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1945: When Korea Faced Its Post-Colonial Future

by Bill Streifer

The following is a reprint of an article by Dr. Fritz Johann Hansgirg, a brilliant electrochemist and metallurgist. "Korea's Industrial Development" originally appeared in the April 1945 edition of the Korea Economic Digest, a publication of the Korea Economic Society based in New York City.

Born in Graz, Austria in 1891, Dr. Hansgirg received his Ph.D. in Chemistry from the University of Graz. In 1928, he invented the carbothermic magnesium reduction process at his laboratory in Rodentheim, Austria. Then in 1935, he was invited by the Japanese industrialist Jun Noguchi to set up a magnesium plant at the Chosen Nitrogen Fertilizer Complex in northern Korea at Hungnam — known as "Konan" by the Japanese. At the time, Korea was a colony of Japan.

In addition to magnesium, Hansgirg helped the Japanese develop a "cracking" plant (used to break down crude oil into its various component parts), an electro-iron process, and a plant to produce synthetic gemstones. Hansgirg also urged the Japanese to build a pilot plant to produce heavy water by a process he had recently invented at his laboratory at Konan. And yet, despite the potential to produce various war materials, and perhaps heavy water, the plant where Hansgirg had worked for three years was never once bombed during the war.

Although Hansgirg was later hired as a chemical consultant to the South Manchurian Railway in Dairen, he remained in contact with his Japanese industrial projects in Korea until 1940. When Japan became so completely pro-Axis and hostile to foreigners, Hansgirg decided to depart Japan for the United States in the hope of helping to develop the magnesium industry there. Then in December 1940, he was approached by the American industrialist Henry Kaiser who hired Hansgirg to set up the enormous Permanente magnesium plant in California using his carbothermic magnesium process.

A year later, following the Japanese attack on Pearl Harbor, Hansgirg — who was considered a German national — was arrested by the FBI as a "dangerous enemy alien." He was later interned at various enemy alien camps in the United States before being paroled into the custody of Black Mountain College in North Carolina where he taught chemistry and physics until 1947. While apparently in good health, Hansgirg passed away two years later.

Bill Streifer and Dr. Kenneth N. Ricci (applied nuclear physicist, Stanford) are co-authoring "Dr. Fritz J. Hansgirg: Heavy Water and the Atomic Bomb," the history of magnesium and heavy water production.

Korea's Industrial Development

by Fritz Hansgirg

Since the Cairo declaration, an independent Korean state has become a new factor for the industrial development in the Far East. Up to the present — as a Japanese colony — Korea's industrialization was started by the Japanese under an entirely different plan than would have been initiated by Koreans for the development of their own country. In whatever industry, all Japanese investments are military in character — producing, either directly or indirectly, material for war or processed goods to be exported to Japan — thus contributing to the Japanese economic system and to the prosecution of the war in the Pacific area. For this reason, the present industries in Korea are not geared to necessities of that country, but they exist solely to assist in a program for world conquest by a nation which is interested only in its own expansion.

The industrialization of Korea has increased greatly since Pearl Harbor. The militarists in Japan intensified the production of war materials on the mainland of Asia in order to place their factories as far as possible from the range of air and naval power, in case of an invasion of the Japanese islands by the Allied forces.

PERIOD OF RECONVERSION

After the collapse of Japan, and the subsequent formation of a free Korean state, the vital question will arise: How can the present investments be made to produce much needed civilian goods? As now operated by the Japanese regime, most industries are of little use for civilians in Korea. They were conceived in an entirely one-sided way, as mentioned above, for Japanese advancement. Therefore Koreans must undertake the development of their industries on an entirely new plan. Of course, it is important to use Japanese-made installations as much as possible, insofar as they may not be destroyed by the war. Some of these are general in their construction and may be easily readjusted for peacetime, civilian economy; among these are mining, hydroelectric and caloric-power plants, transportation systems. Under any conditions, the mining installations are usable, if the minerals produced are basic, raw materials. Some small mines may have been started only because of the need for war materials and, under such circumstances, it may be uneconomical to continue operating them for civilian needs when world trade competition must be considered.

It will be possible to convert all of the power plants, especially hydroelectric units. Power for such installations can be utilized for all types of industry, if the current can be generated under economical conditions. To a great extent, the cost of production depends upon the interest rates and amortization of invested capital.

Upon the foundation of the new Korean state, investments by Japanese companies, individuals, or the Japanese government should be transferred to Korean concerns, and thus interest and amortization on existing hydroelectric power plants will involve a relatively small outlay of capital. Under such a plan, actual production costs of electric power will be very low — even for plants that are quite artificial in their layout and are not able to produce power economically during peacetime. For this reason, any hydroelectric plant built by the Japanese is one of the greatest assets of the new Korean state. Even if power houses and conduits are destroyed by war, their repair would entail only a small investment providing the larger installations were still intact. Caloric-power plants are of minor importance in the Korean

economy, as they are dependent upon coal being shipped into the country excepting for the few deposits in the northern part of the peninsula.

The second Japanese investment in Korea which may be utilized immediately at the close of the war is the transportation system. Korea has quite a mileage of standard-gauge railways and, in general, railways are easily repaired even when damaged. On the Japanese islands, the railways are narrow-gauge, so there is no possibility that material for the Korean lines may have been transferred to the home islands.

Another important installation is the highway system. With the exception of Seoul and a few of the large cities, no paved highways exist; but there is a system of about 25,000 miles of good roads extending over the country. The largest investment needed would be that of bridge construction necessitated by washouts due to floods and the primitive work done by the Koreans in order to make them usable after the rainy season.

Therefore, the first task in the industrial reconstruction of Korea will be the improving of mines, repairing of power plants and extending hydroelectric service, repairing and improving both railway and highway systems.

If Korea is to establish an independent economic system, the country has to make a start along two separate lines. One is to develop certain industries for export in order to bring the necessary capital into Korea; the other is to develop industries for civilian consumption. Planning must be directed toward this dual purpose. It will be necessary to establish home industries in order to raise the standard of living; on the other hand, it is impossible to raise the economic level of a people without initial capital which can be secured mainly through exports. Each of these proposed developments should be undertaken simultaneously, just as soon as the new Korean government begins to function.

At the beginning of her liberation, Korea will experience a situation somewhat similar to that confronting Russia after the revolution. It may be advisable to draw up plans for a five-year period, or for several three-year periods, for certain industries. Upon the establishment of a free government, Korea will need a great deal of outside help which may be secured from the United States, England, and Russia, in order to train her people in modern technical skills until such a time as the specialized education of the country is able to provide trained engineers, mechanics, and other employees for industrial enterprises.

FIRST FIVE-YEAR PLAN

It might be advisable to begin the new industrialization of Korea with an improvement in mining facilities. Korea is quite rich in several important products — including gold, tungsten, molybdenum, graphite, mica, and magnesite. They could be mined easily and placed upon the world markets in order to obtain the necessary capital for new and expanded industrial developments. The next steps would be the utilization of existing hydroelectric plants for the production of power for manufacturing certain items which also could be sold on world markets; products made from light metals, aluminum and magnesium, electric steel, fused magnesia, and all amounts of compounds based on fixed nitrogen. With extremely cheap power, there exists the possibility of synthesizing high-octane gasoline from the coal deposits in northern Korea and hydrogen made by such electric power.

In the final analysis, it may be possible to reduce the annual imports to a considerable extent and to utilize electric power for railway transportation. Such developments have been extremely economical in countries like Sweden, Switzerland, Austria and in northern Italy where comparatively inexpensive hydroelectric power is available and all fuels must be imported. The improvement of railway lines, using electricity as power, is so great that the investment pays for itself in a short time and — for such projects — probably foreign money will be available.

The skillfulness of the Korean worker, in the long run, will be an advantage in the electrical industry. Production of electric motors, transformers, and electric lamps is based upon

skilled workmanship. The limited experience I had with Koreans leads me to believe that it is possible to educate them for such tasks, within a comparatively short period, so that all the electrical equipment necessary for the development of electrified railway lines could be provided locally.

A question of great significance arises when the development of a new Korean state is considered. Peoples of Asia have inherited an attitude toward life entirely different from the mode now prevalent in Europe and the United States. It would be a mistake to transplant the Western factory system into an Oriental country without greatly modifying it. The Korean would never feel at ease in a factory system setup on Western lines. Special study must be made in order to adapt Western methods of production to specific conditions that exist in a country like Korea.

The cooperative system has been tried out in China, particularly since the Japanese invasion of the coastal areas; and such a plan may be applied to Korean industry. It may be possible for farmers and farm families to produce some manufactured goods in the winter time and during their spare hours from regular agricultural pursuits; or they might even make parts which are to be assembled in plants some distance from their villages — for all Korean farmers live in villages and walk to the fields to cultivate their crops.

It is absolutely necessary that, at the beginning, the new state avoid a system of exploitation. This could easily become prevalent because of the present low standard of living of the larger part of the population, as well as the extremely low wages to which the Koreans are accustomed. Industrialization of the new Korea should be planned at the outset in such a way that the people will have the benefit from their own efforts. Therefore, all methods undertaken should stress the needs of the people; they should also have as their primary aim the raising of the standard of living for the vast majority of the Korean nation. Koreans will be the customers for almost any goods manufactured in their country, if they can afford to buy such products.

SHIFT IN OCCUPATION OF THE POPULATION

It is a fact that the Japanese avoided training the Koreans for industrial work or in engineering. For this reason, the new Korean state will be confronted with an extremely difficult problem. In general, Korea is still an agricultural country. And most of the population of the peninsula has continued to eke out an existence — under most unfavorable conditions — since annexation by the Japanese. Rice produced by the Korean farmers was exported to Japan; and the real producers of foodstuffs had an insufficient amount to eat from their toilsome labor. Many farm families are crowded on small acreages, with little chance for their children to enter industry and thus relieve the burden placed upon the head of the household to feed his family. However, many Koreans have been employed in the post offices and on the Japanese-operated railways, but few have been engaged in industries where specialized training was required.

A special program in connection with the industrialization of free Korea must be the shifting of a part of the farm population into industrial occupations. The only outlet the farm has, at present, is for seasonal employment which consists usually in some sort of construction work. A redistribution of the population will be an important phase of the Korean economy at the beginning of the new government.

AUTARCHIC PRINCIPLES SHOULD BE AVOIDED

Another special danger exists in the establishment of an independent state in free Korea. Great care must be taken in order that industry may be carried on with other countries in a harmonious way in order to avoid any autarchic experiments. The writer was born an Austrian and he has experienced the great mistakes which were made in Europe after the Austrian

Monarchy was divided. The old Austrian Monarchy had an economic system which was very well balanced; different districts specialized in the production of certain commodities.

After the Treaties of Versailles and St. Germain, the independent states (newly created) started to function and to develop their own industries. As each of these new states was not very friendly with its neighbors, a high tariff wall was built up; it then became impossible for industries located in one of the new states to sell their goods to territories which were a part of the old Austrian Monarchy but which now existed as new states. As each one developed industrially, their manufacturing was on a much smaller scale because these high tariff walls prevented exporting goods. The idea that each independent state should be entirely self-sufficient which would lead to war. Such a principle is economically unsound, and it is general ruinous.

Sound economic development must be based upon proper trade relations with a country's neighbors. It will be one of the most responsible tasks of the planning for Korean industry to find out which kind can be properly developed on Korean soil in order to ensure economic success, and which industries might better be left to other countries and their products be imported into Korea. It is a fact accepted by economists that one-sided imports or exports for a certain economic system will never lead to ultimate success. Therefore, it is of outstanding importance that the planners of industry for the new Korean state avoid any autarchic principles or the erection of high tariff walls; this would surely prove to be disastrous. At the beginning, it may be necessary for some of the new industries to be protected by customs levies; in general, however, any autarchic program should be strictly avoided.

The great resources of Korea consist of her water power and her mineral deposits, and the personal skill of the Korean people. With proper planning, the new state will surely aid in (1) the harmonious distribution of the population between agriculture and industry, and (2) the development of the country industrially so as to attain a well balanced system of exports and imports.

The geographical location, as well as the Korean people themselves, makes Korea an ideal connecting link between the vast unindustrialized lands of the Asiatic continent and the islands of the Pacific. Postwar conditions promise to give twenty-five million Koreans a chance for a brighter future.