2789

Copy No. 34
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DEPARTMENT OF JUSTICE

WAR DIVISION

ECONOMIC WARFARE SECTION

DR. FRITZ HANSGIRG:

MEMORANDA CONCERNING INTERVIEWS

ON MAGNESIUM IN JAPAN

AND MAGNESITE IN AUSTRIA

June 30 and July 1, 1942

Submitted by: Lyle L. Jones, Jr.
Economic Warfare Section
Department of Justice
St. Louis, Missouri

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War Division
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Washington, D. C.

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June 30 and July 1, 1942
Re: Dr. Fritz Hansgirg -
Memoranda concerning interviews on Magnesium in Japan and Magnesite in Austria
Submitted by: Lyle L. Jones, Jr.
Economic Warfare Section
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DR. FRITZ HANSGIRG - MEMORANDA CONCERNING INTERVIEWS ON MAGNESIUM IN JAPAN AND MAGNESITE IN AUSTRIA

INTRODUCTION

Magnesium production in Japan is estimated at between 7000 and 8000 tons per year, in May 1940, when informant left Japan. In 1936, 3000 tons were produced. Informant estimates that today Japan produces about 10,000 tons.

Japanese magnesium production comes from three plants; Nippon Magnesium Metals Corporation at Konan, Korea, Japanese Manchurian Magnesium Corporation at Ube, Kyushu, and Manchurian Light Metals Corporation at Fushun, Manchukuo. Informant estimates that the first makes about 30% of the total supply, the second about 50% and the last about 20%.

Information is also given on four magnesite companies in Austria; the Austro-American Magnesite Company, Veitsch Magnesite Company, Styrian Magnesite Company and Alpine Montan Gesellschaft.

MAGNESIUM IN JAPAN

A. NIPPON MAGNESIUM METALS CORPORATION, LTD. (Nippon Magnesium Kinzoku, K. K.)

1. Organization

This company was founded by American Magnesium Metals Corporation, 800 Ohio Street, Pittsburgh, Pennsylvania.(*1) and Nippon Chisso Fertilizer Company, Osaka, Japan. (*2) It is owned one-third by the former, two-thirds by the latter. It has one plant, located at Konan, Kankyando, Chosen (Korea).

(*1) American Magnesium Metals Corporation is owned by the heirs of the late Emil Winter. They are actively represented by Dwight Winter, 800 Ohio Street, Pittsburgh, Pennsylvania.

(*2) Nippon Chisso Fertilizer Company's principal stockholder is Mr. Jun Noguchi, a prominent Japanese industrialist who controlled 200,000,000 yen worth of chemical and manufacturing concerns. He is a self-made man, not connected with the big Japanese industrial families, such as Mitsui, Mitsubishi, etc. The principal plant, or collection of plants, was Chosen Chisso Hyrio at Konan, Kankyando, Chosen.

(OVER)

2. Government Control

Informant built this plant for civilian use. Construction began in 1935. In 1937, the Japanese War Ministry began to exercise control over the plant. Visits of high army and navy officials were frequent, but informant was never permitted to meet them. No permanent military personnel was present at the plant. The sole interest of the military seemed to be the requirement that the entire output be sold to the army and navy. In 1939, a law was passed which prohibited civilians from sending out reports about the production and operations of aluminum and magnesium plants. The penalty for violation of the statute was imprisonment up to twenty years. Informant, to get around this law, kept his principals in Austria and the United States informed through the German and American Consuls, respectively, who sent reports for him in the diplomatic pouches. In February, 1940, when informant, a vice-president of the company, wished to visit the plant, he had great difficulty in obtaining permission for the visit.

3. Description of Plant

Informant's sketch of the layout of the magnesium plant is attached hereto as Exhibit A. The plant, as a whole, occupies an area of somewhere in the neighborhood of three hundred by four hundred feet. The Rotary Kilns building is about 450 x 50 or 60 feet in area. The Grinding Installations building is four stories high, and about 50 x 70 feet. The Reduction Furnace building contains no floor levels, but is about the height of a four story building. It is about 60 x 150 feet in area. The Dust Presses and Retort building has one section about 50 x 70 feet and 90 feet high (*3). Connected to the retort section, is the fabrication plant, which is about 100 x 70 feet and 45 feet high. The Wool Bag Filters are enclosed in steel tanks, which are not in a building, but are under a roof. There are 18 such tanks, under a corrugated iron roof. All the roofs on the other buildings are of concrete slab construction.

Stock piles of magnesite of about ten thousand tons are maintained at the Konan magnesium plant. The location of the stock pile is marked on Exhibit A. Reserve stock piles are located at the mine. Before informant left, there was talk of building another calcination plant on the small harbor near the mine. Whether or not this was ever done, is not known.

Nippon Magnesium had no subsidiary companies. Informant built a rolling mill and extrusion press adjacent to the magnesium plant while he was at Konan. (*4) A tryout of these fabricating facilities was only begun when the War Ministry ordered that it not be used for magnesium fabrication, but that all magnesium be shipped out. This plant was then used by Chisso to

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(*3) This retort building is a land mark indicating the location of the magnesium plant. It is by far the highest building in the Konan Industrial area.

(*4) The extrusion press was built by Watson and Stillman of New Jersey; the rolling mill by Skoda of Czechoslovakia.

fabricate lead for the internal use at the adjacent chemical plants. It manufactured lead pipe, sheet, etc.

4. Process of Manufacture

The August or September 1941, issue of Chemical and Metallurgical Industry accurately described the process used at Permanente in California. The process used at Konan was exactly the same as that used at Permanente, with two exceptions: (1) In Korea, the magnesium dust is pressed into tablets without a binder and in Permanente the magnesium dust is baked with hydrocarbon oils without pressing; (2) At Permanente, natural gas is used to cool the furnace gas, in Korea, hydrogen is used.

A brief description of the process follows. Dead burned magnesite is finely ground, mixed with anthracite or charcoal and a tarry binder, then pressed into briquets. The briquets are continually charged into a closed electric arc furnace (*5), in which a temperature of about 4000° F. is maintained. The carbon in the mixture reduces the magnesium oxide to magnesium vapor and carbon monoxide. (*6)

Around the discharge hole for this gaseous product (Mg+Co) is arranged a set of nozzles. A large amount of gas (*7) is blown through these nozzles into the discharged furnace gas. This causes a sudden chilling from 4000° F. to 350° F. and the magnesium metal is recovered as an extremely fine powder. The quick chilling prevents a back-reaction (*8). This magnesium powder is suspended in the stream of hydrogen or natural gas and is filtered out of the gas by means of wool bag filters. The carbon monoxide is removed from the hydrogen by a chemical wash process and the pure hydrogen is then reintroduced into the process. (*9)

The magnesium dust collected in the filters contains all of the impurities originally in the magnesite and also some back-reacted material (MgO + C). To recover pure metallic magnesium, this dust is pressed into tablets and these tablets are charged to a retort, heated under high vacuum in an electric furnace to 2500° F. At this temperature, pure magnesium vapors evaporate from the charge, and the pure metal crystallizes on the cooler top of the retort. (*10) After the retort is cooled, the metal is removed as a solid crystallized ring. The ring is melted in ordinary gas fired crucibles and the metal is cast into ingots in the usual way. The residue from the retorts (MgO + C) is added to the first reduction step and briquetted again.

(*5) Each reduction furnace at Konan has a capacity of 1000 tons of metal per year. Permanente's one reduction furnace was designed for 3500 tons per year; 2500 had been reached at the time of informant's detention.

(*6) $MgO + C \longrightarrow Mg + CO$

(*7) In Korea, hydrogen; In Permanente, natural gas.

(*8) $MG + CO \dashrightarrow MgO + C$

(*9) At Permanente, the natural gas containing the carbon monoxide is used as a fuel in the cement kilns there, so that no washing plant is needed.

(*10) Such a retort has capacity for the recovery of one ton of metal in three days. There are eighteen such retorts installed at Konan.

(OVER)

5. Capacity

The total capacity for the production of magnesite at Konan is 40 to 50 tons per day. In 1940, they did not use this much, however, and normally ran the rotary kiln for three or four weeks, then stopped it for a month. This alternate use gave the plant enough magnesite to keep the magnesium furnaces going continuously. The total magnesium capacity at Konan was, in May 1940, 2000 tons per year. Nine retort furnaces were operating then. An additional nine retort furnaces were under construction at that time.

The plant at Konan, informant estimates, produces about 30% of Japan's entire production of magnesium about 10% of its production of magnesite.

6. Employees

About two hundred persons are employed in the magnesium plant at Konan.

7. Magnesium Oxide

The rotary kiln has a capacity of 50 tons of dead burned magnesite a day. Informant was told that the company planned to install additional shaft furnaces with a capacity of another 40 tons a day. Of this original capacity, some 25 to 30 tons were sold as magnesite, the balance used for making metallic magnesium. The part that was sold as magnesite was sold to steel mills in Osaka and shipped there by boat. Informant thinks the magnesium metal was probably shipped to Osaka too.

8. Adjacent Industrial Area

Informant's sketch of the Konan industrial area, of which the magnesium plant is a part, is attached hereto as Exhibit B. The Konan industrial area (all owned by Chisso) extends for one mile along the beach. Industry here consumes 350,000 kilowatts of electricity.

In the plants in this region are manufactured aluminum, synthetic ammonia, hydrogen, carbon electrodes, nitric acid, sulphuric acid, phosphate fertilizer, potassium fertilizer, dynamite, smokeless powder, ammonium sulphate and copper sulphate, and there is a metallurgical department with lead smelters, copper smelters, silver and gold smelters and copper electrolysis. Harbor facilities include one pier which accommodates 10,000 ton ships.

Five miles from this Konan industrial area (in the direction of Kanko) is the Hongu industrial area. Informant's sketch of Hongu is attached hereto as Exhibit C. Here are located plants producing calcium carbide, soda ash, calcium cyanamide, synthetic ammonia and fish oil.

This area (Konan and Hongu) was by far the most important industrial area in Korea, informant states. The Antung region may be equally important today, he believes, as steel works were planned for that city.

9. Vulnerability and Military Protection

As pointed out in note *3, the retort building marks the magnesium plant. Two tall smokestacks, possibly 200 feet high, stand on a hill near the

shore. See Exhibit B. Leading from the industrial plants to these stacks are two concrete ducts about 150 feet long.

If the wool bag filters unit of the magnesium plant is bombed, the entire plant will probably be destroyed. The wool bags are filled with magnesium powder, and the powder will explode upon contact with the air. Large pipes of hydrogen lead into these filters, which would catch on fire. This fire could not be extinguished until the hydrogen was shut off at the source, which would take some time. In the meantime, adjacent buildings would be set on fire.

Informant has actually seen one anti-aircraft installation (one gun) near the flagstaff at the top of the hill. See Exhibit B. He did not see any searchlight installations. It was rumored that the nearby hills had additional anti-aircraft installations on them, but he has not seen them.

There is a civilian airfield at Hongu and a military airfield at Kanko. Gensan, 50 miles down the coast, is a naval base and is heavily fortified.

10. Power Supply

There are three large dams up on the hills inland from Konan, which serve as the base for the hydro-electric plants which serve this industrial area. The dams are from 10 to 20 miles from Konan, and back water up into artificial lakes about five miles long. They discharge their water through tunnels which go through the hills into the Kanko River. Informant's rough sketch is attached hereto as Exhibit D. Along the tunnels, at various levels, are some six or seven hydro-electric power stations. These stations are on the Kanko side of the ridge of mountains through which the tunnels run, i.e. the opposite side from Konan.

An alternate supply of power, which could be used in case these stations were destroyed, is the Yalu River installation. A large, new hydro-electric plant has been built on the Yalu River and a power line extends from Antung on the Korean-Manchukuoan frontier to Kanko. Konan can switch power from this line if necessary. The Yalu River installation was financed 50% by Chosen Chisso and 50% by South Manchurian Railway.

11. Water Supply

The Konan industrial area obtains its water supply from the Kanko River pumping station. There is also a pumping station at Hongu which takes water from a small channel there. Informant can locate the pumping stations and reservoir on a map.

12. Railways

Konan is on the main line of the Korean Railroad from Keijo to Seislin and Rashin on the Siberian border. It is a single track road. The Konan industrial area is interlaced with industrial tracks and switches, and the railroad runs on to the pier. There is only one switching point where these industrial tracks feed into the main line. That switch is located near the Konan station about 1/2 mile from the industrial plants. It is located on Exhibit B.

(OVER)

13. Highways

Konan and Kanko are connected by a first class two-lane paved highway. An industrial road runs along the plant district and crosses the railroad at grade. This is shown on Exhibit B. There are no other roads except a few native roads which are more nearly paths.

14. Raw Materials

Magnesite is mined from one of the world's largest deposits about 150 miles north of Konan in the Korean Mountains. 300,000,000 tons are visible, and an estimated 1,000,000,000 tons are available there. The mine is owned by Nippon Magnesium. Informant has not been to this mine, but will point out its location on a map. The deposit is at an elevation of about 3500 feet, and the ore is hauled down the mountain by cable car to the main line of the Korean Railroad, over which it is shipped to Konan. Should this railroad be destroyed, it would be possible to ship the ore by boat, but informant believes that only ships of shallow draught could enter the harbor near the magnesite deposits. (*11)

B. JAPANESE MANCHURIAN MAGNESIUM CORPORATION
(Nichiman Magnesium K. K.)

1. Location

Nichiman has a magnesium plant located at Ube, Kyushu, Japan. Ube is on the coast just south of Yawata.

2. Type of Plant

Informant does not believe that Nichiman has a fabrication plant connected in any way with its magnesium plant. In May 1940, the plant had a capacity of 5000 tons. There was some talk of building additions to the plant, but whether or not this was ever done, informant does not know.

3. Process

The electrolytic process is used. Anhydrous magnesium chloride is made and production of this is only sufficient for the plant's metal capacity. The oxide stage is not reached in using the sea-water process.

The process used at Nichiman differs from the Dow process in that Dow uses salt water directly, whereas at Ube they use salt bitterns.

4. Strategic Bottleneck

If the rectifiers in the Nichiman plant could be destroyed, the balance of the plant is useless. Informant cannot locate the rectifiers however. He states that these rectifiers would be extremely difficult to replace, and their destruction would knock out the entire plant.

(*11) Phosphates for the chemical plants used to be shipped in from Florida. Alumite for the aluminum plant was obtained from a mine in Southern Korea.

5. Surrounding Area

Ube has many industries, although it could not be considered an important industrial center. Yawata is vastly more important.

Note: Informant has never seen this plant and his knowledge of industry on the Japanese mainland is extremely limited.

C. JAPANESE MAGNESITE CHEMICAL INDUSTRY CORPORATION
(Nippon Magnesite Kogaku Kogyo K. K.)

This company does not manufacture magnesium or dead burned magnesite, but is solely a producer of ore. Its mines are located at Tashichao, Manchukuo, about half way between Dairen and Mukden.

The ore is high-grade, running between 90% and 92%. Chinese hand labor is very cheap, so the company uses coolies to pick out the high grade pieces.

This company is the principal producer of magnesite for the Showa Steel Mills in Anshan (sic). (See letter from Hansgirg to Riley appended to this report.) The magnesite company and Showa Steel are closely connected with the South Manchurian Railway and Heavy Industries Development Corporation.

D. JAPANESE MAGNESIUM CORPORATION & JAPANESE MAGNESIUM INDUSTRY CORPORATION
(Nippon Magnesium K. K.) - (Nippon Magnesium Kogyo K. K.)

Informant has never heard of either of these companies. However from the word "Kogyo" (the latter company) he thinks it quite possible that this is the corporate name of the magnesium plant at Fushun, Manchukuo, described hereinafter under "Manchurian Light Metals Corporation."

E. MANCHURIAN LIGHT METALS CORPORATION

1. Corporate Structures

Manchurian Light Metals Corporation was originally owned by the South Manchurian Railway Company, but was later turned over to Heavy Industries Development Corporation. Light Metal built an aluminum plant at Fushun, about 50 miles southeast of Mukden (*12). In the spring of 1940, construction was begun on a magnesium plant, which informant understood was to be built on the Light Metal Corporation's property at Fushun (*13).

2. Location

The plant was to be located on the property of Light Metals Corporation, on the left side of the tracks before coming into Fushun from Mukden (*14). Informant will locate the plants on a map.

(*12) The aluminum plant was completed in 1938 and had a capacity of 6000 tons. It was just about finished when informant viewed this property.

(*13) This plant is probably Japanese Magnesium Industry Corporation (Nippon Magnesium Kogyo K. K.) See "C".

(*14) This is a branch line single track railroad running from the main line at Mukden and terminating at Fushun.

(OVER)

3. Process

The carbide reduction process was to be used.

4. Capacity

The magnesium plant was originally planned for a capacity of 1000 tons; it was later changed to 2000 tons annually.

5. Water Supply

Water for the plant at Fushun is pumped from a small river located nearby. Water is very scarce, and to conserve it, it is recycled through the plant. Informant does not know the location of the pumping stations there.

6. Vulnerability

In the Fushun plant, which uses the carbide reduction process, there is no strategic point similar to the filters at Konan and the rectifiers at Ube. The magnesium plant is only a grinding installation and a retort plant, with no bottlenecks.

7. Adjacent Plants

In the Fushun area are oil shale distillation plants and hydrogenation plants for the manufacture of high-octane gasoline (*15). Also nearby is a power plant, operating on coal, which furnishes power to the industrial plants in this section. There are no other plants at Fushun except the installations at the coal mine there, which is the largest strip coal mine in the world.

At Mukden is a much more important industrial area containing arsenals, pump factories, railroad shops and yards. Informant has visited Mukden, but has not been through any of these plants. He understands that there has been a great deal of industrial building there in the past five years.

F. SOUTH MANCHURIAN RAILWAY COMPANY

From 1937 to 1940 informant was chemical advisor to this company and was stationed at the Central Laboratory in Dairen. The laboratory employed 300 chemists.

His duties were principally to advise them regarding a new process he had discovered and patented to manufacture oil from calcium carbide.

MAGNESITE IN AUSTRIA

A. AUSTRO-AMERICAN MAGNESITE COMPANY

1. Corporate Organization

Austro-American Magnesite Company, known after Hitler's invasion of Austria as Austrian Magnesite Company, was owned entirely by the late Emil

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(*15) There is a 20 foot vein of oil shale on the surface here; under it is coal. The oil shale is distilled to obtain the 6% of oil it contains.

Emil Winter, 800 Ohio Street, Pittsburgh, Pennsylvania. Its plant is located at Radenthein, Carinthia. Informant left there in September 1934, and has visited it but once since, in July 1939.

2. Description of Plant

The Radenthein plant lies in a small valley between the Lake of Millstadt and the town of Villach. Informant will point out the exact location on the map. The plant occupies an area of about 350 x 800 feet. Attached hereto is Exhibit E, a sketch of the plant drawn by informant. The plant is four miles up the valley from the Lake of Millstadt, is the only plant in the valley and the white smoke from the smokestacks can be seen from a great distance.

3. Process

Magnesite is calcined in a rotary kiln, and dead burned magnesite is chemified with sieving equipment. It is then pressed into bricks and burned again on cars in a long tunnel furnace. The rotary kilns are fired with coal dust and the bricks were burned with producer gas. Hydrogen is not used, but the company has a small hydrogen plant connected with the property.

4. Products and Capacity

Austro-American manufactures dead burned magnesite, caustic magnesite, magnesite bricks and chrome magnesite bricks. Informant estimates a capacity of 150,000 tons per year of dead burned magnesite and about 50,000 tons of all kinds of bricks. The caustic magnesite is a separate product and the plant has a capacity of about 30,000 tons per year. These figures represented the capacity in 1934 and 1939, and because of certain conversations with Mr. Winter in the summer of 1940, informant believes that they also represent the present capacity. The company did not manufacture ordinary fire clay brick.

This magnesite production represented about 45% to 50% of Austria's total capacity. The company employed about 300 workers.

5. Sales

The product is sold throughout the world. Radenthein, together with Veitsch and Styrian, were the principal members of the cartel, which had its headquarters in Basle, Switzerland. The cartel handled sales for all three companies.

The smallest market was the United States because of the high tariff. However, some 20,000 tons per year were shipped to this country.

6. Power and Water

The power supply comes from the plant indicated on Exhibit E. There is another power house, giving 2000 H.P. in Radenthein, about two miles away. Radenthein is not a village in the ordinary sense, but merely a scattering of houses on the mountainside.

The water supply comes from a tunnel which passes through the power house shown on Exhibit E. The water originally comes from small streams higher up in the mountains.

(OVER)

7. Cable Railway

The cable railway, shown on the diagram is the only means of ingress or egress. Coal is brought in on this cable car; the finished product is shipped out over this route. The magnesite is brought to the plant in this way, from the mine about five or six miles away.

B. VEITSCH MAGNESITE COMPANY

1. Ownership

Veitsch was owned by Schneider-Creusot of France and by Vereinigte Stahlwerke of Duesseldorf, but is probably now part of the Herman Goering Werke.

2. Location and Size

Veitsche has many small magnesite plants scattered through the Styrian Alps. Its main magnesite deposit is on the Veitschalp, and the principal plant is at Trieben in the Enns Valley. Veitsch produces about 45% of Austria's magnesite. It employs about 400 workers and has a capacity of about 100,000 tons.

3. Adjacent Area

In northern Styria there is little industry besides the magnesite plants, the Donawitz Steel Works near Leoben and the iron mountain mining installations at Eisenerz. If the Eisenerz mining installations could be destroyed, Germany would be deprived of 30% to 50% of its iron ore.

C. STYRIAN MAGNESITE COMPANY

1. Ownership

The ownership of Styrian was entirely Jewish. It is probably now part of the Herman Goering Werke. It was formerly owned by Montana Mining Company. Two principal stockholders are named under "Additional Leads".

2. Location and Size

Styrian Magnesite Company has a plant at Leoben on the River Mur, near the Donawitz Steel Works. It employs about 200 workers and accounts for about 10% of Austria's magnesite production. Its capacity is between 10,000 and 20,000 tons.

3. Process

Most of Styrian's production is in the form of caustic magnesite. Its process is much the same as Austro-American's, except that it uses shaft furnaces instead of rotary kilns.

It also manufactures clay fire bricks. For this it uses ordinary round kilns, (Mendheim ring furnaces). It does not use hydrogen.

4. Miscellaneous

Electricity is supplied by the general Styrian power lines. Water comes from the town of Leoben. Shaft coal mines are nearby.

From Leoben, there is a railway and an asphalt highway which run past the plant and on out to Donawitz. There are few other industries in this area, other than the Donawitz Steel Works. Informant will locate tunnels on the nearby railroads when maps are furnished.

D. ALPINE MONTAN GESELLSCHAFT

This is a large steel company which produced magnesite, both dead burned and bricks, solely for its own use.

(OVER)

SOURCE

Dr. Fritz Hansgirg left Austria, where he was associated with the Austro-American Magnesite Company at Radenthein, in September 1934. He has been back only once, in July 1939.

He spent five years in Japan, mostly in Korea and Manchukuo, from 1935 to May 1940 when he came to the United States.

He was vice-president of the Nippon Magnesium Metals Corporation, Ltd., in Korea, and chemical advisor for the South Manchurian Railway Company from 1937 to 1940.

He was connected with Permanente in California until his internment in Stringtown, Oklahoma.

LEADS

1. Dwight Winter, 800 Ohio Street, Pittsburgh, Pennsylvania. He is the son of Emil Winter, who owned Austro-American Magnesite Company, Radenthein, Carinthia, and who owned 1/3 of Nippon Magnesium Metals Company, Ltd. at Konan. Dr. Hansgirg believes that Dwight Winter has accurate information and many photographs of the Radenthein plant, and may have some pictures of the Konan plant. His counsel are Chadbourne, Wallace, Park and Whiteside, 25 Broadway, New York.

2. Mr. Citrin was formerly manager of Styrian Magnesite Company and should have accurate information and an intimate knowledge of the plant at Leoben. He is a refugee now living in New York. His full name and address can be obtained from Dr. Hansgirg's secretary, Mrs. Helen Williams, P. O. Box 29, San Jose, California.

3. Dr. Arthur Netter was formerly one of the principal stockholders in Styrian Magnesite Company and should be familiar with its operations. He was formerly of Ludwigshafen, Mannheim, Germany, and is presently a refugee living somewhere in Canada.

4. Dr. Moritz Hochschield was also formerly a large stockholder in Styrian and still is a prominent operator of copper enterprises in Chile. He has an office in Antofagasta and is believed to have another office in London.

5. Ambrose H. Reilly, Jr., P.O. Box 964, Oklahoma City, Oklahoma. He is an agent of Military Intelligence who interviewed Dr. Hansgirg on June 11, 1942. He examined Dr. Hansgirg upon similar topics.

6. Technical Journals. Chemical Abstracts, particularly between 1930 and 1935, probably contain articles on Austro-American, Veitsch and Styrian. One of the journals, probably "Iron Age" or "Pit and Quarry", contained an illustrated article on Austro-American in an issue believed to have been in 1933.

APPENDIX A

EXHIBITS A. TO E. INCLUSIVE

EXHIBIT A.

SKETCH OF MAGNESIUM PLANT AT KONAN
SHOWING Extrusion Press and Rolling Mill Building,
Retort Hall,
Tablet Press Building,
Wool Bag Filters Installation,
Electric Reduction Furnace Hall,
Milling and Briquetting Plant,
Rotary Kiln Building,
Stockpile of Magnesite.

Note that the shore of East Chosen Bay is off the right of the sheet, the Aluminum Plant is off the top, and hills are off the left of the sheet.

(OVER)

EXHIBIT B.

SKETCH OF KONAN INDUSTRIAL AREA SHOWING:

1. Konan Station
2. Synthetic Jewel Plant
3. Aluminum Plant
4. Magnesium Plant
5. Compressors Plant
6. Three Miscellaneous Work Shops
7. Nitric Acid Plant
8. Smoke Stacks
9. Lead Smelters
10. Copper Smelters
11. Gold Smelters
12. Explosives Plant
13. Carbon Electrodes Plant
14. Electric Sub-Station
15. Various Small Plants
16. Rectifier Plant
17. Hydrogen Plant
18. Hydrogen Tanks
19. Nitrogen Tanks
20. Nitrogen Plant
21. Synthetic Ammonia Plant
22. Sulphuric Acid Plant
23. Ammonium Sulphate Storage
24. Administration and Laboratory Buildings
25. Phosphate Plant
26. Ore Piles
27. Plant Railroad
28. Factory Highway
29. Shops
30. Employees Homes
31. Main Administration Building
32. Fencing Hall
33. Tennis Courts
34. Hospital
35. Club House
36. Water Supply Tanks
37. Flagstaff and Anti-Aircraft Installation
38. Water Pumping Station
39. Village of Konan
40. Highway and Railway to Kanko

EXHIBIT C.

SKETCH OF HONGU PLANT
SHOWING
Lime Kilns,
Soda Ash Plant,
Carbide Furnaces,
Calcium Cyanamid Plant,
Soya Bean Extraction Plant,
Fish Oil and Organic Compound Plant,
Railway and Station,
Highway to Kanko,
Civilian Airfield.

EXHIBIT D.

SKETCH OF DAMS AND POWER PLANTS.

These will be more accurately located on maps. This sketch was made by Dr. Hansgirg to demonstrate the general location of the dams. It shows the coast at the bottom of the page, Kanko and Konan, the Kanko River flowing from the upper left through Kanko into the Bay, three dams with the water backed up behind them, tunnels leading from the end of the lakes away from the dam, leading the water through the hills and down into the Kanko River, and power plants located on these tunnels.

EXHIBIT E.

SKETCH OF THE MAGNESITE PLANT AT RADENTHEIN
SHOWING
Power House,
Smoke stack,
Magnesite Stock Piles,
Magnesium Plant,
Rotary Kilns,
Grinding Plant,
Coal Dust Mill Dryer,
Administration Building,
Boiler Plant,
Brick Tunnel Furnace,
Press Plant,
Road,
Cable Railway and Station.

APPENDIX B.

LETTER FROM HANSGIRG TO RILEY.

Dr. F. J. Hansgirg
ISN-WG-24-(CI)-Alien Comp. No. 1.
I-Camp Stringtown
Stringtown, Oklahoma

June 18, 1942.

Mr. Ambrose H. Riley, Jr.
Agent Military Intelligence
P. O. Box 964
Oklahoma City
Oklahoma.

Dear Mr. Riley,

Referring to your visit at the I-Camp Stringtown last Tuesday I had some more time to think over the information the war department is asking from me. So therefore I enclose a more detailed sketch of the Konan plant. The set up of chemical plants around the small Korean village of Konan is one of the strongholds of the Japanese war industries. Since Pearl Harbor and the reports of the inhuman treatment of all English and American people in Honkong and Manila by the Japaneese soldateska I lost my confidence that the Japaneese are human at all and so I am very anxious to assist the war department with all my knowledge available.

During my five years stay in the Far East I had my residence mostly in Korea and Manchukuo so that my knowledge concerns only the industries in this both countries. I have no special knowledge about the chemical industries in Japan proper as I had never any opportunity to visit them.

If the war department could forward to me maps of Korea and Manchukuo I could indicate on such maps all important chemical industries and power stations and airfields as far as known to me till May 1940.

To my information of June 16th I like to add the following:

(1) Manchurian Light Metals Corp.

The company errected in the year 1938 an aluminum plant at Fushun with an anual capacity of 6000 tons. I believe the capacity of this plant has been meanwhile extended two or three times.

This plant uses as raw material Manchurian Alunite. This material is treated after aclcination in an electric furnace to recover sintered alumina. This material is than used as raw-material in the electrolytic cells to produce the aluminum metal.

(OVER)

I suppose that this aluminum will be low grade as the raw material is to high in impurities.

(2) Showa Steel Works in Anshan.

I forgot in our discussion to mention this great steelworks situated on the mainline of the South Manchurian Railway about 100 miles South of Mukden.

The works have an installation of 8 large blast iron furnaces with an average capacity of 500 tons each. Connected with the steelworks is a coking plant for 5000 tons metallurgical coke a day. The coking plant uses as raw material the Fushun coal. Connected with the coking plant is a very modern byproduct recovery plant to recover tar, benzine, toluene, naphtalene and similar products.

The steelworks use iron ores mined in the mountains around Anshan. This are low grade ores so that there is a large instalation for ore concentration. This ore concentration plant was to a great extend errected by the Dorr Co. New York so that this Co. may have a more detailed information available.

On the works is also a large installation of open hearth furnaces to produce steel and also a large rolling mill for rails, profiles sheets and wires.

I am always glad to be of any service

Yours very truly

APPENDIX C.

TRANSCRIPT OF INTERVIEW

Interview between Lyle L. Jones, Jr., of the Department of Justice and Dr. Fritz Hansgirg in the presence of Lt. Geo. H. Draper, at Stringtown, Internment Camp, Stringtown, Oklahoma.

Q. Doctor Hansgirg has just stated that he was familiar with the Nippon Magnesium Metals Corporation, Limited, which was founded by the American Magnesium Metals Corporation, 800 Ohio Street, Pittsburgh, Pennsylvania, and the Nippon Chisso Fertilizer Company, Osaka. He has stated that he has recently been examined on this subject by a man from the Military Intelligence Office, whom he can identify from his files and that he has given sketches to this gentleman.

Q. When were you in Korea?

A. In 1935. I had my residence at Konan Kankyando until June, 1937.

Q. Is that situated in Korea?

A. Yes. Then I moved to Dairen, Manchukuo, until May, 1940, when I moved to the United States.

Q. Can you make an estimate of the current magnesium production in Japan?

A. I do not know since 1940. Before that, it was between 7000 and 8000 tons a year.

Q. From your knowledge, has production been expanded?

A. To about 10,000 tons.

Q. Were there any magnesium production plants since you left which have been placed in operation?

A. I don't know.

Q. In 1940, maximum production was between 7000 and 8000 tons?

A. Yes.

Q. What was the production in 1936?

A. 3000 tons, to be correct.

Q. To what extent does Japan depend on magnesium?

A. I am not a military expert. I built the plant for civilian use of the metal but when it was completed, the company sold all the material to the Japanese Army and Navy. A fabrication plant was erected, but was not used, as the military insisted that the company sell all the metal in ingot form and the Army and Navy did the fabrication.

Q. Did you learn what they used it for?

A. No.

(OVER)

Q. So you did not know any products which they manufactured?

A. No.

Q. Has the Japanese War Ministry exercised any control over the plant?

A. Since the year 1937. In the year of 1939 the Japanese Army and Navy made a new law that civilian persons cannot be connected with the plant that manufactures aluminum or magnesium and to send out reports about the production and operation of such plants was punished with imprisonment up to twenty years. As I returned from my around-the-world trip in February, 1940, I had great difficulties with the Japanese military authorities to visit the plant I had erected myself, even as Vice-President of the company; To inform our Austrian Magnesium Company and also the American Metals Corporation in Pittsburgh, I used privately the good offices of the German and American consuls respectively to send out technical reports about the plant operations in Korea with the diplomatic mail pouch. The Austrian company was owned by the late Mr. Emil Winter, 800 Ohio Street, Pittsburgh, Pennsylvania, and is owned by his heirs.

Q. You stated that in 1937 the Japanese War Ministry began supervising the plant?

A. Yes. There were several visits from high army and naval officers who toured the plant and I myself was never introduced to them.

Q. Did you know what the nature of the army and navy control was?

A. They were interested in production and in seeing that they sold the entire output to the army and navy.

Q. Did they have permanent army and navy personnel in the plant?

A. No.

Q. Did the Army or Navy men order new additions to the plant?

A. I don't know. I was not running this plant. It was run by a Japanese staff and I was the inventor of the process and the representative of the American owners. The ratio of ownership was one-third American and two-thirds Japanese.

Q. Can you give me any other information about regulation and control?

A. I don't think so.

Q. Now the Nippon Magnesium Corporation was owned one-third by Emil Winter?

A. No. One-third was owned by the American Magnesium Metals Corporation and two-thirds by the Nippon Chisso.

Q. Do you know who owned Nippon Chisso?

A. The main stockholder was a Mr. Jun Noguchi.

Q. Who was Mr. Jun Noguchi?

A. He was a self-made man and controlled 200,000,000 yen in chemical and fabrication plant concerns.

Q. Do you know the name of the companies?

A. Yes. He had many companies. The name of the main company was Chosen Chisso Hyrio, Konan Kankyondo.

Q. Did the Nippon Magnesium have just one plant?

A. Yes.

Q. And that was in Korea?

A. The magnesium plant was only a small part of the industry owned by Nippon Chisso.

Q. Does the Nippon Magnesium have any subsidiary companies?

A. No.

Q. Did you say that there was also a fabrication plant?

A. I built a rolling mill and extrusion press.

Q. Where?

A. At Konan, adjacent to the magnesium plant. I installed only American and Czecho-Slovakian machinery.

Q. What American company made the machinery?

A. Watson and Stillman in New Jersey for the extrusion press and the rolling mill was from Skoda in Czecho-Slovakia. This was installed in 1936.

Q. Does Nippon Magnesium manufacture magnesium oxide?

A. Yes.

Q. In what quantity?

A. In my time was installed a rotary kiln with a capacity of 50 tons of dead burned magnesite a day. I was informed before I left that the company planned additional shaft furnaces with a capacity of another 40 tons a day.

Q. Did the company also make magnesium metal?

A. Yes. We made it from the magnesite.

Q. Did the company produce magnesium oxide as a finished product?

A. Yes. Some was sold that way.

(OVER)

Q. What proportion of the magnesite production was sold as oxide?

A. Some 15 tons used for making metal. Between 25 and 30 tons were sold as magnesite.

Q. To whom was that magnesite sold?

A. To steel works but I am informed either it is sold directly to steel works or an agent.

Q. Did you mention the city to which the magnesite was shipped?

A. To Osaka by boat.

Q. What steel company in Osaka purchased that?

A. I have no idea. I was not interested in the business part. I was only acting as technical advisor.

Q. Where was the magnesium metal that was manufactured shipped to?

A. I suppose it was shipped to Osaka but I am not sure of that.

Q. Was it in ingot form?

A. Yes.

Q. Some was used at the fabricating plant?

A. No. The fabricating plant only started to try out the rolling and extrusion of magnesium when it was stopped by the War Department who ordered that it not be used for magnesium and that all magnesium be shipped out.

Q. Was there any time you made any fabricated products of magnesium?

A. No. We tried out the plant to develop the methods. Later we began to fabricate lead for the interval use by Chisso in its chemical plants.

Q. The Chisso - was this plant for fabricating of lead and its preparation in connection with chemical plants? What process for reducing magnesite was used?

A. The Hansgirg process.

Q. Can you describe that process to us?

A. That is quite a job.

Q. Is the process used at the Korea plant described accurately in any technical journals?

A. Yes.

Q. Can you give me any citations to articles where it is described accurately?

A. Yes. It was described accurately last year in CHEMICAL METALLURGICAL INDUSTRY in August or September, 1941. The process is identical with the one installed at Permanente, California, and this installation is described in the previously mentioned article.

Q. Was the Permanente installation exactly the same as the Korean installation?

A. Yes, except that in Korea the magnesium dust is pressed into tablets without a binder and in Permanente the magnesium dust is baked with hydro carbon oils without pressing.

Q. Can the process be described briefly or would it be better to give you a chance to write a description of it?

A. I think it can be described briefly.

Q. Would you describe it for us briefly?

A. Dead burned magnesite is finely ground and mixed with anthracite or charcoal and also mixed with a tarry binder and pressed into shaped bodies. Such shaped bodies are continually changed to an entirely close electric arc furnace in which a temperature of nearly 4000 degrees F. is maintained. The carbon contained in the mixture reduces the magnesium oxide from a magnesium vapor and carbon monoxide.

Around the discharge hole for this gaseous product (Magnesium vapor and carbon monoxide) is arranged a set of nozzles. A large amount of gas, in Korea, hydrogen, in Permanente, natural gas, is blown into the discharged furnace gas. By this arrangement the mixture of magnesium vapors and carbon monoxide are suddenly chilled down from 4000 degrees F. to 350 degrees F. and the magnesium metal is recovered as an extremely fine powder. By this method it is prevented that the carbon monoxide oxidizes again the magnesium metal to magnesium oxide and carbon the mixture of the starting materials.

This magnesium powder is suspended in the stream of hydrogen or natural gas and is filtered out from the gas by means of wool bag filters. From the clean hydrogen the carbon monoxide is removed by a chemical wash process and the pure hydrogen is re-introduced into the process. At Permanente the natural gas containing the carbon monoxide is used as a fuel in the cement kilns, so that the Permanente plant has not installed a carbon monoxide washing plant. The magnesium dust collected from the bag filters contains all the impurities of the magnesite and also some amount of back-re-acted material (magnesium oxide plus carbon). To recover from this dust the pure metallic magnesium the dust is pressed into tablets and these tablets are changed to a retort. This retort is heated under high vacuum in an electric furnace to 2500 degree F. At this temperature pure magnesium vapors evaporate from the change and the pure metal crystallizes on the cooler top of this retort. Such a retort has the capacity for

(OVER)

recovery of one ton of metal in three days. There are 18 such retorts installed at Konan. After the retort is cooled the metal is removed as a solid crystallized ring. Such a ring is molten in normal gas-fired crucibles and the metal is cast into ingots in the usual way. The residue from the retorts of magnesium oxide and carbon is partly added to the first reduction step and briquetted again. In Konan each reduction furnace has a capacity of 1000 tons metal a year. The Parmanente's one reduction furnace was designed for 3500 tons a year. Before my detainment 2500 tons had been reached.

Q. The total production of magnesite in the Konan plant is what?

A. Between 40 and 50 tons a day, but they never used that much. They ran the rotary kiln for 3 to 4 weeks and then stopped it for a month. This was in the year 1940.

Q. And that gave them enough magnesite to keep the magnesium furnace going for the entire year?

A. Yes.

Q. The total magnesium metal capacity was about 2000 tons a year?

A. Yes. To be exact, as I left Japan in May, 1940, the reduction plant had a capacity for 2000 tons a year. Nine retort furnaces were operating when I left and another nine were under erection.

Q. The plant at Konan--what percentage of Japan's total production of magnesium does that put out?

A. About 30 per cent.

Q. What percentage of magnesite?

A. About 10 per cent.

Q. How many employees are there in the Konan plant?

A. About 200 in the magnesium plant.

Q. How big is the magnesium plant?

A. About 300 by 400 feet.

Q. How many floors high is it? How many buildings are there?

A. The Rotary Kilns Building is about 450 by 50 or 60 feet.

Q. What other buildings are there?

A. The Grinding Installations Building.

Q. How big a building is this?

A. About four floors high.

Q. About how long and how wide is it?

A. About 50 by 70 feet.

Q. What other buildings are there?

A. The Reduction Furnace Building has no floors in it but is about the height of a four-story building. It has an area of about 60 by 150 feet. And then comes the Dust Presses and Retort building. There is one section 50 by 70 feet and 40 feet high, and the Retort Building section is 120 feet by 50 feet and 90 feet high. There is the Fabrication Plant also connected with the Retort Building. It is about 100 feet by 70 feet and 45 feet high.

Q. Are there any other buildings connected with the plant?

A. The Wool Bag Filters. The wool bags are enclosed in steel tanks through which the gas passes. These steel tanks are in the open air and are not enclosed in a building.

Q. How many such tanks are there, Doctor?

A. About 18.

Q. Could you draw me a little sketch of the location of these buildings in relationship to each other? Are there other buildings adjacent to this, or is this located by itself?

A. Over one mile is only plants. This plant is in the midst of a large chemical industry which uses 350,000 Kilowatts of electric power and adjacent to this plant are factories producing aluminum. And then Synthetic Ammonia, Hydrogen, Carbon Electrodes, Nitric Acid, Sulphuric Acid, Phosphate Fertilizer, Potassium Fertilizer, Dynamite, Smokeless Gun Powder, Ammonium Sulphate, Metallurgical Department with Lead Smelters, Silver and Gold Smelters, Copper Electrolysis, and Copper Sulphate Plants. The Plants have their own harbor facilities where 10,000 ton boats can go to the pier and be loaded and unloaded.

Q. Do you know how many piers there are?

A. One pier. I asked that they give me some maps.

Q. I will come back and bring detailed maps with me.

A. Konan is about 50 miles north of Gensan on the East Chosen Bay. Gensan is an important Navy Station, and Kanko, 10 miles from the plant, has a military air field. North and west of Konan are three artificial dams which provide the power for the chemical industry at Konan.

Q. Let us get back to the chemical industry again.

(OVER)

A. Five miles from this Konan plant is a second plant where there are Calcium Carbide Plants, Soda Ash Plants, Calcium Cyamanide Plants, and I heard that they were planning to erect another unit for Synthetic Ammonia. There were also fish oil plants.

Q. Does that town have a name?

A. It is known as Hongu. In front of the Hongu Plant is a Civilian Air Field, and at Kanko is a Military Air Field.

Q. Now, does that take care of the industrial area? Are there any particular land marks which would identify the location of the magnesium plant itself?

A. The only land mark is the extremely high Retort Building which is about 90 or 100 feet high.

Q. Does that stand out from the other plants near by?

A. Yes, there is no other plant that high in the neighborhood.

Q. What kind of a roof does the Retort Building have?

A. All of the buildings have concrete slab roofs.

Q. Is that flat country around there?

A. Yes, it is flat on the Konan Beach but behind there are immediately mountains. For the whole industrial area there are two high smoke stacks erected on the hill and from the plants go concrete channels for the smoke to the smoke stacks. From the industrial area there are two concrete smoke channels leading up to the stacks on the top of the hill.

Q. How high are those smoke stacks?

A. They are at least 200 feet high.

Q. How long are the concrete channels?

A. They go up the hill. They are about 150 feet.

Q. Now you say the electric power comes from Hydro Electric Installations?

A. The electric supply comes from Hydro Electric Plants at three artificial dams in back of Konan.

Q. How far away are those, Doctor?

A. 10 to 20 miles. I was there once and it was quite an expedition as there were no roads, just a small track industrial railway.

Q. How many power plants are there up there.

A. There are about six or seven.

Q. They are located at the various dams?

A. From the dams go long tunnels. One tunnel is 10 miles long. There are three valleys in which the rain is collected in back of the dams, making quite large artificial lakes, probably 5 miles long.

Q. From the dams tunnels go?

A. No, from the other end, not from the dams but from another portion of the lakes there are tunnels through which the water pours.

Q. The power plants are located on these tunnels and the water flows from them into the Kanko River?

A. These tunnels run through a range of mountains and the power plants are on the side towards Kanko.

Q. Is there an alternate source of power or is that the sole supply?

A. In general it is the sole supply, but I am informed that a power line goes from Kanko to Antung, which is a border town between Korea and Manchukuo on the Yalu River; and the large new Yalu River Hydro-Electric power plant is financed 50% by Chosen Chisso so that I support that in case of a fall-out of the Hydro-Electric plants, power could be brought in from the Yalu River station over the Antung-Kanko line.

Q. That power line runs to Kanko, not to Konan?

A. They have a switching system so that Konan can get the power.

Q. Where is the water supply of the Konan industrial area?

A. They get it from the Kanko River pumping station.

Q. It does not come from the artificial lakes?

A. No.

Q. Do you know where that pumping station is located?

A. There is one pumping station at Hongu which takes water from a channel there. If I have a large map I can show you the approximate location of the pumping stations and the reservoir.

Q. What railway facilities are there in Konan?

A. Konan is on the main line of the Korean Railroad from Keijo to Seishin and Rashin at the Siberian border.

Q. Is that a single track or a double track railway?

A. A single track.

(OVER)

Q. Is there a large freight yard at Konan?

A. The entire industrial area is filled with railroad tracks and switching stations and the railroad goes up to the pier.

Q. Is there any switching point near Konan that would tie up the whole system if it were eliminated?

A. Oh, yes, the main switching point is at Konan Station just about a half mile from the plant.

Q. Is it in the town of Konan?

A. The station is a little outside of the town.

Q. What highway facilities are there?

A. Rotten Korean highways. To drive a car is an expedition. Konan and Kanko are connected with a first class paved highway.

Q. How wide is the road, about as wide as our American two lane highway?

A. Yes.

Q. Does the highway go past the industrial area or is the industrial area beyond the end of the highway?

A. No, the highway passes behind a hill where the residential section is for the employees.

Q. As I understand it, the industrial area is directly on the beach and in back of the industrial area there is a railroad and a factory highway. In back of this, sloping up the hill, are houses, hundreds of houses, of the employees, and a hospital and an Administration Building and a play ground. And on the top of the hill is a flag staff and anti-aircraft installations. On the other side of the hill is the main highway from Kanko to Konan.

Q. Where does that highway come into the town?

A. The Village of Konan starts at the east corner of the factory district and the highway comes around the hill and into the village. I can point these out on a map.

Q. Do you have any pictures or drawings of the plant?

A. I had five pictures of the details of equipment of the magnesium plant which are now in Permanente, but I was unable to bring out any pictures of the buildings, or the nearby locality, or any drawings of the plant.

Q. Where does the company secure its raw material?

A. The main raw material are air and water, and then they get ores from Korean mines and they get alumite from a mine in southern Korea for the aluminum plant. The phosphates were imported from Florida. I don't know what they do now. Mainly, the magnesite comes from a mine which is owned by Nippon Magnesium about 150 miles north of Konan in the Korean mountains. One of the largest Magnesite deposits in the world, with visible 300 million tons and an estimated billion tons, is this mine.

Q. Have you been to that mine?

A. No, never.

Q. Do you know where it is so that you could point it out on a map?

A. Yes.

Q. How is that material brought to the plant?

A. This deposit is at an elevation of about 3500 feet and it is hauled down to the main line of the railroad by a cable car.

Q. That is the same main line of railroad that goes from Keijo to the Russian border?

A. Yes.

Q. Is there any other way of getting that material down other than by that railroad?

A. No. Well, there is also a harbor near there and it could be shipped by boat but probably only small barges could get in.

Q. Those are magnesite deposits you are talking about?

A. Yes.

Q. What stock piles of magnesita are maintained by the company?

A. Up to 10,000 tons.

Q. Are they kept adjacent to the plant? Where would they be located on this?

Q. They didn't have any reserve stock piles in other locations did they?

A. They had a large stock pile in the mine. Before I left there was talk of building another Calcination Plant in the small harbor near the mine but I do not know whether this has ever been done or not.

Q. What did you say about the importance of this industrial area? Is this the most important area in Korea?

A. Absolutely. It is very important, probably the largest industrial area in Korea. But possibly the territory around Antung is equally important. They had planned to build large steel works around Antung.

(OVER)

Q. What do you know about the protection of this area other than that anti-aircraft battery on the hill?

A. There are many hills around this area and people told me that they were all fortified.

Q. Have you ever seen any of the anti-aircraft installations?

A. Only the one near the plant.

Q. Is that the one at the top of the hill that you mentioned?

A. Yes.

Q. When you were there how many anti-aircraft guns were there in the battery?

A. Only one when I was there.

Q. Was there a search-light installation too?

A. I do not know. I wasn't allowed near it.

Q. Are there coast artillery emplacements on the beach that you know of?

A. Gensan is very heavily fortified. In Gensan I had terrible trouble with the police.

Q. Why was that Doctor?

A. The main line of the railraod between Konan and Gensan was flooded at one time and I had to use a boat from Konan to Gensan. I landed at Gensan without a permit and the police nearly arrested me.

Q. Could you see the harbor fortifications there?

A. It was late at night.

Military Intelligence man who interviewed the Doctor previously was

Ambrose H. Riley, Jr., P.O.B. #964, Oklahoma City, Oklahoma.

Q. Now, do you know anything about the Japanese Manchurian Magnesium Corporation?

A. Yes, Nichiman Magnesium uses the sea water process and the plant is at Ube-Kyushu.

Q. Have you seen the plant?

A. No.

Q. Do you know if they make magnesium oxide?

A. I don't think so.

Q. When they use the electrolytic process on sea water they get pure magnesium without going through the oxide stage?

A. Yes, they make anhydrous magnesium chloride and I think they only make enough for their magnesium metal.

Q. Do you know if they have a fabrication plant?

A. I do not know.

Q. Is the process which they use the same as that being used by the Dow Chemical Co.?

A. Yes.

Q. Do you know what their capacity is there?

A. When I left it was around 5000 tons.

Q. Were they building any additions to the plant at that time, do you know?

A. There was some talk. I don't know.

Q. What would be your estimate of Japan's total magnesium production?

A. At the present time I would say not over 10,000 tons but I do not know what they have meanwhile built, but from their speed of building I don't think they would have much more.

Q. So the Ube plant accounts for about half of the total production.

A. Yes.

Q. Do you know about how many employees they have at that plant?

A. No, my knowledge of industry on the mainland of Japan is only from what people have told me. I have never seen any of the plants.

Q. You do not know where in Ube the plant is located?

A. Surely it would be on the coast as it is a sea water plant. I suppose there would be a salt plant as they use salt bitterns. This is different from the Dow process in that Dow uses salt water directly whereas this plant uses a concentrated brine after the salt has been removed from the sea water.

Q. Do you know whether or not there are other industries in Ube?

A. I think there are lots of industries in Ube. It is a real industrial district there.

(OVER)

Q. Where does Ube stand as an important industrial area of Japan? Is it of prime importance?

A. I think it is rather small. Yawata, just near Ube, is much more important. There are great steel works there.

Q. Is that the only plant that Nichiman has?

A. I think so. I do not know the relationship that exists with the Manchurian Light Metals Corporation. The Manchurian Light Metals Corporation was originally owned by the South Manchuria Railway Co., but was later turned over to the Manchurian Heavy Industries Development Corporation.

Q. And where is the Manchurian Light Metals Corporation Company located?

A. They built an aluminum plant at Fushun. It is about 50 miles southeast of Mukden. At Fushun is the biggest open pit coal mine in the world. It is an open pit coal mine. The same company when I left was building a magnesium plant which was to use the Carbide Reduction Process.

Q. Do you know what capacity this plant was supposed to have?

A. It was first planned for 1000 tons but was later increased to 2000 tons annually.

Q. When did they begin the construction of that plant?

A. In the spring of 1940.

Q. You do not know where it was to be located in Fushun?

A. If it was in the territory of Manchurian Light Metals Corporation it was on the Manchurian Railway on the left side of the tracks before you come into Fushun from Mukden. This is a branch line from Mukden to Fushun.

Q. Were they planning to do any fabrication at the plant or was that solely a reduction plant?

A. I did not hear of any fabrication.

Q. Have you been in Fushun?

A. Yes.

Q. At the time when you were there did it seem to be fortified as far as anti-aircraft guns go?

A. I did not hear of any or see any.

Q. If they use the carbide process where would they obtain magnesium oxide?

A. As a starting material they would use Manchurian Magnesite from Tasichao, just about half way between Dairen and Mukden.

Q. Is that high grade ore? What percentage does it run?

A. Yes. It runs between 90 and 92 per cent. Hand labor was very cheap so they used Chinese labor to pick out high grade pieces. This is the main producer of magnesite for the steel works.

Q. Were their steel mills located in Manchukuo near by?

A. Yes. There were the large Showa Steel mills in Anshan. (See letter dated June 16/42 to Mr. Riley)

Q. Was the magnesium plant under construction when you left?

A. Yes.

Q. When did you see the aluminum plant?

A. In 1938. The magnesium plant had not yet been begun at that time but the aluminum plant was nearly ready.

Q. How large a plant was that aluminum plant?

A. 6000 tons.

Q. Was it just an ingot plant?

A. It was as far as I could see.

Q. Could you locate it on the map if I got a detailed map of the section?

A. Yes. There are oil shale distillation plants and hydrogenation plants for the manufacturing of high octane gasoline, which I could show you on a detailed map too.

Q. Is there any oil near by there?

A. No, there is about 20 feet of oil shale over the coal there, and this shale is distilled to get the 6 per cent of oil it contains.

Q. This branch line railroad that runs from Mukden to Fushun — is Fushun the end of that line?

A. Yes.

Q. Is that a one track road?

A. Yes. Only the south Manchurian main line from Dairen is double tracked.

Q. Is there a paved highway to Fushun?

A. No, just a Chinese country road.

Q. Where does this Fushun industrial area get its electricity?

(OVER)

A. They make it themselves from coal.

Q. Is the power plant right near the Light Metals Co. Plant?

A. Yes. It isn't very far away. It is near the mine.

Q. Now what other important companies are there in and around Fushun that are near the Light Metals and power plant and the oil distillery?

A. None.

Q. Is Mukden itself an industrial area or is Fushun an industrial area for Mukden?

A. No. Mukden is a real industrial area in itself. They have a big Army Arsenal and large work shops and all kinds of plants to make pumps, and the South Manchurian Railroad has tremendous shops there. But there I cannot help you very much. I know only that they are there and there is much talk about them. I can't tell you much about that. Although I have visited Mukden I have not been through any of the plants. I have heard that there has been a great deal of building there in the last 5 years.

Q. Do you know the Japanese Magnesium Metal Corporation, Nippon Magnesium Kinzoku K. K.?

A. Yes. That is our company, the Konan Company.

Q. Do you know Nippon Magnesite Kogaku Kogyu K.K.?

A. It may be that this company is a part of the Light Metals Corp. The word Kogyo would lead me to believe this but I have never heard of any company under this exact name.

Q. So the entire Japanese Magnesium production comes from your company and Nichiman, the sea water company there, and the Manchurian concern at Fushun?

A. Yes. I remember that there have been a few small producers on the Japanese main land making a few hundred tons by the electrolytic process, but they have never been taken seriously.

Q. Do you know where any of these small plants are located?

A. No.

Q. As to the Japanese picture, you have told us a lot about the plant in Korea and you know very little about the plant at Ube. And the plant at Fushun was only in the construction stage when you left so that your knowledge of the Fushun plant would be limited to what you had heard about it and you could point out its location, assuming that they built it where they were going to build it?

A. Yes.

Q. Do you know where the water supply for the Fushun area came from?

A. I think there is a small river there that they pump it out of. I know that water is very scarce and they save water by recycling it through the plant.

Q. Do you know the location of any of the pumping stations along that river?

A. No.

Q. In the Konan magnesium plant are there any bottle-necks in the plant that would be the strategic part to try to knock out?

A. If you knock this out (pointing to Wool Bag Filters on the drawing) the whole plant will blow up.

Q. Do you mean that this Wool Bag Filters portion is explosive in itself?

A. Yes. The bags are filled with magnesium dust and if they come in contact with the air they explode.

Q. If you could blow this up that would wipe out a considerable portion of the nearby area?

A. Yes. There are large pipes of hydrogen coming in which would catch on fire and the fire could not be put out until that hydrogen was closed off. In the meantime other buildings would catch on fire.

Q. And that part of the plant is easily distinguished because it contains those huge cylindrical tanks which are not under a roof?

A. No. They are under a corrugated iron roof, but not in a building with side walls.

Q. All these other buildings have concrete slab roofs?

A. Yes.

Q. And this is the only building around there with a corrugated iron roof?

A. Yes.

Q. In the Manchurian plant where they use the carbide process is there any similar strategic point to knock out?

A. No. That is just a grinding plant and a Retort plant.

Q. Where the electrolysis process is used is there any similar strategic point?

A. You would have to find the rectifiers. This equipment is very difficult to obtain and could not easily be replaced. If you knock out the rectifiers the balance of the plant is useless.

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Q. You were also chemical advisor to the South Manchurian Railroad Company at Diaren?

A. I was from 1937 to 1940.

Q. What were your activities there, Doctor?

A. The main activity was as advisor to the central laboratory which employed 300 chemists.

Q. On what subjects were you advisor to them? Metals?

A. No. Mainly on a new process which I have developed and patented to manufacture oil from calcium carbide.

Q. In your connection there, Doctor, did you learn anything about the building of sponge iron plants in Manchuria?

A. I heard that they were building some and I know that there were samples in the laboratory and I think it probable that they were building at Anshan, near the Showa steel works.

Q. Do you have any information as to the production capacity of sponge iron?

A. No.

Q. Do you know whether more than one sponge iron plant was built?

A. No. I think this one was an experimental plant. There was always some talk about the sponge iron.

Q. What companies do you know of in Europe that produce Magnesite, dolomite, and other refactories for the metals industry?

A. I was closely associated with the Austro-American Magnesite Company at Radenthein, Carinthia, which was owned by Mr. Emil Winter of Pittsburgh. After Hitler's invasion of Austria the name of this company was changed to Austrian Magnesite Company.

Q. This company did not produce dolomite, but only magnesite?

A. They made dead burned magnesite, caustic magnesite, magnesite bricks and chrome magnesite bricks.

Q. When were you last over there?

A. I left in September, 1934, and then I had a business discussion there upon the occasion of my round-the-world trip in July, 1939. I met there with Mr. Winters and all of his lawyers.

Q. Did he have some American lawyers with him?

A. No, not this time.

Q. Can you make an estimate of the capacity of the plant for each of the products as you knew it last?

A. About 150,000 tons a year of dead burned magnesite which is used to make all of the other products, and about 50,000 tons of all kinds of bricks. The caustic magnesite is a separate product and the plant had a capacity of about 30,000 tons a year.

Q. Now that was when you last saw it in 1939?

A. Yes.

Q. Was the production about the same in 1934 when you were there?

A. Yes.

Q. You have no way of knowing whether it has been changed any to date?

A. In the summer of 1940 I was in New York with Mr. Winter. At the time he received some telegrams and from that I would judge that there was no change in capacity to that time.

Q. Did the company also produce ordinary fire clay bricks?

A. No.

Q. What manufacturing process was used there, Doctor?

A. The magnesite was calcined in a Rotary Kiln and then dead burned magnesite was chemified with sieving equipment, and then certain parts of the dead burned magnesite were pressed into bricks and burned again. It was burned on cars in a long tunnel furnace.

Q. What did you fire the kilns with?

A. The Rotary Kilns were fired with coal dust and the bricks were burned with producer gas.

Q. Was hydrogen ever used?

A. No. We had a small hydrogen plant connected with the magnesium plant there.

Q. At the time you were there, do you know what was the chief market for your products?

A. All of the world was. The smallest market was the United States because there was such a high tariff on imports, but certain types of Austrian magnesite were required and we shipped about 20,000 tons a year to the United States.

Q. Was that magnesite or bricks?

A. Dead burned magnesite.

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Q. What percentage of Austria's total production would that plant put out?

A. About 50 per cent. Or say 45 per cent.

Q. What other producers of that material were there in Austria?

A. There was the Veitsch Magnesite Company. They had the other 47 per cent. The remaining 5 to 10 per cent came from the Styrian Magnesite Co. This last company was also a large producer of ordinary fire clay bricks. Alpine Montan Gesellschaft, a large steel company produced magnesite for its own use, both dead burned and bricks.

Q. Where was Veitsch's magnesite plant?

A. They have many small plants. They are distributed through the Styrian Alps. The main deposit is on the Veitsch Alps, and the main manufacturing plant is in Trieben in the Enns Valley.

Q. And where is the Styrian plant?

A. In Leoben on the River Mur. And this big steel works is quite near by. They are in Donawitz near Leoben. This steel company owns the famous iron mountain at Eisenerz. If the Eisenerz installations could be destroyed it would deprive Germany of about half of its iron ore or say 30 per cent. The other half mainly comes from Sweden.

Q. Do you know the approximate number of employees of these three magnesite companies?

A. Radentheim had about 300 and Veitsch would have 400 because they have all small plants. And the Styrian would have about 200.

Q. What about the general appearance of the Radentheim plant? What does it look like?

A. It is in a small valley between the Lake of Millstadt and the town of Villach. If I have maps of Styria and Carinthia I can point out the exact locations.

Q. How large are those plants in the number of feet?

A. The Radentheim plant is about 350 by 800 feet.

Q. Could you draw me a similar diagram?

A. Yes.

Q. Are there any particular land marks that could be used to identify the plant?

A. If you go up from the Lake of Millstadt one must find the plant and the white smoke from the smoke stacks can be seen a long distance.

Q. How far is it from the Lake of Millstadt to the plant?

A. Four miles.

Q. Their only source of electric power is the power house you have drawn?

A. They have another power house about two miles away which gives another 2000 hp.

Q. Is that in Radenthein?

A. Yes. Radenthein is not a village in the ordinary sense, but is a collection of homes scattered about on the mountain side.

Q. What water supply does this plant have?

A. They use water from the power plant which is a Hydro-Electric Plant taking water from a tunnel. The water comes from small streams higher up in the mountains.

Q. What other fuels are used there? Do they need coal in the process? Where does the coal come from?

A. Coal is brought in over the rope railway. Everything that comes in or goes out of the plant moves over the rope railway.

Q. Is this a paved road which you have drawn on the map?

A. It is some kind of a paved road, but not a paved highway such as you have here.

Q. There are no real railroads in this valley?

A. No.

Q. By rope railway is meant a cable car?

A. Yes.

Q. So it would not go through tunnels or across bridges like a regular railroad?

A. No. It is suspended in the air on a cable and goes from post to post.

Q. And the entire production of this plant moves out over the cable?

A. Yes.

Q. Do you have any pictures of the plant?

A. No.

Q. Were there pictures or drawings of this plant ever published in any technical journals?

A. Yes. I remember many years ago it was described, but I don't remember which journal it was published in. Dwight Winter, son of Emil Winter, of

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800 Ohio Street, Pittsburgh, has films of this plant and hundreds of photographs and he probably also has some photos from Konan.

Q. You say you don't think he would give them up?

A. This plant represents a 12 million dollar investment and he would know why you wanted them. He is very patriotic, but --

Q. Do you remember whether or not the journal in which the plant was described was American or European?

A. American.

Q. About what year would you say, as a guess, when the article was published?

A. Probably 1933. It might have been Iron Age or Pit and Quarry. It was a description of the plant which an American traveler had run into while touring the Austrian Alps.

Q. How far away is the magnesite mine from the plant?

A. About five or six miles.

Q. There are no other factories in that valley, are there?

A. No.

Q. You have no idea as to whether or not the Germans installed any military facilities there to protect that plant?

A. No. Since January, 1940, I have had no contact with it.

Q. The magnesite mines -- are they of the shaft or are they open pit mines?

A. They are open pit.

Q. Are the Styrian Company's mines shaft or open pit?

A. All magnesite mines are open pit.

Q. Does Styrian produce magnesite and chrome bricks as well as dead burned magnesite?

A. Most of their production is caustic magnesite.

Q. Do they produce magnesite or chrome bricks at all?

A. Certainly not chrome bricks because it was a patented product of Radenthein. They may now but they did not then.

Q. Does Stryian make magnesite brick?

A. Very little. They make mostly caustic magnesite and they have a big plant where they make ordinary clay fire brick.

Q. What manufacturing process do they use, one similar to Radenthein?

A. Yes. They are all the same except that Styrian and Veitsch do not use Rotary Kilns, but use shaft furnaces entirely.

Q. Are they fired by producer gas or do they use oil or coal?

A. All shaft furnaces use producer gas.

Q. Do they have tunnel kilns for their clay fire bricks?

A. No, they use ordinary round kilns. They use Mendheim ring furnaces.

Q. Do they use hydrogen gas for anything?

A. No.

Q. Do they have any particular customers that they serve or do they sell throughout the world?

A. These three companies were the principal members of the European Cartel and all sales were handled by the cartel.

Q. What was the cartel's name?

A. It was in Switzerland, Basel, the seat of the Cartel. I have forgotten the name.

Q. Do you know the capacity of the Styrian plant?

A. Not exactly. I estimate at between 10 and 20,000 tons.

Q. What would you judge Veitsch's productive capacity to be?

A. Around 100,000 tons.

Q. Have you seen the Styrian plant? Do you know it well enough to draw a picture of it?

A. Yes, I have seen it. But I have not seen it since 1924 and I do not think that I could draw it accurately enough to be of any value.

Q. Who owns the Styrian plant?

A. I think the ownership was entirely Jewish so it may have been taken over by the Herman Goering works.

Q. Who were the former owners?

A. It was Montana Mining Company. One of the principal stock holders was Dr. Arthur Netter, owner of a big trading concern in Germany for coal in Ludwigshafen, Mannheim, Germany. He is now in Canada. Well, I don't know where he is but I have recently heard he is in Canada. Another principal stock holder was Dr. Moritz Hochschield, a very famous owner of copper mines in Chile.

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Q. Do you know where he is now?

A. I think he is in Chile or maybe in London. He had his office in Antofagasta, Chile.

Q. Now that plant was where?

A. In Leoben.

Q. Where in Leoben is it?

A. It is on the way between the town of Leoben and the Donawitz Steel Works.

Q. About how far are the steel works out of town?

A. About 10 miles.

Q. And about how far out is the Styrian?

A. About three or four miles.

Q. Are there any distinguishing land marks around that plant that would identify it?

A. I don't think so.

Q. Would it be like the Radentheim plant so that it could be identified by the white smoke coming out of the smoke stacks?

A. No. When you burn caustic magnesite it is at such a low temperature that no smoke is formed.

Q. Do you know where that plant gets its electrical supply?

A. They get it from the general power lines in Styria.

Q. And its water supply -- would that come from the town of Leoben?

A. Yes, I think so.

Q. Is it near a coal region, or does it have to have the coal brought in?

A. Around Leoben there are quite a few coal mines of the shaft variety.

Q. Is there a railway or highway running from Leoben out past the Styrian plant to the steel works?

A. Yes. A railway and a highway.

Q. Is it a concrete road?

A. No, just a paved road of asphalt.

Q. Is that on the main line of the railroad or is it a branch line?

A. It is a branch line.

Q. Do you know what railroad it is?

A. They are all the state railroads.

Q. Do you know that railroad that goes through there pretty well?

A. Yes.

Q. Could you spot the approximate location of the tunnels along that road?

A. Yes.

Q. Has that plant been described in any technical journals that you know of?

A. I don't think so, but there is in New York a Mr. Citrin who was manager of all these plants. He is a Jewish refugee and at one time applied to me for a position at Permanente. His address may be in my files in San Jose. My secretary, Mrs. Helen Williams, P.O. Box #29, San Jose, California, would probably be able to get the address. Mr. Citrin left Austria I think in 1938 so he could give a much more complete picture of the Styrian operations. They have several mines distributed through the Alps, and I have forgotten their exact locations but he could tell you.

Q. Might he have pictures or drawings of the plant?

A. I have not seen him in twenty years. He just wrote me a letter from New York.

Q. Other than the Styrian factories and the Donawitz are there other industries in this immediate area?

A. The Veitsch Company has many plants and mines scattered throughout northern Styria.

Q. Is northern Styria an important industrial area?

A. Outside of these magnesite plants, and the steel works, and the iron mountain, there is very little else of importance there.

Q. Do you know of anyone formerly employed by the Veitsch Company now in this country?

A. No.

Q. Have the Veitsch operations been described in any of the technical journals?

A. I don't remember any but it is very probable that they have. If someone looks over the Chemical Abstracts index, particularly between 1930 and 1935, they might find information on all three of these companies.

(OVER)

In addition to the above, Dr. Hansgirg stated that the attorneys for the late Emil Winter and at present for Dwight Winter, are Chadbourne, Wallace, Park and Whiteside, 25 Broadway, New York.

He also stated that he believed that Veitsch was owned by Schneider-Crevsot of France and by Vereinigte Stahlwerke of Duesseldorf, but that it has undoubtedly by now become part of the Herman Goering Werke; that he knows of no stockholders or employees of Veitsch who are now refugees.