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THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

No. 166

RESTRICTED

AMERICAN CONSULATE GENERAL
Vladivostok, U.S.S.R.
December 1, 1945

OFFICE OF THE
DEPARTMENT OF STATE
MAR 21 1946

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SUBJECT: Organization of Kurile State Fishing Trust.

The Honorable
The Secretary of State,
Washington.

INTERNATIONAL RESOURCES DIVISION
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DEPARTMENT OF STATE

Sir:

1/ I have the honor to enclose, as of possible interest for the indication it offers of Soviet intentions in respect to the economy of the Kurile Islands, a copy (in English translation) of an advertisement appearing in the newspaper KRASNOE ZNAMYA (RED BANNER), Vladivostok of November 28, 1945 calling for workers for the combines of the Kurile State Fishing Trust.

Respectfully yours,

O. Edmund Clubb.
American Consul General

Enclosure: *atd*
1. Translation of advertisement in KRASNOE ZNAMYA (RED BANNER), Vladivostok, November 28, 1945.

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DIVISION OF JAPANESE AND
ECONOMIC AFFAIRS
DEPARTMENT OF STATE
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Original and ozalid copy to the Department.

Copy to Embassy, Moscow.

(TRANSLATION)

Advertisement in KRASNOE ZNAMYA (RED BANNER), Vladivostok,
November 28, 1945.

TRANSLATED: November 30, 1945.

TRANSLATOR: EC

KURILE GOSRYBTREST*

is effecting the recruitment and hiring of workers and employees of all specialities for permanent and seasonal work in the fishing combines of the trust on the Kurile Islands.

CONDITIONS OF EMPLOYMENT:

1. Wages from 500 to 1,300 rubles monthly depending upon the qualifications of the worker. In addition there are premiums for the catch and working of fish.

2. Board in accordance with the rations of the North will be provided gratis to all workers until the organization of the trade network.

3. Upon hiring, there is given to seasonal workers a subvention, and a monthly allowance, diurnal from the day of formulation of the pass orders.

4. Permanent workers are provided with the privileges of the Far North:

a. a subvention is given in the form of a two-months' allowance;

b. after each 6 months' work there is a 10% increase in wages;

c. an extended leave: 30 days per year to workers;

d. a subsidy is granted for each member of the family. Passage, and transport of baggage, is on the account of the undertaking;

e. service in the North is counted two years for one.

One should apply to the address: Kurile Gosrybtrest,
53 Menzhinskaya, Vladivostok.

*State Fishing Trust: translation.

WESF
CD

DEPARTMENT OF STATE

Memorandum of Conversation

DATE: Sept. 24, 1945

SUBJECT: Seed Oysters from Japan

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PARTICIPANTS: Mr. Hutchins, Foreign and Domestic Commerce
Mr. Flory, CD

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DIVISION OF
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COMMODITIES DIVISION
OCT - 2 1945
DEPARTMENT OF STATE

STANDARD FORM NO. 64

The National Cannery Association has contacted Mr. Hutchins in its attempt to get seed oysters from Japan for planting on the West Coast. The Association claims that the West Coast oyster industry is likely to be in serious difficulties if the seed is not obtained by April.

Last week Mr. Hutchins attempted to discuss this matter with the people in the Department of State, but since Mr. Kennedy was not available, referred the matter to the Commerce-State liaison officer who is taking the matter up with Communications this afternoon. Since he understands that effective communication through the State Department is not possible, Mr. Hutchins wants to communicate directly on a personal basis with Fiedler, in charge of Japanese fisheries, and secure information as to the availability of seed, rather than using official channels.

Mr. Hutchins has prepared a note to Fiedler asking for information and requesting that Fiedler's reports be sent to him informally.

I indicated to Hutchins that State was interested in seeing that operations were carried out rapidly and effectively,

but that

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but that, as a rule, State would not countenance the conduct of business through informal channels bypassing this Department.

Mr. Hutchins agreed to call me back and give me the results of the conversation between the liaison officer and the Department of State.

Sept 27.

Hutchins is sending
personal message to
Butler by courier.

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DIVISION OF FINANCIAL AFFAIRS

John I. Solomon,
133 West 87th St.,
New York, 24, N.Y.

OCT 3 1945

DEPARTMENT OF STATE
Sept. 25th 1945.

~~FN~~
~~CD~~
JA
ME

The Honorable Secretary of State,
State Department,
Washington, D.C.

COMMODITIES DIVISION
Referred to FA for
action w/13/45
SEP 28 1945
DEPARTMENT OF STATE

Sir:

In the year 1906 the writer at the invitation of the then Inspector of the Pearl Banks and Marine Biologist to the Government of Ceylon established as the pioneer in the art, a pearl cultivation enterprise in the Gulf of Manaar. Later, because of the more favorable conditions, the enterprise was removed by me to the Mergui Archipelago off the coast of Lower Burma, Burma then a province of British India.

I, a graduate of the Mass. Institute of Technology had been an engineer in the employ of the General Electric Company, and as a hobby had been making a study of pearls origin and cause.

I was encouraged to proceed to Ceylon by Mr. Gano Dunn now the president of J.G. White Engineering Corporation who at that time was vice president of the Crocker-Wheeler Electric Co., and because of that company's foreign business Mr. Dunn even at that early day was experienced in foreign business affairs. Mr. Dunn also extended advice as to my finances and through his intimacy with the now Hon. Bernard M. Baruch discussed the matter on my behalf with him. Incidentally through intermarriages in our two families Mr. Baruch for many years has been acquainted with me.

On the outbreak of World War 1 in 1914 my enterprise was in a thriving condition but the complications then brought about by the war, during and after, fluctuation in foreign exchange, difficulty of transportation, the rise in the price of silver, depreciation of the pound Sterling but, most serious of all; the boycott established against my product by the organized gem dealers brought about the liquidation of my company. The enclosed copy of letter from Mr. Dunn to me in the year 1928 and my reply thereto will explain the situation.

After the establishment of my enterprise the Japanese also went into the industry and their markets being at first in Asia, which prospered mightily through World War, were then unaffected by the boycott. The Japanese survived and have built up a mighty industry and a world-wide monopoly.

The enclosed copy of letter to the late Dr. Hugh M. Smith Commissioner of Fisheries in the two Wilson administrations and later fisheries adviser to the Government of Siam with the acknowledgment thereof will explain themselves.

Ans. Oct. 8, 1945
by A-C:EM Martin
(WMS:K)

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The Honorable Secretary of State
Sept. 25th 1945.

The Japanese survived to have the fact established through time, which because of the hiatus of the war and its aftermath I was unsuccessful in so doing, that cultured pearls are not imitation but are to be classed a natural product, and thus brought about the result which the boycotting gem dealers had foreseen, the great depreciation in value of wild or so-called "Oriental" pearls.

Surviving, the Japanese spread from their own home waters to exploit the pearl fisheries of all the East Indian Seas from the Mergui Archapelego down through the waters of the Dutch East Indies, the Philippines into the waters of Australia. Either because of appeasement, indifference or inability to police and because of the skill and daring of their Japanese divers the Japanese have depleted the shell resources of the Orient.

Where suitable, the Japanese have established pearl cultivation stations on Dutch possessions and on the possessions of other nations the pearls therefrom being marketed not as Japanese but as "South Sea Pearls".

Up until about two years before the "China Incident" the Japanese got large and remunerative prices for their product when they suddenly began throwing immense quantities of their pearls on the markets of the world at always falling prices until the prices became fabulously low. It is now surmised by the trade that the Japanese did that in order to gain foreign exchange in anticipation of the coming conflict. At the low prices the markets readily absorbed all the pearls offered poor qualities of which in strands being sold even in Woolworth Stores. The markets are now swept practically clean of all cultured pearls cut off as the Japanese have been during the war years.

As the result of my own experience during World War 1 when I was kept isolated and accumulated my maturing crops I know that the Japanese must now have immense accumulations of cultured pearls and the markets are hungering for them.

If the Allied Powers are to secure reparations from the Japanese these stocks of cultured pearls, if they can be located and secured and then carefully marketed at their true values, will bring in comparatively large sums.

In conclusion I would state -

- (1) The pearl industry and the fishing for commercial sea shells has been and still is a Japanese world monopoly.
- (2) Of all people other than Japanese the writer has the most complete knowledge of the industry.
- (3) In conjunction with reputable gem merchants who have specialized in dealing in cultured pearls I can undertake the world-wide sale of the Japanese accumulations.

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(Enc. *with*
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Respectfully,

John W. Solomon

GANO DUNN
43 EXCHANGE PLACE
NEW YORK

Thursday,
November 1, 1928

C
O
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Y

John I. Solomon, Esq.,
Allerton House,
45 East 55th Street
New York.

Dear John,

I have been talking about you to Mr. Maurice Holland, Director of the Engineering Division of the National Research Council, with which I am identified.

Mr. Holland represented the National Research Council as delegate to Japan not long ago, and brought back much interesting information, including information about the development of the pearl culture industry. He has written articles in the Atlantic Monthly and in Travel Magazine for October 1928, which have been seriously criticised by Dr. Kunz on account of the statement that experts cannot distinguish between natural and cultivated pearls.

I remember you were in the midst of this controversy once before, and have told Mr. Holland that you are the founder of the pearl culture industry thru your original ideas and thru your early work in India. I have also mentioned that the Marcuses became stockholders in your company.

Mr. Holland, I am sure, could get a great deal of valuable information from you and you in turn would make a valuable contact in meeting Mr. Holland, so I took the liberty of asking him if he would see you if I gave you a letter of introduction, which he says he will be glad to do. His office is in the United Engineering

John I. Solomon, Esq.,
Page two
11-1-28

Societies Building, Division of Engineering and Industrial Research of the National Research Council, 29 West 39th Street, New York.

I suggest you go to see him with this letter as an introduction. I am sending a copy of it in advance to Mr. Holland.

Very sincerely yours,

(Signed) GANO DUNN

P.S.

I would send you the Travel Magazine for October but am not sure you are still at the Allerton House.

ALLERTON HOUSE

45 East 55th Street

New York.

November 2, 1928.

Gano Dunn Esq.,
The J.G. White Engr. Corp.
43 Exchange Place,
New York City

C
O
P
Y

Dear Gano:

Thanks for your letter of November 1st. Another friend has already sent me a copy of Travel for October with Mr. Holland's article.

Dr. George F. Kunz together with his confreres of the chambre Syndicale in Paris, was largely the cause of the downfall of my company. In 1914, just before the outbreak of the war and unknown to me, they established a boycott against me and performed other acts, which in this country would be absolutely criminal. When I sought redress in the courts of France, I was debarred because of a Moratorium, and later in the chaos and collapse of the aftermath of the war I was prevented from prosecuting Dr. Kunz's pearl-dealing associates because of lack of funds.

During the last several years Dr. Kunz's Paris friends have tried the same tactics and even worse against the Japanese. They even went so far as to try to break Mikimoto's Paris Agent by stealing his pearls. Finally, the controversy reaching the courts the Government referred the matter to the French Academy of Sciences, which decreed that the cultivated pearl so-called is a true and natural product.

Because of the unethical acts of the Chambre Syndicale disclosed in the first law-suit, it was scathingly rebuked by the French Government and M. Citroen the president of the Chambre Syndicale, and Dr. Kunz's friend was forced to resign.

In this country in 1916 the American Jewelers' Protective Association through its secretary M.D. Rothschild sought to have the Department of Commerce place a restriction on cultivated pearls, so unfair that I notified Rothschild I would warn the Japanese Embassy, and they let the matter drop.

In every way I fought, but they proved to be too strong for me and I went under. The Japanese with the backing of their Government have survived, and they are reaping a great reward.

ano Dunn Esq.,

Page #2.

November 2, 1928.

Dr. Kunz rides two horses. Before our Government and the public he poses as a great scientist and an impartial gem expert, but behind the scenes he is a partner in Tiffany & Company with all which that implies of a man in commercial life, jealous of anything which might impair his commercial profits.

I can give Mr. Holland every proof that apart from the ability to detect Japanese pearls by their characteristic yellow greenish color, (the characteristics of pearls from Venezuela as well). Dr. Kunz or no other so-called expert can detect a fine cultivated pearl from a wild one.

It is for this reason that now when the Japanese get fine pearls of really desirable colors, they are selling them in Bombay or to the Arabs from Bombay, who are now journeying to Japan so anxious are they to get them. At Bombay they are mixed in with lots of "Oriental" pearls, and as such are sent on to Paris and bought by Dr. Kunz's friends, who later sell them to him, all unknowing whence they originally came.

Yours sincerely,

JIS:AC
ENCLS.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
WASHINGTON, D.C.

April 10, 1942.

Mr. John I. Solomon,
121 West 87th Street,
New York, New York

Dear Mr. Solomon:

We are sorry to inform you that
Dr. Hugh M. Smith died on September 28th 1941.

Sincerely yours,

signed - H. Schmaltz
Division of Fishes

CHARLES R. SAVAGE
30 DIST. WASHINGTON

EXECUTIVE SECRETARY
RICHARD T. WATSON

ROOM 138
HOUSE OFFICE BUILDING

Congress of the United States
House of Representatives

Washington, D. C.
October 17, 1945

COMMITTEES:
IRRIGATION AND RECLAMATION
PUBLIC BUILDINGS AND GROUNDS
PUBLIC LANDS
INVALID PENSIONS
CENSUS

DIVISION OF COMMERCIAL POLICY
MG 10/24
OCT 19 1945
DEPARTMENT OF STATE

Mr. Merrill C. Gay
Assistant Chief in Charge
Far and Middle Eastern Branch
Division of Commercial Policy
Office of International Trade Policy
Department of State
Washington 25, D. C.

Dear Mr. Gay:

I am enclosing, herewith, a letter I just received from Mr. F. W. Mathias, Director and Seed Committee Chairman of the Pacific Coast Oyster Growers Association, located at Olympia, Washington, together with a copy of a letter they have written to General Douglas MacArthur, relative to the possibility of re-opening business negotiations with the seed oyster growers of the Sendai Bay area on the Island of Honshu, Empire of Japan.

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This matter was discussed with Mr. J. Robert Schaetzel, Special Assistant to the Director of the Office of International Trade Policy, and it is at his suggestion that I am contacting you.

I believe that Mr. Mathias' letter, and the copy of the letter to General MacArthur, set forth in detail just what is desired by the Association. I shall deeply appreciate your looking into this matter for me with a view toward forwarding me your advice and assistance on the same.

Please return the enclosures to me with your reply.

Thanking you in advance for your kindness in this matter, and with best wishes, I am,

Sincerely yours,

Charles R. Savage
Charles R. Savage

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PACIFIC COAST OYSTER GROWERS ASSOCIATION

202 First National Bank Building
Olympia, Washington.

October 12, 1945

Hon. Charles R. Savage, M.C.,
Third District, Washington
House Office Building,
Washington, D. C.

Dear Charley:

I am enclosing a copy of a letter sent to Allied Supreme Commander, General MacArthur in Tokyo. This letter was authorized at the last meeting of the Pacific Coast Oyster Growers Association at Raymond.

At the meeting, it was stated that Mr. M. Yamashita, Japanese who formerly imported seed and furnished it on consignment basis to Japanese growers in this country, is again attempting to get into the seed oyster business. He has been approaching oyster growers in Washington, Oregon and California to place orders with him for seed oysters.

The association is definitely against Mr. Yamashita having anything to do with the seed oyster business.

We are writing Mr. Milo Moore, State Director of Fisheries and also Mr. Ira N. Gabrielson, Director, Fish and Wild Life Service, Department of the Interior.

We will be very glad to have any assistance you can give in the matter of obtaining seed oysters.

The Pacific oyster set in Willapa and Grays Harbors, Hood Canal and Puget Sound waters has been almost nil in the past two years.

With kind regards,

Sincerely,

S/s F. W. Mathias, Director and
Seed Committee Chairman.

C O P Y

October 2, 1945

General Douglas MacArthur,
Allied Supreme Commander,
Tokyo, Japan.

Dear General MacArthur:

We will value your aid in obtaining information for the guidance of this association in obtaining seed oysters from Japan.

Large quantities of seed oysters, species -Ostrea Gegas raised in Japanese waters have been shipped to oyster growers in Washington, Oregon and California for a period of fifteen to twenty years. This seed oyster importation business, which started in the 1920's continued through the 1930's and ended with the Japanese attack on Pearl Harbor.

The "Pacific" oyster industry developed rapidly in Puget Sound, Willapa and Grays Harbors, Washington, and extended to the Oregon coastal harbors and to northern California harbors.

The Pacific Coast Oyster Growers Association was organized under requirements of the National Recovery Act and also for the protection of the oyster growers in the three Pacific Coast States. Many problems were encountered that included an attempt by Japanese to control the oyster industry in Washington, Oregon and California.

This association was able to protect the interests of the American Oyster Growers and acted as the sold seed oyster importing organization, following many troublesome encounters with Japanese interests.

The Japanese government, represented by the Japanese Counsel in Seattle, finally worked out a program, enabling this association to deal with the seed oyster growers in the Sendai Bay region on the Island of Honshu. The seed oysters from this area gave satisfactory results and were inspected by Japanese government biologists, certifying that no drills of other detrimental marine life was being shipped with the boxes of seed oysters.

It is the wish of this association to deal direct with the oyster growers of the Sendai Bay area, obtaining the best quality of seed oysters that will pass inspection of Japanese and United States biologists.

We would like to know (1) when contact may be made with the growers or an association of growers of seed oysters

in

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in Sendai Bay area; (2) Was there an oyster seed catch in 1945? (3) Extent of seed catch; (4) When business relations can be re-opened with the Sendai Bay seed growers; (5) Officer or Federal Department to contact for negotiations.

We will appreciate your aid in obtaining the desired information.

Faithfully,

F. W. Mathias, Director and
Chairman, Seed Oyster Committee.

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NOV 7 1945

In reply refer to
CP

My dear Mr. Savage:

I refer to your letter of October 17, 1945, addressed to Mr. Gay of this Department, enclosing two letters from the Pacific Coast Oyster Growers Association with respect to the possibilities of resuming importation of seed oysters. I shall be glad to supply all the information available at this time for the use of your correspondent.

Because of the urgent problems of a military and political nature with which the occupation authorities have been faced, it is not possible at this time to open direct trade between individuals or firms in Japan and those in other countries. During the present stage of the occupation, both imports into and exports out of Japan will be conducted by a government agency operating in conjunction with the Supreme Allied Commander, and this trade will necessarily be limited in quantity. Japanese inventories of various materials are being surveyed, with particular attention given first to products of critical importance. As this examination progresses, it will be possible to determine the types and quantities of goods available for export from the Japanese islands.

In answer to the specific numbered questions raised in Mr. Mathias' letter of October 2 to General MacArthur, the following information can be given:

(1) In

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The Honorable

Charles R. Savage,

House of Representatives.

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(1) In view of the circumstances described above, no contact between Japanese seed oyster growers or associations of growers and American growers can be permitted in the near future.

(2) and (3) Data have not been received concerning the seed oyster catch in 1945, but we shall be glad to forward such information as soon as it becomes possible to procure it.

(4) Although direct business relations cannot be reopened with Japanese suppliers of seed oysters in the near future, it is possible that, if seed oysters are found to be available for export and if approval can be given for such shipments, they will be made available by the designated Allied authorities for purchase in the American market.

(5) Suitable arrangements have not been entirely completed for designating federal government channels for handling requests for information on Japanese foreign trade matters. Pending the creation of such arrangements, however, I hope you will feel free to let the Department know if you have further questions on these matters.

Sincerely yours,
James F. Byrnes

Enclosure:
From Mr. Mathias,
October 12, 1945
with enclosure

A true copy of the signed original.

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NOV 6 1945 P.M.
WMB

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STANDARD FORM NO. 64

FOREIGN ECONOMIC ADMINISTRATION

DCR pay rating

Office Memorandum • UNITED STATES GOVERNMENT

TO : Hon. Dean Acheson
Under Secretary of State

FROM : Constance G. Gaynor, C. & A.
Project Control Staff

SUBJECT: IND-53: Japanese Fishing Industry. *Copy taken by WEJF-3 Ashens 11/9/45*

DATE: OCT 20 1945

file

Attached is a copy of the above report for your use.

Attached also are copies of the following reports:

- JS-7 - Postwar Control of the Japanese Light Metals Industry
- JS-8 - Administration of Production Programs in Japan

UNDER SECRETARY
NOV 2 - 1945
DEPARTMENT OF STATE

COMMODITIES DIVISION
NOV 9 - 1945
DEPARTMENT OF STATE

DIVISION OF JAPANESE AFFAIRS
NOV 8 - 1945
DEPARTMENT OF STATE

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Copy No. 217

FOREIGN ECONOMIC ADMINISTRATION
Enemy Branch

POSTWAR CONTROL OF THE JAPANESE LIGHT METALS INDUSTRY

September 20, 1945

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Postwar Control of the Japanese Light
Metals Industry

PART I - SUMMARY

Thorough study of the Japanese light metals industry indicates that complete elimination of aluminum and magnesium production and strict limitation of their processing are necessary steps toward the industrial disarmament of Japan to safeguard future peace. The following basic reasons support this conclusion:

1. The Japanese light metals industry was created during the 1930's solely to make Japan self-sufficient in these metals, which are essential in the manufacture of aircraft, incendiary bombs, and other materials of war.
2. Production and processing of aluminum and magnesium have been expanded far beyond any legitimate Japanese civilian needs for these metals and, unless controlled, will be of continuing military value to Japan.
3. It will not be possible to control the Japanese light metals industry by limiting imports of raw materials, because both aluminum and magnesium can be produced from materials available in Japan.
4. Japanese requirements for aluminum and magnesium were formerly met by net imports so modest in amount that a similar arrangement in the postwar period should be economically feasible and justifiable.

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5. Light metals plants now in existence in former Japanese-controlled areas of the Asiatic mainland are more than adequate to produce the minor amounts of finished light metals products which Japan exported to other Far Eastern areas in the prewar years.

6. Elimination of Japanese light metals production is essential to prevent substitution of aluminum, magnesium and their alloys for certain uses of iron and steel, copper and other metals whose control may be undertaken.

7. Employment in any aspect of the Japanese light metals industry was very minor in the Japanese peacetime economy. The displacement of workers from the present over-expanded industry should therefore not be a substantial factor in determining the future of light metals production or processing in Japan.

The following fundamental steps appear to be necessary for the complete elimination of aluminum and magnesium production and for the strict limitation of their processing in Japan:

1. Removal or destruction of all Japanese plants producing alumina, aluminum or magnesium metal.
2. Removal or destruction of all Japanese light metals processing equipment not required to meet approved civilian requirements of fabricated products.
3. Controls over imports of alumina and of primary and secondary aluminum, magnesium and their alloys, and over selected raw materials for their production.

- 3 -

PART II - DISCUSSION

In studying the question of economic controls as a means of curbing future Japanese aggression, it is obviously necessary to examine all branches of industry which are major contributors to war potential. Fundamentally, interest centers in preventing manufacture of the actual instruments of war, but back of such production lies the supply of basic materials such as metals. Because the light metals, aluminum and magnesium, have achieved outstanding importance in modern warfare, particularly for aircraft and incendiaries, this industry must be considered basically as a part of the Japanese war machine.

It is, therefore, essential to study all aspects of the Japanese light metals industry in order to determine whether controls are necessary, whether they are feasible and how they may best be applied.

A. Justification of the Control Proposals1. How and Why the Japanese Light Metals Industry Developed

Because the role of the light metals in modern warfare is thoroughly established, it is not necessary to dwell in detail on their importance to the Japanese in the current war. The Japanese aircraft industry is heavily dependent on light metal alloys, as is ours. The Japanese use aluminum and magnesium in incendiary and other bombs, as we do. In other Japanese war material also, wide use is made of the light metals.

These uses were obviously anticipated long before 1941. Magnesium production was undertaken in Japan in 1931 and aluminum production began in 1934. The two industries were therefore created during the period in

- 4 -

which Japan was actively fostering the rapid expansion of all industries vital to a war program.

During the years immediately preceding 1934, world aluminum production suffered a marked slump. Overall world output in 1933 was only 53.5 percent of the 1930 level; in the United States the figure was 37.2 percent. Obviously no economic justification existed for establishment of the Japanese aluminum industry at that time.

The importance nevertheless attached by the Japanese government to production of the light metals is readily shown by the manner in which the aluminum industry was fostered and subsidized. The government encouraged the establishment of aluminum manufacturing companies sponsored by old-line concerns with technological background, with control over power installations or with experience in importing machinery and supplies.

The pioneer producers had the benefit of foreign technical assistance and imported equipment in building and equipping the new plants. Although these factors facilitated development of the industry, they probably made installation costs high. Production costs for aluminum were also elevated by the necessity of importing not only the basic raw material, bauxite, but also various accessory raw materials.

In June 1936 the infant industry was granted the protection of a new tariff law which increased the duty on aluminum ingot from 72 to 295 yen per metric ton. The duty on scrap was raised to the same figure.

Another substantial impetus to expansion of the industry was given by the "Light Metal Manufacturing Industry Law" promulgated on May 1, 1939. Under this law,^{1/} companies licensed to enter the light metals field were

^{1/} Aluminum Nenkan-Magnesium Soran (1939).

- 5 -

exempt from profit tax, income tax and local taxes for five years after their completion, and were exempt from import duties on approved machinery and equipment. Licensed companies were also permitted unusually liberal terms with regard to capital increases and issuing of debentures.

The government reserved the right to inspect plants, set prices, regulate imports, exports and sales of the light metals and the required raw materials, and, based on military necessity, to order increases in capacity, changes in manufacturing processes, stockpiling of raw materials, and research on manufacturing problems, and to regulate corporate form.

Because of the liberal provisions of this law and the previous liberal policy, a number of companies were encouraged to enter the field. However, it seems likely that in any event other factors would have directed the erection of a number of relatively small plants rather than a few large ones. Of most weight was undoubtedly the not too abundant supply of electric power, which made it advisable to scatter the light metals plants wherever power surpluses were available or where new power installations (particularly hydroelectric) were feasible. In addition, security considerations probably also dictated a scattered light metals industry.

The Japanese government fostered installation of light metals plants not only in Japan Proper but also in Formosa, Korea, Manchuria and North China in order to take advantage of resources in raw materials and electric power. Consequently the light metals capacity at present available in Japan itself is considerably increased by the capacities installed in other Japanese-controlled areas. Because this development has

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been accelerated since 1941, and because of other changes during the war years, the present status of the industry is somewhat uncertain, though the following summary is believed to be **substantially** correct:

	<u>Alumina</u>	<u>Aluminum</u>	<u>Magnesium</u>
No. of plants, Japan Proper	. 13	13	7
" " " , other Jap. areas	10	9	7
" " " , all " "	<u>23</u>	<u>22</u>	<u>14</u>
Cap., m.t./yr., Japan Proper	429,000	147,500	9,400
" " " , other Jap. areas	230,000	137,500	10,950
"., " " , all " "	<u>659,000</u>	<u>285,000</u>	<u>20,350</u>

Ownership, location and annual capacities of individual plants are listed in **Appendices 1, 2 and 3** of Part III.

Between production of the light metals and their emergence as finished goods for military or civilian use stands the fabricating step in which the metals or their alloys are rolled, extruded, forged or cast into usable semi-fabricated shapes. The Japanese light metals fabrication industry antedates the production of aluminum and magnesium, for the Japanese had been fabricating imported aluminum on a modest scale for a number of years. In this field the Japanese were able to draw on the experience of several large concerns well-versed in handling other metals. Foreign technicians and imported equipment were also brought in before the war.

There is little reason to doubt that the fabricating industry was adequate to process the Japanese wartime output of aluminum and magnesium. Much of the equipment is known to be modern though some degree of improvisation has probably entered into the wartime expansion of the industry.

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Available lists of Japanese metal fabricating plants cover operations not here considered as having to do with the processing of the light metals and their alloys into primary shapes. The list of fabricating plants in Appendix 4 is restricted to those believed to be the major installations specializing in the rolling of aluminum alloy sheet. Some of these mills also made forgings and extrusions but most light metal castings, forgings and extrusions are believed to have been made in airframe plants, and some castings were made in small foundries. Such plants are not included in this study and are therefore not listed in Appendix 4. Likewise, this appendix does not include those plants producing finished products from the primary shapes, nor is it necessary to consider this category for purposes of control. Such plants will be automatically restricted if the metal producing plants and the primary fabricating plants are controlled.

2. Japanese Production, Consumption and Requirements of Light Metals

Before production of the light metals began in Japan, consumption was relatively small and was of course met entirely by imports.^{1/} Production of magnesium metal began on a small scale in 1931; apparent consumption (including very small imports) increased from 10 tons in 1931 to 138 tons in 1934, averaging 76 tons. After this period, magnesium production was rapidly expanded; capacity in Japan Proper is estimated to have reached 9,400 metric tons, and in all Japanese-controlled areas, 20,350 metric tons.

^{1/} See Appendices 5 and 6 of Part III for data on Japanese production, exports and imports of aluminum and magnesium.

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From 1926 to 1929, inclusive, aluminum imports averaged 3,659 metric tons annually; in the depression years of 1930 to 1933 they dropped to an average of 7,830 metric tons. Aluminum production began in 1934 and apparent consumption averaged 16,825 metric tons from 1934 thru 1937, of which an average of 71 percent came from imports. Imports totalled about 23,000 metric tons in 1938 and again in 1939, accounting for 63 percent and 51 percent of apparent consumption. Imports dropped to 2,420 metric tons in 1940, presumably due to foreign embargoes and to the war in Europe rather than to lack of interest on the part of the Japanese.

As installed capacity increased, domestic output advanced steadily from the 664 metric tons produced in 1934 to a reported maximum of 140,000 metric tons in 1943, presumably for all Japanese-controlled areas.^{1/} It is believed that about 50 percent of the 1943 production came from plants in Japan Proper. After 1943, aluminum production dropped, largely due to decreased imports of bauxite, and the Japanese were able to produce only 6,500 metric tons of aluminum in the first quarter of 1945.^{1/}

The aluminum consumed in Japan in 1934 was distributed among the following uses:^{2/}

<u>Industry</u>	<u>Quantity in metric tons</u>	<u>Percent of Total</u>
Transportation (land, water, air)	4,230	38
Household utensils and food equipment	1,802	16
Electric cables and wire	1,915	17
Machinery	901	8
Steel metallurgy	901	8
Non-ferrous alloys	450	4
Building	338	3
Chemical equipment	225	2
Other	450	4
Total	<u>11,262</u>	<u>100</u>

^{1/} Report of Prince Higashi-Kuni to Japanese Diet, quoted in Domei radio broadcast, Sept. 5, 1945.

^{2/} Percentages - The Mining Magazine (London) Vol. 59, No. 2, p. 81, Aug. 1938. Quantity - See Appendix 5 of Part III.

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Because of advances in civilian uses of light metals, Japanese consumption in the postwar period probably can not reasonably be pushed back to the level of the years before 1934. Per capita consumption of aluminum in Japan from 1926 through 1933 averaged only about $\frac{1}{4}$ lb. annually; in the same period apparent consumption in the United States was about 2 to 3 lbs. per person per year. A 40 percent increase over 1926-1929 consumption of aluminum in Japan would raise the allowance to about 12,000 metric tons per year, and would be approximately at the 1934 level.

3. Sources and Requirements of Raw Materials for the Japanese Light Metals Industry

Aluminous ores. Bauxite, the ore universally most favored for aluminum production, apparently does not occur in Japan Proper. Of the other Far Eastern areas under Japanese control before 1941, only the Palao, Ponape and Yap Islands appear to have commercially exploitable bauxite deposits, reported to aggregate 10,000,000 metric tons of high grade material. Bauxite mining in these islands began in 1938; maximum prewar production was reached in 1940 when 43,000 metric tons were mined and shipped to Japan. Since four tons of high-grade bauxite on an average are required to yield one ton of aluminum, the 1940 output was sufficient to produce only 10,750 metric tons of metal, less than one-third of the estimated Japanese aluminum production for that year.

It was, therefore, necessary for the Japanese, before the war, to import large quantities of bauxite from non-Japanese controlled areas or to make use of such aluminous raw materials as were available in localities held by the Japanese. The original endeavor, when the Japanese aluminum

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industry first began, was to use clays, shales and alunite from Manchuria, Korea and North China. These attempts were not markedly successful and most of the pioneer companies turned to imported bauxite before 1941.

As shown in Appendix 7 of Part III, the Japanese imported much more bauxite after 1937 than required for their current production of aluminum. It is obvious from the enormous size of the bauxite stockpile created that the Japanese had not at that time solved the problem of producing aluminum from domestic raw materials and were actively creating a large bauxite reserve for future use.

The 642,597 tons of bauxite presumably held in Japan at the end of 1940 (see Appendix 7) were sufficient to make about 160,000 tons of aluminum metal. No data are available on imports of bauxite during 1941, but it was reported that shipments from the Netherlands East Indies stopped entirely in August of that year. This loss was a severe blow to the Japanese for the NEI had furnished more than 60 percent of Japanese imports of bauxite from 1935 through 1940 and supplied nearly 75 percent of the large imports in 1940.

Obviously, Japanese prospects for bauxite imports improved very considerably with Japanese occupation of the Netherlands East Indies and Malaya and large shipments were undoubtedly made from these areas until Allied interference virtually cut them off.

Because Japanese aluminum requirements increased enormously after 1940, it was necessary for the Japanese to draw heavily on their large stockpile of bauxite. It is believed that the stockpile has by now been exhausted, and that no supplies of bauxite exist in Japan.

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This belief is reinforced by the greatly renewed Japanese interest in production of alumina from the shales, clays and alunite available in Korea, Manchuria and North China. These materials are not suitable for use in standard Bayer plants designed to produce alumina from bauxite. The Japanese therefore made major adjustments in the equipment of existing alumina plants and in some cement plants, in the hope of producing the required alumina from such shales, clays and alunite.^{1/} In the course of this program, a considerable increase in alumina capacity was apparently effected, beyond the needs of the aluminum plants under Japanese control, but when bauxite became unavailable the unconverted Bayer plants could no longer be operated. However, the total installed capacity must be considered in evaluating overall Japanese potential for alumina production, and is therefore included in Appendix 1 and in the summary table on page 6.

Recent evidence strongly indicates that the Japanese attempts to produce their wartime alumina requirements from clays, shales and alunite were on the whole not successful. The conversion program referred to above is believed to have been completed in June 1944, yet, according to a Japanese source,^{2/} aluminum production fell from 140,000 metric tons in 1943, the peak year, to only 6,500 metric tons in the first quarter of 1945. This drastic decrease cannot be accounted for by bomb damage, electric power shortage or any other major factor except the inability of the Japanese to produce the necessary alumina.

However, workers in the Tennessee Valley Authority have reported favorable technological results from pilot plant studies on production of

^{1/} See Appendix 8 for analyses of various aluminous raw materials, and Appendix 9 for description of various processes used for production of alumina.

^{2/} See p. 8 and Appendix 5.

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alumina from Tennessee clays by the lime sinter-soda leach process, believed to be the method most widely used by the Japanese. It must therefore be assumed that future work by the Japanese could solve the difficulties encountered in their attempts to use clays, shales and alunite as a source of alumina, and the Japanese alumina potential must be evaluated accordingly.

Indications are that the Japanese attempted to use aluminous raw materials from Manchuria, Korea and North China to replace the unavailable bauxite. They also reported finding such materials in Iwate prefecture, Honshu and on Hokkaido. Analyses reported in Appendix 8 of Part III show a striking similarity in chemical composition of the clays successfully used in the TVA studies and of Japanese deposits of ceramic clays. It is, therefore, possible that Japanese aluminum production in the postwar period cannot be effectively controlled by limiting imports of bauxite.

Accessory raw materials used in the aluminum industry. As shown in Appendix 9 of Part III, the alumina production methods most commonly used by the Japanese require either soda ash or caustic soda, which can be made from soda ash. Consumption is small, however -- 0.061 ton of caustic soda (equivalent to 0.088 metric tons of soda ash) per ton of

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alumina by the Bayer process, and 0.042 ton of soda ash per ton of alumina by the lime sinter-soda leach process. The total soda requirement, calculated as soda ash, for the estimated 1944 Japanese production of alumina probably does not exceed 35,000 metric tons.

In 1938 total Japanese production of soda ash was 886,721 metric tons. Even though much of the salt required for soda ash production is imported into Japan, soda ash requirements would not be a limiting factor in determining Japanese alumina production.

The quantity of limestone required in the lime sinter-soda leach process is large and the quality requirements are rigorous but neither factor would limit or control alumina production. The same is true of accessory materials required in the other alumina processes.

Aluminum metal is universally made by electrolysis of alumina dissolved in molten cryolite. High grade carbon is required for the anodes, about 0.6 to 0.7 ton being consumed per ton of metal produced. Consumption of cryolite and other fluoride salts is about 0.1 ton per ton of aluminum. Before the war, Japan imported pitch coke for electrodes and also imported cryolite. Domestic sources of electrode materials had to be used during the war and cryolite was made from fluorspar mined in the Far East. Fluorspar has a variety of uses and its control would be difficult to enforce.

Large amounts of electric power are required in the electrolytic production of aluminum, consumption being about 22,000 kwh. per metric ton of metal. A plant producing 20,000 metric tons of aluminum annually would thus require 440,000,000 kwh. of electric power. It would thus be difficult to conceal operation of a sizeable aluminum plant if electric power were closely allocated or its generation controlled.

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Basic raw materials for magnesium production. Because magnesium can be produced from sea water, its provision in adequate quantities offers no difficulty in Japan. Natural brines or the bitterns left from production of solar salt are alternate sources. Dolomite is widely distributed and is the raw material of choice in the Pidgeon process. It is thus evident that Japan will not lack a ready source of magnesium.^{1/}

Accessory raw materials for magnesium production. According to the process used, a variety of accessory raw materials may be required for magnesium production (see Appendix 9). Because overall magnesium requirements in either a peacetime or war economy are relatively small, the problem of supplying the needed accessory materials plays no controlling role in production of the metal.

As in electrolytic production of aluminum, power requirements are large for electrolytic production of magnesium. However, unlike the aluminum industry, alternative methods are available for magnesium production. Control over electric power distribution or generation is thus not an effective means of curbing magnesium production.

4. Potential Role of Scrap Metal in Supplying Future Japanese Requirements for the Light Metals

Besides the aluminum and magnesium produced as virgin metal directly from the raw materials, scrap or secondary metal may also play an important part in satisfying a country's requirements for the light metals. Secondary metal is of two kinds: (1) the scrap generated by users of the virgin metal or its alloys in fabricating finished goods, and (2) the

^{1/} Nearby Korea has virtually inexhaustible supplies of high grade magnesite, and excellent raw material for magnesium production.

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scrap obtained by salvaging discarded metal objects. Scrap of the first type may be re-used directly by the producing industry, usually being first cast into ingot; scrap of the second type reappears on the market as secondary ingot.

Well-segregated scrap generated by the fabricating industries may be put to all the uses for which the original ingot was suited, including the making of high-strength alloy products. However, insofar as the Japanese are forced to meet their postwar needs for aluminum from salvage scrap, they will not be able to make airplane wings and certain other critical war items requiring high-strength alloys.

As shown in Appendix 5 of Part III, Japanese imports of aluminum in the prewar years included a substantial proportion of scrap metal, ranging from less than 1 percent of the total in 1927 to a maximum of 55 percent in 1933. The provisions in the tariff act of 1936, by which the duty on both primary and secondary aluminum was set at 295 yen per metric ton, was possibly intended to discourage imports of scrap metal. Scrap imports were relatively low in 1936 but in 1938 and 1939, they increased in almost the same proportions as did imports of virgin metal.

It is not possible to estimate what amount of light metal scrap will be found available in Japan. The total will include not only stocks of recirculating scrap at plants and such salvage scrap as may be strewn over Japan, but also metal in the "pipeline" from semi-fabrication to the finished stage. To this must be added whatever amount of metal still exists in primary ingot form.

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It is essential that there be made a complete inventory of all primary and secondary aluminum and magnesium alloys available in Japan before a decision is made as to the amount of new metal which the Japanese may be allowed to import. Such stocks should be kept under Allied control and released at the rate necessary to meet Japanese civilian needs. It is possible that requirements for some time to come can be met from stocks found in Japan.

5. Labor Requirements in the Light Metals Industry

Specific data on employment in the basic plants of the Japanese light metals industry are not available, but comparable data for the United States indicate the rather modest labor requirements (see Appendix 10). Even assuming considerably lower output per worker in Japanese plants, it is not likely that more than 15,000 workers were employed in Japan during the war in production of alumina and of aluminum and magnesium ingot.

It seems probable that the entire Japanese light metals industry, including production of primary and secondary metals and their fabrication, even at the wartime rate of production and processing, employed no more than 100,000 workers. The displacement of workers is, therefore, not a major consideration in determining the future of the Japanese light metals industry.

6. Future Sources of Light Metal Products for Other Far Eastern Areas

As shown in Appendices 5 and 6, Japan's exports of primary aluminum and magnesium and scrap aluminum were insignificant before the war. Total aluminum exports in this category exceeded 1,000 metric tons only in 1935. Maximum magnesium exports were 237 metric tons in 1936.

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Of more significance were exports of fabricated aluminum products, chiefly aluminum utensils to China and the Pacific Islands and sheet aluminum to British India. (See Appendix 11). Maximum exports (1935) were valued at 3,314,600 yen.

After that time the Japanese built aluminum plants in Formosa, Manchuria, Korea and probably North China with a total capacity estimated at 137,500 metric tons. (See page 6). Although the weight of metal in the aluminum product exports is not known, it could not have been more than 1,000 tons as a maximum and could obviously be supplied by Far Eastern plants outside of Japan Proper.

7. Aluminum and Magnesium as Substitutes for Other Metals

In many of the uses to which the light metals have been put, they have been chosen because no other commercial metals are as well suited in physical or chemical properties. This is notably true of their chief wartime uses -- aircraft and incendiaries. Aluminum alloys also have won a place for themselves in the civilian economy which assures a continuing demand for the metal. Magnesium alloys in the prewar years had less commercial acceptance for civilian uses.

The degree to which the light metals will be used in the postwar years in a given country is complicated by a number of factors. Assuming the free availability of iron and steel, copper and other important metals, the amounts of light metals used will depend on their availability, on requirements for the customary uses and on relative costs, consumer acceptance and on technological research with regard to new uses. Recent estimates of possible consumption in the United States after the war differed

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widely, according to the importance attached to these various factors.^{1/} However, it is commonly agreed that the light metal alloys can be substituted for many customary uses of iron and steel in transport equipment, electrical appliances, industrial equipment, and in building construction. Aluminum can also be substituted for copper, as in electric cable.

Assuming that iron and steel, copper and other strategic metals are to be controlled in Japan in the postwar period, it is obvious that the Japanese will neglect no opportunity to substitute other materials for the controlled metals. Ready availability of the light metals would, therefore, to some degree, vitiate attempted control over the heavier metals. Control over the light metals is thus an integral part of the general control over Japanese industrial capacity.

B. Proposed Controls Over the Japanese Light Metals Industry

The necessity of sharply reducing the amounts of light metals available to the Japanese has been clearly set forth in the preceding section. Controls intended to achieve this end must be simple to institute and supervise and difficult to evade. With these factors in mind, the following controls are proposed:

1. Removal or destruction of all Japanese plants producing alumina, aluminum or magnesium.

This is believed a necessary step in the industrial disarmament of Japan, and should not be difficult to accomplish during the occupation period. To delay or discourage reconstruction of such plants, facilities

^{1/} Senate Committee on Small Business - Hearings on Light Metals, February-March, 1945.

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for generating direct current or for converting alternating into direct current should be considered as part of the metal producing plant which they serve.

Presumably, periodic inspection will be required to assure that new capacity is not erected for producing aluminum and magnesium. Such new construction can be rendered difficult if the Japanese are denied access to imported equipment and are not permitted the opportunity of making it themselves. If the generation and distribution of electric power are controlled, electrolytic production of aluminum and magnesium should not be difficult to detect.

However, it must be pointed out that one of the commercial methods for magnesium production, the Pidgeon process, is eminently suited to operation in small units and does not directly require large amounts of electricity. Such plants might be easily concealed.

For several reasons, complete elimination of light metals plants in Japan is believed preferable to permitting a limited capacity to remain. If the Japanese were allowed to produce their legitimate requirements of aluminum and magnesium, they would continue to have a body of trained technicians who could serve as a nucleus for rebuilding the industry. Research on new or better production methods would be encouraged by the existence of such an industry.

It may be argued that elimination of light metals production in Japan may not serve to control future aggression. However, the light metals are essential components of war material as we now know it, and it cannot be assumed that they will not be of vital usefulness in the future.

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2. Removal or destruction of all Japanese light metals processing equipment not required to meet approved requirements of fabricated products.

It is obvious that reduction of Japanese capacity for processing the light metals and their alloys will serve as an additional check on the resurgence of the Japanese light metals industry.

In practice, a comfortable surplus of processing capacity must be allowed because of different choices which the Japanese may be allowed to make as to utilization of their light metals supplies. However, it will be advisable to eliminate certain types of equipment required for producing or processing high-strength alloys, for producing large size die-castings or large dimension sheet and other facilities essentially only of military value.

The equipment allowed to remain should be of types not directly usable in the aircraft industry and for other armament purposes. Equipment which has been used essentially to serve such industries should be marked for elimination.

The resources left in Japan for rebuilding heavy equipment of the type required in fabricating light metal alloys and the access to imported equipment will determine the ease with which the industry can be rebuilt.

3. Controls over imports of alumina and of primary and secondary aluminum, magnesium and their alloys, and over selected raw materials for their production.

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Control over Japanese imports of the light metals and of the raw materials required for their production is a necessary adjunct to the elimination of light metals manufacture in Japan.

It seems possible that sufficient supplies of light metals will be available in Japan at the end of the war to meet legitimate requirements for sometime in lieu of imports. Such stocks, in whatever form found or wherever located, should be kept under control and released at the same rate at which imports would be allowed.

Scrap metal should be taken into consideration in determining the amount of metal to be made available. Some virgin metal will, however, be required to "sweeten" the secondary metal for certain uses.

As an additional check on light metals production, importation of bauxite should not be permitted. Because of the varied uses of dolomite and magnesite, aside from production of magnesium metal, it does not seem practicable to control their import.

Import controls should extend to semi-fabricated products and importation should be forbidden of any type whose production in Japan is not allowed. It should not, however, be necessary to control importation of finished light metal products for civilian use.

PART III - APPENDICES

1. Japanese Alumina Plants
2. Japanese Aluminum Plants
3. Japanese Magnesium Plants
4. Japanese Light Metals Fabricating Plants
5. Japanese Production, Exports and Imports of Aluminum
6. Japanese Production, Exports and Imports of Magnesium
7. Japanese Imports, Requirements and Stockpiles of Bauxite
8. Chemical Composition of Some Naturally Occurring Aluminous Raw
Materials
9. Production Processes Used in the Japanese Light Metals Industries
10. Employment and Production Rates in the Light Metals Industry of the
United States, 1944
11. Japanese Exports of Aluminum Manufactures

APPENDIX 1

Alumina Plants in Japan Proper

Company	Plant Location	Type of Plant	Aluminum Production at Same Plant	Est Cap m.
<u>HONSHU</u>				
Asada (Shikawa) Kagaku K.K.	Hyogo-ken, Shikawa-shi	A	No	
Asano Cement K.K.	Hiroshima-ken, Mihara-shi, Itozaki-machi #5310	B	No	
Kokusan Keikinzoku K.K.	Iwate-ken, Kurosawajiri-shi	A	No	
Nichiman Aruminiumu K.K.	Toyama-ken, Higashi Iwase-machi	A	Yes	
Nippon Keikinzoku K.K.	Shizuoka-ken, Shimizu-shi	C	No	
Nippon Soda K.K.	Toyama-ken, Takaoka-shi	A or C	Yes	
Nitto Kagaku Kogyo K.K.	Aomori-ken, Hachinohe-shi	A or C	Yes	
Onoda Cement K.K.	Yamaguchi-ken, Asa-gun, Onoda-machi	B	No	
Showa Denko Kagaku Kogyo K.K.	Kanagawa-ken, Yokohama-shi, Shin Koyasu	A	No	
" " " " "	Nagano-ken, Shinano Omachi-shi	A or C	Yes	
<u>KYUSHU</u>				
Nippon Aruminiumu K.K.	Fukuoka-ken, Kurosaki-mura	C	No	
Toyo Aruminiumu K.K.	Fukuoka-ken, Miike-shi	C	No	
<u>SHIKOKU</u>				
Sumitomo Aruminiumu K.K.	Ehime-ken, Niihama-shi	A	Yes	
			TOTAL	42

Type of Plant:

- A. Former Bayer plant converted to use non-bauxitic raw materials.
- B. Former cement plant converted to produce alumina from non-bauxitic raw materials.
- C. Unchanged Bayer plant.

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Alumina Plants in Japan Proper

Plant Location	Type of Plant	Aluminum Production at Same Plant	Estimated Capacity m.t./yr.
<u>HONSHU</u>			
Ma) Kagaku K.K.	A	No	3,000
K.K.	B	No	64,000
inzoku K.K.	A	No	20,000
miniumu K.K.	A	Yes	20,000
inzoku K.K.	C	No	100,000
K.K.	A or C	Yes	14,000
Kogyo K.K.	A or C	Yes	4,000
K.K.	B	No	100,000
Kagaku Kogyo K.K.	A	No	16,000
" " "	A or C	Yes	8,000
<u>KYUSHU</u>			
miniumu K.K.	C	No	24,000
umu K.K.	C	No	36,000
<u>SHIKOKU</u>			
miniumu K.K.	A	Yes	20,000
TOTAL			429,000

nt:
 Former Bayer plant converted to use non-bauxitic raw materials.
 Former cement plant converted to produce alumina from non-bauxitic raw materials.
 Unchanged Bayer plant.

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APPENDIX 2

Aluminum Plants in Japan Proper

Company	Location	Alumina Production at Same Plant	Est Cap m.t.
<u>HONSHU</u>			
Kokusan Keikinzoku K.K.	Toyama-ken, Kaminii Kawa-gun, Sasazu-mura	No	6
Nasu Aruminiumu K.K.	Tokyo, Honjo-ku, Kamezawa-cho, 1-chome 39	No	1
Nichiman Aruminiumu (Showa Denko)	Toyama-ken, Higashé Iwase-machi	Yes	8
" " " "	Fukushima-ken, Koriyama-shi	No	10
Nippon Keikinzoku	Shizuoka-ken, Kambara-shi	No	40
" "	Niigata-ken, Nakakambara-gun, Toyano-mura	No	30
Nippon Soda K.K.	Toyama-ken, Takaoka-shi, Mukono-machi	Yes	8
Nitto Kagaku Kogyo K.K.	Aomori-ken, Hachinohe-shi, Konakano-cho	Yes	4
Osaka Yogyo Cement K.K.	Osaka	No	2
Showa Denko Kakagu Kogyo K.K.	Nagano-ken, Shinano Omachi-shi	Yes	12
" " " " "	Fukushima-ken, Yama-gun, Kitakata-machi	No	
Toyo Aruminiumu (Ibigawa Denko)	Gifu-ken, Ogaki-shi	No	6
<u>SHIKOKU</u>			
Sumitomo Aruminiumu K.K.	Ehime-ken, Niihama-shi	Yes	20
		Total	147

Aluminum Plants in Japan Proper

Location	Alumina Production at Same Plant	Estimated Capacity m.t./yr.
<u>HONSHU</u>		
Toyama-ken, Kamini Kawa-gun, Sasazu-mura	No	6,000
Tokyo, Honjo-ku, Kamezawa-cho, 1-chome 39	No	1,500
Toyama-ken, Higashé Iwase-machi	Yes	8,000
Fukushima-ken, Koriyama-shi	No	10,000
Shizuoka-ken, Kambara-shi	No	40,000
Niigata-ken, Nakakambara-gun, Toyano-mura	No	30,000
Toyama-ken, Takaoka-shi, Mukono-machi	Yes	8,000
Aomori-ken, Hachinohe-shi, Konakano-cho	Yes	4,000
Osaka	No	2,000
Nagano-ken, Shinano Omachi-shi	Yes	12,000
Fukushima-ken, Yama-gun, Kitakata-machi	No	?
Gifu-ken, Ogaki-shi	No	6,000
<u>SHIKOKU</u>		
Ehime-ken, Niihama-shi	Yes	20,000
Total		147,500

APPENDIX 3

Magnesium Plants in Japan Proper

Company	Plant Location ^{1/}	Process	Raw Material	Estimated Capacity m.t./y
Asahi Denko Kogyo K.K.	Tokyo, Arakawa-ku, Ogu-cho 9-chome	Electrolysis	Magnesite	1,500
Kanto Denko Kagaku Kogyo K.K.	Gumma-ken, Shibukawa-shi	Electrolysis	Magnesite	500
Nippon Magnesium K.K.	Tokyo, Itabashi-ku, Shimurachogo-cho	?	Magnesite	650
Nippon Magnesium K.K.	Toyama-ken, Kaminii Kawa-gun, Osawano-machi, near Sasazu-mura	?	?	650
Nippon Soda K.K.	Toyama-ken, Higashi Iwase-machi	Electrolysis	Sea water	600
Riken Kinzoku K.K. =Nichiman Magnesium K.K., =Ube Chisso K.K.	Yamaguchi-ken, Ube-shi	Electrolysis	Sea water & magnesite	5,000
Shinetsu Kagaku K.K.	Niigata-ken, Naoetsu-shi, Kuroi	Electrolysis	Sea water	500
		Total		9,400

^{1/} All of the known plants are located on Honshu.

Magnesium Plants in Japan Proper

	Plant Location ^{1/}	Process	Raw Material	Estimated Capacity m.t./yr.
Kogyo K.K.	Tokyo, Arakawa-ku, Ogu-cho 9-chome	Electrolysis	Magnesite	1,500
Magaku Kogyo K.K.	Gumma-ken, Shibukawa-shi	Electrolysis	Magnesite	500
esium K.K.	Tokyo, Itabashi-ku, Shimurachogo-cho	?	Magnesite	650
esium K.K.	Toyama-ken, Kaminii Kawa-gun, Osawano-machi, near Sasazu-mura	?	?	650
K.K.	Toyama-ken, Higashi Iwase-machi	Electrolysis	Sea water	600
ku K.K.	Yamaguchi-ken, Ube-shi	Electrolysis	Sea water & magnesite	5,000
agnesium K.K.,				
o K.K.	Niigata-ken, Naoetsu-shi, Kuroi	Electrolysis	Sea water	500
gaku K.K.				
		Total		9,400

The known plants are located on Honshu.

APPENDIX 4

Major Japanese Aluminum Alloy
Sheet Rolling Mills

<u>Company</u>	<u>Plant Location</u>
Furukawa Electrical Industry Co.	Tochigi-ken, Kamitsuga-gun, Nikko-machi, Kiyotaki
" " " "	Hyogo-ken, Amagasaki-shi (2 plants?)
Kobe Steel Works	Yamaguchi-ken, Chofu
" " "	Kyushu Island, Moji
Nippon Aluminum Works	Osaka
Sumitomo Metal Industry Co.	Osaka
" " " "	Nagoya

APPENDIX 5

Japanese Production, Imports and Exports of Aluminum
(metric tons)

	<u>Production</u>	<u>Imports</u> ^{1/ 2/}		<u>Exports</u> ^{2/}	<u>Apparent Consumption</u>	
		<u>Ingot & Slabs</u>	<u>Scrap</u>		<u>Total</u>	<u>Annual</u>
1926	None	7,431	116		7,547	8,659
1927	"	5,825	54	-	5,879	
1928	"	9,167	170	-	9,320	7,830
1929	"	11,893	408	17	11,890	
1930	"	10,965	743	411	11,012	16,825
1931	"	2,788	2,426	696	5,003	
1932	"	4,810	3,846	211	8,305	31,945
1933	"	3,606	4,672	336	6,998	
1934	664	5,342	5,604	240	11,262	16,825
1935	4,400	9,774	4,305	348	17,461	
1936	7,000	9,011	1,695	1,018	16,834	31,945
1937	10,500	> 8,100	< 4,000	872	21,744	
1938	17,100	> 20,000	< 8,000	811	44,129	31,945
1939	23,000	> 20,000	< 8,000	917	51,070	
1940	35,000(est.)	1,900	< 500		32,580	
1941	70,000)					
1942	110,000)					
1943	140,000)	See explanation at bottom				
1944	106,000)	of next page regarding				
1945	6,500)	these figures.				
	(1st quarter)					

1/ Some discrepancies in "Total" column are due to necessity of using data from two or more sources.

2/ Includes crude metal, primary shapes and scrap, but not manufactures.

APPENDIX 5 (Cont'd)

Sources of Data in Appendix 5

Data for years before 1941:

1. Aluminum Nenkan-Magnesium Soran (1939).
2. Official data of exporting countries.
3. Annual and Monthly Returns of the Foreign Trade of Japan.
4. Japan-Manchukuo Yearbook (1939).
5. The Industrial Chemist, 1941.
6. Japan Trade Studies - Special Industry Analysis No. 2 - Aluminum - Jan. 1945.
7. Kogyo Nenkan (1938).
8. American Consular Report, "The Japanese Aluminum Industry", Osaka, Japan, Sept. 30, 1939.
9. Kagaku Kogyo Nenkan (1938).

Production data for 1941 and after:

Prince Higashi-Kuni in a report to the Japanese Diet (quoted in Domei radio broadcast, Sept. 5, 1945) stated that Japanese aluminum production rose from a pre-war figure of 70,000 tons (assumed to be for 1941) to a maximum of 140,000 tons in 1943. According to the same source, aluminum output decreased after 1943 due to lack of bauxite, and only 6,500 tons were produced in the first quarter of 1945. Production for 1942 and 1944 has been estimated by extrapolation from the curve obtained by plotting reported data for 1941, 1943 and 1945.

APPENDIX 6

Japanese Production, Imports and Exports of Magnesium
(metric tons)

<u>Year</u>	<u>Production</u>	<u>Imports</u>	<u>Exports</u>	<u>Apparent Consumption</u>
1930	0			
1931	2	8		10
1932	23	13		36
1933	104	14		118
1934	141	1	4	138
1935	271	0	74	197
1936	568	n.a.	237	331
1937	1,200	n.a.	12	
1938	1,500	692 a/	Less than 1	.
1939	2,000		2	
1940	4,000		2	

a/ Export from U.S. only.

Sources: Kogyo Nenkan (1938) p. 528.
 "Japanese-Puppet Economic Activities", Dec. 1944, published by
 Kuomintang Economic Service, Chungking.
 Mineral Industry during 1940, p. 389.
 BFDC compilation.

APPENDIX 7

Japanese Imports, Requirements and Stockpiles
of Bauxite
 (metric tons)

	<u>Imports</u> ^{a/}					
	1935	1936	1937	1938	1939	1940
Netherlands East Indies	50	8,774	31,358	120,078	196,948	262,453
Malaya	355	1,123	13,241	56,643	85,736	46,033
Greece	5,250	8,000	7,300	15,000	23,959	n.a.
British India	4,481	5,327	23,748	n.a.	n.a.	n.a.
Mandated Islands	--	--	--	20,000	39,000	43,000
	10,136	23,224	76,147	211,721	345,643	351,486
Requirements ^{b/}	17,600	28,000	42,000	63,400	92,000	140,000
Apparent stockpile ^{c/} at end of year	--	--	34,147	177,468	431,111	642,597

a/ Sources:

1. The Commodity Position of Malaysia-Bauxite-Prepared by U. S. Tariff Commission for Foreign Economic Administration, Feb. 1944.
2. Japanese Trade Studies. Special Industry Analysis No. 2 - Aluminum, Prepared by U. S. Tariff Commission, Jan. 1945.
3. American Consular Report #65, "The Projected Reorganization of Japan's Aluminum Industry", Donald W. Lamm, Tokyo, Dec. 1, 1941.

b/ Calculated on basis of aluminum production figures in Appendix 5 and average requirement of 4 tons of bauxite for 1 ton of aluminum.

c/ Apparent deficit in 1935 and 1936 presumably made up by use of non-bauxitic raw materials, or by unreported imports of bauxite. No allowance for use of non-bauxitic raw materials nor for other uses of bauxite made in calculating stockpiles for subsequent years.

APPENDIX 8

Chemical Composition of Some Naturally
Occurring Aluminous Raw Materials
(percent by weight)

Composition of Some Typical Bauxites^{1/}

	<u>France</u>	<u>Guiana</u>	<u>United States</u>
Al ₂ O ₃	57-60	56-61	56-59
SiO ₂	3-5	1-3	5-12
Fe ₂ O ₃	20-25	Variable	Low
Ign. loss	11-13	29-31	27-30

Composition of Clays Used by Tennessee Valley Authority^{2/ 3/}
and Studies on Extraction of Alumina from Clays by Lime-Sinter-Soda-Leach Process

	<u>Ross Clay 1</u>	<u>Ross Clay 2</u>	<u>Rengold Clay</u>
Al ₂ O ₃	38.2	35.9	37.5
SiO ₂	43.8	42.2	44.9
Fe ₂ O ₃	0.6	1.2	0.9
TiO ₂	2.7	2.6	2.9
CaO	0.3	2.8	0.3
MgO	0.3	-	0.1
Ign. loss	14.2	15.3	13.5

^{1/} Source: Hayward, *An Outline of Metallurgical Practice*, 2nd ed. (1940), D. Van Nostrand Co.

^{2/} Source: Final Report on the Extraction of Alumina from Clays by the Lime-Sinter Modification of the Pedersen Process, by Copson, Walthall & Hignett, War Metallurgy Committee, Serial No. W-103, Apr. 28, 1944.

^{3/} All three samples from Holly Springs geological formation, Carroll Co., Western Tennessee.

APPENDIX 8 (Cont'd)

	<u>Composition of Japanese Clays</u> ^{1/ 2/} (percent)		
	<u>Roseki Clay</u> ^{3/}	<u>Kibushi Clay</u> ^{4/}	<u>Gairome Clay (washed)</u> ^{5/}
Al ₂ O ₃	48.16	34.02	33.84
SiO ₂	43.30	48.02	52.20
Fe ₂ O ₃	0.26	1.93	1.81
CaO	0.26	0.54	0.43
MgO	0.01	0.17	0.03
K ₂ O, Na ₂ O	1.52	0.54	0.70
Ign. loss	8.02	15.35	11.63

^{1/} ^{FEA report,} Source: /FE-121, Japanese Possibilities of Making Aluminum from Clay.

^{2/} All of these samples are from considerable deposits worked commercially for ceramic purposes.

^{3/} From Okayama-ken, Wake-gun, Mitsuishi-mura.

^{4/} From Aichi-ken, Higashi Kasugai-gun, Seto-mura.

^{5/} From Gifu-ken, Toki-gun, Tokitsu-mura.

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APPENDIX 3 (Cont'd)

Composition of Typical Clays from Manchuria,
Korea and Occupied China

Location	Type of Clay	Al ₂ O ₃	SiO ₂	Fe ₂ O ₃	TiO ₂	Ign. Loss
<u>Manchuria</u>						
Fuchow	Very hard	72.80	8.58	1.66	2.30	14.20
"	Hard	54.50	28.30	2.29	2.92	15.00
"	Soft	39.40	44.90	1.92	2.80	14.80
Kinchow	Very hard	62.90	20.66	2.62	2.05	14.31
"	Hard	40.40	42.50	1.68	1.65	14.60
Honkei	Very hard	72.12	3.74	9.24	1.84	13.96
"	Hard	54.61	15.34	14.65	1.34	13.92
"	Soft	38.28	43.30	3.85	1.50	14.64
Yentai	Very hard	60.70	14.50	10.80	2.00	13.40
"	Hard	48.80	35.70	15.10	1.80	14.80
"	Soft	40.47	44.01	0.93	1.78	13.95
<u>Korea</u>						
Location unknown	Kaolin	58.50	24.00	0.80	2.50	13.40
<u>China</u>						
Kailan, North China	Very hard	71.12	12.30	1.00	2.90	15.50
" " "	Hard	62.60	21.80	1.10	2.80	14.30
" " "	Soft	50.30	26.70	1.60	2.50	14.70
Poshan, Shantung	Very hard	70.20	11.00	1.43	2.80	14.50
" " "	Hard	54.80	17.68	10.59	2.30	14.53
" " "	Soft	40.80	41.05	1.09	2.71	14.11

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APPENDIX 8 (Cont'd)

Analyses of Korean Alunites^{1/}

Source	Seizan	Gyokubaizan 1	Gyokubaizan 2	Yozan	Kashatori
Al ₂ O ₃	31.00	36.31	37.22	36.07	35.77
SiO ₂	16.35	2.96	1.38	1.17	5.44
FeO & Fe ₂ O ₃	-	0.55	-	0.52	-
CaO	-	0.44	Trace	0.27	-
MgO	-	Trace	Trace	0.17	-
K ₂ O	6.52	9.15	9.68	9.65	7.96
Na ₂ O	1.19	0.78	1.05	2.09	1.08
SO ₃	32.31	36.82	38.02	38.47	37.17
H ₂ O	12.54	12.87	13.29	12.15	12.43
Ign. loss	-	-	-	-	-

^{1/} Source: Tyosen Kogyo, Sept. 1938.

APPENDIX 9

Production Processes Used in the Japanese
Light Metals IndustriesALUMINA

The production of aluminum takes place in two steps: (1) production of highly purified alumina (aluminum oxide, Al_2O_3) from the bauxite or other aluminous ore, followed by (2) electrolytic reduction of the alumina to aluminum metal. These two stages are entirely independent and are frequently carried out at widely separated plants.

In the electrolytic reduction step, impurities such as silica or iron oxides present in the alumina will also be reduced and will contaminate the metal. It is consequently essential that alumina of high quality be furnished to the reduction plants. The standard Bayer process produces satisfactory alumina only from high grade bauxite^{1/} which is low in silica. Special methods have been proposed or developed for producing alumina of acceptable grade from aluminous raw materials^{1/} containing larger amounts of silica (or other impurities). Certain of these processes, believed to be of special interest to the Japanese, are here described, in addition to the Bayer process.^{2/}

1. The Bayer process. The ground (and usually dried) bauxite is heated under pressure with a caustic soda solution which converts the

^{1/} See Appendix 8 for chemical composition of some typical aluminous raw materials.

^{2/} For further details of these processes see:
FEA report, EC-121, Japanese Possibilities of Making Aluminum from Clay, June 1944.
FEA " , EC-165, An Analysis of Aluminum Industry Processes, Sept. 1943.
War Metallurgy Committee Research Report W-103, The Extraction of Alumina from Clays by the Lime-Sinter Modification of the Pedersen Process, prepared by TVA and issued by the National Academy of Sciences, Apr. 28, 1944.
The Aluminum Industry: Vol. II, Aluminum and its Production, by Edwards, Frary and Jeffries.

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APPENDIX 9 (Cont'd)

aluminum oxide to soluble sodium aluminate. This solution is filtered from the "red mud" containing the bulk of the **impurities**. The clarified solution is somewhat diluted with water, and aluminum hydroxide is precipitated by prolonged agitation with aluminum hydroxide **from** a previous batch. The **hydroxide** is settled, filtered and calcined in a rotary kiln to produce alumina.

Typical material requirements per metric ton of calcined alumina produced by the Bayer process are:

Bauxite	2 m.t.
Caustic soda make-up	55 kg.
Electric power	270 kwh.
Coal for drying and calcining	1.5 to 2.5 m.t.

2. Lime sinter-soda leach process. It is believed that this is the non-Bayer process most widely used by the Japanese. Clay is sintered with about twice its weight of high grade limestone to convert the alumina to calcium aluminate and the silica to calcium silicate. The resulting sinter falls to a powder **on** cooling and is then leached with soda ash solution, yielding a solution of sodium aluminate. Aluminum hydroxide is recovered from the solution by slow treatment with carbon dioxide gas and is then further treated as in the Bayer method.

In addition to equipment found in standard Bayer plants, this process requires rotary kilns such as are used in cement plants. It seems quite certain that some excess kiln capacity in Japanese cement plants has been converted to alumina production. The sinter obtained in this

APPENDIX 9 (Cont'd)

process can be stored and transported without deterioration and consequently the sinter and leach steps can be carried out at separate locations if desired.

Raw material requirements, per metric ton of alumina produced by this process, are approximately as follows:^{1/}

Clay (dry basis)	about 3.2 m.t., depending on composition
Limestone	6.6 m.t.
Soda ash make-up	42 kg.
Fuel	70 million B.T.U.

3. Lime-soda sinter. The clay is sintered with both limestone and soda ash in a rotary kiln, converting the silica to calcium silicate and the alumina to sodium aluminate. The sodium aluminate is leached from the ground sinter by water and the solution further treated as in the lime sinter-soda leach process. The sinter produced by this method requires grinding, deteriorates rapidly in moist air and is not suitable for storage or shipment.

4. Pedersen process. The clay or shale is smelted with iron ore, coke and limestone to produce a molten slag consisting principally of calcium aluminate, and, as a by-product, high grade, low-sulfur pig iron. The cooled and ground slag is leached with soda ash solution, and the solution is further treated as in the lime sinter-soda leach process. This process is believed to be used in a Japanese plant in Korea.

5. Ferrosilicon process (referred to by the Japanese as the Uchino process). Clay or shale is mixed with coke, limestone and iron ore and charged into an electric-arc furnace where ferrosilicon and calcium

^{1/} Based on the TVA study previously cited.

APPENDIX 9 (Cont'd)

aluminate are formed. The calcium aluminate is converted to sodium aluminate by leaching with soda ash solution.

In the Suzuki modification of this process, the charge consists of aluminous shale, coke, and scrap or pig iron. On heating in an electric furnace, ferrosilicon and alumina are formed. The ferrosilicon is separated magnetically and the alumina freed from the remaining iron by treatment with chlorine. In both of these modifications, power costs are high and a market must be available for the ferrosilicon formed. Equipment of special design is also required. One of these processes is apparently in use at the Fushun, Manchuria alumina plant.

6. Alunite processes. Several processes proposed or used by the Japanese are based on alunite, a naturally occurring potassium alum (see Appendix 8). It is probable that these processes have been abandoned in favor of those based on clay or shale, partly because of the lack of uniformity and poor quality of much of the available alunite. In the processes based on alunite, an attempt is always made to recover the potassium in a form usable as a potash fertilizer.

In the Tanaka process (also called the Showa sodium process), crushed and dried alunite is suspended in water and treated with ammonia. Potassium sulfate and ammonium sulfate are recovered from the solution for fertilizer use. Alumina and silica constitute the solid residue from which the alumina is recovered by treatment with sodium hydroxide solution, followed by precipitation.

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APPENDIX 9 (Cont'd)

In the **Okazawa** or Showa potassium process, the alunite suspension is treated with potassium hydroxide solution yielding a solution containing potassium sulfate and potassium aluminate from which both potassium sulfate and alumina are separated.

In the Sumitomo process, the crushed and dried alunite is dissolved in sulfuric acid, and aluminum hydroxide is then precipitated with ammonia and separated. The clarified solution yields potassium and ammonium sulfates.

The Asada process is also a sulfuric acid procedure, yielding aluminum sulfate which is decomposed in a muffle furnace to alumina and sulfur trioxide.

The acid processes require special equipment for handling the corrosive solutions. They are not adaptable to existing equipment in Bayer plants.

ALUMINUM

Regardless of the aluminum ore used or the procedure followed in obtaining alumina from it, all aluminum metal today is produced by passing an electric current through molten cryolite (sodium aluminum fluoride, Na_3AlF_6) in which alumina is dissolved. The alumina is decomposed into aluminum metal and oxygen. The reaction takes place in a carbon-lined steel cell which acts as the cathode. Molten aluminum collects at the bottom of the cell and is tapped off periodically and poured into ingot molds.

APPENDIX 9 (Cont'd)

Oxygen collects at the carbon anodes and, because of the high temperatures required in the process, combines with the carbon, forming carbon monoxide and carbon dioxide. About 0.6 to 0.7 ton of carbon is consumed per ton of aluminum metal produced.

The cell may be operated with a number of pre-baked electrodes or with a single Soderberg electrode in which a continuously fed paste consisting of carbon and suitable binder is fed into the electrode tube and baked by the heat of the bath. Most Japanese plants are designed for Soderberg electrodes.

If pre-baked electrodes are used, they may be purchased from a company specializing in this work or they may be formed and baked at the aluminum plant. If Soderberg electrodes are used, the paste is always mixed at the aluminum plant. Raw materials in both cases are pitch coke, petroleum coke or other source of high grade carbon reasonably free from mineral impurities, and binder.

Power requirements are high in production of aluminum, being around 10 kwh. per pound of aluminum, or about 22,000 kwh. per metric ton. As in all electrolytic processes, direct current is necessary, and aluminum plants thus usually require equipment to convert the alternating to direct current.

Consumption of cryolite is about 0.1 lb. per pound of metal produced. Native cryolite is found in commercial quantities only in one locality, Ivigtut, Greenland. However, synthetic cryolite may be made from alumina and suitable fluoride salts and this is frequently done at alumina plants

APPENDIX 9 (Cont'd)

MAGNESIUM

Several independent processes for magnesium production are in commercial use and all are known to or in use by the Japanese. These processes are: (1) electrolytic decomposition of fused magnesium chloride derived from brines, sea water, dolomite or magnesite; (2) reduction of calcined dolomite with ferrosilicon in a heated retort (Pidgeon process); and (3) reduction of magnesium oxide (obtained from brines or magnesite) with coke, followed by rapid cooling of the magnesium powder produced in a stream of hydrogen or natural gas (Hansgirg or Radenthein process).

1. The electrolytic process. This is the oldest of the commercial processes and is the most widely used method. As in the electrolytic production of aluminum, the operation takes place in two steps -- preparation of the cell feed, followed by electrolytic decomposition. These two steps are usually carried out at one plant.

Basis of the cell feed is properly dried magnesium chloride to which sodium chloride and calcium chloride may be added as needed. The magnesium chloride may be prepared by any of the following methods:

a. From brines and bitterns, by evaporation, careful separation of the magnesium chloride from sodium chloride and other salts, and drying.

b. From sea water by first adding lime to precipitate magnesium hydroxide; this is dissolved in hydrochloric acid to yield magnesium chloride, which is evaporated and dried.

c. From calcined dolomite by a wet process involving conversion of the lime to calcium carbonate and the magnesia to magnesium chloride. The calcined dolomite, suspended in water, is first treated with ammonium chloride, yielding calcium

APPENDIX 9 (Cont'd)

chloride and magnesium hydroxide and liberating ammonia. Carbon dioxide is then passed into the mixture, precipitating calcium carbonate. The resulting solution of magnesium chloride is evaporated and dried.

d. From any suitable source of **magnesia** (e.g., magnesite) by a dry process involving chlorination of heated briquettes of calcined magnesia and coke.

Electrolysis of fused magnesium chloride to yield magnesium metal is carried out on the same basic principles as in the electrolytic production of aluminum. Closed cells are used because chlorine is given off at the anodes. The chlorine is recovered and is available for reuse if needed in the process or is sold as by-product. The metal floats on the cell bath instead of sinking to the bottom. The anodes used are of the same composition as in the aluminum industry, but consumption is much smaller, about 0.1 ton per ton of metal produced.

2. The ferrosilicon (Pidgeon) process. In this basically simple process, calcined and ground dolomite is mixed and briquetted with ground ferrosilicon and heated under strong vacuum in a simple steel tube retort in a gas or oil-fired furnace. Metallic magnesium condenses in the cool end of the retort and is removed after a heating period of about ten hours, ready for remelting and casting.

At present prices of ferrosilicon in the United States, the Pidgeon process is apparently unable to compete on a cost basis with the most efficient electrolytic plants. However, the method has distinct advantages for emergency production where costs are of secondary interest. Pidgeon

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APPENDIX 9 (Cont'd)

process plants can be quickly constructed, relatively small scattered units are feasible, and the plants can be readily stopped, kept in stand-by condition and restarted.

3. The carbothermic (Hansgirg or Radenthein) process. As in the Pidgeon process, magnesium oxide is reduced to metallic magnesium by a furnace process.

Relatively pure magnesium oxide prepared by calcining magnesite or by treatment of brines, is ground and briquetted with ground coke, with or without a binder. The dried briquettes are charged into an electric furnace operated at a temperature of around 2000°C where the magnesium oxide and coke react to produce magnesium vapor and carbon monoxide gas. The reaction products must be cooled very rapidly to prevent reversal of the reaction; this is accomplished by injecting a stream of inert gas (hydrogen or natural gas) into the electric furnace. The magnesium condenses as a fine powder (somewhat contaminated with carbon) which must be sprayed with oil, briquetted and dried. The briquettes are then heated at about 1000°C in a retort under vacuum. The magnesium is vaporized in the hot section of the retort and crystallizes in the chilled top, from which it is periodically removed and melted for casting into molds.

No data are available for comparing plant investment or metal production costs with the other processes described. Close technological control is necessary because of the operational hazards involved.

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APPENDIX 10

Employment and Production Rate in U.S. Light Metals Industry

	<u>Employment 1/</u>	
	<u>January 1944</u>	<u>December 1944</u>
Aluminum		
Bauxite mining, domestic	2,500	2,200
Alumina plants	7,000	4,800
Reduction works	15,000	9,400
Secondary smelters	3,000	2,700
Foundries	70,000	49,500
Sheet and foil mills	20,000	16,300
Forge shops	15,000	10,000
Other plants	17,000	12,000
Total aluminum	149,500	106,900
Magnesium		
Ingot plants	18,000	5,100
Foundries	29,000	22,200
Other plants	2,000	1,400
Total magnesium	49,000	28,700
Total light metals	198,500	135,600

Production Rates

	<u>January 1944</u>		<u>December 1944</u>	
	<u>Total pro- duction, m.t.</u>	<u>Tons per worker per year</u>	<u>Total pro- duction, m.t.</u>	<u>Tons per worker per year</u>
Aluminum ingots, primary 2/	76,894	41.9 4/	42,227	35.7 4/
Aluminum ingots, secondary 2/	19,248	87.7	22,680	100.8
Magnesium ingots, primary 3/	18,565	12.4	3,861	9.1

- 1/ Employment data from estimates by Aluminum and Magnesium Division, War Production Board.
- 2/ From data reported by War Production Board.
- 3/ From data reported by Defense Plant Corporation.
- 4/ Employment in both alumina and aluminum plants used in calculating tons of primary aluminum per worker.

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APPENDIX 11

Japanese Exports of Aluminum Manufactures
by Values 1/

<u>Year</u>	<u>Aluminum Ware</u> <u>1000 yen</u>	<u>Aluminum Sheet</u> <u>1000 yen</u>	<u>Total</u> <u>1000 yen</u>
1929	85.6	482.6	568.2
1930	706.6	744.3	1,450.9
1931	342.0	222.6	564.6
1932	410.5	478.5	889.0
1933	1,126.9	376.5	1,503.4
1934	1,930.7	534.2	2,464.9
1935	1,660.9	1,653.7	3,314.6
1936	1,727.5	1,301.1	3,028.6

1/ Does not include exports to Korea and Formosa.

Source: The Mining Magazine, London, Vol. 59, #2, p. 83 (1938).

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Special attention is called to the fact that this document was substantially completed prior to the surrender of Japan. Persons using this document are cautioned that its recommendations were written prior to the acceptance of the Potsdam Declaration and the Instrument of Surrender. All recommendations must, accordingly, be critically examined in the light of current U.S. policy.

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PART IINTRODUCTION AND SUMMARY OF RECOMMENDATIONS

I. Introduction

It is the purpose of this guide to recommend the general administrative and control measures to be applied to carry out the production programs with which M. G. will be concerned in Japan. The term "Administration of Production Programs" as used in this guide is defined as covering all activities involved in the processing of supplies from raw materials to the finished product, but does not include such portions of specific industries as normally do not utilize industrial processes such as agriculture and fisheries with respect to which activities special guides have been prepared. The objectives of these production programs have been outlined in Part III, Section 1 below. Background information descriptive of the Japanese controls for the administration of their war-time economy has been presented in Part II. Illustrative material has been provided in the Appendices. The recommendations presented summarily below have been set forth in more detail with the reasons therefor in Part III. More specific recommendations with respect to particular industries may in some cases be found in the respective industry guides.

In drawing up the recommendations it was assumed that the occupation of Japan would occur on a progressive basis until all or a major portion of the main islands would be brought under Military Government. Moreover it was assumed that the occupation would continue long enough to give rise to the necessity for M.G. to control the export and import of essential commodities for various purposes. Furthermore, as this guide is concerned with the administration of production controls, therefore it is considered necessary to assume that M.G. may have to concern itself with programming and allocating the flow of all vital materials needed to produce the categories of priority goods set forth in Part III, Section 1. Should the occupation of Japan be only partial or of short duration or should other conditions or policy directives determine that M.G. control of production be more limited than is here implied, modifications or utilization of portions of the recommendations which follow will readily suggest themselves to those using the guide in their planning. In addition it should be pointed out that this guide should be used in conjunction with the respective industry guides which may have more detailed recommendations as to the control of such industries as it may be decided M.G. shall be directly concerned with in accordance with policy directives. This guide, in short, aims to set the over-all administration framework within which M.G. can operate, either in a supervisory capacity or directly, such production controls as policy directives and operational conditions and problems shall determine in the future.

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II. Summary of Recommendations

A. Methods for exercising economic controls

1. To assure the maintenance of priority production schedules with which M.G. is concerned, as set forth in Part III, Section 1, M.G. should establish supervisory administrative controls over the utilization and movement of required raw and semi-finished materials in short supply by a coordinated application of the following methods:
 - a. Establishment of priorities.
 - b. Granting of allocations in accordance with priorities to specific plants, or organizations of producers on a territorial basis.
 - c. Extension of credits where needed to enterprises or groups of producers receiving allocated priority materials.

B. Extent of application of economic controls

As a general rule production of items not on M.G.'s priority production programs should be allowed without allocations providing:

- a. Such production does not require utilization of facilities banned by M.G. because of their war-potential character.
- b. Does not require the utilization of materials in short supply.
- c. Does not impede the movement of priority raw materials and end-products.

The Japanese officials should, however, be required to report on such production in order that surplus local production of particular commodities in particular areas may be made available, insofar as transportation facilities permit, to deficit areas.

C. Recommendations concerning the utilization of Japanese control agencies and regulations.

1. At the outset of the occupation M.G. should maintain in force Japanese war-time control regulations relating to control of industry and allocations fuels, power, raw materials, semi-finished goods, items for maintenance and repair subject to subsequent directives as to amendments, abrogation, etc.

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2. Likewise, M.G. at the outset should maintain or re-establish local governmental agencies responsible for the administration and enforcement of such laws and regulations as are maintained in force and require officials and employees of such agencies to continue with or return to their functions.
3. The principles governing the subsequent utilization, abrogation, or modification of existing Japanese controls should have two major objectives:
 - a. The re-direction of the flow of materials from war production into civilian production channels and the production of equipment for the restoration and maintenance of essential transportation and public utilities. War-time restrictions on the utilization of materials for such purposes and to meet M.G. priority production programs should be relaxed.
 - b. In consonance with long-range U.S. policy objectives, M.G. should exercise its controls and reorganize or abolish Japanese agencies in order to re-direct Japanese war-time economy into a free enterprise, competitive economy in which small and particularly medium-sized enterprises are unstifled by excessive government controls or by cartels and combines.
4. The Munitions Ministry should be abolished and much of its war-time functions and controls as are needed to attain M.G. objectives should be transferred back to the old line pre-war ministries.
5. The 400 odd designated munitions companies should in principle be initially closed down particularly those producing military items, and only those most essential and most readily convertible to lines of production in which M.G. is interested be allowed subsequently to operate under direct or indirect supervision.
6. M.G. should directly concern itself with the assets, property and facilities of National Policy Companies and all Eidan or public corporations. Insofar as M.G. finds it useful to continue the operation of any of the facilities of government managed or owned agencies and monopolies or utilize their organization and material M.G. may do so or order Japanese officials to do so under its supervision.

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7. Because of the extent to which Japan has decentralized its controls operationally on a regional basis it is recommended that M.G. subordinate prefectural controls to regional controls. For this purpose it is recommended that the Regional Superintendents-General Offices be retained and utilized to gather information on the requirement and supply situation in each region and to allocate out regional allotments of raw materials made by M.G.'s central production control agency.
 8. It is recommended that regional advisory councils be formed representative equally of small, medium and large sized producers of the area to advise M.G. and Japanese officials.
 9. It is recommended that the Control Societies and Control Associations be abolished and their assets and property be sequestered by M.G. to be disposed of in accordance with subsequent directives. The companies, organizations, and federations which made up these organizations should be authorized to reorganize along pre-war types of commercial and industrial organizations, known as Kumiai on a voluntary, cooperative, and democratically organized basis.
- D. Recommendations concerning the utilization of Japanese personnel. Japanese personnel should be as fully utilized as possible to carry out M.G. directives and policies. Individuals, however, whose names appear on purge lists, because their past records and activities make them unfit to hold responsible positions, should not be appointed to such positions.
- E. It is recommended that Japanese officials and such governmental and quasi-governmental agencies, private organizations and individuals as may be designated by M.G. be required to submit initial reports and thereafter current reports covering the points set forth under Part III, Section 7 in order to assist M.G. in drawing up its production programs and determining priorities and allocations.
- F. It is recommended that M.G. place on an area or region as a whole, as well as on designated Japanese officials the responsibility for fulfilling production programs and observing allocations and priority regulations. In the event that sabotage is wide-spread in a particular area it is recommended that its allotment of raw materials, power, consumer goods, etc., be cut down until such sabotage or misuse of materials ceases, or is reduced to isolated cases which can be handled by direct and specific disciplinary measures.

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G. Suggestions concerning Military Government's organization for the administration of production programs.

It is suggested that M.G. set up at central headquarters a production control agency to include a planning and control unit and functional units to carry out the functions set forth in Part III, Section 9 A; and branch agencies in each of the regions occupied with sub-branches in each occupied prefecture to carry out the functions outlined in Part III, 9 B.

PART II

DESCRIPTIVE ANALYSIS OF JAPAN'S WARTIME ECONOMIC CONTROLS

I. Introduction

The descriptive analysis of Japan's wartime economic controls which is set forth below relates to the situation which obtained in June of 1945 and is based upon the latest information available. Undoubtedly there will be additional changes in the details of the administrative structure of these controls as the war goes on, such as have occurred frequently in the past. However, the basic underlying pattern will probably remain the same as existed at that time. The major trend at that time was the decentralization of national controls and their concentration in the eight administrative regions into which the country has been divided. The purpose of course was to prepare Japan against an invasion by increasing the economic self-sufficiency and administrative autonomy of each region in the event of the breakdown of centralized administration at the national level which the disruption of transportation and communications would entail.

As in the case of Germany prior to occupation, information is lacking to disclose accurately and in detail just how Japan administered its production programs, allocated raw materials, established priorities, let and sub-let contracts, prepared reports on inventories, supplies of raw materials, semi-finished goods, etc. Presumably such information will become available to M.G. after occupation insofar as the archives and records of the various Ministries, the Munitions Companies, the Eidan, the national and regional offices of the Control Associations, the regional superintendents-generals Offices in each of the eight regions and the prefectural and metropolitan administrative offices have not been destroyed. Access to such records will aid M.G. materially in establishing its own production controls. It is pertinent to note that the Government has stipulated that all accounts and records of Control Societies and Associations and Munitions Companies, presumably relating to fiscal matters, materials and production should run according to the Government's fiscal year namely from April 1 to March 30, thus establishing

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a completely unified national system of accounting in harmony with national production scheduling and the allocation of raw materials on a quarterly basis in which the first quarter runs from April through June.

Even with access to such detailed information it will not be easy to grasp fully an understanding of how the Japanese military, bureaucrats, business and industrial leaders have administered their production programs. The layer upon layer of economic controls set up by decree, law, ordinance and a plethora of subsequent administrative regulations since the passage of the General Mobilization Law of 1938 and the Extraordinary War Measures Bill of June 1945, accompanied by frequent shifts in the administrative structure nationally and locally are difficult to disentangle in order to discover exactly where the lines of administrative authority lie as between the various Ministries and their bureaus, the quasi-governmental agencies such as the Control Societies and the Munitions Companies, the local government bureaus and private commercial and industrial enterprises. It was not until November of 1943, when the Munitions Ministry was established, that the Japanese government succeeded in creating a degree of centralized allocating of raw materials and the scheduling of production programs which might be compared with the work of the U.S. War Production Board. Even after that date, the old-line ministries and agencies continued to guard jealously and to exercise to a degree their former control functions causing confusion and inefficiency, and endless red tape. The continuing struggle of the big industrialists and Zaibatsu to retain control, working chiefly through the control societies, various advisory councils and by holding positions in the government itself at Ministerial level, against the bureaucrats on the one hand and the military on the other have resulted in a series of compromises which limit the full application of the government's innumerable minute regulations. These struggles have led to frequent administration reorganizations and even cabinet changes. A study of the myriad of decrees, ordinances, regulations and ministerial orders can give only a general picture of how the Japanese actually controlled their production programs. Japan is ruled more by men than by law and the bureaucrats' network of regulations and red-tape can be readily cut through at will by the military, financial and industrial oligarchs. Nevertheless a study of the development and interrelation of the existing mechanisms and agencies of economic control is necessary as a background upon which to base recommendations for their suppression or utilization with or without modification by M.G. to establish its controls over production. The rest of this section will be devoted to a generalized description of the prevailing mechanisms and agencies of control which obtained in June 1945. More detailed studies of how the controls were actually applied in specific industries will be found in the respective industry Guides.

II. Controls at the National Level

A. Basic authority for economic controls*

The basic authority for the exercise of wartime economic controls by the government until June 1945 found its origin in the General National Mobilization Act of 1938 and as subsequently revised (see Appendix II) together with the myriad of imperial decrees, ordinances and ministerial orders and regulations which derive from and implement that act. The controls were highly centralized until June of 1943 when a trend toward decentralization arose as it became increasingly apparent that the war was going against Japan and that the home-islands would be subject to increasing attack from the air and possibly even invasion. At that time Japan was divided into nine administrative regions (reduced to eight in Feb. 1945) with the President of each region directly responsible to the Premier. The Progressive loss of Guam, Saipan, the Philippines, Iwo Jima and finally Okinawa speeded up the decentralization trend culminating in the passage on June 12, 1945 by an extraordinary session of the Diet of an Extraordinary War Measures Bill which gives the government power to nullify or revise provisions of the General Mobilization Act and all subsequent legislation and to issue new orders and regulations without check by the Diet. Through the passage of this Bill, the Diet surrendered to the Government virtually all of its power and presumably will not sit again until after the war.

Within the Bill, "Government" was defined as including not only the Ministries of the Cabinet but also the Offices of the Superintendents - General, newly created two days before the passage of the Bill to head up the administration of the eight regions (see Appendix I and Chart). Thus, the basis was provided for complete regional administrative autonomy over economic controls in the event any region was completely cut off from contact with the central regime following invasion.

The broad scope of the Bill is stated in Article 1 (Tokyo broadcast in English), "...the Government, when urgently necessary, will take steps for the proper measures regardless of the stipulations in other laws and regulations concerning: (1) increase of military and war requirement production; (2) maintenance and improvement of transportation and communications; (3) strengthening of defense and maintenance of order; (4) adjustment of the taxation system; (5) measures for war damages; (6) other matters necessary for compensating and manifesting the fighting strength specified by Imperial ordinances."

*For a brief account of history of pre-war to wartime economic controls, see Civil Affairs Handbook - Japan - Sec. 8 A - Industry, p. 89.

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According to a Domei broadcast in English "The Government gazetted, under the date of June 22, the Extraordinary War Measures Act and also its enforcement decree, to be effective from June 23. According to the enforcement decree, this act will be enforced not only in Japan proper but also in Chosen and Taiwan. Those vested with the powers of issuing orders and making other dispositions under this act include Cabinet Ministers, Regional Superintendents General, and the Governors General of Chosen and Taiwan." The fields of authority covered by the Act as given in the same broadcast are as follows: "(1) Commencement and abolition of business, management of business, and punishment of those engaged in business; (2) organizations of business bodies, cooperation between various business bodies, and control of employment and expropriation of business bodies; (3) adjustment of labor supplies--including electricity motive power and funds, possession and disposition of supplies and control of employment and expropriation of supplies and motive power; (4) construction, expansion, repairing, maintenance, exchange, consolidation, disposition, control, employment, and expropriation of land, buildings, trees, equipment, and other facilities; (5) acquisition, forfeiture, change, exercise, employment, and expropriation of rights; (6) incorporation, merger, dissolution of juridical persons, and changes in objects of juridical persons; (7) contracts on prices, wages and other delivery of property, and also payment and receipt thereof; (8) movements and domicile of persons; (9) the collection, official inspection, and examination of reports; (10) exceptions and exemptions to laws concerning control and regulations; and (11) Other matters designated after consultation with the competent Cabinet Minister and the Premier."

B. Government Ministries and Bureaus Exercising Economic Controls

The Ministries responsible for exercising war production controls and the scope of their activities as of January 1, 1945 (for full description see Civil Affairs Handbook, Section 2 A - Government and Administration and "The Japanese Ministries; Table of Administrative Structure," Office of Strategic Services, R. and A No. 2836) are as follows:

1. Munitions Ministry - Established in November 1943 to exercise overall controls over industries directly related to munitions production.

Total Mobilization Bureau - Including a General Affairs Defense and Investigation Section, a Supervision Division which included a Control, Labor, a Financial and an Efficiency Section.

Aircraft Ordinance Bureau; Electric Power Bureau; Fuel Bureau, covering petroleum, the fermentation industry, synthetic oil and gas; Coal Bureau, Non-Ferrous Metals Bureau; Iron and Steel Bureau, including Sections on Iron and Steel Manufacturing, Special Steels, and Distribution; Light Metals Bureau, including Sections on Aluminum, Magnesium and Carbon Alloys; (incorporated into Aircraft Ordinance Bureau, June 1945) Chemicals Bureau, including

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Organic, Inorganic Synthetic, Chemical Administration and "Household" Sections; Machinery Bureau, including Machinery (probably machine tools), Administration, Precision Instrument, Industrial Machinery and Power Machinery Sections; Organization Bureau, including Financial Affairs Section; Statistics Bureau; Mining Superintendent Bureau; Planning Board; Munitions Superintendent Division and a Works Bureau with an Equipment Section.

2. Agriculture and Commerce Ministry - General Affairs Bureau, including a General Affairs, Adjustment, Resources Mobilization, Associations (of agriculture, industry and commerce), funds, Oils and Fats and Planning Sections; Agriculture Administration Bureau, including Agriculture Administration, Management, Agricultural Products, Agricultural Insurance, Land Cultivation, Animal Products, Fertilizer and Feed Sections; Textile Bureau, including Cotton Manufacturing, Silks and Woolens, Synthetic Fibre, Sericulture and Planning Sections; Forestry Bureau, Fruits Bureau, Fisheries Bureau; Horse Administration, Consumers Commodities Bureau, including Agricultural Food Products, Animal Food Products, Manufactured Foods, Manufactured Goods Section; Commodity Price Bureau; Food Control Bureau; Business Affairs Bureau.

3. Finance Ministry has among other Bureaus a Monopoly Bureau dealing with tobacco, salt and camphor and a Patent Bureau.

4. Greater East Asia Ministry which handles economic affairs relating to Japanese trade and economic activities in the occupied areas includes a Manchurian Affairs Bureau with a Development of Industries Section, Land Development Section and a Colonial Affairs Section; China Affairs Bureau, including General Affairs, Government Administration, Financial, Agriculture and Forestry, Commerce and Industry, Transportation, and Special Property Sections;

Southern Regions Bureau (includes all other occupied areas), including Industrial, Financial, Commercial and Transportation Sections;

Trade Bureau including a Planning Section, Import Section and Export Section.

5. Home Affairs Ministry -

Prefectural Bureau, including an Administration Section and a Financial Administration Section; Police Bureau, National Public Works Bureau, including a Rivers Section and a Road Section; Control Bureau, including a Civil Administration Section, Financial Section, Development of (Local) Industries Section, Economic Section;

6. Transportation and Communications Ministry*

Communications Board including a General Affairs Bureau, Operations Bureau, Savings and Insurance Bureau, and an Engineering Bureau; Railway Bureau General, including a General Affairs Bureau including Accounts, Treasury, Labor, Training, and Welfare Sections; Bureau of Operations including Finance, Warehouses, Transportation, Shipping, Traffic, and Engines and Cars Sections; Installations and Equipment Bureau, including an Equipment, Maintenance and Repair, Roadbed, Stations, Trunk Lines, Construction, and Machinery, Electric Power, and Communications Section; Materials Bureau, including Rolling Stock, Metals, Coal and Materials, Shops Passenger and Freight Cars, and Engine Sections; Labor Bureau, Regional Installation Department Offices and Regional Railroad Bureau Offices; Marine Transportation Bureau-General, including General Affairs Bureau, Marine Transportation Bureau, including Harbor Administration, Marine Affairs, Beacons and Engineering Sections; Seamen's Bureau, Shipping Bureau; and Regional Marine Transportation Bureau; Aviation Bureau (civil aviation); Lighthouse Bureau, Motor Vehicles Bureau, Harbor Bureau, including Harbor Construction Divisions at Niigata, Yokohama, Kobe and Shimonoseki.

7. Ministry of Welfare

Health Bureau; Labor Bureau including Control, Planning, Facilities, and Registration Sections; Insurance Bureau and a War Labor Promotion Headquarters.

A study of the above list of the economic functions of the various Ministries discloses that production controls at the national level were concentrated largely in the Munitions Ministry and the Ministry of Agriculture and Commerce. The former concerns itself largely with the production of munitions other than ordnance which is directly under Army and Navy Ministries and the industries connected therewith while the latter concerns itself largely with the distribution of essential minimum civilian requirements. The Munitions Ministry, which combined functions of a War Production Board, a War Manpower Commission, a War Labor Board and a part of the Army Service Forces (as far as aviation is concerned), maintained under the Premier a dominant position over the other Ministries. In general it controlled the National Economic Mobilization policies; the production of raw materials for key industries; the production, distribution, consumption and price of mineral and industrial products; the regulation of labor, wages, and capital in enterprises relating to production and distribution of electricity (see Civil Affairs Handbook, Japan, Section 10 A - Administration of the Electric Power Industry) production and distribution of machinery and machine tools; and controlled the petroleum and alcohol monopolies. It exercised such

*In the Spring of 1945 the Communications Board was separated from the Ministry.

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over-all allocations of raw materials and priorities determinations as obtained in Japan, operational details concerning which are still unavailable.

The reorganization of the control functions to achieve decentralization on a regional basis which got underway in June, 1945, resulted in the transfer of many functions formerly exercised by the Ministries to the Regional Superintendents-General Offices. These offices in case of emergency were to allocate the materials and supervise production on a regional basis in accordance with over-all regional allocation made by the central government. All national mobilization and production programs were worked on a yearly basis and broken down into quarters for purposes of allocating materials and power. The Japanese year for this purpose is the same as the government's fiscal year namely from April 1 to March 31. Thus the first quarter embraces April, May and June.

Its only competitors bureaucratically speaking were the Army and Navy Ministries who could place contracts directly with the Munitions Companies for ordnance and who controlled directly the Army and Navy Arsenals. In addition the Navy Ministry exercised control over all ship-building, both naval and merchant marine.

Such intra-Cabinet bureaucratic conflicts as arose were probably resolved within the Cabinet by the Premier acting on the advice of the Cabinet Planning Bureau, and possibly the Cabinet Advisory Board.

Sharper and more enduring than the clashes among the bureaucrats within the Government as to the development and exercise of economic controls has been the conflict between Government and business and industry at all levels. Nevertheless, the Government has progressively extended its control directly and indirectly over all industrial as well as agricultural production from the largest Zaibatsu enterprises down to the small local enterprises in the mura at a sub-prefectural level. The heaviest sufferers in this progressive elimination of a free-enterprise, competitive economy have been the small and medium sized commercial and industrial organizations and businesses, which, under the combined pressure and manipulation of the Government and the large industrial and commercial enterprises (including the Zaibatsu) have been in large measure squeezed out of existence either through forced mergers, or by being deprived of essential raw materials, capital or labor needed to carry on their activities. The largest concerns have been able to hold their own through a series of compromises whereby they have become virtually quasi-governmental enterprises and their leading representatives virtual government officials, who in a few cases have taken positions of ministerial rank in the Cabinet. There has developed in recent years forms of organization of industry which stop only just short of a complete nationalization of that industry. Under the powers conferred upon the Government by the War Measures Act of June 1945, it is quite possible that the nationalization of Japan's war industry will occur before the end of the war. These organizations are the Control Societies (Tosek-kai) and their sub-organizations the Control

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Associations (Tosei-Kumiai); the Munitions Companies, the National Policy Companies and the Eidan or Corporations.

Under a law passed on February 18, 1942, which was based on Article 18 of the National General Mobilization Law, official authority was extended to the Control Societies, the National Policy Companies, the Corporations (Eidan) to carry out their responsibilities (See Appendix VII). These control organizations were to be considered as government agencies in discharging their responsibilities and any violation of their orders was to be considered as a violation of the particular law or regulation upon which their order was based. The officials of these organizations were to be considered as Government officials. Matters relating to the allocation and distribution of raw materials and of production programs within the respective industries were to be conducted by these organizations.

In addition, there were the prefectural Commercial and Industrial Economic Boards organized under Government direction. A description of the organization, operational responsibilities and interrelationships of these agencies with each other and with the Government will throw further light on how Japan's war economy functions and provide a background upon which to base recommendations as to the extent to which M.G. can or should utilize them for the control of its own production programs.

C. Quasi-Governmental Organizations Controlling Industry

1. Control Societies (Tosei-Kai) and Control Associations (Tosei-Kumiai).

The Major Industries Association Ordinance promulgated August 29, effective September 1, 1941, laid the basis for the organization of the major proportion of industry for war production. (For text and Amendment see Appendices V and VI). By 1943, 12,762 of the 83,024 corporations of Japan or 15 percent, were organized into Control Societies under this ordinance representing assets evaluated at 11,626,000,000 yen or 38 percent of the total industrial assets. Prior to the establishment of the Munitions Ministry in November 1943 there were no less than 345 of those Societies organized and placed under the supervisory control of the former Ministry of Commerce and Industry (22 under Metals Bureau, 75 under Bureau of Chemistry, 31 under Machine Bureau, 96 under Textile Bureau, 99 under Fuel Bureau, and two under Trade Bureau). Since that time many more have been organized. Distribution according to industry in 1943 was as follows: Metal Mining 397 corporations; Coal Mining 215, Metal Refining 134, Machinery 4,844, Cement 68, Trade 880, Rails, 297, Fibre 4,315, Chemical 541, Fats and Oil 329, Rubber 440, Leather 306.

The passage of the ordinance setting up these vertical control societies followed a long struggle between elements in the bureaucracy and among the military and private industry, and represents a compromise whereby private industry was to retain its basic character as such but to be brought under the stricter control

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of the government than ever before. The ordinance provided for the establishment of Control Societies (Tosei-Kai) and Control Associations (Tosei-Kumiai) by kind of industry when designated to do so by the competent minister. They are set up under civil law as joint stock companies. The functions of the Control Societies as defined in Article 6 are broad in scope. They are responsible for planning with the government the national program for production and distribution in the industry concerned, the means of supplying the labor, raw material, capital and any other demands of the industry concerned; for controlling and guiding production and distribution of any of the enterprises belonging to the industry concerned; providing for the complete equipment of the industry, developing the technique, increasing the efficiency, unifying the techniques of production, performing the management, undertaking investigation of the enterprises within the industry and conducting research.*

Officers of a Control Society consist of a president, several directors, several inspectors, and a board of trustees. In some cases two vice-presidents and one chief-director may be appointed. The president represents the Society, controls and guides the Society and manages all the affairs of the Society. His is a very powerful position and that position has usually been held by the head of one of the largest units in the industry as a whole. He is appointed to the position by the competent minister from among those suggested by the nominating committee. The nominating committee in turn is appointed by the competent minister from among those "who have had experience with or have made special studies on the industry concerned" (Art. 14). The president in turn appoints, with the approval of the competent minister, the vice-presidents, the chief-director, the directors and members of the board of trustees. Each board "elects" inspectors who investigate the financial conditions of the Society and advise the president on inquiries submitted to them by the president. With the approval of the competent minister, the president can discharge the vice-president, chief-director and the directors even during their three year term of office. The officers shall not be engaged in other official duties or in commercial business except as the competent minister may allow (Articles 12-16).

Through this autocratic method of selecting officers it is understandable how it has come about that the dominant units, usually Zaibatsu controlled, have been able to control these Societies through their keymen in close cooperation with the ministerial bureaucrats.

*In July 1945, the Major Industries Ordinance was revised to strengthen the Control Society in order to increase their regional administrative autonomy. (See Appendix VI).

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The Control Society may give suggestions about matters related to the industry to the minister concerned with the industry and must give answers to inquiries submitted by the minister. In turn the officers may request from members submission of the necessary material for the investigation of certain points regarding the industry and such material must be submitted immediately (Articles 17, 18). The Control Society may levy assessments and fines on members, establish control regulations governing members, investigate the business affairs, financial conditions, account books, establishments, and other property of members if it is considered necessary. The president may with approval of the competent minister discharge officials of member concerns when an ordinance, or administrative decision based on an ordinance is violated, or the Society's regulations are violated or the public welfare is jeopardized. (Art. 27).

The powers reserved by the Government over the Control Societies are extensive as defined in Articles 31-36. The competent ministers may order business reports to be made whenever they consider necessary or inspect factories, accounting books, documents or other items; they may order the Society to conduct such investigations or order the Society to operate a needed enterprise; they may take over management of the Society itself; they may discharge the presidents and other officers and may dissolve the Societies.

The Control Associations (Tosei-Kumiai) closely parallel in their functions and organization the Control Societies and are subordinated to them. The Societies represent and control the industry as a whole, while Kumiai representing largely medium and small sized enterprises are organized into a Control Association on a territorial basis, i.e., Do, Fu or Ken. They may have as members single proprietors, companies, joint stock companies, industrial or commercial associations, federations of industrial and commercial associations, or mixed combinations in a given industry. They may embrace two or more such administrative divisions. The head of the association is a Chief-Director who is appointed by the president of the Control Society over the same industry. When there is no Control Society, the competent minister appoints a Chief-Director. With respect to certain functions and powers set forth in Art. 50 the government's local prefectural administrative office takes the place of the competent minister. By Art. 51 the Minister of Army or Navy replaces the competent minister when inquiries, reports, inspections, investigations and orders concerned are of direct military importance. This clause was a source of conflicting jurisdictional disputes both within the Government and in the Control Societies. The establishment of the Munitions Ministry in November 1943 was designed to resolve these disputes at the top level. At the operating level the conflicts occurred in the relation of the Munitions Companies to the Control Societies.

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Operationally the major Control Societies have head offices usually in Tokyo with branch offices in the eight regions and sub-branch offices in prefectures where their enterprises are centered.

The Government, in order to exercise control over the Societies issued under Article 16 of the General National Mobilization Law on May 13, 1942, an ordinance which vested in the Ministries the authority to restrict or prohibit the use or transfer of industrial facilities or patent rights held by manufacturing or commercial organizations; to restrict or prohibit sale of enterprises, to order the transfer, by sale or lease, of industrial facilities or patent rights held by companies or juridical bodies and to order companies or juridical bodies to absorb specified enterprises. This ordinance was to apply to both large and small enterprises but to be applied against larger ones only when they show reluctance to comply with government requests for expansion or alteration of their lines of production. The result of this ordinance was to increase the rate of merging or abolishing small and medium sized enterprises.

At the outset the Control Societies under the general supervision of the competent ministers had the responsibility of controlling and allocating materials within their spheres. This, however, led to a chaotic situation in which enterprises were competing for the same materials but in different Societies. There was lacking a uniform allocating system under a priorities rating until the Munitions Ministry was established late in 1943. This development and the increase in the number of Munitions Companies seemed to reduce the dominant role of the Control Societies over the economy as a whole. However, that was not the case and they continued to exercise a useful role of a liaison character and in carrying out the administrative regulations of the government with respect to the control and operation of industry itself. Likewise through their control over the thousands of small enterprises organized into the Tosei-Kumiai they brought their capacities and facilities into relationship with the overall production schedules of the government. In this regard they operated most effectively at the regional and prefectural levels.

In general it can be said that by July 1945, the Control Societies controlled the production and distribution of the products of their respective industries under the regional allocations of the Regional Superintendents-General Offices in accordance with the overall regional allocations granted the region under the General Mobilization Plan of the central government. An ordinance issued July 4, 1945 revised the Major Industries Ordinance of September 1, 1941 for the purpose of strengthening the Control Societies giving them the power to operate and administer as well as exercise general managerial supervision over all members' facilities (See Appendix VI). In so doing however, they were to remain under the general supervision of the Regional Superintendents-General Offices set up in June 1945. The Regional Offices' task

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was to set up supply and distribution quotas for their respective regions and issue allocation certificates under a priority system to the Regional Control Society branches. It is the job of each Society to see that production quotas are met, to allocate production quotas among the enterprises within the Society and to assist the competent minister in determining prices and to distribute the product properly under the allotment certificates issued by the Government. Thus even in case of a through-production plant such as a steel plant it cannot utilize its own ingot or special steels except under an allotment certificate. (For regulations of typical Societies see Appendices VIII-XVIII).

2. Munitions Companies (Gunju Kaisha)

Several years before the outbreak of war in the Pacific in 1941 the Japanese Government, through the Ministry of Commerce and Industry and Army and Navy Ministers, began to extend its control over designated plants of the larger industrial interests to guide them in converting and expanding their facilities for the production of munitions of all kinds. The Army and Navy bought for them with government funds necessary machine tools of all kinds from abroad, placed contracts with them, guaranteed profits, assisted them in getting priorities on scarce materials and labor. They sent their own technicians into these plants and supervised and inspected the output. By the time the war broke out there were over a hundred of such plants and sub-plants producing the most advanced types of ordnance of which Japan was capable, from aircraft to small arms ammunition.

On December 7, 1943, a Munitions Company Law (for summary, see Appendix III) went into effect designed to extend the government's direct control over these plants even further. Since the passage of the act the number of such companies has increased to over 400. The range of activities engaged in by these companies extend from finished aircraft, ordnance, tanks, trucks, through iron and steel manufacturing, chemicals, machine tools, fuels, coal, non-ferrous metals, electric power and gas works. While the ownership of the companies remained private the Government, particularly the Munitions Ministry and the Army and Navy Ministries, virtually managed them.

According to the Article 5 of the Act, the designated companies were "to select a person responsible for production among the officials of the company." If they could not do so the government would appoint a person to that position. The managerial staff and employees would be subject to the orders of the "leader" in charge (Art. 14). The government could punish this designated "leader" for failure to carry out his duties.

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The Government might designate the "time, plans, quantities, and other necessary matters" relating to production schedules (Art. 6). It might issue orders relating to the acquisition, storage and movement of basic materials, to the improvement of technique, the supervision of labor and other matters necessary to carry on the enterprise (Art. 7). It might restrict or ban the Munitions Companies from engaging in other than designated operations (Art. 10). It might issue necessary orders "in connection with the amalgamation or dissolution of munitions companies" (Art. 11). It might "issue orders to munitions companies necessary to effect the adjustment and management of funds" (Art. 12). It might issue orders or take necessary measures for the supervision of munitions companies (Art. 15), and gather, inspect and examine reports on "the business matters of munitions companies (Art. 16).

In return for submitting to these Government controls, the Munitions Companies enjoyed many privileges. The Government might cancel bans and restrictions in regard to procedures for permits, etc., (Art 3). They could thus obtain special priorities with respect to materials, equipment, and capital funds. They could recruit labor and the government could guarantee profits (Art. 4). The Government could back up the absorption of one enterprise by another (Arts. 8 and 9). Under Article 8, the Government might "issue orders necessary for cooperation between the Munitions Company and those (persons) connected with carrying on the operation of cooperating factories and subsidiary factories and other enterprises which the Munitions Company conducts". Under Article 9, the Government might "issue to Munitions Companies orders necessary in connection with the taking over or taking custody of enterprises, the classification (of articles of trust), or changes in the articles or incorporation, the delegation, transfer, or discontinuing or suspension of operations (and) the transfer of equipment or (patent rights) belonging to an enterprise." Administratively these companies were placed under the direct supervision of the Munitions Ministry through the Munitions Superintendence Bureaus set up in the nine (later, after February 1945, eight) regions.

In view of the favored position held by the Munitions Companies, it is natural that doubts arose as to the continued usefulness of the Control Societies. However, they continued to survive, as we have seen above and were given a stronger position under an ordinance issued about July 4, 1945. The relations between the Control Societies and Munitions Companies at the regional level were controlled by the Munitions Superintendence Bureau, which after June 1945, were placed in the Regional General-Superintendents' offices. The principal function of the Regional Superintendence Bureaus (for details see Appendix IV) was to coordinate production with requirements and see that Munitions Companies got their priority quotas of raw and semi-finished materials from the Control Societies and Associations.

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The fact that the large Zaibatsu and other combines had some factories which were designated Munitions Companies and some which were in the Control Societies or Associations together with the general situation that Munitions Companies utilized the materials and semi-finished products produced by them to fabricate end-products reduced the sphere of potential conflict between the two. Furthermore, overall priority and allocations control was concentrated in the Munitions Ministry which continued after the decentralization reorganization of June 1945, to issue basic production and allocation quotas on a regional basis.

3. National Policy Companies

Japan began the establishment of semi-official "national policy" companies in 1881 with the establishment of the Yokohama Specie Bank.* Up to 1939 there were 36 of these companies. Before 1936 these companies were usually concerned with banking communications and colonial and regional development. Two of the most famous in the last named field were the South Manchurian Railway Company and the Oriental Development Company. The first such company to be concerned primarily with the industrial field was the Japan Iron Manufacturing Company established in 1933. Fourteen of these companies were organized between 1937 and 1939, a number of which were designed to expand production of "strategic" materials regardless of cost. These included the Imperial Fuel Development Company, Japan Electric Power Generation and Transmission Company, Japan Rice Company, Imperial Mining Development Company, Japan Aeronautical Transportation Company, Japan Fertilizer Company and the Japan Coal Company.

The government as a rule contributes part of the capital (usually half), permits the issue of debentures up to anywhere from two to ten times the paid-up capital; guarantees the principal and interest on debentures; receives dividends at a

*The general term "National Policy Companies" as used herein and generally elsewhere in reality covers two types of companies, namely, Kokusaku Kaisha (National Policy Companies) and Tokushu Kaisha (Special Companies). The former term refers to large regional development companies such as the Hokkaido Development Company, the Oriental Development Company (for Korea), North China Development Company, etc. These companies usually include subsidiary companies. The Special Companies cover specific commodities or industries. The generic term is justified as the government exercises large measures of control and directly or indirectly and finances them to carry out broad national policies.

lower rate than private shareholders or gives them up entirely when profits are small; grants exemptions from income, profit and local taxes and from import duties on imported materials and equipment for a limited number of years; and sometimes provides subsidies. In general, national policy companies were formed to assure adequate expansion of facilities and materials to meet the needs of the expanding strategic industries and establish to the fullest extent possible and uneconomic autarchic war economy. During the war these companies have continued to enjoy high priority preferential treatment in the supply of materials, equipment and manpower under direct control of the competent Cabinet Ministers. The number of such companies operating in Japan proper has considerably increased since 1941. By 1943, there were no less than 480 of these policy companies operating in Japan proper. (See Appendix XXV for a list.)

4. Eidan or Corporations

The Eidan (possibly an abbreviation of Eigyo Dantai) are state-managed and sometimes partially or wholly government financed corporations established to engage in enterprises and activities which are frequently uneconomic in character, but essential to the war effort such as the importation of vitally needed raw materials regardless of cost, the purchase of vital raw materials within Japan and control of their movement, the purchase of outworn equipment, liquidation of enterprises which, because of their smallness or lack of technical efficiency, are unsuited for war production purposes, construction of housing for war workers, farm development projects, the selling, purchasing, and manufacturing of important food-stuffs, improve medical and hospital facilities, etc. A brief description of a number of these Eidan will give a picture of their functions and relation to the control of the war economy.

(a) Industrial Facilities Business Corporation (Sangyo Setsubi Hidan)

This corporation was organized by the government on December 27, 1942 with an authorized capitalization of 200,000,000 yen. The government issued bonds at a price of 95.9 yen per hundred yen bond to cover this capitalization. The purpose of the corporation was to purchase or transform the equipment of facilities of idle and unfinished industrial establishments under the guidance and authority of the Commerce and Industry Ministry to make them of use for munitions production. With the permission of the government authorities such industrial establishments can be rented out to munitions companies or other concerns for the production of munitions or other essential products. It was provided that Article 16 of the General Mobilization Law could be invoked against owners of such idle and unfinished plants who might be unwilling to sell them or refuse to convert them to war production.

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(b) Essential Materials Supervision Corporation
(Juyo Busshi Kanri Sidan)

This corporation was organized under Law No. 69, dated February 24, 1942, with a capitalization of 20,000,000 yen, supplied entirely by the government (See Appendix XVIII). The purpose of the corporation was, "To guarantee and increase stocks of essential materials in wartime; to provide for efficient and adequate utilization of the stored essential materials". The corporation was to provide for the storage of essential materials either in its own facilities or to order others to do so. It was to purchase locally or through importation essential materials, to stockpile them and sell them under priority allocations to war industries. It possibly took over control of warehoused enemy materials. The Corporation can demand reports on stored materials and inspect books of concerns holding such stocks.

There is no provision for issuing of debentures, nor for covering losses, the government absorbing all losses. Penalties are provided in case of negligence on the part of the corporation's officials. With the establishment of the Koeki Eidan in July 1943, the functions of this organization were absorbed into it.

(c) Regional Trading Corporation (Koeki Eidan)

The Koeki Eidan was established by the Government in July 1943 and placed under the supervision of the Greater East Asia Ministry to centralize, and make more direct than in the past, government control over all export and import trade, to relate that trade directly to the war effort by assuring that the greatly restricted flow of exports be directed to secure essential commodity imports for war industries and to assure that the minimum exports allowed be made available for export and not find their way into the domestic markets. (For details see the Foreign Trade Guide.)

The corporation absorbed the functions of the Essential Materials Supervision Corporation and supervised the over-all Trade Control Society, organized January 27, 1942, composed of 83 companies and 90 guilds (renamed Japan Trade Association May 4, 1942).

One major wartime problem confronting the Japanese was to assure that articles would be made available for export necessary to obtain a return flow of vitally needed imports. There existed within Japan such a vast unsatisfied demand for the same articles for which high prices could be paid that a rigid control, under what the Japanese called the "link system", had to be maintained. The link-system began to develop in 1937 and was designed to link the raw material imports to their finished end-product for export to assure that all the end-products would not be absorbed in the domestic market. This was done by designating certain factories to produce the end-products for export and allocating raw material imports to them accordingly. This practice was continued after the war started as evidenced in regulations on articles for exportation issued March 5, 1942 (see Appendix XXII).

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Undoubtedly the Koeki Eidan continued to operate the link system to obtain the same objectives. As M.G. may be faced with the same problem, a description of the link system as it worked before the war has been appended to this guide. (See Appendices XXIII, XXIV.)

With the establishment of the Koeki Eidan (Koeki may be translated as Regional, or Zonal, i.e., greater East Asia Sphere trade) Japan further abandoned liberal trading principles and set up a virtual state controlled trade (See Appendix XXI). In order to simplify control the number of persons and firms engaged in export and import "barter" trade numbering over 6,000 in 1942 was reduced to 600 by the end of 1943. The Koeki Eidan operated in cooperation with a number of associations to which most of the remaining 600 firms belonged. These associations served as agents of the Eidan. Export firms which exported more than five kinds of goods exceeding an average value of 5,000,000 yen during the years 1941 and 1942 were allowed to continue business. All others were to be merged according to order from the greater East Asia Ministry under whose supervision the Koeki Eidan operated.

The minimum yearly turnover of importers was also fixed at 5,000,000 yen. Importers who did not achieve this minimum in the past were not allowed to merge but were compelled to give up the import business. They received up to 100,000 yen compensation paid either by the exporters' guilds or by the Koeki Associations (Koeki Kyokni) organized into the Japan Trade Control Society. This latter society was reported to have established a Regional Trade Adjustment Committee consisting of 39 members divided into 19 sub-committees according to kind of goods to be exported and one sub-committee dealing with imports. The Committee was entrusted with handling imports, conducting research, giving necessary advice, and answering questions asked by the government.

The scope of the powers of the Koeki Eidan was broad. It had control over the import and export of commodities and the purchase and sale of same in connection with their import and export. It was responsible for warehousing, controlling the movement, purchasing and selling certain imported vital war materials. It could engage in auxiliary activities as the need arose related to the above activities. It also had the responsibility for adjusting commodity prices in the Greater East Asia Co-Prosperity Sphere. It was to carry out its trading function and vital resources control function in accordance with an annual plan laid down by the government subject to readjustment every three months in accordance with the changing supply and demand situation. It might allow other legal persons or institutions to carry out a part of its business with the approval of the government. In that case the corporation or institution which participated was considered as the part of the staff of Midan. When the organization was first established 687 articles

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were designated for import. Later the list was lengthened. Exclusive of rice, wheat, tobacco, charcoal and salt, ranged all the way from iron and coal down to towels and shoe-strings. The export business was carried on in two ways: (1) Direct export by the Eidan, (2) Export by entrusted export organizations. Such entrusted organizations were the Japan Controlling Company for Grocery Trade, Japan Export Promotion Company for leather products, the respective Japan Export Associations for Brushes, for Textile Materials, for Furs, for Tea, for Agricultural Products for Greens and Fruits and for Marine Products. The import business was either carried on directly or by entrusting persons to carry it on. Regions covered were Kuantung, Leased Territory, Manchuria, China, Thailand, French Indo-China, Germany and Italy. The Southern Regions under Military control were excluded.

Its control over vital resources covered: (1) iron and steel, raw materials, for iron and steel, and iron and steel products, (2) non-ferrous metals, their raw materials and products, (3) textile products and raw materials, (4) medicine, medical instruments and other materials for hygienic purposes; and (5) other materials as designated by the appropriate ministries. To carry out this function a section on control and planning was set up in the planning department of the organization.

The Eidan had the function of purchasing unutilized raw materials in one factory and moving it to another as needed.

It had the responsibility for purchasing and ware-housing and conserving materials needed for emergency relief such as lumber, galvanized sheeting, nails and also medicines.

Certain vital materials such as coal, cotton and bauxite were put in charge of the respective Control Societies of the industries utilizing them but the Eidan had continued supervising control over their disposition.

It had control over such stocks of materials and commodities assigned for export when war broke out as still remained in Japan.

It purchased and controlled luxuries, confiscated enemy goods, artificial silk pulp and raw rubber.

It had control over enemy properties.

Its auxiliary business consisted of the management of warehouses in which the commodities under its control were stored; supply of materials for manufacture of goods for export and providing loans.

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It thus plays a role roughly parallel to the Foreign Economic Administration, the U.S. Commercial Company, and the Alien Property Custodian in the U.S.

Among the other Eidan was one to provide housing for civilian workers. It was established May 1, 1941, with an authorized capitalization of 100,000,000 yen, 56,723,640 yen of which was paid up by 1943 all by the government. The headquarters were Tokyo with a branch office in Yokohama, Osaka, Nagoya, Hiroshima, Fukuoka and Sendai. Another was the Central Food Administration Corporation established September 1, 1942. The authorized capitalization was 100,000,000 yen, of which 30,000,000 yen was invested by the government. The purpose was to control the preservation and distribution of food under government direction. It had branches in Otaru, Sendai, Nagoya, Osaka, Kobe, Takamata and Moji and field offices located in Niigata, Toyama, Mito, Yokohama, Shizuoka, Kyoto, Okayama, Hiroshima, Nagasaki, Kumamoto, Kagoshima, and Taihoku. In addition there was an Eidan governing local food administration with offices in each prefecture and metropolitan area.

This completes the descriptive survey of the major governmental and quasi-governmental agencies exercising economic controls at the national level. There should, however, be mentioned in passing the various and frequently changing Cabinet advisory boards and councils in which the representatives of the largest industrial combines found a place. Their existence represents an effort to compromise the conflicts which arose among the bureaucrats; the military and industrialists. Through these advisory councils and through the positions held in the Cabinet by representatives of the combines, the big industrialists have retained a position of influence in the formulation of policy and its administration. In addition there existed a number of industrial councils made up of representatives from industry who advise the various ministries and assist in the coordination of production program.

III. Controls at the Regional Level

The development of the administration of economic controls at a regional level began in June 1943, when Japan proper was divided into nine administrative regions. The purpose at that time was to simplify administration by eliminating the excessive bureaucratic red-tape and jurisdictional conflicts

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which arose out of the exercise of controls at the level of the 47 little prefectures under which the country had been administered since the latter half of the past century. At the same time the "Presidents" of these nine regions were given rank equivalent to that of a Cabinet Minister and were to report directly to the Premier. The ultimate aim was to develop regional economic self-sufficiency for war purposes.

In February of 1945 the number of regions was reduced to eight, by which time they coincided exactly with the six military districts into which the country was divided - one of the military districts, called the "Central District", containing three of the administrative regions. On June 23, 1945 this Central Army District was divided into three parts exactly along the lines of the three administrative regions formerly located within it. Thus by that time the eight Army Districts coincided with the eight Regional Districts and were called by the following names: Hokkai, Tohoku, Kanto-Shinetsu, Tokai-Hokuriku, Kinki, Chugoku, Chikoku, and Kyushu. (For a list of the prefectures included in each region and the name of the head city where the regional administrative control offices are located, see Appendix I).

In June 1945 the Government, under the imminent threat of invasion, laid the basis for the extension to the eight regions administrative autonomy in the event any one or more of them should be cut off from contact with the central regime. On June 10th the regional administration offices were reorganized into Regional General Superintendents-General Offices with a Superintendent-General in charge of each. The personnel of the offices began to be strengthened by transferring officials from the Ministries to these Offices. The basis for the authority of these Offices was provided for in the Extraordinary War Measures Bill passed on June 12. Under this Bill the Diet surrendered to the Government, its powers for the duration of the war. In the bill the term "Government" was defined to include the new Regional Superintendents-General. The powers conferred under this Bill were total in scope and subject only to an Imperial check. Unlike the National General Mobilization Law, first passed in 1938, the Bill provides for unlimited power to be exercised by the Government which can exercise its powers not only through the issuance of Imperial decrees but through Ministerial ordinances and regulations. These same powers can be exercised by the Superintendents-General in case of emergencies. All previous legislation, ordinances and decrees can be set aside insofar as the Government determines to do so and new

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regulations and controls established. The broad powers thus potentially conferrable on the Regional Superintendents-General have been set forth above.

The regional Munitions Superintendence Bureaus were retained and incorporated into the structure of the new Superintendents-General Offices. The regional Munitions Bureaus were originally set up by the Munitions Ministry and were designed to supervise over-all production programs at a regional level. Their function was to supervise and coordinate production programs among the Munitions Companies within each region and to coordinate the production of the members of the Control Societies within the region to that of the Munitions Companies, depending upon them for raw materials and semi-finished products. Under the re-organization of June 1945 they will not only exercise their former functions, but also will exercise broader controls undoubtedly as the war goes on. An indication of this is seen in a Tokyo broadcast to the home audience in June 1945 to the effect that the control over the disposal or purchase of special ores and ferro-alloys formerly exercised by the Munitions Ministry will henceforth be carried out in accordance with distribution regulations of the local Munitions Superintendence Bureaus.

To serve in an advisory capacity to the Regional Superintendents-General it was proposed in June that in addition to the members of the prefectural and other local administrative councils, that members of the Diet living in a region and other leading individuals be organized into a Council.

It is apparent that the trend toward decentralization had by June 1945 placed in the hands of the regional authorities responsibility for directly controlling war production programs under over-all plans laid down in Tokyo by the Cabinet in general and the Munitions Ministry in particular. This is of significance to M.G. in their own planning as the utilization of this same regional basis for the administration of their own programs and the subordination of prefectural controls to regional controls would serve to simplify the problems of coordination which will arise.

IV. Controls at the Prefectural and Municipal Level

While the operational controls exercised at the regional level largely concerned themselves with the production of war materials those at the local administrative level were related to the production of food and civilian commodities in

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general required to meet the minimum needs of the people as a whole. Such controls were of course exercised under the direct supervision of responsible Ministries in Tokyo. (For details on the administrative organization and functions of local government, see Civil Affairs Handbook; Japan, Section, 2 A and 2 B, Government and Administration- Local Government). The trend toward decentralization outlined above with respect to the regions likewise affected the responsibilities of the local administrative units. In May 1944 many functions formerly exercised by the central government were delegated to the prefecture. The Home Ministry transferred 51 functions including the right to authorize the construction of public utilities costing less than 100,000 yen, the rights to authorize improvements of rivers, bridges, and urban dwellings, etc. The Munitions Ministry transferred controls over the acquisition of raw materials and production of goods peculiar to certain local regions, while the Agriculture and Forestry Ministry transferred supervision over crop improvements and local marketing facilities.

In general the major aim was to allow the prefectures greater freedom to cooperate with the regional administration in developing regional self-sufficiency in supplying the needs of the people and maintaining public services. In order to coordinate the functions of the various prefectures in a region with that of the regional administrations, local and regional Administrative Councils were set up in March 1944 including representatives from the local monopoly bureaus, local fuel bureaus, local communications bureaus, railway bureaus, Marine transportation bureaus and mines superintendence bureaus. The chiefs of the Munitions Superintendencies became members of these Councils at that time.

To draw the small and medium-sized local commercial and industrial interests closer into the net-work of controls a law was promulgated on March 12, 1943, setting up Commercial and Industrial Economic Boards in order to supervise and control their activities under the "leadership principle". (See Appendix XIX, XX). As the Boards were set up the former Chambers of Commerce and Industry were abolished. The new Boards were to be more broadly representative of local interest than the former Chambers whose membership was confined largely to the urban areas. The Boards were to assist local authorities in coordinating local production programs and to supplement the vertical controls exercised by the Control Associations and Societies by horizontal controls extending across all lines of production. However the Boards exercised