power, there being little or no industrial demand at

¹⁰ For a detailed description of the quality of the Philippine iron ore deposits, see H. Foster Bain, *Ores and Industry in the Far East*, New York, 1933, p. 110 ff.

¹¹ Thomas T. Read, “Iron and Steel in the Far East,” *Far Eastern Survey*, Vol. VI, No. 13, p. 145-7.

TABLE 60

PHILIPPINE IRON ORE EXPORTS TO JAPAN, 1936-1940
(Quantity in thousand tons; value in thousand pesos)

	Quantity	Value
1936.....	596	2,109
1937.....	594	2,139
1938.....	912	3,656
1939.....	1,167	4,915
1940.....	1,236	5,565

Source: *The Philippine Year Book, 1940-41*, 1940 figures from *American Chamber of Commerce Journal*, Manila, June 1941.

present, but even for this relatively small consumption, the Philippines must import approximately seven-eighths of their coal supply.

TABLE 61

PHILIPPINE COAL IMPORTS AND DOMESTIC PRODUCTION

	Coal Imports		Domestic Production
	Tons	Value	Tons
1935.....	250,528	₱1,538,636	23,429
1936.....	368,804	2,082,920	24,706
1937.....	263,515	1,566,798	21,691
1938.....	255,038	1,984,879	40,525
1939.....	372,670	2,963,232	55,585

Source: *The Philippine Year Book, 1940-41*.

Chrome Ore. Philippine production of chrome ore increased rapidly after 1935 when the first exports were made. Total deposits are estimated at more than 101½ million tons, the Masinloc reserves being the largest known deposits of chrome ore in the world. Production and exports of chrome ore have been as follows:

TABLE 62

PHILIPPINE PRODUCTION AND EXPORTS OF
CHROME ORE
(In metric tons)

	Production	Exports
1935.....	—	1,292
1936.....	6,645	11,890
1937.....	79,490	69,855
1938.....	40,253	66,911
1939.....	132,177	126,747
1940.....	186,002	196,000

Note: Production figures are from the *Philippine Mining Year Book, 1941*; export figures from the *Philippine Year Book, 1940-41*; 1940 export figure from a survey of the mining industry issued by the Chamber of Mines of the Philippines.

The bulk of Philippine chrome ore exports goes to the United States, which took 81% in 1940, while Japan took 16.5%.

Manganese. There has been no reliable estimate of total manganese deposits in the Philippines. Most of the ore is of medium grade and requires selective mining. Production and exports of manganese ore are shown in Table 63.

TABLE 63
PHILIPPINE PRODUCTION AND EXPORTS OF MANGANESE ORE
(In metric tons)

	Production*	Exports†	To Japan	To United States
1935.....	—	519	11	508
1936.....	2,549	255	1	254
1937.....	25,218	12,206	7,491	4,714
1938.....	58,143	49,359	49,003	—
1939.....	29,394	35,998	23,519	11,345
1940.....	52,166			

* Production figures from *Philippine Mining Year Book, 1941*.

† Export figures from *Philippine Year Book, 1940-41*. For estimates of 1940 exports, see above, p. 230.

Copper and Copper Concentrates. The production of copper concentrates increased from 5 tons in 1936 to 7,957 tons in 1940, while the production of copper ore rose from 13,000 tons in 1937 to 29,874 tons in 1940.

Table 64 gives the total volume and value of Philippine mineral production during the five-year period, 1936-40.

TABLE 64
PHILIPPINE MINERAL PRODUCTION, 1936-1940

	Quantity	Value
Gold.....	4,352,659 oz.	P303,140,679
Silver.....	5,145,964 oz.	7,091,946
Iron ore.....	4,505,542 tons	18,383,363
Manganese.....	167,470 tons	3,664,489
Chrome ore.....	444,667 tons	7,460,438
Copper concentrates.....	20,144 tons	7,521,540
Copper ore.....	85,940 tons	2,273,852
Lead-zinc.....	—	313,001
Total.....	—	P349,849,308

Source: *Philippine Mining Year Book for 1941*, p. 48.

The further expansion of the mining industry is expected to play an important part in the adjustment of Philippine economy to the new position created by the Independence Act. But the Government's program also calls for efforts to achieve na-

tional self-sufficiency in foodstuffs and a greater degree of self-sufficiency in manufactured goods. A National Economic Council has been established to advise the Government on economic and financial problems and to formulate a program for the "stabilization of the national economy," and the National Development Company, a public corporation with an authorized capital of ₱50,000,000, has been empowered to finance or establish industries considered necessary or important for the common welfare.¹² According to its manager, Dr. Gregorio Anonas, the dual objective of the N.D.C. is to "first take care of the prime necessities of the people and later to turn its attention to the establishment of industries necessary for the economic stability of the nation."¹³ In other words, consumers' industries will come first and export industries second.

The chief subsidiary of the National Development Company is the Cebu Portland Cement Company, founded in 1922, which operates a plant at Naga, Cebu, with a reported output of nearly 4,000 barrels per day. During the first sixteen years of its existence the company declared dividends totaling ₱1,275,000 and in 1938 its net worth was estimated as ₱5,360,000. The company also owns and operates the Uling-Naga coal mines which produce approximately 1,000 tons per month.

The National Food Products Corporation, another subsidiary of the National Development Company, was organized in 1937 with an authorized capital of ₱2,500,000, the N.D.C. subscribing 51% of the total. The aim of this corporation is to expand the fish, meat and dairy, vegetable and fruit-canning industries, to encourage the canning and preservation of food products, and to manufacture cans and other containers, in order to lessen the country's dependence on imports of canned goods and containers, now valued at some ₱40,000,000 per year. The Food Products Corporation has already established a fish cannery in Pampanga and a can factory in Manila. Other subsidiaries of the N.D.C. are the National Rice and Corn Cor-

¹² The original National Development Company was established in 1919, but was technically in process of liquidation at the time of the inauguration of the Commonwealth. In November 1936, it was made a public corporation and its powers greatly enlarged. During 1936 and 1937, the Government subscribed ₱10,000,000, to the company—the amount being charged against the coconut oil tax refunds. See, *Second Annual Report of the United States High Commissioner to the Philippines*, Manila, 1938, pp. 98-103.

¹³ G. Anonas, "The National Development Company and Subsidiaries," *Philippine Almanac*, 1938-1939, p. 248.

poration, capitalized at ₱4 million, the aim of which is to stabilize rice and corn prices and prevent profiteering and speculation; and the National Power Corporation, established in 1937 to undertake the development of hydraulic and other power resources.

PRESENT STATUS OF PHILIPPINE MANUFACTURING INDUSTRIES

Excluding the processing and mining industries producing chiefly for export, manufacturing enterprises in the Philippines are mainly small-scale or household industries turning out a variety of consumers' goods for the local market. These may be divided into three categories: (1) foodstuffs, e.g., rice and corn mills, bakeries, candy factories, distilleries, breweries, and mineral water plants; (2) clothing, e.g., native textiles, shoes, dresses, hats; and (3) general consumption goods, e.g., building materials, cigarettes, soaps, paints, varnishes, matches, etc. Statistics regarding these industries are so scanty that it is possible to give only a very general account of their development.¹⁴

Foodstuffs. There are a number of candy factories in Manila, employing some 2,000 workers, with an investment of ₱100,000. It is believed that a further expansion of this industry can serve to some extent as a "shock-absorber" for the sugar industry, and also to reduce the imports of candy and confectionery. The Government is also endeavoring to encourage the development of the vegetable lard and butter industry and the manufacture of soap, in an effort to provide a larger domestic market for coconut oil. There were about 200 soap factories, 5 vegetable butter and 4 vegetable lard plants in operation in 1939, and prospects for supplying the home market and even of developing an export trade with Far Eastern markets were considered good, though production was still small and exports negligible. The milling of rice and casava flour from local products is another industry which has been suggested as part of the program for greater self-sufficiency in foodstuffs, since wheat flour imports have averaged nearly ₱10 million annually in recent years. Meat and dairy products constitute another sizable item in the import trade, having been valued at approximately ₱12

¹⁴ The material in this section is taken largely from "Philippine Industries Today and Tomorrow," *loc. cit.*, and from *Facts and Figures about the Philippines*, Philippine Department of Agriculture and Commerce, Manila, 1939.

million annually during the period 1938-40, but the lack of refrigeration facilities constitutes an enormous obstacle to the development of a local meat and dairy industry. At present there are only some 200 ice plants in the Islands, and electric refrigeration is far too costly for small enterprises.

In addition to the government-owned fish cannery in Pangasinana, there are three other canneries, with an investment of some ₱80 million, the largest of which employs 800 workers. We may also include under this general category some 170 alcohol distilleries, 54 wine and liquor plants, 3 breweries and 150 mineral water plants, representing a total investment of ₱3.5 million, and employing some 13,000 workers.

Clothing. Hatmaking for both domestic consumption and export has long been an important home industry in the Philippines, providing employment for some 50,000 weavers, mainly in homes, although there are also 16 plants which finish the products for export. Capital investment in this industry is about ₱4 million. A variety of raw materials is available, including bamboo, straw, abaca, and buntal fiber. Shoe manufacturing is one of the most promising of the infant industries in the Philippines. About ₱8 million have been invested in this industry which employs some 20,000 workers. There are five plants manufacturing rubber shoes, four making leather shoes, and some 350 small shops where the manufacturing is done almost entirely by hand. Annual production is about 2 million pairs.

Textiles. The Government has chosen textile weaving as one of the main items in its industrialization program because of its traditional importance as a home industry, the wide variety of raw materials available, and the fact that textiles constitute one of the largest items in the import trade, being valued at ₱43.8 million in 1938. However, the present plans for the development of a cotton textile industry are extremely modest, inasmuch as the bulk of the raw cotton must be imported. The National Development Co. has established one modern spinning and weaving mill with equipment costing some ₱1,700,000, but it is estimated that it would require ₱144,000,000 to install the necessary plant and furnish the power to produce cotton goods on the scale that they are now imported. Moreover, the Government's program has aroused the opposition of the thou-

sands of home weavers who fear the competition offered by large, mechanized plants.¹⁵

Miscellaneous Industries. Miscellaneous industrial enterprises include a factory producing cutch extract for tanning, a match factory, four paint and varnish factories, a plant producing glassware and tiles, a bottle factory, and a factory producing nails, screws, bolts, and similar articles. Among the new industries which have been proposed by a special committee studying industrial possibilities are the manufacture of glass and clay products, chemicals, cosmetics and fertilizers, and the production of coarse grades of paper from sugar bagasse, abaca, rice straw and wood. Both the raw materials and the markets for such enterprises are readily available and most of them would require only a modest capital investment. Up to date, however, none of these proposals appears to have gone beyond the planning stage.

PROSPECTS FOR FUTURE INDUSTRIALIZATION

Even from this very general survey, it is clear that the re-orientation of the Philippine economy toward greater self-sufficiency in manufactured goods and a lessened dependence upon a few great export industries, will take time, careful planning, and substantial capital investment. One of the major obstacles to extensive industrial development is the lack of a sufficient supply of cheap electric power. Coal production is small and petroleum resources have not yet been thoroughly explored. There are reported to be a large number of sites suitable for the development of hydro-electric power, but the cost of setting up power plants and transmission lines will be enormous. Even in the field of light industry, development on any extensive scale would require the purchase of large quantities of machinery and equipment from abroad. This, in turn, would necessitate high production costs for some years and would probably result in a price beyond the reach of the average consumer. Large-scale production of goods for the domestic market is impossible unless the purchasing power of the Filipino people is substantially raised, while production for export would put the Philippines into direct competition with other Far Eastern countries where living standards are even lower than those pre-

¹⁵ C. Porter, "The Future of the Philippines," *Pacific Affairs*, Vol. XIII, No. 2, pp. 138 ff.

vailing in the Islands. During the initial period most industries would undoubtedly require government assistance or subsidies; yet government revenues are almost certain to decline sharply when the windfall of excise tax revenues ceases and the great export industries are no longer able to carry the heavy tax burdens which they have shouldered for many years.

In addition to these long-term problems, the European war seriously disrupted the economic readjustment program of the Philippines by making the country more than ever dependent upon the American market and American sources of supply. Furthermore, as emphasized above, the Philippines were not a source of materials essential to the American and British war effort, and with shipping facilities concentrated on the transport of urgently needed commodities, Philippine exports were unable to secure shipping space or to pay the high freight and insurance rates resulting from the war. The disastrous effect of this situation upon Philippine economy is indicated by the fact that during the first year of the European war, the price of seven major export commodities dropped by an average of 21% over the preceding year. The shipping crisis and the war also caused a serious shortage of many imported products, but despite this shortage, the prices of such goods did not rise appreciably because of the serious decline in Filipino purchasing power.¹⁶

This situation has an important bearing on the question of Philippine industrialization, for it might have been expected that the scarcity of imported manufactures would have encouraged the establishment of secondary industries in the Philippines, as was the case in many colonial and semi-colonial areas during the First World War. However, during the first two years of the Second World War, the Philippines found themselves victims not only of their colonial status but also of the severity of the struggle for vital raw materials. In sharp contrast to the boom in the tin and rubber industries of Malaya and Netherlands India, the Islands suffered a severe economic recession, a situation which was not conducive to the establishment of new industrial enterprises. The extension of the American export licensing system to the Philippines in May 1941 caused further dislocations in the Islands' economy by cutting off ex-

¹⁶ V. F. Barranco, "The Philippines in War Time," *Philippine Year Book*, 1940-41, p. 90.

ports of iron ore, copper, and other products to Japan—normally their chief market—without providing an alternative outlet. American efforts to build up the military defense of the Philippines, and recent measures taken to facilitate the production and export of Philippine manganese, chromium, and hemp to the United States, may act as a partial and temporary check to the further deterioration of the Philippine economy, but these developments cannot provide the Philippines with a basis for a really substantial and constructive program of industrialization.

CHAPTER XII

AUSTRALIA

Of all the possessions and constituents of the British Empire east of Suez, Australia is proportionately the most highly industrialized, the industrial output of her population of less than seven million being only slightly smaller in value than that of India, with a population of nearly four hundred million. In the history of Australia's economic development there have been three great waves of industrial expansion: the first during and immediately after the World War of 1914-18; the second after the world economic depression of 1930-33; and the third and most important dating from the outbreak of the Second World War in 1939, during which Australia has advanced rapidly toward industrial maturity.

Industrial Expansion, 1914-20. Prior to the First World War, Australia's economy was based primarily on those industries in which she possessed special advantages as a producer, namely sheep and cattle raising, large-scale wheat farming, and mining, with wheat, wool, and metals accounting for approximately 70% of her total export trade.¹ Manufacturing industries were confined almost entirely to the processing of raw materials, the preparation of foodstuffs, and the manufacture of woollen textiles, clothing, furniture, and other miscellaneous consumers' goods. Apart from such commodities, Australia was entirely dependent upon imports for her requirements of manufactured goods, including all forms of construction materials, machinery, iron and steel products, etc.

With the outbreak of the First World War, however, the pace of Australian industrialization was greatly accelerated as a result of the cutting off of supplies of manufactured goods and materials from Europe, and the consequent establishment of new manufacturing enterprises to fill this gap. Between 1914 and 1920, the value of manufacturing production in Australia increased from £63.3 million to £81.4 million, and Australian

¹ Cf. N. Windett, *Australia as Producer and Trader, 1920-32*, Oxford University Press, 1933, pp. 2-3.

heavy industry got its initial start when the Broken Hill Proprietary Company began large-scale iron and steel manufacturing in Newcastle, N.S.W., in 1915. The Australian output of steel ingots increased from an annual average of less than 10,000 tons in the immediate prewar period to 220,000 tons in 1921-22, and the growth of heavy industry was also reflected in substantially increased production of both coal and iron ore. On the basis of 1910-14 = 100, the index of coal production had risen to 258 by 1921, and that of iron ore production to 532; production totaling 689,275 tons of iron ore and 12.8 million tons of coal in the latter year. The First World War thus caused a definite shift in the basis of the Australian economy, for whereas prior to 1919 the pastoral industries had been the chief producing agency, contributing approximately 30% of the total value of Australian production, the "secondary" or factory industries took first place from 1921 onwards.

From the World War to the Depression. The years 1923 to 1927 were a period of general prosperity for Australia, owing to the high prices received for her main export products, particularly wool. There was also a large inflow of capital as a result both of government borrowing and private investment, total capital imports increasing by £200 million between 1921-22 and 1928-29.² Once the stimulus of high prices and import shortages characterizing the war and immediate postwar period had been removed, however, the growth of manufacturing industries came to a virtual standstill, as many of the newly established industries, owing to their inefficient organization and high manufacturing costs, proved unable to meet the renewed competition of foreign imports.

During this period, Australia had favored the continued expansion of manufacturing industry as essential for greater economic self-sufficiency and the protection of the Australian standard of living. As a result, the Tariff Act of 1921 established high protection, with especially heavy duties on iron and steel products, woolen textiles, clothing, copper manufactures, electrical appliances, and certain types of agricultural implements and other machinery. The Act also provided for considerably increased tariff preferences for goods of British origin. By 1925, this policy of subsidizing manufacturing industries, which was

² R. Wilson, "Australian Capital Imports 1871-1930," *The Economic Record*, Melbourne, May, 1931.

at least partially responsible for the high cost of Australian manufactures, had produced serious distortions in Australia's economic structure. "The attempt to cover too wide a field of manufacture and to maintain wages at too high a level created a growing disparity in costs of manufacture between Australia and the countries with which she traded. . . . Competition from British and foreign countries was increasingly felt in the secondary industries and greater protection was demanded. As a result, considerably increased duties were imposed in 1925 on woolen textiles, clothing, hosiery, and certain types of electrical apparatus and machinery."³

The effect of this tariff policy on Australian manufacturing costs was described by one Australian economist as follows: "In our efforts to develop economic strength we have given protection all round with a lavish hand. As a result every industry is burdened with higher costs through the protection of its fellows."⁴ A further consequence of this situation was Australia's inability to develop an export trade in manufactured goods, less than 4% of her manufacturing production being exported during the ten-year period ending June 1929, as compared with 47% of her raw materials and pastoral products.

But while there was no great quantitative growth in Australian factory industry during the first postwar decade, certain qualitative developments were of considerable importance. One of these was the geographical concentration of manufacturing enterprises in Victoria and New South Wales, with Melbourne as the center of the textile industry, and the metal manufacturing industries situated in and around Sydney. In addition to these two main industries, there was a large variety of miscellaneous manufacturing enterprises serving the needs of the urban population and the surrounding farming and mining areas. By 1928-29, manufacturing production in New South Wales accounted for 44% of the value of the State's total production. In Victoria, the proportion was 30%; in Queensland, 11%; in South Australia, 8%; in Western Australia, 4%; and in Tasmania, 2%.

This geographic concentration was accompanied by a concentration of capital and financial control in industry, best ex-

³ N. Windett, *op. cit.*, p. 5.

⁴ Herbert Burton, "The Growth of Secondary Industry," *Annals of the American Academy of Political and Social Science*, November 1931, p. 84.

emplified by the dominant position of the Broken Hill Proprietary Company in Australian heavy industry during the 'twenties. This company, with a capital of over £5,000,000, operated iron mines at Spencer's Gulf in South Australia, and transported the ore to Newcastle over its own railway lines and in its own ships. It had its own collieries, and its limestone and sandstone supplies were provided by its own quarries in Tasmania and New South Wales. By 1930, Broken Hill and its subsidiaries were manufacturing a wide range of iron and steel products, including steel rails, structural shapes, bar steel, steel rods, iron and steel castings, galvanized iron, nails and wire, and chemical by-products from its coke ovens.

The only important competitor of the Broken Hill Proprietary Company during the predepression period was the Australian Iron and Steel Co., Ltd., which was formed in 1928 by a merger of the Hoskins Iron and Steel Co. and the Australian interests of a large British contracting firm. This company, with a paid-up capital of £3,100,000, concentrated its activities chiefly at Port Kembla, N.S.W., where it operated blast furnaces, steel mills, collieries, and coke ovens, but it also controlled collieries, and iron and steel works at Lithgow, N.S.W., a cast iron pipe works at Sydney, a steel pipe works at Brisbane, and iron mines in other parts of New South Wales, Tasmania, and Western Australia.

Effects of the World Economic Depression on Australia. Despite this growth of manufacturing industries producing for the internal market, however, the prosperity of Australia's economy continued to depend primarily on the great pastoral industries and the export of wool, wheat, flour, butter, meat, hides and skins. As a result, the country was immediately and sharply affected when the world depression caused a drastic decline in the prices of her staple exports on the world market. The average export value of a bushel of wheat fell from 5s 9d in 1929-30 to 2s 5d in 1930-31, and the export value of greasy wool, which had averaged 19.63d per pound for the five years 1924-28, dropped to 9.16d per pound in 1930-31. With this slump in the value of her principal exports, Australia's external credit declined to a point at which it became impossible to continue overseas borrowing. For years Australia, as a young and developing country, had been enabled by overseas borrowing to support an annual excess of imports over exports, but when the

value of her exports dropped from £140 million to £90 million, the funds available in London to pay for excess imports dwindled alarmingly. The continued decline in raw material prices, the increasingly unfavorable balance of trade, and the possibility of default on overseas interest payments created a serious financial crisis. In 1930 Australia was forced off the Gold Standard and, after fluctuating for some time, the Australian pound was stabilized at 125 to £100 sterling in December 1931.

It has been estimated that between 1928-29 and 1931-32, Australia lost about one-third (£200 million) of her national income, and that real income per capita fell by one-fifth.⁵ In the manufacturing industries, the worst effects of the depression were felt in the year 1931-32, when the reduction of purchasing power combined with the existence of large unsold stocks caused a sharp decline in the demand for domestic manufactured products. As shown in Table 65, the net value of manufacturing production declined from £167,623,316 in 1928-29 to £110,981,830 in 1931-32, after which it increased steadily, although it did not surpass the predepression level until 1936-37. In Australia, as in the United States, New Zealand, and elsewhere, the depression was met in two successive ways. First was the stage of economy. Interest rates on the internal and foreign debt were reduced, wages and public salaries were cut, taxation was increased, manufacturing and other costs reduced, and imports gradually curtailed. This period of extreme stringency gradually evolved into the second stage of "pump priming," marked by an abundance of cheap money for investment in government loans, and the initiation of a large-scale program of public works.

THE SECOND WAVE OF INDUSTRIAL EXPANSION, 1933-1939

Despite certain concessions made to United Kingdom manufacturers in the Ottawa Agreements of 1932,⁶ the next six years

⁵ Report of the Committee Appointed by the Government of the Commonwealth of Australia to make a Preliminary Survey of the Economic Problem, 1932. (Wallace Bruce Report)

⁶ In order to assist British producers to meet foreign competition in the Australian market, the Commonwealth Government agreed to apply a "preference formula," and in order to assist them to meet Australian competition, the Government agreed to abide by the following principles: that protection would be afforded only to industries reasonably assured of sound opportunities for success; that protective duties should be based on the principle of affording United

TABLE 65

AUSTRALIA—MANUFACTURING PRODUCTION, 1928/29—1938/39

Year	No. of Factories	Workers Employed (1,000)	Salaries and	Value of	Value of	Value of
			Wages Paid (£1,000)	Materials Used (£1,000)	Produc- tion ¹ (£1,000)	Output ² (£1,000)
1928-29.....	22,916	450.5	90,987	238,939	167,623	420,445
1929-30.....	22,700	419.2	84,717	220,945	156,364	390,912
1930-31.....	21,751	338.8	62,566	162,105	118,310	290,799
1931-32.....	21,657	336.7	55,932	161,199	110,982	281,646
1932-33.....	22,330	370.7	59,416	175,149	119,203	304,798
1933-34.....	23,297	405.9	64,445	189,827	129,092	330,134
1934-35.....	24,211	449.6	72,825	209,047	143,816	365,201
1935-36.....	24,894	492.8	82,098	238,975	162,437	414,689
1936-37.....	25,668	523.9	90,123	260,579	177,685	451,829
1937-38.....	26,395	559.2	102,079	287,243	196,488	498,779
1938-39.....	25,941	565.1	106,743	281,303	203,417	500,420

¹ "The value of commodities produced during the year, deducting, as far as possible, the value of goods consumed in process of production."

² Represents the wholesale selling value at the factory of goods made or processed during the year, including by-products.

Source: *Official Year Book of the Commonwealth of Australia, 1939; Production, 1938-39*, published by Bureau of Census & Statistics, Canberra.

witnessed a marked improvement in the position of Australian manufacturing industries, with the net value of manufacturing production rising from £111 million in 1931-32 to £203 million in 1938-39, an increase of nearly 90%. Data with regard to the number of factories, volume of employment, and value of production of the principal manufacturing industries during this period are given in Table 66.

The depression did much to establish Australian manufacturing industries on a sounder basis. The reduced purchasing power of the people sharply curtailed the market for local manufactures as well as for imported products, and compelled Australian industrialists to undertake an intensive overhauling of production methods and costs. So effective was this reorganization that many companies actually began to improve their position before the depression reached its lowest point. The concentration of capital was accelerated as a result of a large

Kingdom producers full opportunities of reasonable competition, with the reservation that special consideration may be given to industries not fully established; that no new duties should be imposed, and no existing duties should be increased without the concurrence of the Tariff Board before which United Kingdom producers should have full rights of audience. See, H. L. Harris, *Australia's National Interests and National Policy*, Melbourne, 1938, pp. 91-2.

TABLE 66

AUSTRALIA—MANUFACTURING PRODUCTION BY INDUSTRIAL DIVISIONS

<i>Industrial Division</i>	<i>No. of Factories</i>	<i>No. of Workers</i>	<i>Value of Output¹ (£1,000)</i>	<i>No. of Factories</i>	<i>No. of Workers</i>	<i>Value of Output¹ (£1,000)</i>
Non-metalliferous mine and quarry products....	433	6,550	6,692	564	10,549	10,909
Bricks, pottery, glass.....	431	11,483	5,398	471	15,956	8,481
Chemicals, dyes, paints, etc.....	596	14,846	21,447	666	19,943	28,632
Industrial metals, machinery, implements.....	6,100	125,640	85,939	7,255	178,866	141,152
Precious metals, jewelry, etc.....	270	2,737	1,144	290	3,728	1,618
Textiles.....	588	38,042	21,699	611	46,344	26,881
Skins and leather.....	518	9,779	9,662	533	11,045	10,100
Clothing.....	4,229	78,074	28,839	4,314	86,969	34,171
Food, drink, tobacco.....	4,657	70,517	119,545	5,202	86,018	152,355
Woodworking.....	2,446	24,192	15,241	2,822	32,302	22,293
Furniture.....	1,020	11,306	6,066	1,149	15,414	9,234
Paper, printing, binding..	1,750	34,008	19,501	1,816	40,179	25,925
Rubber.....	292	7,369	6,079	249	7,509	7,108
Musical instruments.....	29	460	186	34	451	192
Miscellaneous.....	349	5,786	3,263	413	7,776	4,069
Heat, light, power.....	503	8,799	14,499	502	9,449	17,300
Total.....	24,211	449,598	365,201	26,941	572,498	500,420

¹ Including value of materials consumed.

Source: *Official Year Book of the Commonwealth of Australia, 1939.*

number of mergers (involving £19 million in paid-up capital during the period May 1928-February 1931), and the size and financial resources of individual enterprises were thereby increased, a trend which continued in the postdepression period. As shown in Table 67, the number of factories employing more than 50 workers increased from 1,638 in 1928-29 to 2,063 in 1938-39, while the percentage of workers employed in factories with 50 or more workers increased from 57.4% to 61.3% during the same period. The total volume of industrial employment also expanded steadily, rising from 371,000 in 1932-33 to 572,000 in 1938-9.

The general improvement in the competitive position of Australian manufacturing industries in the years following the depression was commented on by the Australian Tariff Board in its annual report for 1935-36 as follows:

It is particularly gratifying to record that the growth of Australian secondary industries is marked by an increase in the variety of goods manufactured under reasonable rates of duty rather than by an increase in the general level of protective duties. Many industries are now able to sell

TABLE 67
AUSTRALIAN FACTORIES—CLASSIFIED BY NUMBER OF WORKERS

	1932-33		1938-39	
	Number	% of Total	Number	% of Total
Number of factories employing:				
Less than 4.....	8,438	38.5	8,844	32.8
4.....	2,045	9.2	2,474	9.2
5-10.....	5,729	25.7	7,042	26.1
11-20.....	2,671	11.9	3,622	13.4
21-50.....	2,113	9.5	2,896	10.8
51-100.....	728	3.3	1,117	4.2
100 and over.....	606	2.7	946	3.5
Number of workers in factories employing:				
Less than 4.....	15,903	4.2	17,910	3.1
4.....	8,180	2.1	9,896	1.7
5-10.....	39,181	10.2	48,480	8.5
11-20.....	39,213	10.2	53,219	9.3
21-50.....	66,687	17.4	42,126	16.1
51-100.....	50,334	13.1	78,845	13.8
100 and over.....	163,462	42.7	272,022	47.5

Source: *Production, 1938-39*; Bureau of Census and Statistics, Canberra, p. 17.

their products at prices little, if any, above the cost of duty-free imports from the United Kingdom . . . Recent enquiries by the Board have revealed that some large undertakings can be started with a minimum of tariff assistance as long as provision be made for the duty to increase if exchange rates should fall. Whilst the protective effect of exchange and the greater demand for goods arising from returning prosperity have played their part in these favourable developments, the Board is pleased to report that increasing efficiency has also been an important factor.⁷

The increase in the range and volume of Australian manufacturing production was, in fact, sufficient to cause the British Trade Commissioner to declare in 1936 that "the greatest competitor of the United Kingdom in the Australian market is the Commonwealth itself," and to substantiate this statement by pointing to the fact that the increase of Australian manufactures in lines in which the British were particularly interested, e.g., textiles, clothing, metal goods, and engineering products, had caused a decline in imports of these items from £18,070,000

⁷ R. W. Dalton, *Report on Economic and Commercial Conditions in Australia, to October 1936*, Department of Overseas Trade, London, 1937, p. 80.

in 1928-29 to £4,168,000 in 1934-35.⁸ The advantages accruing to United Kingdom manufacturers as a result of the Ottawa Agreements were thus largely negated by the increased efficiency and expansion of Australian manufacturing industries in the field of woollen textiles, clothing, and metal manufactures. During this period, the products of the "newer" industries came to occupy an increasingly important position in Australia's import trade, e.g., rayon manufactures, all types of electrical machinery and apparatus, automobiles, and a variety of petroleum products, and in these items United Kingdom producers were encountering increasingly severe competition from the United States. In 1935-36, however, the United Kingdom supplied 41.5% of Australia's total imports, as compared with 17% from the United States and 6.6% from Japan, her nearest rivals.

During the period 1936-39, the course of Australian industrialization was strongly influenced by the growing tension in the Pacific and the spread of fascist aggression in the West. Not only did Australia feel herself menaced by Japan's program of military conquest in Eastern Asia, but the synchronized acts of aggression by Germany and Italy in Europe and Africa made it increasingly doubtful that Australia could rely on large-scale British aid in the event of a southward move by Japan. The question of strengthening Australia's powers of defense thus became a dominant factor in shaping the country's trade and industrial policies, and was chiefly responsible for the adoption of the "trade diversion policy" in 1936.

The Trade Diversion Policy. On May 22, 1936, Sir Henry Gullett, the cabinet minister in charge of negotiating trade treaties, announced in Parliament the Government's decision to "divert" a portion of Australia's import trade, "with the object of increasing exports of primary produce, expanding secondary industry, and bringing about an increase of rural and industrial employment." The importation of certain goods was to be restricted in order to promote their manufacture in Australia, and it was intended to divert certain other imports from "bad customer" to "good customer" countries. This phase of the policy was directed primarily against the United States, whose exports to Australia were greatly in excess of her purchases of Australian commodities, and in favor of United Kingdom producers, with a view to strengthening the economic ties

⁸ Dalton, *op. cit.*, pp. 102-104.

between Australia and Great Britain. To achieve these ends, a special licensing system was to be applied to a limited range of imports, and in certain cases higher customs duties were to be imposed. With the exception of motor chassis, goods from the United Kingdom were not to be subject to the licensing system.⁹

The desire to encourage domestic manufacturing, and to safeguard the British market for Australian exports by granting favored treatment to United Kingdom producers were perhaps the chief, but certainly not the only reasons for the adoption of this new trade policy. Another influential element in the situation was the alarm of certain Australian manufacturing interests at increasing inroads being made by Japan in the Australian market. Japan's industrial expansion had affected Australia very significantly during the early 'thirties. In the first place, she had become an important market for Australian raw materials and foodstuffs, particularly wool and wheat. Japanese imports of Australian wool increased from 108 million pounds in 1928 to 226 million pounds in 1933, and her purchases of Australian wheat jumped from 1.7 million centals in 1929-30 to 10.8 million centals in the following year. As a result of these greatly increased purchases, Japan's share of Australia's total exports rose from 8% in 1928-29 to 14.2% in 1935-36, making her Australia's second best customer. In the latter year Australia had a favorable balance of trade with Japan amounting to over £9 million sterling, or more than a third the amount needed to meet annual overseas interest payments.

But though Australia thus benefited substantially from increased Japanese imports, she also felt the effects of Japanese industrial expansion in the form of increased Japanese competition in the Australian market for manufactured goods, the value of Australian imports from Japan rising from £A2,380,000 in 1930-31 to £A4,620,000 in 1934-35—an increase of nearly 100%. Actually, few of the commodities which figured largely in Australia's imports from Japan were competitive with Australian manufactures, but certain Australian industrial interests regarded the influx of Japanese products as the thin edge of a wedge which might eventually destroy Australia's own industrial structure. It was argued that once Japan had gained a foothold in the Australian market she would pour in more and

⁹ *Official Year Book of the Commonwealth of Australia, 1937, p. 493.*

more goods in the competitive class, and also that Australia's economic ties with England were being dangerously weakened as a result of Japanese inroads, particularly in the textile market.¹⁰

Thus the trade diversion policy, though not aimed exclusively at Japan, may be said to have represented an important victory for Great Britain over Tokyo as well as Washington. Not only was the licensing system applied to articles of Japanese manufacture, but the tariff revision constituted a serious blow at textile imports from Japan, since the former *ad valorem* duties on textiles were replaced by higher specific duties under which the margin of preference given British textiles was greatly increased. Criticized on the ground that the new measures were likely to endanger the valuable market for Australian wool, wheat and other primary produce in Japan, the Government contended that if the new measures had not been introduced, the much more valuable British market might have been lost. Government spokesmen stressed not only the greater volume and cash value of the annual trade with Britain, as compared with Japan, but also the fact that the British market absorbed a greater diversity of Australian produce than the Japanese. They pointed out that while wool and wheat constituted the bulk of Australian exports to Japan, the British market provided an irreplaceable outlet for other important Australian primary products as well, notably meat, dairy produce, sugar, fruits and wine.

From the point of view of Australian industrialization, however, probably the most important feature of the new policy was the imposition of a small duty on all imports of motor chassis, the revenue from which was to form a fund for subsidizing the manufacture of motor car engines and bodies in Australia. Imports of cars from the United States and Canada were also limited to the quantity imported in the year ending April 30, 1936. The ultimate aim of this legislation was to develop the production of cars in Australia. The Government's objective with regard to the domestic manufacture of motor cars was explained in Parliament as follows:

¹⁰ For a detailed analysis of Australia's trade relations with Japan, and of the development and results of the trade diversion policy, see Jack Shepherd, *Australia's Interests and Policies in the Far East*, Institute of Pacific Relations, 1940, especially pp. 27-33 and 43-66.

". . . The determination of the Government to give strong and, as we intend, decisive encouragement to the establishment of this industry in the Commonwealth, is in our mind separate from and independent of the general scheme of trade diversion. . . .

"Already Australia is manufacturing upwards of 80% of many types of the complete car and truck now on the Australian market. We believe that the engine and chassis frame, together with accessories such as radiator cores, gear boxes, and petrol tanks, which are now imported as parts of the chassis, can be fashioned in the Commonwealth at least as efficiently and as economically as the 80% which our specialized industrialists are now contributing to the complete car."

In order to encourage their production, the Government proposed to pay bounties for motor car engines, starting with £30 during the first year of production (1938) and tapering off to £3 15s in the fourth year; the goal being the production of 40,000 engines by 1941. The Government's program also called for encouraging the investment of Australian or British capital in the automobile industry, and for preventing American capital, which already controlled the auto industry in Canada and the auto body industry in Australia, from securing a stronger position.¹¹

The Iron and Steel Industry. Since the iron and steel industry is basic to the development of other heavy industries including armament production, a brief review of the position attained by this industry in Australia prior to the outbreak of the Second World War provides a useful guide to the extent of Australian industrialization.¹² Australia's known iron reserves are estimated to total about one billion tons, but only about one quarter of this amount represents economically accessible high-grade ore. The most accessible reserves are those of Yampi Sound, Western Australia, estimates of which run as high as 500 million tons; and the Iron Knob, Iron Monarch, Iron Prince and Iron Baron deposits in Manchester County, South Australia, totaling slightly less than 200 million tons. Prior to 1939, Australia's smelting and manufacturing industries were capable of supplying the domestic demand for pig

¹¹ Dalton, *op. cit.*, pp. 165-67.

¹² For a detailed survey of the iron and steel industry in Australia see Austern, *Raw Materials, op. cit.*

iron, steel ingots, castings and various types of steel manufactures, although steel products in the higher stages of manufacture were still imported in considerable quantities.

As indicated above, the Australian iron and steel industry was launched during the First World War when, in 1915, the Broken Hill Proprietary Company, Ltd., began the manufacture of pig iron, steel ingots and steel products at Newcastle, New South Wales. Broken Hill enjoyed an effective monopoly of production until 1927-28 when the Australian Iron and Steel, Ltd., with a modern plant at Port Kembla, began to expand its operations. In October 1935, Broken Hill merged with its competitor and regained monopolistic control over the industry.¹³

TABLE 68
AUSTRALIA—PIG IRON AND STEEL PRODUCTION
(In tons)

<i>Year Ended June 30th</i>	<i>Pig Iron</i>	<i>Steel Ingots</i>	<i>Steel Rails, Bars and Sections</i>
1929.....	461,110	432,773	353,921
1931.....	232,783	228,363	188,708
1933.....	336,246	392,666	295,523
1935.....	698,493	696,861	585,838
1937.....	913,406	1,073,479	837,445
1938.....	929,676	1,159,075	906,426
1939.....	1,104,605	1,169,149	972,799

Source: Official Year Book of the Commonwealth of Australia, 1939, Canberra, 1940, p. 561.

In 1937-38 there were 365 enterprises manufacturing iron and steel products in Australia, employing 20,117 workers, with a total output valued at £A28,684,124. *The Official Year Book of New South Wales, 1938-39*, reports 170 establishments in that State engaged in the smelting, refining and manufacture of iron and steel, employing more than 13,000 workers, and with a total output valued at £A25,571,000.

The estimated consumption of steel in Australia, on an ingot basis, is shown in Table 69. The failure of consumption to increase in the years prior to 1930 is generally attributed to the high prices resulting from the monopoly control of the steel industry and the high tariffs levied on imports of raw steel and steel products. Following the depression, the resumption of building construction and general industrial expansion caused

¹³ See *The Official Year Book of New South Wales 1937-38*, pp. 628-31, for a brief history of iron and steel manufacture in Australia.

an increase in production as well as in imports, as reflected in the figures for 1938, which indicate that Australia was approaching national self-sufficiency in iron and steel manufac-

TABLE 69
AUSTRALIA—ESTIMATED CONSUMPTION OF STEEL
(On an ingot basis; quantities in tons 000's)

<i>Year Ending June 30th</i>	<i>Imports</i>	<i>Production</i>	<i>Estimated Consumption</i>	<i>% of Production of Total</i>
1914.....	793.6	13.3	806.6	1.6
1926.....	561.1	385.7	946.8	40.2
1931.....	480.4	228.3	708.7	32.2
1938.....	225.4	1,160.0	1,385.4	83.7

Source: Windett, *op. cit.*, p. 180 for figures 1914–31, using statistic method devised by Balfour Committee on Industry and Trade, i.e., adding 10% to the weight of semi-manufactured steel and 33% to that of all finished steel products. The figure for 1938 has been obtained as nearly as possible by the same method, *cf.* Austern, *op. cit.*

tures even before the war resulted in a rapid expansion of capacity and production.

In March 1938, the Government announced a three-year defense program, calling for the expenditure of £A14,300,000 for the expansion of heavy industries and the development of aircraft manufacture. The Commonwealth Aircraft Corporation, which had been formed in 1936 with a capital of £600,000 subscribed by local steel, smelting, chemical and motor interests, was aided in the completion of its factory at Port Melbourne, and by 1940 its first planes (Wirraways) were ready for their test flights. The Government also made available to the Imperial Chemical Industries, Ltd., 60 acres of land at Port Adelaide for the construction of a soda ash factory. Extensions were made to the Government munitions factory near Melbourne to permit the manufacture of all but the largest size guns and ammunition, and in December 1938 the Government announced plans for the construction of two destroyers and twelve motor torpedo-boats, all scheduled for completion by 1941. Work was also begun on a naval dock at Sydney, capable of accommodating a capital ship.

WARTIME INDUSTRIAL DEVELOPMENT IN AUSTRALIA

There can be little doubt that the outbreak of the Second World War offered Australia her greatest opportunity to become a highly industrialized nation. The rise in overseas prices,

freight and insurance, fluctuating exchanges, and a shortage of shipping facilities, again proved a strong stimulus to domestic industries. Moreover, since Britain turned over much of her industrial machine to the production of war materials, and since her export policy was dictated by the exigencies of economic warfare, many of Australia's former imports could no longer be secured from that source. Britain's heavy reliance on American production necessitated "dollar conservation" with the result that Australia's purchases in the United States had to be limited in order that British defense requirements might be satisfied. Thus, according to restrictions effective as of October 1, 1940, the importation of portable typewriters, paint spray guns, noncommercial cameras, fountain pens and mechanical pencils was forbidden, while other articles of American manufacture were restricted to 25 and 50 per cent of the quantity imported in the year ending April 30, 1936.¹⁴

Nor was it only the increasing difficulty in obtaining consumers' goods which offered an incentive to Australian industry. The cry for planes, munitions, ships, and all other weapons of modern warfare which went up from England, particularly after the fall of France, created a challenge to Australian manufacturers. Britain's need for Australian industrial co-operation was re-emphasized at the Eastern Group Conference which met in New Delhi on October 25, 1940, to plan the wartime contributions of the British possessions east of Suez. It is reported that at this conference Australia was allocated the most important role. Finally, in this Second World War, Australia's own national security was threatened, for while in 1914-18 Japan had been a British ally, she was now an Axis partner with her military and naval forces poised for an attack on Singapore.

The gearing of the Australian industrial structure to meet this wartime challenge encountered the usual obstacles of a lack of trained men, materials, and machines. Very soon after the industrial expansion program got under way, there developed an acute shortage of skilled workers—toolmakers, fitters, turners, forgers, and electrical mechanics. With regard to industrial materials, aluminum and copper were difficult to obtain, and the shale oil produced in New South Wales was only sufficient to supply about 15% of the country's requirements. In addition, industrial chemicals and fine ferro alloys were not

¹⁴ *Foreign Commerce Weekly*, October 19, 1940.

being produced in Australia at the beginning of the war, and the country was largely dependent upon outside sources for machine tools. Thus, when the Australian armaments industry was being prepared for the production of the Bren gun, on the eve of the war, all of the 23,973 gauges and many of the tools required for its production had to be made in England.

To meet the need for skilled labor, a technical training program was initiated which had graduated 11,000 men by June 1941. Industrial chemists undertook to survey the largely undeveloped resources of Australia's desert in an attempt to find domestic supplies of essential materials, and the use of substitutes was also explored. Essential machinery was imported, and the domestic manufacture of an increasingly wide range of machines and tools was undertaken. By September 1941, there were 130 machine tool plants in operation in Australia, as compared with only four at the outbreak of the war.

The Government's management of defense production during the early months of the war met with considerable criticism, however. The appointment of Essington Hill, managing director of the Broken Hill Proprietary Co., as Director General of Munitions, caused the Labor Party leader, Mr. Curtin, to protest against the "many wartime boards and commissions created by Prime Minister Menzies and dominated by representatives of undertakings whose chief concern had been to make profits and resist the improvement of employed working conditions." The huge profits being reaped by the armaments industries are indicated by the fact that for the first half year of 1940, Broken Hill paid its shareholders not only a dividend of 7½%, but made them a present of an additional 64 shares without payment for each 100 shares which they held. The face value of this gift was £4,500,000, but every £1 share was sold on the exchange for £2½. Since Australian trade unionists were entirely aware of the profits being made by their employers, the Government's appeals for "sacrifice" fell on rather unsympathetic ears, and considerable labor unrest developed, particularly at the end of 1940 and early 1941 when there was a shipping strike at Newcastle and a strike in the metal industry over taxes levied on overtime wages.¹⁵

¹⁵ R. C. Wilson, "Strikes in Wartime," *Australian Quarterly*, March 1941, pp. 73-4.

Despite these various difficulties, however, Australian heavy industry made notable advances. The Newcastle Steel Works of the Broken Hill Company was producing at the rate of 1,000,000 tons a year by the end of 1940, and the Port Kembla works at the rate of 600,000 tons.¹⁶ For the Newcastle works this represented an increase in capacity of approximately 400,000 tons annually, as compared with 1935. South Australia's first blast furnace, with a daily capacity of 700 tons of pig iron, was blown in on May 26th, 1941. This furnace was constructed by the Broken Hill Company at Whyalla, the ore shipping port in South Australia, where a large industrial center is in process of development. The work involved the construction of a harbor, the dredging of a channel for overseas shipping, and the construction of mechanical loading gear, an extensive wharf and a powerhouse. A steel mill, costing some £A2,000,000 is also to be erected at Whyalla.¹⁷

The Broken Hill Company also built a plant at Newcastle for the manufacture of a wide range of ferro alloys, all previously imported and all essential to the production of armaments and other modern steel products.¹⁸ The company was also producing various high-speed and stainless steels and tungsten carbide tips by 1941 and had announced that it would soon begin the production of magnesium metal. The Commonwealth Steel Company, Ltd., at Port Kembla, expanded its plant for the manufacture of special steels, and in 1940 the first sheet steel for motor car bodies was produced at the Port Kembla works of the Commonwealth Rolling Mills Proprietary, Ltd.¹⁹

The manufacture of armaments, the increase in building construction and the Government's naval and merchant shipbuilding program created an enormously increased demand for all types of iron and steel products. The manufacture of fittings of all kinds expanded rapidly, and by 1941, hundreds of types never before made in Australia were being produced in bulk, e.g., steering and reversing engines, windlasses, mine sweeping winches, pumps, dynamos and generators.

The Australian steel industry was not only able to meet domestic needs, but also to supply New Zealand and other

¹⁶ *Australasian Engineer*, Sydney, November 7, 1940, p. 12.

¹⁷ *Iron and Steel*, London, October 22, 1940, p. 32

¹⁸ *Australasian Engineer*, February 7, 1941, p. 10.

¹⁹ *Ibid.*, November 7, 1940, pp. 12-14.

neighboring territories, whose imports had been curtailed as a result of the war, and early in 1940 it took orders to supply Great Britain with 50,000 tons of steel and 10,000 tons of galvanized iron sheets. Detailed figures on Australian trade in steel products are not available, but the *Australasian Engineer* reported that the export of iron and steel manufactures and semi-manufactures for the eight months ended February 29, 1940, were valued at £A3,961,566, as compared with exports valued at £A1,083,147 for the eight months ended February 28, 1939.²⁰

The Aviation Industry. The war found Australia with a small aircraft industry and with very few automobile plants which could be converted to aircraft production. By the end of 1941, the government-controlled Commonwealth Aircraft Corporation at Port Melbourne, and a new factory manufacturing Pratt & Whitney engines, were reported to be turning out 200 war planes a month. The "Wirraway," the main product, was a development of the American NA33 and could be used not only as an advanced training plane but also as a fighting craft, although it was not on a par with the most modern fighting planes. A factory in New South Wales was producing Bristol-Beaufort torpedo bombers, with Australian-made twin-row Wasp engines, and Tiger Moths, low wing monoplanes to serve as training craft.

As a result of the expansion of the aviation industry, the question of adequate supplies of aluminum became increasingly acute. Australian chemists, surveying the "Dead Heart" or Australia's central desert, have found that it contains approximately 1,660,000,000 tons of alunite clay which after treatment will yield some 3,250,000 tons of alumina. Australian scientists have also announced that a new method of treating the laminations of mountain ash will make this wood suitable for aircraft fuselage—"the product being one-fourth the weight of aluminum and as hard as glass." Despite these discoveries, however, it was necessary, in July 1941, to seize the thousands of aluminum water bottles brought to Australia by prisoners of war in order to meet the urgent need of the airplane manufacturers.²¹

Shipbuilding. In September 1940, seven shipyards were engaged in naval shipbuilding, as compared with one at the out-

²⁰ *Ibid.*

²¹ Australian News and Information Bureau, New York. Release of July 21, 1941.

break of the war, and other yards were being organized for naval construction. Naval vessels under construction or completed include three Tribal class destroyers, two escort vessels, two local defense vessels and seven sloops. The Shipbuilding Board had received £24,000,000 from the Government for the construction of fifty prefabricated freighters of 9,200 tons each, and a number of larger vessels had already been launched by the summer of 1941.²²

The Munitions Industry. Before the war not more than 2,500 persons were employed in the munitions industry in Australia. By July 1941, some 80,000 were employed directly in munitions manufacture, and another 70,000 in supplying them with raw materials, making a total of 150,000 persons engaged directly or indirectly in the armaments industry. Munitions output is reported to have increased 4,000% and, according to Australian sources, the Australian arms industry is now second only to that of Canada among the Dominions.

The Chemical Industry. Wartime restrictions on imports combined with the enormous increase in demand from the munitions industry gave a tremendous stimulus to the development of the chemical, drug, and medicine industry in Australia. In 1938-39 there were 238 factories producing chemicals, drugs and medicines, employing 5,346 workers, with a total output valued at £A7,351,745. Another 2,540 were employed in 36 factories producing chemical fertilizers, with an output valued at £A4,944,800. Prior to the war Australia had relied largely on foreign sources for her chemical materials, but the shipping shortage plus the loss of European sources of supply, led to a more intensive exploration of Australia's own chemical resources—particularly in the great central desert area which had hitherto been largely neglected. Imperial Chemical Industries of Australia and New Zealand, Ltd., is the largest enterprise in this field. By 1941 it was producing alkalis by the Solway process at Port Adelaide, and ammonia by pressure synthesis near Melbourne.

Petroleum chemistry and the production of motor fuel and substitutes were given a great stimulus by the wartime shortage of tankers. Most Australian gasoline is locally refined from crude oil imported from the Dutch East Indies and the United States, imports of petroleum in the year ending June 30, 1939,

²² *Ibid.*, July 19, 1941; also *Australia's War Effort*, Canberra, 1940, p. 11.

having totaled 399 million gallons, valued at £5,658,530. The need to conserve dollar exchange immediately brought gasoline rationing for private cars, and the problem of supplying a substitute for imported fuels became urgent. Shale oil is expected to supply up to 15% of Australia's requirements, and in the summer of 1941 it was reported that plans were under way to supply 25% of Australia's needs for motor fuel by the production of alcohol from sugar.²³

Miscellaneous Industries. New factories established in the year ending June 30, 1941, are engaged in the manufacture of airplane frames, engines, propellers, drills and cotton ducks, bicycles, aluminum sheets, stainless steel sheets, stainless steel cutlery, electric cables, pneumatic tools, machine tools, tire fabrics, gloves, chemicals and flax fiber. A new \$3,000,000 plant established by the Australian Consolidated Industries, Ltd. (the glass trust), is now producing optical glass and a whole range of military optical equipment. The magnitude of this achievement may be judged from the fact that during the First World War it took the United States from 1914 to 1917 to begin actual production of this equipment; the main source for which had previously been Germany.²⁴

In Australia the opportunities offered by the war stimulated consumption industries as well as war industries, but because Australia possessed only limited quantities of skilled labor, materials and machinery, the continued expansion of consumption industries inevitably conflicted with the rapid development of the war industries. As a result, the Government, on October 8, 1940, promulgated National Security (Capital Issues) Regulations requiring the consent of the Federal Treasurer for the expansion of certain types of nonessential industries. Apparently these regulations were not completely effective, for on June 17, 1941, Premier Menzies in a speech outlining the Government's policy toward wartime control of industry, stated that:

In all industries other than those directly concerned with the production of materials of war, business has gone on much as usual. . . . These things must change. . . . War industries must no longer be what we can carve

²³ *Chemical Industries in Wartime*, released by the Australian News and Information Bureau, New York.

²⁴ Australian News and Information Bureau.

out of civil industries. Civil industries must be that which we can afford out of the total organization of a country which is at war . . .

Our task is to concentrate men on war industries; machines on war production; money on war ends. To do this we propose to set up an authority with wide powers to take over factories and plants, or if necessary to close factories in whole or in part. . . . At the same time we shall make a drastic overhaul of consumption by cutting nonessential imports to the bone. . . .

It may be assumed that this policy of concentrating all possible resources on the war industries will be continued by the Labor Government which assumed office in October 1941, and that nonessential industries will of necessity be curtailed, although the measures taken by the new Government may differ somewhat in emphasis from those advocated by the great, monopolistic metal, chemical, and other trusts which were strongly represented in the Menzies Government.

At a time when Australia's industrial resources are being artificially concentrated on the production of war materials, it is difficult to assess the actual degree of industrial progress achieved. It is certain, however, that the Australia which met the challenge of the Second World War was far more mature industrially than the Australia of 1914-18. Serious difficulties have been encountered and not all have yet been overcome, but though the necessities of wartime secrecy make it difficult to give accurate quantitative evidence of increased industrial production, there is every indication that wartime demands have acted as a tremendous catalyst in hastening the industrialization of Australia and her consequent entrance into world markets, not merely as a supplier of pastoral and mineral products, but also as a substantial industrial producer.

CHAPTER XIII

NEW ZEALAND

Politically, New Zealand has long been an important member of the British Commonwealth of Nations, but economically the country is still very largely a pastoral colony of the United Kingdom. New Zealand has been called an "outlying farm" of England, and this phrase aptly sums up the outstanding characteristics of an economic structure based primarily on the export of pastoral products to a market 12,000 miles away. With a population of only 1.6 million people (1939), New Zealand's consuming market is obviously limited, and the country has therefore concentrated on agricultural and pastoral production for export, achieving the highest per capita external trade in the world, with the pastoral industries supplying more than 90% of the total exports. The colonial character of the New Zealand economy is evidenced not only by the narrow range of her major exports, i.e., butter, wool, frozen meats, cheese, and sheepskins, but also by the fact that she has to rely on the United Kingdom market for the sale of more than 80% of her exports, and that her import trade is normally 70-80% within the British Commonwealth and Empire, with the United Kingdom supplying about 50%. Of the country's total public debt, £157,600,000 is housed in London, £130,000,000 in New Zealand, and less than £1,000,000 in Australia.¹ New Zealand's economic policy has therefore been primarily concerned with retaining and expanding her share in the United Kingdom market, and with easing the payment of debts and interest to the City of London.

The direction of New Zealand's economic development is to be accounted for largely in terms of the country's natural resources, plus her close political and financial ties with Great Britain. Out of a total area of 66,000,000 acres, 43,000,000 are occupied—the remainder being largely mountain top. Of the occupied area about 26,750,000 acres, or almost 70% is devoted to sheep farms. Dairy farm holdings account for 3,500,000 acres,

¹ *Contemporary New Zealand*, New Zealand Institute of International Affairs, Wellington, 1939. pp. 91-2.

and mixed farming for the remainder. The rich character of the country's pasture land is indicated by the fact that it supports between 31 and 32 million sheep, more per acre than any other nation in the world. New Zealand is the world's largest exporter of frozen mutton and lamb, and of dairy produce, and the world's third largest exporter of wool.

New Zealand, however, does not possess sufficient quantities of coal, iron, and mineral fuels to provide the basis for extensive industrial development. The coal reserves, while large enough to supply the present requirements of approximately 2,500,000 tons per year, are not large enough to permit any large increase in consumption. Coal deposits are estimated at 1,631,000,000 long tons, but there are only 200,000 tons of high grade bituminous and a very small amount of anthracite. New Zealand is particularly short in high grade coals suitable for use in metallurgical industries. As a result, her fairly substantial reserves of easily smelted iron ore are not likely to be adequately developed. With regard to petroleum, there is evidence that New Zealand possesses some deposits, but these have not been thoroughly surveyed and it seems probable that they will not be exploited unless the price of imported gasoline is greatly increased. The chief interest in mining in New Zealand has always centered on gold, about £100,000,000 having been extracted.

Industrial Development Prior to the World Depression. New Zealand celebrated the centenary of her colonization in 1940. In the little over a century of its existence as a colony and a Dominion, the country's industrial development has passed through several distinct stages. During the first twenty years, the development of the potential farming resources of the colony was the major aim of economic enterprise, while during the period from 1860 to 1880, the elusive rewards of alluvial-gold mining provided the dominant motive for immigration. During this period, the remoteness of the colony rendered necessary the establishment of small consumers' goods industries, such as clothing and shoe manufacture, grain-milling and printing, as well as sawmilling, which in addition to providing for local needs developed into an export industry with Australia as the principal market.

Because of the extensive pastures, sheep raising expanded rapidly and by the 'eighties its processing industry, fell mon-

gery and wool-scouring, was second only to sawmilling in importance. In 1882, the successful introduction of refrigeration for meat and dairy produce set the basic trend of the New Zealand economy definitely in the pastoral direction and ever since, New Zealand's prosperity "has been bound up with the prices ruling on the British market for frozen mutton and lamb, butter and cheese, and, to a lesser degree, wool."² Meat-freezing works soon became the largest and most important industrial establishments in the country; their output increasing from £543,878 in 1885 to £4,928,545 in 1905. During this same twenty-year period, butter and cheese factories, almost exclusively of co-operative ownership, became widely established in the dairying districts, the aggregate value of their production increasing from £43,094 to £2,581,639. The predominant position of the pastoral industries is indicated by the percentage of total export values contributed by pastoral products, as follows: 1880, 50%; 1900, 66%; 1914, 86%; 1937, over 94%.³

The First World War stimulated industrial development in New Zealand as it did in other relatively backward countries. The number of factory workers, which had increased by only some three thousand in the five-year period between 1910-11-1915-16, jumped by some 20,000 to a total of 70,000 in 1920-21, with a corresponding increase in the volume of manufacturing production. Once the war and immediate postwar stimulus of high prices resulting from shortages of imported manufactures had been removed, however, New Zealand industries found it increasingly difficult to compete with the products of large-scale enterprises in the more advanced industrial countries. This problem was intensified by the speeding up of sea transport which, though it favored New Zealand's export industries, facilitated overseas competition with domestic manufacturing industries. As a result, the rate of increase in both the number of industrially employed and the net value of manufacturing production declined after 1924-25. Factory employment, which had grown by over 7,000 in the four-year period, 1920-21-1924-25, increased by only slightly over 5,000 in the next five years, and the net value of manufacturing production, which had in-

² Ian F. G. Milner, *New Zealand's Interests and Policies in the Far East*, International Secretariat, Institute of Pacific Relations, 1940, p. 4.

³ *Ibid.*

creased by more than £6,000,000 in the four-year period ending March 31, 1925, rose by only a little over £1,000,000 in the following five-year period.

The Depression and Efforts at Recovery. The impact of the world depression upon New Zealand was particularly disastrous, since the country's prosperity is wholly dependent upon the income received from exports of raw materials and foodstuffs. More than 95% of her wool, 80% of her butter, 90% of her cheese, 95% of her lamb and substantial percentages of other pastoral products must be sold in overseas markets. New Zealand was thus peculiarly sensitive to the sharp drop in agricultural prices. The situation was rendered even more difficult by the fact that the United Kingdom, New Zealand's principal market, suddenly became the dumping ground for agricultural surpluses from other countries, and, simultaneously, initiated a policy of protecting domestic agriculture. The value of New Zealand's exports declined by 40% during the period April 1929–April 1931 and the national income fell from £150,000,000 in 1929 to less than £100,000,000 in 1932. So drastic was the drop in prices that over three times as much wool had to be exported during the financial year ending March 1933 as was exported in 1929 in order to pay interest on the public debt.

Factory industries, too, were hard hit by the sharp fall in domestic purchasing power, and their position was rendered still more difficult when New Zealand, with probably the lowest customs tariff in the world, was forced still further to decrease her protective duties as a result of the Ottawa Agreements of 1932. Like Australia and Canada, New Zealand undertook "that protection by tariffs shall be afforded against United Kingdom products only to those industries which are reasonably assured of sound opportunities for success." Furthermore, Article 8 of the United Kingdom-New Zealand Agreement provided that "His Majesty's Government in New Zealand undertake to institute an inquiry into the existing protective duties, and, where necessary, to reduce them as speedily as possible to such a level as will place the United Kingdom producer in the position of domestic competitor—that is, that the protection afforded to the New Zealand producer shall be on a level which will give the United Kingdom producer full opportunity of

reasonable competition on the basis of the relative cost of economical and efficient production." In May 1933 the New Zealand Government set up a Tariff Commission which subsequently recommended 103 changes in the already very liberal British preferential tariff. Of these changes, 100 items consisted of reductions or the complete abolition of duties.⁴

Though the depression provided a striking demonstration of the weakness inherent in the one-sided nature of New Zealand's economy, no remedy was immediately forthcoming. As in Australia, the first stage of New Zealand's recovery program was wholly deflationary. The budget was reduced by salary reductions and the abolition of subsidies. Income taxes were increased, exemptions lowered, and bond-holders had their interest reduced by 20%.⁵ The first major reversal of the downward trend of the depression came with the depreciation of the New Zealand pound in January 1933 to the rate of £NZ125 to £100 sterling. While the depreciated exchange rate added to the cost of imported raw materials for New Zealand's factory industries, it also furnished a form of protection for New Zealand manufacturers by raising the cost of competing manufactured products from Great Britain and other countries. Its most important effect, however, was to check the deflationary movement of falling prices and to increase internal purchasing power. This upturn was further assisted by rising export prices, particularly for meat and wool, and also by the necessity for renewing stocks and replacing equipment.

A further stimulus to industrial recovery was the "pump-priming" program of the Labor Party, which was voted into office for the first time in 1935. Relief payments were increased, large-scale public works were inaugurated, wage and salary cuts restored, and a forty-hour working week was established in most industries. This program resulted in a rapid and substantial increase in the people's purchasing power. Real wage rates (1926-30 = 1000) rose from 1025 in 1935 to 1100 in 1936, 1122 in 1937 and 1137 in 1938. Industrial employment increased from 69,000 in 1932-33 to a new high of 87,000 in 1935-36, and to 102,000 in 1937-38, while the net value of manufacturing

⁴ W. B. Sutch, *Recent Economic Changes in New Zealand*, New Zealand, I.P.R., 1936, pp. 128, 130, 132.

⁵ *Ibid.*, pp. 21-3.

production rose from £24,246,000 in 1931-32 to more than £35,000,000 in 1936-37, and to £39,000,000 in 1938-39.

Part of this increase was derived from new industries established during the depression, which expanded rapidly with the increase in internal consuming power. This was particularly true for industries manufacturing electric appliances, batteries, radio sets, electric gasoline pumps, etc. Other new industries included the production of superphosphates and chemical fertilizers, and various consumers' goods, e.g., silk and rayon hosiery, slippers, toilet preparations, and matches.

The greater part of New Zealand's industrial expansion, however, came in established industries. The following industries experienced a growth of 75% or more in personnel, with a corresponding increase in production, between the fiscal years 1932-33 and 1938-39: sawmills, lime and cement works, iron and brass foundries, furniture factories, machine shops, coachbuilding, motor and bicycle engineering, agricultural machinery, brick, tile and pottery works. Other industries, such as woolen mills, clothing factories and tinware and sheet-metal works, increased their production by more than 75% without a corresponding increase in personnel.⁶ Table 70 gives a general

TABLE 70
GROWTH OF FACTORY PRODUCTION IN NEW ZEALAND

Year	No. of Factories	Workers Employed	Value of Production ¹ (£1,000)	Value of Output (£1,000)
1927-28.....	5,156	78,620	30,502	85,060
1929-30.....	5,168	82,861	32,274	90,758
1931-32.....	4,969	68,697	24,246	66,589
1933-34.....	5,028	72,651	24,852	71,771
1935-36.....	5,536	86,588	30,074	90,015
1936-37.....	5,728	96,401	35,274	105,942
1937-38.....	5,924	102,344	38,607	113,692
1938-39.....	6,146	102,535	39,103	114,447
1939-40.....	6,342	108,722	44,120	129,000

¹ Value added in process of manufacture.

Source: *New Zealand Official Year Book, 1940.*

summary of the growth of New Zealand factory production during the twelve-year period ending in March 1940, and Table 71 shows the development of individual industries in the post-depression period.

⁶ *New Zealand Official Year Book, 1940*, pp. vi-vii; *Ibid.*, 1937, pp. 437-444.

TABLE 71

NEW ZEALAND—STATISTICS OF PRINCIPAL FACTORY INDUSTRIES
1932-33 AND 1938-39

Industry	Workers Employed		Value of Pro- duction ¹ (£1,000)		Value of Output (£1,000)	
	1932-33	1938-39	1932-33	1938-39	1932-33	1938-39
Meat freezing.....	6,369	7,897	2,762	3,816	11,881	20,653
Ham and bacon curing.	398	498	275	291	702	1,336
Butter and cheese fac- tories.....	4,100	3,944	2,276	2,424	16,613	27,335
Sawmills.....	4,787	7,917	1,378	3,374	2,352	5,075
Coach building, motor and cycle engineering	4,560	10,289	1,102	3,872	1,895	5,943
Clothing mfg.....	7,616	12,270	1,288	3,809	2,401	3,809
Machine shops.....	2,329	4,039	623	1,534	974	2,556
Boot and shoe mfg.....	2,277	3,075	536	625	1,029	1,355
Grain mills.....	738	695	566	452	2,384	2,383
Lime and cement works	688	1,123	382	852	484	1,104
Iron and brass foundries	529	962	133	358	189	557
Woolen mills.....	2,349	2,406	556	574	889	952
Hosiery factories.....	757	1,259	176	273	365	574
Tinware and sheet-metal works.....	1,262	1,690 ²	334	519 ²	629	1,192 ²
Agricultural machinery.	542	1,200 ²	171	550 ²	329	1,229 ²
Brick, tile and pottery..	405	909 ²	168	442	181	483
Furniture mfg.....	1,584	3,145	349	886	611	1,659
Chemical fertilizers and superphosphates.....	—	932	—	665	—	1,823
Soap and candle works.	470	520	251	674	467	542
Breweries.....	810	1,168	1,257	947	1,558	2,845
Biscuit and confection- ery works.....	2,900	3,190	957	911	1,525	2,029
Total (incl. others)...	68,921	102,535	23,509	39,103	66,109	114,447

¹ Value added in process of manufacture.² 1937-38.Source: *New Zealand Official Year Books*, 1935, 1940.INCREASING GOVERNMENT CONTROL OF INDUSTRY IN
THE POST-DEPRESSION PERIOD

New Zealand has long been known for the high degree of government participation in the economic life of the community. With regard to industry, government control was carried still further under the Labor Party after 1935, through the medium of licensing both industry and imports.

Industrial Licensing. A rational organization of New Zealand's small, scattered, and in some cases over-capitalized industries had been advocated both by the Labor Party before it

became the Government in 1935, and by the Manufacturers' Federation. When Labor won the 1935 General Election, one of the results was the passage of the Industrial Efficiency Act of 1936, which set up a government Bureau of Industry. The Act also empowered the Minister of Industries and Commerce to license any industries which, because of duplication of effort, or "potential redundancy," or any other reason, were thought to require supervision. The stated aim of the Act was to "promote the economic welfare of New Zealand by providing for the promotion of new industries in the most economic form and by so regulating the general organization, development, and operation of industries that a greater measure of industrial efficiency will be secured." Regulations for the licensed industries could include the fixing of prices, discounts, etc.; the standardization and simplification of materials, the control of production by the fixing of quotas or other means, and the control of marketing and distribution.

Prior to the outbreak of the European war, approximately 20 industries had been licensed. The Bureau of Industries moved very cautiously, obviously feeling its way. The regulations established were individual, i.e., applicable only to the particular industry concerned, and there seemed to be no master plan involved. Popular reaction to the work of the Bureau varied according to the industrial interest of the individual. Some manufacturers were pleased because the licensing system limited competition; others were displeased for the same reason. Consumers frequently expressed the view that the Act was being used to assist manufacturers to stay in business, rather than to make industrial enterprises more efficient. Actually, however, the industrial licensing system could operate only within the very narrow framework permitted by the predominantly pastoral and colonial character of New Zealand's economy and its overwhelming dependence upon the British market, and its effectiveness was therefore extremely limited.

Import Licensing and Exchange Control. The Labor Government had come into power in 1935 on a platform calling for heavy government expenditure from loans and taxation for public works; greatly increased provision for social welfare; higher wages, improved working conditions, and full employment; a guaranteed price for the principal export products; expansion of credit if required to finance the public works pro-

gram and the guaranteed export prices; and a protective tariff to encourage the development of manufacturing industries. In practice, this policy led to a rising level of internal prices and costs which increased purchasing power and encouraged imports at a time when export prices were low. Thus during the period 1935-38, the excess of exports over imports declined from £NZ10 million to £NZ3 million. Furthermore, the Labor Government's economic policies had precipitated a flight of capital from New Zealand which had assumed alarming proportions by 1938. The combination of these factors, currency depreciation, large-scale borrowing for public works, the decrease in the favorable balance of merchandise trade, and the exodus of capital from New Zealand, resulted in the rapid depletion of New Zealand's sterling exchange funds in London. From November 1935 to May 1938, the total sterling funds held in London dropped from £NZ34.6 million to £NZ28.1 million, and by November 1938 the amount had fallen by another £NZ18 million, leaving New Zealand with only about £NZ8 million in available credits to meet interest payments on Government and local debt—amounting to some nine million pounds annually—and for the purchase of essential imports.⁷

Thus, when the Labor Government was returned to power in November 1938, it was faced with the alternatives of abandoning its economic program or instituting strong measures of control over the volume of imports and the export of capital. In December 1938, therefore, the Government introduced exchange control through a rigid system of import licenses and Reserve Bank control of all sterling funds. In explaining the Government's action before the Labor Party Conference in April 1939, the Hon. Walter Nash, Minister of Finance, declared:

What was the choice before the Government? It was faced with the situation where sterling funds had been and were continuing to be severely depleted. What had the last Government done when faced with such a situation? It had depreciated the currency. It had curtailed expenditure, reduced wages, and induced a great unemployment. This had resulted in a lessened demand for goods and a building-up of overseas sterling funds because of the lower demand for imports. . . . [We chose a] policy . . . of import selection whereby the Government would decide that the sterling funds available should be used for the most urgent needs: first, to pay our debts; secondly, to bring into this country the raw material and equipment

⁷ For a more detailed analysis of the factors responsible for this depletion of sterling funds, see W. B. Sutch, "The Import Selection Policy," *New Zealand Financial Times*, May 1939.

necessary for New Zealand industries; thirdly, to bring in necessary consumers' goods but to exclude goods which for a time we could go without or which New Zealand could produce.⁸

From the foregoing it is clear that though the timing of the introduction of exchange control was forced upon the Government by the rapid depletion of sterling funds, the Government regarded it as a logical part of a long-term plan for building a more balanced economy in New Zealand, and not merely as an emergency measure. Exchange control was to be used to build up factory industries in New Zealand, as well as to build up sterling balances in London.

The immediate effect of exchange control promised to be a change in the character of New Zealand's import trade, both as to source and content. Not only were imports to be limited to materials and equipment needed by industries and to essential consumers' goods not easily produced in New Zealand, but New Zealand was to draw increasingly on the British market for raw materials and industrial equipment, in line with the Government's policy of expanding preferential trade between the two countries to a maximum.

But although the new system of import control promised an expanding market for British products in New Zealand which, it was hoped, would be reciprocated by equally favorable treatment of New Zealand products in the United Kingdom, the British Federation of Industries was not pleased with the prospect of industrial development in New Zealand, despite its limited, consumers' goods character. This is indicated in the following passages from a letter from the President of that organization to the Board of Trade:

While objection to the reasonable development of secondary industries is not raised, and this should occur in consonance with Ottawa, recent instances, particularly where the projects are sponsored by the Government, show that the policy is preference to local industries, even to the extent of the exclusion of United Kingdom manufactures. . . . If the fears are substantiated, the position will be a breach of the Ottawa pact, in which case the Federation will have no option but to press for Britain to abrogate Ottawa and substitute by negotiation an agreement in which the advantages of New Zealand on the British market shall be more commensurate with the treatment accorded United Kingdom exports.⁹

The New Zealand Government denied these charges, and

⁸ Quoted by Milner, *op. cit.*, pp. 74-5.

⁹ Quoted in the *Otago Daily Times*, Dec. 17, 1938.

emphasized the fact that it had no intention of establishing artificially protected "uneconomic" industries. Nevertheless, the Government's plans for industrial development appeared to be quite far-reaching in scope. On December 13, 1938, the Minister for Industry and Commerce, Mr. D. G. Sullivan, announced that seventeen possible new industries had been listed for examination, and that there were thirty existing branches of industry which could be expanded within one year, and another forty that could be enlarged in periods ranging from one to five years.

WARTIME INDUSTRIAL DEVELOPMENTS IN NEW ZEALAND

For countries such as New Zealand, which were largely dependent upon overseas sources for their manufactured goods, the Second World War presented both a challenge and an incentive for the expansion of domestic industries. The curtailment of imports, the shortage of shipping facilities, and the consequent demand for increased local production of all types of manufactured goods provided ample cause for an accelerated tempo of industrial development. But though new industries have been established and the volume of factory production increased, New Zealand has not been able to take advantage of these wartime opportunities to emerge as an independent producing unit.

W. B. Sutch, writing in *Pacific Affairs*, summarizes the situation as follows:

The war has brought few changes in New Zealand's economy, partly because New Zealand's function, apart from supplying pilots and other fighting men, is to be one of the main food farms of England. It manufactures munitions on a very small scale. In addition to this . . . the import selection policy and the necessity of conserving foreign exchange have brought about an expansion of domestic manufacturing concerns and also the establishment of new units especially of proprietary firms. This expansion has been entirely in light industries. New Zealand still has no heavy industry, except perhaps the manufacture of fertilizers.¹⁰

One reason for this failure to achieve any great degree of industrialization is, of course, the lack of basic raw materials for heavy industry. But even the development of light industries has not proceeded as rapidly as the situation might have warranted because of New Zealand's inability to finance imports

¹⁰ W. B. Sutch, "New Zealand's First Year of War," *Pacific Affairs*, Vol. XIV, No. 1, March 1941, p. 39.

of industrial materials and equipment. This inability, in turn, derives in large measure from the opposition of certain British financial and commercial interests in London to New Zealand's economic and social policies, as a result of which renewal was refused of the £17 million sterling of New Zealand overseas debt which fell due on January 1, 1940. Instead, arrangements were made for the repayment of £1 million on that date, £2 million later in 1940, and the remainder at the rate of £3.5 million annually. The New Zealand Government was also informed that local government loans would have to be repaid as they fell due, instead of being renewed, the sum involved for 1940 being £2.3 million sterling. This meant that £7.3 million sterling in abnormal payments had to be met from New Zealand's foreign exchange resources, in addition to normal overseas interest payments of approximately £NZ10 million, abnormal because in the past it had been the custom to convert and renew New Zealand loans falling due in London, rather than to repay them.

The necessity of devoting such a large share of her exchange resources to the repayment of overseas debt has thus greatly curtailed New Zealand's ability to pay for imports of construction materials and equipment for industrial expansion. If further repayment of loans is demanded, the financial position of the New Zealand Government will become increasingly serious, since Government loans falling due between 1941 and 1946 total £48,169,643 sterling; local government loans amounting to £6.6 million sterling will mature during the same period; and a £5 million export credit for armaments, granted to New Zealand in 1938, is due for repayment in 1943.¹¹

Thus, though industrial activity in New Zealand has been stimulated as a result of wartime efforts to reduce imports to the minimum essentials, and because many products ordinarily imported were no longer available, the expansion of many industries was hampered by lack of capital and also the difficulty of obtaining supplies of iron and steel, machinery, and machine tools. Import restrictions, designed to conserve foreign exchange, also curtailed the activities of many motor-vehicle assembly plants. And though the number of manufacturing enterprises and the value of factory production increased substantially during the first year of the war, New Zealand indus-

¹¹ Sutch, "New Zealand's First Year of War," *loc. cit.*, pp. 45-6.

try was still confined to the processing of raw materials, the manufacture of clothing, furniture, and household goods, and the assembling of automobiles and radios.¹² During 1940 new factories were established for the production of soft drinks, electrical appliances, rubber goods, clothing, drugs, plastics, hosiery, cigarettes, and toys, but, as Professor Sutch points out, this industrial expansion was confined entirely to small-scale light industries, and New Zealand's main wartime economic function continued to be the supplying of food to the United Kingdom.

From this survey of industrial development in New Zealand, it is clear that the country is still overwhelmingly dependent upon the export of agricultural and pastoral products and the import of manufactured goods. Under the Labor Government, some effort has been made to develop a more balanced economic structure by encouraging the expansion of domestic industries and restricting the import of manufactured goods, but despite these efforts, New Zealand's manufacturing industries are still confined to the processing of farm products, the assembly of imported semi-manufactures, e.g., motor cars, radios, etc., and to small-scale enterprises for the production of miscellaneous consumers' goods. Wartime shortages of imported manufactures may result in a further expansion of this type of industrial development, but any extensive degree of industrialization in New Zealand appears highly unlikely. For one thing, the population is so small that there is no large-scale market for industrial production and no incentive to find employment for large numbers of workers. For another, British commercial and financial interests wish to preserve New Zealand as an assured market for British manufactures and a source of food supplies, and are therefore not likely to provide the capital which New Zealand would require to finance any extensive program of industrialization. Unlike Australia, therefore, New Zealand's economy seems destined to retain its predominantly pastoral and colonial character, with even small-scale manufacturing enterprises playing a relatively minor role.

¹² "Economic Conditions in New Zealand during 1940 and early 1941," *International Reference Service*, United States Department of Commerce, Vol. 1, No. 30, June 1941, p. 1.

CHAPTER XIV

INDIA

Though India is not geographically a part of the Western Pacific area, her industrial production, both actual and potential, has become of such great importance for the future economic development of Eastern Asia, as well as for the present defense of that area against Axis aggression, that it has seemed essential to include a brief account of Indian industrialization, with special emphasis on industrial developments since the outbreak of the Second World War.

India's economic structure is similar in many respects to that of the colonial and semi-colonial countries of Eastern Asia. Under British rule, India has been developed as a large-scale producer of raw materials, as a source of revenue, and as a market for British and other foreign manufactured goods. Nearly 75% of her population of some 380,000,000 are dependent upon agriculture for their livelihood, while less than 2% are supported by modern industrial enterprises, i.e., factories, railways, and mines. The great difference between India and other colonial areas such as Malaya or Netherlands India lies in the wealth and variety of her natural resources, which are sufficient to permit of an extensive and many-sided industrial development. India is potentially one of the most powerful industrial areas in the world, but the greater part of her industrial resources are either undeveloped or exported in the form of raw materials to supply the factory industries of Great Britain and other industrialized powers. Thus, one of the most notable features of Indian industrialization is the tremendous gap between potential resources and actual development.

Raw Material Resources. India is the world's second largest cotton producer, production averaging about seven million 400-lb. bales annually, of which nearly half is exported. Jute, in which India holds a virtual monopoly, is the second most important agricultural product, the annual output in recent years averaging about nine million bales, of which about half is exported raw and the remainder manufactured into Hessian or

gunny cloth in Indian mills. India is also a substantial producer of wool, silk, and hemp. Oil seeds, oil cakes, and oils of all types constitute another important category in India's production of agricultural raw materials, while her vast forests provide a limitless supply of tanning materials, lac, timber, turpentine, and bamboo pulp. In 1936-37, India ranked first among the world's tobacco producers with 1,497,000 acres growing 1,375 million lbs. She is also the world's leading producer of hides and skins, both raw and half tanned. It is estimated that there are in India about 225 million cattle and buffaloes, 46 million sheep, and 58 million goats, from which 2 million cattle and nearly 6 million buffalo skins, 28 million goat and kid skins, and 19 million sheep and lamb skins are produced each year. India also has more than 4 million acres under sugar-cane, and her production of 1.4 million tons in 1939-40 made her the world's largest sugar producer.

India's mineral resources are no less impressive. They include one of the largest high-grade iron ore fields in the world, the reserves of more than 3 billion tons being three-fourths the size of those of the United States and of higher quality than the bulk of American deposits, averaging about 64% iron content. India also possesses virtually unlimited supplies of manganese, and large deposits of high-grade bauxite, chromite, mica, copper ore, magnesite, ilmenite, etc. Yet with these vast resources, India's total steel production is only now, under war stimulus, approaching 1% of world production, i.e., slightly more than 1,250,000 tons, an amount roughly equivalent to that of Australia, with a population of some 7,000,000. Estimates of Indian coal resources range from 36 billion to 60 billion tons, of which some 5 billion tons is of good quality and easily workable, including 1.4 billion tons of coking coal. But because of the extremely limited industrial demand, the average annual coal production for the five-year period 1934-38 was only 24.2 million tons. (See Table 72.) Similarly, India's bauxite deposits are largely undeveloped, less than 15,000 tons being mined in 1938. India also possesses potential hydro-electric power resources estimated at 27 million horsepower, second only to those of the United States, but only 3% of these resources are now utilized.

Role of Industry in the Indian Economy. In addition to her great wealth of natural resources, India possesses a vast popula-

TABLE 72

INDIA—MINERAL PRODUCTION, 1934-1938 (EXCLUDING BURMA)
(compared with average for 1914-1918)

	1934	1935	1936	1937	1938	Average 1934-1938	Average 1914-1918
Coal (tons).....	22,057,477	23,016,695	22,610,821	25,036,386	28,342,906	24,212,851	17,951,583
Manganese (tons)	406,306	641,483	813,442	1,051,594	967,929	776,151	577,457
Petroleum (gals.)	67,265,210	71,323,362	69,241,504	75,657,857	87,082,371	74,114,061	7,325,376
Mica (cwts.)....	92,918	141,814	177,664	297,343	175,109	176,970	49,586
Iron ore (tons)..	1,916,918	2,341,212	2,526,931	2,870,832	2,743,675	2,479,914	408,643
Copper ore (tons)	328,676	350,801	357,194	371,458	288,127	339,251	8,054
Chromite (tons).	21,576	39,127	49,486	62,307	44,149	43,329	22,929
Magnesite (tons)	14,975	16,984	15,468	26,166	25,611	19,841	10,165
Ilmenite (tons)..	75,644	127,051	140,477	181,047	252,220	155,288	.....
Bauxite (tons)...	18	7,635	3,644	15,180	14,768	8,249	939

Source: Sir Lewis Fermor, "India's Mineral Resources and the War," *The Asiatic Review*, October 1940, p. 734.

tion with a heritage of skilled craftsmanship carried down from the days when Indian manufactures occupied a prominent place in world commerce; when Indian calicoes, silks, and muslins were the rage of the fashionable European world, and Indian steel was used to forge the famous blades of Damascus. Yet modern India has remained an industrially backward country, with an *increasing* proportion of her population dependent upon agriculture as their sole means of livelihood. Table 73 shows that during the twenty-year period, 1911-31, the number of workers employed in all types of industry including handicrafts declined markedly, despite the temporary stimulus given to Indian manufacturing enterprises by the First World War.

TABLE 73

PROPORTION OF WORKERS ENGAGED IN INDUSTRY

	1911	1931	Percentage of Variation
Population (millions)	315	353	+12.1
Working population (millions).....	149	154	+ 4.0
Persons employed in industries (millions).....	17.5	15.3	-12.6
Percentage of workers in industry to working population.....	11.7%	10.0%	- 9.1
Percentage of industrial workers to total population.....	5.5%	4.3%	-21.8

Source: *Census of India*, 1931.

Here we have a picture of "de-industrialization"—a decrease in the number of industrial workers by more than two million, as a result of the continued decline of the traditional handicraft industries without a compensating advance of modern

factory industries. For when we examine the figures for "organized" industries, i.e., those employing more than twenty workers and coming under the Factories Act, we find that in 1931 these industries employed only 1.5 million persons, or less than 1% of the total working population. If to this number are added the 280,000 miners and 820,000 workers on the railways, the total of 2.6 million workers in modern industry is still less than 2% of the total working population (see Table 74).

TABLE 74
INDIA—EMPLOYMENT IN ORGANIZED INDUSTRIES, 1931

	<i>Average Daily Numbers Employed</i>
Factories:	
Government factories.....	142,882
Cotton mills.....	352,268
Jute mills.....	336,356
Engineering (including 55,228 in railway workshops).....	144,568
Minerals and metals.....	55,085
Food, drink, tobacco.....	182,307
Chemicals, dyes, etc.	51,043
Paper and printing.....	31,795
Gins and presses (including 138,883 in cotton ginning and baling) .	172,123
Wood, stone and glass.....	37,614
Skins and hides (processing).....	5,991
Miscellaneous.....	7,894
	<hr/>
All factories.....	1,523,302
Mines.....	261,667
Railways ¹	819,058
	<hr/>
Grand total.....	2,604,207

¹ As of March 1930.

Source: D. H. Buchanan, *The Development of Capitalist Enterprise in India*, The Macmillan Company, New York, 1934, p. 136.

This failure to develop India's potential industrial resources has disturbed many non-Indian observers. Thus, Professor D. H. Buchanan concludes his exhaustive survey of economic and industrial development in India up to 1934 as follows:

Here was a country with all the crude elements upon which manufacturing depends, yet during more than a century it has imported factory-made goods in large quantities and has developed only a few of the simplest industries for which machinery and organization had been highly perfected in other countries. With abundant supplies of raw cotton, raw jute, easily mined coal, easily mined and exceptionally high-grade iron ore;

with a redundant population often starving because of lack of profitable employment; with a hoard of gold and silver second perhaps to no other country in the world; . . . with an excellent market within her own borders and near at hand in which others were selling great quantities of manufactures; with all these advantages, India, after a century, was supporting only about 2% of her population by factory industry.¹

Similarly, Dr. Vera Anstey, a leading British authority on Indian economics, describes India as a case of "arrested economic development," and, commenting upon the data revealed by the 1931 census, finds that "it is difficult to reconcile these figures with a picture of rapidly growing industrialization . . . Not only is industrial development insignificant in comparison with agriculture, but India still depends excessively upon foreigners for the provision of many goods and services that are essential for any materially advanced country . . . A well-balanced economic life has not yet been attained and the standard of life of the masses remains miserably low."²

The principal reason for this great disparity between potential resources and actual industrial development in India is revealed by an examination of British economic policy toward India. Prior to the British conquest, India's economic structure had been based on agricultural production combined with a highly developed system of handicraft industry, and the country had enjoyed a large measure of economic self-sufficiency. With the establishment of British rule and the completion of the industrial revolution in England, however, the Indian economy was rapidly altered to meet the needs of the new British manufacturing enterprises for raw materials and markets. British manufactures were granted virtual free entry into the Indian market, while high tariffs were imposed on Indian manufactures entering England, and direct trade between India and other foreign countries was restricted by government action. As a result of this policy, as well as the technical superiority of mechanized industry, British manufactures soon came to dominate the Indian market, while the traditional Indian manufacturing industries declined in importance or were completely wiped out.

Between 1814 and 1835, British cotton textile exports to India increased from less than one million to more than 51

¹ Buchanan, *op. cit.*, p. 450.

² V. Anstey, *The Economic Development of India*, 3rd edition, Longmans, Green & Co., 1936. p. 8.

million yards, while the exports of Indian cotton goods to Britain declined from 1,250,000 to 306,000 pieces. By 1850, India, which had for centuries exported cotton goods to the whole world, was importing one-fourth of Britain's cotton textile exports. Machine-made cotton goods from England destroyed the Indian hand-weaving industry, and machine-made yarn wiped out the spinners. Other Indian handicraft industries suffered the same fate, notably the manufacture of silk and woolen textiles, iron, pottery, glass, and paper. (The basis of the traditional village economy in which farming was supplemented by domestic industry was thus destroyed, along with the decline of such prosperous manufacturing centers as Surat and Dacca,³ and since no alternative opportunity for employment was provided by the growth of modern factory industry, millions of artisans and craftsmen were forced to turn back to the land, causing the terrific overpressure on agriculture which has remained one of the chief problems of modern India.)

Throughout the nineteenth century, British policy toward India was designed primarily to meet the needs of the British manufacturers for increased supplies of Indian raw materials and an expanding market for British products; and by 1900 India had become a great exporter of rice, wheat, cotton, jute, tea, oil-seeds, etc., and an importer of manufactured goods, especially cotton textiles, iron and steel products, railway plant, and machinery. The construction of an extensive network of railways during the latter part of the century was perhaps the most important single factor in this transformation of India into an agricultural colony of British industry, since it made possible the commercial penetration of the country by British goods and also the large-scale production and export of raw materials.

The introduction of railways is, indeed, the most comprehensive sym-

³ "Less than a hundred years ago," wrote Sir Henry Cotton in 1890, "the commerce of Dacca was estimated at one crore (ten million) rupees, and its population at 200,000 souls. In 1787 the exports of Dacca muslin to England amounted to 30 lakhs (three million) rupees; in 1817 they had ceased altogether. The arts of spinning and weaving, which for ages afforded employment to a numerous and industrial population, have now become extinct. Families which were formerly in a state of affluence have been driven to desert the towns and betake themselves to the villages for a livelihood. . . . This decadence has occurred not in Dacca only . . . the manufacturing classes in all parts of the country are becoming impoverished." Quoted by R. Palme Dutt, *India Today*, Victor Gollancz, Ltd., London, 1940. p. 127.

bol of the period right up to the Great War of 1914-18. It represents (1) the inflow of goods produced by the manufacturing industries of Britain; (2) the investment of British capital not only in the railways but in plantations, mines, and factories so as to increase the supply of raw materials and foodstuffs; and (3) the export of raw materials and foodstuffs of every kind . . . to pay for the manufactures imported and to keep the wheels of British industry in motion.⁴

But this transformation of India into a large-scale raw material producer, while it destroyed the traditional Indian village economy and spelled ruin for millions of artisans and craftsmen, also laid the first foundations for the development of modern mechanized industry and the exploitation of the country's coal and iron resources. For the development of railways necessitated the establishment of railway workshops, the opening up of coal mines and iron smelters, and thus paved the way for the eventual manufacture and use of mechanized equipment in other branches of industry.

Prior to the First World War, however, British investment in modern industry in India was confined almost exclusively to enterprises related to the production and export of raw materials, e.g., railways, coal mines, jute mills, and large-scale plantations for the production of tea, coffee, and sugar. In 1911 Sir George Paish estimated the total British capital investment in India and Ceylon at £365 million, distributed as follows:

	<i>£ Million</i>
Government and municipal	182.5
Railways	136.5
Plantations (tea, coffee, sugar)	24.2
Tramways	4.1
Mines	3.5
Banks	3.4
Oil	3.2
Commercial and industrial	2.5
Finance, land and investment	1.8
Miscellaneous	3.3

In other words, 97% of the British capital investment in India prior to 1914 was devoted to purposes auxiliary to the commercial penetration of the Indian market and in no way connected with industrial development.

British opposition to the development of Indian-controlled industries prior to 1914 is indicated by a statement in the

⁴ K. S. Shelvankar, *The Problem of India*, Penguin Books, Ltd., London, 1940. p. 152.

Government Annual Report of 1921 that "sometime prior to the war certain attempts to encourage Indian industries by means of pioneer factories and Government subsidies were effectively discouraged from Whitehall." This official opposition was supplemented by a tariff policy designed to limit the development of the Indian cotton textile industry, which was the only important manufacturing enterprise in which Indian capital predominated, and which had begun to expand rapidly in the latter part of the nineteenth century. The first step was the removal of import duties on British cotton cloth (1882) and the imposition of a 5% duty on imported textile machinery. When, in 1894, financial requirements necessitated the reimposition of import duties on cotton cloth, an excise duty of $3\frac{1}{2}\%$ —equal to the import duty—was imposed on all Indian mill-woven cloth. This excise duty remained in full force until 1917, when its effect was partially diminished by the raising of the import duty to $7\frac{1}{2}\%$, and was only finally abolished in 1925.

Under these conditions, industrial development in India up to 1914 was extremely slow, and was mainly confined to the cotton textile industry, which made considerable progress despite the obstructing effects of the special excise duties, and to the jute industry which was controlled by British capital. The engineering industry was confined to railway repair shops. There was no production of machinery, and the iron and steel industry was in its infancy, the first iron smelting furnaces of the Tata Iron and Steel Company having been blown in in 1911. The total number of workers employed in organized industries was only 951,000 in 1914.

Effects of the First World War. During the First World War, the difficulty of securing certain customary imports and the fact that India participated in equipping Imperial troops, particularly for the Mesopotamian operations, gave a powerful impetus to the expansion of Indian industrial production. Existing industries, particularly cotton and jute mills, operated at full capacity and made enormous profits. The Tata Iron and Steel Company, leader of Indian industrial advance outside the cotton industry, increased its finished steel production from 19,000 tons in 1913 to 124,000 tons in 1918-19, and there was some increase in the production of various consumers' goods as a result of the curtailment of imports. Any extensive indus-

trial expansion was prevented, however, by the lack of heavy industries to provide the necessary machinery and equipment.

Thus, the war "revealed both the potentialities and deficiencies of Indian industries. The production of woollen, cotton, metal, and a number of other manufactured goods was greatly stimulated. . . . But India could not take full advantage of her temporary monopoly, as she depended for plant, machinery, and accessories on imports from abroad."⁵ The industrial deficiencies revealed by the war did, however, bring about a change in the official British attitude toward Indian industrialization for strategic, political, and economic reasons. In the first place, the failure to develop the bases for modern heavy industry in India, and the consequent necessity of depending for vital military supplies on the long and precarious overseas route to England, weakened the whole British strategic position in the East.⁶ Secondly, foreign competition was beginning to break down the British monopoly of the Indian market—a development which was considered even less desirable than the growth of industry within India, which could at least be subjected to a considerable degree of British financial and administrative control. Finally, it was imperative to secure the support and co-operation of the Indian capitalists in the war, and certain concessions of both an economic and political character were considered essential.

Thus, as early as 1915, the Viceroy, Lord Hardinge, in a dispatch to the Secretary of State for India (November 26, 1915), declared that, "it is becoming increasingly clear that a definite and self-conscious policy of improving the industrial capacity of India will have to be pursued after the war, unless she is to become the dumping ground for the manufactures of foreign nations. . . . The attitude of the Indian public towards this question is unanimous, and cannot be left out of account. . . . After the war India will consider herself entitled to demand the utmost help which her Government can afford

⁵ G. E. Hubbard, *Eastern Industrialization and Its Effects on the West*, Oxford University Press, London, 1938, p. 254.

⁶ "The possibility of sea communications being temporarily interrupted, forces us to rely on India as an ordnance base for protective operations in Eastern theatres of war. Nowadays the products of an industrially developed community coincide so nearly in kind though not in quantity with the catalogue of munitions of war that the development of India's natural resources becomes a matter of almost military necessity." *Montagu-Chelmsford Report on Indian Constitutional Reforms*, 1918.

to enable her to take her place, as far as circumstances permit, as a manufacturing country."

Similar sentiments were expressed in the Montagu-Chelmsford Report in 1918, which stated that, "on all grounds a forward policy in industrial development is urgently called for, not merely to give India economic stability, but in order to satisfy the aspirations of her people. . . . Both on economic and military grounds Imperial interests also demand that the natural resources of India should henceforth be better utilized. We cannot measure the access of strength which an industrialized India will bring to the power of the Empire."⁷

This war-inspired interest in Indian industrial development continued into the postwar boom period, during which large amounts of British capital flowed into India. The average dividend paid by the leading cotton mills in Bombay in 1920 was 120% and in some cases was as high as 200 and 250%. Dividends of leading jute mills averaged 140%, and reports of 41 British-controlled jute mills, with a total capital of £6.1 million, showed profits of £22.9 million in the four-year period 1918-21, in addition to £19 million added to reserves. British capital was naturally eager to share in these colossal profits, and the annual export of British capital to India increased from an estimated £14.7 million or 9% of the total, in the period 1908-10, to £29 million in 1921 and £36 million in 1922, or more than one-fourth of total British capital exports.

Officially, the changed British attitude toward Indian industrialization was reflected in the inauguration of a protective tariff system. The duty on cotton piece goods was raised to 7½% in 1917 and to 11% in 1921. The general import duty was raised to 11% in 1921 and to 15% in 1922. In 1924, the Indian iron and steel industry was granted the protection of a 33⅓% import duty, plus a system of government subsidies. By this time, however, British interest in Indian industry was beginning to wear thin. The feverish boom conditions of 1920-21 had developed into a crisis followed by a disastrous crash during which many of the Indian firms formed during the boom period had gone bankrupt. The era of abnormal profits was definitely past, and the flow of British capital to India dropped to £2.6 million in 1924, to £2.4 million in 1925, to £2 million in 1926, and to less than £1 million in

⁷ *Ibid.*, p. 267.

1927. In 1927, the *Statist* (London) issued the following index figures of the capital of new companies registered in India, on the basis of 1914 as 100:

	1914	1921	1922	1923	1924	1925	1926	1927
Index of capital of companies registered each year.....	100	221	121	51	40	31	45	29

Commenting on this sharp drop below the prewar level, the *Statist* declared, "There can be little doubt but that the figures reflect a definite setback in the economic development of the country."

A similar change was apparent in official action affecting Indian industry after 1924. Following the granting of protection to the iron and steel industry, the Tariff Board received a series of further applications from other industries for protection, but in the majority of cases, notably in the cement and paper industries, these applications were not approved. Moreover, when the iron and steel protective system came up for renewal in 1927, the basic duties were lowered, the subsidies abolished, and the principles of Imperial preference, i.e., preferential treatment for the entry of British manufactures into India, were introduced.

From 1927 to the outbreak of the Second World War, the keynote of the Indian tariff system was Imperial preference, which gave British products a competitive advantage over both non-Empire and Indian production in the Indian market. In 1930 it was extended to cotton piece goods, and in 1932, under the Ottawa Agreements, a general system of Imperial preference was imposed on India despite vigorous protests from Indian manufacturers and an adverse vote from the Indian Legislative Assembly. In this way the tariff system of the early 'twenties, originally proclaimed as a means for accelerating Indian industrialization, was transformed into a system which assisted British industry to compete in the Indian market while giving India in return the privilege of favored rates for the sale of her raw materials and semi-manufactures in the British market—an obvious attempt to revert to the pre-1914 status. The conflict of interest between the British and Indian industrialists over the tariff question was thus clearly defined. British industry wanted an Indian tariff which would prevent the invasion of the Indian market by non-British competitors, par-

ticularly American and Japanese. Indian industrialists, on the other hand, wanted protection primarily against British manufacturing interests which were far more strongly entrenched in the Indian market as a whole than their other foreign competitors. This clash of interest found expression in the Indian Legislative Assembly when the United Kingdom-India Trade Agreement of 1935, embodying and extending the Ottawa Agreements to a still wider system of Imperial preference, was defeated by a vote of 66 to 58. This vote was overridden by the British Government, but Indian opposition remained unabated and the new Trade Agreement of March 1939 was again rejected by the Assembly by a vote of 59 to 47. This vote too was overridden by the Government.

Indian industry, already hard-hit by the postwar depression, by increasing competition from foreign manufactures, and by the sharp drop in British capital investment, suffered particularly severely during the world economic depression which enormously reduced the country's purchasing power and therefore the market for manufactured goods. During the depression, the value of India's production of raw materials and food-stuffs, on which four-fifths of the population were in practice dependent, fell by more than half. Between 1928-29 and 1932-3, the value of Indian exports fell from 3,390 million rupees to 1,350 million; the value of imports from 2,600 million to 1,350 million. The heavy payments of interest on the Indian debt and of home charges thus had to be paid by the export of treasure, gold exports to England totaling £241 million for the seven years 1931-37, an amount larger than the total British gold reserves before the crisis. This gold drain, extracted mainly from the savings of the masses of the Indian peasantry, meant a still further impoverishment of the Indian market and a corresponding depression of Indian industry.

As a consequence, the rate of industrial growth in India between the First and Second World Wars was extremely slow, as is indicated by the figures for employment in industries under the Factories Act. In the 17 years between 1897 and 1914, the number of factory workers increased by 530,000—from 421,000 to 951,000. But in the 17-year period from 1922 to 1939, the number increased by only 390,000—from 1,361,000 to 1,751,000. Thus, the London *Economist*, reporting on the progress of "industrialization" in India at the end of 1936,

stated that, "The proportion of the population dependent upon industry as a whole has tended to decline, and in some industries—in particular the jute and cotton industries—there has been an absolute decline in number employed. . . . Although India has begun to modernize her industries, it can hardly be said that she is as yet being 'industrialized.'"⁸

The only industries in India employing more than 100,000 persons each in 1937 were cotton spinning and weaving mills, jute mills, railway workshops, and cotton ginning and pressing factories (see Table 75). Among the minor industries, sugar production had made a notable advance, production having trebled between 1929 when India imported a million tons, and 1937 when domestic production totaled 1.1 million tons. Similarly, the production of cement, nearly one million tons in 1936-7, was 80% more than in 1928-9. There had also been an increase in the manufacture of various consumers' goods, e.g., lamps, paints and enamels, soap, matches, cigarettes, etc., largely as a result of the establishment of branch factories by British firms desiring to supply the Indian market from within the tariff wall.⁹ But there was no production of machinery, of nonferrous metals, or of the more important industrial chemicals. Although India was the world's largest producer and exporter of raw hides, she was still almost entirely dependent on foreign sources for all sorts of industrial leathers. Steel production had been developed only to such an extent that less than half the country's limited requirements was being met by domestic production. Even the cotton textile industry was still unable to meet the whole of the domestic demand.

The backwardness of Indian industrial development is illustrated not only by these deficiencies, and by the tiny proportion of the population employed in modern industry, but also by the fact that nearly 14 million workers were supported by

⁸ "A Survey of India Today," *Economist, Indian Supplement*, London, December 12, 1936.

⁹ Sir Thomas Ainscough, Senior Trade Commissioner, in a report on new industrial enterprises in the decade 1928-38, declared: "In some important cases, notably the manufacture of cigarettes, matches, rubber tires, soap, paints, and certain chemicals, these industries are branches of important firms in the United Kingdom which have decided that it is to their advantage to meet the Indian demand from works situated inside the tariff wall, and also to be in a position to claim the status of Indian origin when tendering for the requirements of Government purchasing departments." *Report on Conditions on Prospects of United Kingdom Trade in India, 1939*. Department of Overseas Trade, London.

handicraft industries. The survival of these handicrafts, particularly the hand-loom weavers, was primarily due to the incredible cheapness of their products and the extreme poverty of the great majority of the Indian people.

TABLE 75

INDIA—FACTORIES SUBJECT TO THE FACTORIES ACT, 1937
(excluding Indian State and Government factories)

	<i>Number of Factories</i>	<i>Workers Employed</i>
Cotton spinning and weaving mills.....	355	474,134
Jute mills.....	104	305,785
Cotton ginning and pressing.....	1,970	133,210
Railway workshops.....	167	104,691
Rice mills.....	1,217	43,856
General engineering.....	369	43,571
Electrical works.....	137	13,444
Printing.....	480	38,815
Tanneries and leather works.....	41	11,675
Jute presses.....	69	16,699
Tile and brick factories.....	85	11,034
Shipbuilding.....	14	14,769
Tea factories.....	1,037	65,453
Foundries.....	96	4,709
Iron and steel smelting and rolling mills.....	12	38,818
Saw mills.....	53	3,384
Petroleum refineries.....	4	2,479
Woolen mills.....	16	7,638
Sugar factories.....	262	76,523
Oil mills.....	251	14,075
Silk mills.....	69	3,708
Tobacco factories.....	28	9,999
Motor works and coach building.....	85	5,996
Paper mills.....	12	8,685
Miscellaneous.....	58	8,259

Source: *Statesman's Year-Book*, 1940.

The Cotton Textile Industry. The cotton textile industry was the first and has remained the most important industrial enterprise in which Indian capital predominated. Production increased rapidly during and immediately after the First World War, when the industry experienced unparalleled prosperity, but after 1923, a depression of both prices and profits set in which continued more or less without interruption until the outbreak of the war in 1939. Various factors combined to depress the industry, among them the decline in the export trade in yarn to China, faulty organization and unsound financing of many mills, the stabilization of the rupee (in 1927) at

the high rate of 1s. 6d. instead of the prewar rate of 1s. 4d., and increasingly severe Japanese competition which reduced the level of prices of cotton yarn and piece goods in India.

The main facts regarding the Indian cotton textile industry are given in Tables 76 and 77. These figures show a steady

TABLE 76
INDIAN COTTON TEXTILE INDUSTRY

	<i>Number of Mills</i>	<i>Looms</i>	<i>Spindles</i>	<i>Numbers Employed</i>
1913-4.....	264	85,158	5,848,283	260,276
1925-6.....	303	136,033	7,264,234	373,508
1935-6.....	344	158,802	7,845,077	384,938
1938-9.....	389	202,464	10,059,370	441,949

TABLE 77
QUANTITY OF MILL-MADE CLOTH AVAILABLE FOR CONSUMPTION IN INDIA

	(in million yards)				
	1913-4	1931-2	1935-6	1937-8	1938-9
Indian mill production...	1,164.3	2,989.8	3,571.4	4,084	3,975
Net imports.....	3,135	759.9	946.7	524	556
Exports of Indian goods..	89.2 ¹	104.6 ¹	70.0 ¹	369	292
Available for consumption in India.....	4,210.1	3,645.2	4,448.1	4,239	4,533

¹ Excluding exports by land, which normally amount to about 4% of the "total available."

Sources: Hubbard, *Eastern Industrialization and its Effect on the West*, *op. cit.*, p. 282; *Indian Information*, Vol. 9, No. 80, September 15, 1941.

increase in production for the home market until, by 1937-8, the total cotton mill manufacture of India exceeded 4,000 million yards, or nearly four times the pre-1914 figure, while imports of cotton cloth had declined from 3,100 million yards in 1913-4 to less than 600 million in 1937-8. But though the Indian mills had thus greatly improved their competitive position in the domestic market, the increase in the total volume of piece goods available for consumption in India had been far less than the growth of population, so that the *per capita* figure had declined. Even if hand-loom production, estimated at 1,746 million yards in 1937-8, is included, the *per capita* consumption of piece goods in India was only slightly higher than the average for the period 1909-10 to 1913-4.

With regard to cotton yarn, Indian mill production predominates in the home market, normally supplying about 90% of the total consumed. The production of Indian mills in-

creased from 268 million lbs. in 1913-4 to 1,016 million in 1932-3, and to 1,303 million in 1938-9. Imports declined from about 40-45 million lbs. up to 1932-3, to 22 million in 1937-8, and exports fell from a pre-1914 average of 192 million lbs. to 38 million in 1938-9. Thus, though the Indian mills increased their sales, prices were depressed both by competition from Japanese mills, and by the necessity of selling at home the large quantities of yarn formerly exported at higher prices to China, and the industry as a whole was in a depressed condition in August 1939.

The Iron and Steel Industry. India possesses unique advantages for the production of pig iron, of which she is the cheapest large-scale producer in the world. She has large quantities of high-grade iron ore, found in proximity to coal, and large supplies of other essential raw materials, e.g., limestone, magnesite, and manganese. The Indian iron and steel industry, developed wholly by Indian capital and enterprise, dates back to 1911 when the first iron smelting furnaces of the Tata Iron and Steel Co., Ltd. were blown in. The Tata Company still produces about 70% of India's total pig iron production, and until recently was the only producer of steel. Other important iron and steel companies are the Mysore Iron and Steel Works, and the Indian Iron and Steel Company. The Steel Corporation of Bengal, a British-controlled concern, began operations in November 1939 after the outbreak of the war.

The volume of India's pig iron and steel production in the five years prior to the war is shown in Table 78. This increase in production was accompanied by a decline in imports from an annual average of 820,000 tons in the years before 1914 to 360,000 tons in 1936-7, while exports of pig iron and lesser quantities of steel products rose from 42,000 to 683,000 tons in the same period. But though it is estimated that by 1936, 50 to 70% of the Indian demand for steel was being supplied by the Indian steel industry, this is merely an indication of the extremely limited market for steel owing to the lack of industrial development. For in 1936, India's steel output was less than that of Poland, and less than one-sixth that of Japan. Moreover, India was wholly dependent on foreign sources for high quality steels, for most steel manufactures, and for all types of machinery. It is this lack of a strong metallurgical industry which emphasizes the weakness of Indian industrial-

zation on the eve of the Second World War, despite the expansion of the cotton, jute, and woolen textile industries, and of other light industries such as cement, matches, and sugar.

TABLE 78

INDIA—PRODUCTION OF METALLURGICAL PRODUCTS, 1934–1938
(compared with average production, 1914–1918, in tons)

	1934	1935	1936	1937	1938	Average 1934–1938	Average 1914–1918
Total pig iron produced.....	1,320,210	1,451,862	1,540,056	1,621,260	1,539,889	1,494,655	243,353
Pig iron exported....	398,054	472,636	605,976	597,331	525,254	519,850	.....
Pig iron converted to steel.....	.....	.....	756,723	801,602	851,569	.....	.....
Steel produced.....	596,981	627,867	660,291	665,309	693,064	648,702	95,986
Ferro-manganese....	5,536	14,182	3,263	8,041	18,385	9,881	4,069
Refined copper.....	6,300	6,900	7,200	6,830	5,330	6,512	.....

Source: Sir Lewis Fermor, "India's Mineral Resources and the War," *The Asiatic Review*, October 1940, p. 739.

WARTIME INDUSTRIAL DEVELOPMENT IN INDIA

The character of the Second World War created a far greater and more urgent demand for Indian industrial production than had the war of 1914-18. For in this war, more than ever before, mechanized equipment, and consequently industrial capacity, were of pre-eminent importance. Moreover, the fact that Japan—an ally in the last war—was now a military partner of Germany and a threat to Malaya and Burma, made it doubly imperative that India should be developed as rapidly as possible into an industrial arsenal for the British forces operating east of Suez. All the reasons—strategic, economic, and political—which had dictated a policy of official support for Indian industrialization during the First World War, were even more compelling in 1939. For though some industrial progress had been achieved during the preceding two decades, it had been confined chiefly to textiles and other light industries. India was still without basic heavy industries; was wholly dependent upon imports for machinery and factory equipment; and had less than two million workers in modern factory industries, and a far smaller number of skilled workers and technicians.

The urgent necessity for co-ordinating and stimulating industrial production in the British possessions east of Suez was at last recognized by the British Government in the autumn of 1940, after more than a year of war, when the Eastern Group Conference convened at New Delhi with the announced pur-

pose of establishing a secure economic base for the defense of the Eastern Empire.¹⁰ The Delhi Conference marked a radical departure from the traditional wartime role of the colonies and Dominions as suppliers of raw materials and foodstuffs to an industrial Britain. The concentration of industry in one center and the scattered character of the Empire had long been regarded as a military weakness, and the elimination of France, the bombing of British factories and the sinking of British ships, the spread of the war to the Mediterranean, and the Japanese penetration of Southeast Asia, all demonstrated the extreme vulnerability of an empire whose industry was so concentrated and whose lines of communication were so extended. To relieve the burden on British factories and shipping it was essential to expand the industrial output of the eastern zone, and India and Australia were chosen as the most suitable for conversion into industrial bases, since India's geographic position as well as her extensive material resources made her an ideal industrial supply center for all strategic points between Egypt and Malaya.

By the end of 1941, the conversion of India into an important industrial arsenal had made considerable progress. Pig iron production had been increased from 1,600,000 tons in 1938-39 to 2,000,000 tons in 1940-41. Finished steel output had risen from 867,000 tons in 1939 to 1,250,000 tons in 1941 and was expected to reach 1,400,000 tons in 1942. Steel armor plate was being rolled at the Jamshedpur plant of the Tata Iron and Steel Company for the first time in Indian history, and Tata had a new plant in process of construction which would increase its steel capacity by about 200,000 tons a year.

By 1941, government ordnance and clothing factories were employing 49,000 workers, as compared with an average of 17,000 in prewar years, and an extensive program for the expansion of Indian armaments works, ordnance factories, explosives plants, and small arms factories at a cost of some Rs. 40,000,000 had been initiated. This general plan, and other expansion programs undertaken by various industrial con-

¹⁰ The Conference, which convened on October 25, 1940, was attended by official delegations from the governments of Australia, New Zealand, Malaya, India, Burma, Ceylon, South Africa, East Africa, Rhodesia, Palestine and Hong-kong, comprising a population of over 500,000,000. Representatives of the Netherlands Indies were also present, as well as the Roger Mission sent out by the British Ministry of Supply to make a survey of Indian industry.

cerns, called for the provision of plant and machinery to enable India to produce a wide variety of armaments, including heavy caliber guns, bombs, light machine guns, and barrels for anti-aircraft guns, as well as increased amounts of high explosives, high-grade steels, nonferrous alloys, etc. At the end of 1941, ordnance factories were being assisted by 250 "trade" workshops and 23 railway workshops, these auxiliary establishments having undertaken the production of 700 different items of munitions supply. In addition to meeting her own needs, India had sent overseas approximately 600,000 filled shells, and one hundred and fifty million rounds of small arms ammunition. The production of armored bodies for motor vehicles had expanded but was limited by the necessity of obtaining motor chassis from abroad.

A small beginning had also been made in the production of the simpler types of machine tools and machinery. By September 1941, fifty-four firms had been licensed to manufacture machine tools, and lathes, drilling, shaping, planing, and hacksawing machines, furnaces, power blowers, sand blasting plant, and other simple types of machinery were being manufactured for the first time. A recent report states that over 280 new items of "engineering stores" were being manufactured in India, ranging from small tools and machine parts to heavy caliber guns, torpedo boats, and degaussing cables.¹¹ The production of drugs and medical supplies, leather manufactures, hardware, glassware, cutlery, and optical goods had been greatly expanded. A wide variety of manufactured articles previously imported were also being produced in India by the end of 1941, e.g., wire mesh, benzol, rubber goods, disinfectors, binoculars, lubricating oils, lead pipes and sheets, chloroform, carbonic acid, oxygen apparatus, stoves, and many other items.

The acceleration of industrialization, together with the curtailment of supplies from abroad, had also resulted in the beginnings of a heavy chemical industry in India. The Alkali and Chemical Corporation of India, and Tata Chemicals, Ltd. had plants in the process of completion in 1941; and they and Imperial Chemicals of India, Ltd. had begun the production of sulphuric acid, synthetic ammonia, caustic soda, chlorine, bleaching powder, and bichromates. Imported aluminum was being treated in Indian plants, and it was reported that by

¹¹ *Indian Information*, Vol 9. No. 81, October 1, 1941.

1942 Indian bauxite would be extracted, treated, and fabricated locally. The plant of the Hindustan Aircraft Company at Bangalore produced its first plane in August 1941, from imported parts, although it was hoped that with the further development of the engineering industry the factory would be able to manufacture parts from local raw materials. In aircraft, as in tanks and armored vehicles, however, India remained completely dependent upon imported engines.

India's older industries—notably textiles—had also made a substantial contribution to the Empire war effort. The cotton and woolen textile industries in 1941 produced some 324,000,000 yards of cloth for garments, and nine factories were turning out uniforms at the rate of approximately five million per month. More than thirty new types of fabrics had been added to the list of textile manufactures, including khaki cellular shirting, cotton webbing, jute-cotton canvas, etc., and India was also supplying large quantities of blankets to all countries of the eastern zone, as well as tentage of all kinds. Army boots were being produced at the rate of 3,000,000 pairs a year, and the jute industry had filled government orders for one billion sandbags. A general indication of the increase in India's industrial production is the fact that the value of her exports of articles wholly or mainly manufactured increased from Rs. 476,100,000 in 1938-9 to Rs. 812,000,000 in 1940-1.

British Policy toward Indian Industrialization. The enormous wartime demands for Indian production created both an urgent need and an unprecedented opportunity for intensified industrial development in India, and also for healing the breach between Indian and British manufacturing interests. During the early months of the war, however, there appears to have been a widespread feeling among India's industrialists that the British authorities were impeding Indian industrialization by discrimination against Indian concerns, and by refusing to give financial assistance to the establishment of Indian-controlled enterprises. This attitude was vigorously expressed in the Legislative Assembly in November 1940, while the Eastern Group Conference was meeting at New Delhi. During the debate on the Supplementary Finance Bill, government policy with regard to aircraft manufacture, the automobile industry, and shipbuilding was vehemently attacked. It was claimed that Indian interests had offered, at the outset of the war, to con-

struct an aircraft factory without any government subsidy, but that the project had been delayed for fifteen months by the Government's refusal to agree to buy planes. It was also alleged that the British Government, despite its urgent need for shipping, was blocking the establishment of Indian-controlled shipbuilding yards, and that it had opposed the construction of an Indian automobile manufacturing plant. In response to these charges, the British Government issued an official communiqué on December 16, 1940, declaring that the Government was very sympathetic to these projects, but that there were "considerable difficulties" in the way of their attainment.

There is, however, considerable evidence that though Great Britain was engaged in a life and death struggle in which additional industrial production in India was of vital importance, British policy in the first two years of the war continued to be dominated by commercial motives, and was therefore opposed to any rapid or extensive growth of Indian-controlled heavy industries. Production of military supplies was, of course, greatly increased as compared with prewar years, but this increase was still far out of proportion both to India's potential resources and to her vast needs. British official reports stressed that by 1941 India was about 90% self-sufficient in military supplies, but these "supplies" consisted almost entirely of clothing, small ammunition, foodstuffs, tents, blankets, etc. Only the smallest beginnings had been made in the development of the metallurgical, chemical, and other heavy industries for which India possessed all the necessary raw materials, and nothing effective had been done to eliminate the twin bottlenecks of lack of machinery and a skilled labor shortage which continued to cripple India's efforts toward industrial expansion.¹²

It may be assumed, however, that with the outbreak of war between England and Japan, and the Japanese invasion of Malaya and Burma, the British authorities in India will be compelled not only to abandon all opposition to the establishment and expansion of Indian heavy industries, but also to make a more substantial contribution to this task than they

¹² An official technical training program was introduced in 1941, but it provided only for the training by September 1, 1942, of 10 assistant works managers, 1,300 supervisors, and 6,000 skilled and semi-skilled workers—a wholly inadequate number for any large-scale development of heavy industry.

have thus far done. Such a process would entail a modification of India's colonial relation to British industry, and mark the beginning of her emergence as an industrialized nation, more comparable to Canada or Australia than to the industrially backward colonial areas of the British Empire. It would also necessitate far-reaching changes in India's political and financial relations with Great Britain—a highly complex subject which is beyond the limit of this survey. It is clear, however, that the industrialization of India is today more than ever before a military necessity for Great Britain, and that policies dictated by the desire to retain a dominant position in the Indian market and financial control over Indian production and trade must be subordinated to the immediate and urgent need to make full use of India's great material resources, to enlist the unqualified co-operation of the Indian people, whose leaders have proclaimed their unyielding opposition to fascist aggression, and to enable India to acquire sufficient industrial strength so that in the future she can not only defend herself against foreign aggression but can also make a substantial material contribution to the economic reconstruction of Eastern Asia.

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