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THE HAN YANG IRON WORKS

ALL ABOUT THE NEW BIG STEEL PLANT IN THE HEART OF THE CHINESE EMPIRE.

Steel Rail Twisted Into a Corkscrew

The Great Han Yang Steel Works Situated 600 Miles up the Yangtse

Big Blast Furnaces at Han Yang.

(Special Correspondence.)

HANKOW, 1909.—I write of the biggest steel plant on the mainland of the Asiatic continent. It lies here at Hankow, in the interior of China, 700 miles south of Pekin, and as far west of the Pacific as Cleveland is west of the Atlantic. It is in the very heart of the empire, accessible by water transportation to a population of over 100,000,000; and at a point where railroads will eventually converge as they do at Chicago. The Yangtse-Kiang is said to carry one-third of all the commerce of China, and as the biggest ocean steamers can come right to these steel works during the greater part of the year. Boats from a half dozen different provinces which contain coal and iron mines can reach it any month of the 12, and its products can be sent by water to the edge of Thibet, or on the Yangtse tributaries down to Yunnan, the great province which borders on Burmah. Hankow, which adjoins Han Yang, already has a trunk line of railroad to Pekin, and others are projected to Nanking and Canton.

THE CHICAGO OF CHINA.

Hankow has been called the Chicago of China. It will eventually be the Pittsburg and Birmingham as well. The smokestacks of its factories are already polluting the air, and it has all the natural resources of a great industrial and manufacturing center. It has coal and iron on all sides, and deposits of limestone, almost equal to Carrara marble in purity, lie in its back yard.

Take the ore which this steel plant is now using. It comes from a solid mountain of iron, about 60 miles down the Yangtse. The company has something like 35 square miles of iron deposits, and upon this are hills 200 feet high. It is estimated that more than 50,000,000 tons are already in sight, and that the mountain which is now being mined contains over 150,000,000 tons. The ore is 65 per cent pure. I am told it is 10 per cent better than the best Lake Superior ore, and equal to the highest grade of iron of Sweden. The coal which this steel plant uses also comes from about 700 miles up the Yangtse, and its mines are so situated that it can easily be loaded and brought down by water. It makes excellent coke and there are now about 200 ovens on fire at the mines. The present coal output is about 1,500 tons daily; and, with a little extra machinery, this can be increased to 3,000 tons. Both the coal and iron deposits belong to the steel company, although the iron mines have been mortgaged to Japan by a long-time contract which furnishes so much ore per year at a low price per ton.

CHINA'S STEEL CITY.

But let me tell you about the steel Hupeh and Hunan, two thriving industrial states, both containing millions. Han Yang extends far up the Yangtse above Hankow, the three sister cities combined exceeding Chicago in size.

The steel plant lies on a strip of lowland at the junction of the Han and the Yangtse. Up to a few years ago the ground on which it stands was a swamp; but the viceroy, Chang Chi Tung, having decided that China ought to build its own railroads and make its own steel, chose this as the place. He was viceroy of the Hukwang provinces at the time, and his capital city was Wuchang, which lies in plain sight across the Yangtse-Kiang. He first raised embankments to keep out the water, and then filled up the several hundred acres of swamp until he had raised the whole area 14 feet. In this work the dirt and other materials were carried in by coolies in little shovel-like baskets slung to the ends of poles on their shoulders. Basket by basket, they laid the foundation, and now, no one would imagine that the ground had ever been anything but solid. It is covered with great factories and foundries, and there are smokestacks 150 feet high rising upon it.

Indeed, Han Yang reminds me of Pittsburg. Its mighty chimneys, vomiting smoke, stand out against the sky, and its huge foundries and blast furnaces can be seen for miles up and down the Yangtse river. Altogether the works cover about 120 acres, and, including the mines which supply them, they employ a force of 20,000 hands. There are about 4,000 hands in the steel plant itself, and several thousand more in an armory and gunworks making rifles, artillery and small arms connected with it. Then Han Yang has a smokeless powder factory, a large electric works and a military academy which has 1,600 students. It takes about three hours' steady walking to go through the various establishments.

I shall not attempt to describe the plant itself. It lies on the north bank of the Yangtse, in the city of Han Yang, just west of Hankow, being separated from it by the Han river. There are three great cities at this point. Hankow, where I am writing, has a population of over a million. It is the present terminus of the Hankow-Pekin railroad; it is the chief tea-shipping city of China, and is a great industrial center. It is an open port, and has several foreign concessions inhabited by Europeans. On the opposite bank of the Yangtse-Kiang, which is here a mile wide, is Wuchang, another great Chinese city. This is about half as big as Boston, and covers a much greater space. It is the vice regal capital of

OWNED AND RUN BY CHINESE.

All these works are owned and run by Chinese. Of the 20,000 employes in the steel plant and mines, there are only 20 Europeans, and they act merely as foremen and advisory directors. As I have said, the works were originated by Chang Chi Tung, and that as a government enterprise. That famous viceroy had memorialized the throne that it should not be dependent upon foreigners, but should build its own railroads and make its own rails. The late emperor, Kwang-Su, and the great dowager consented to this and directed Chang Chi Tung to go ahead and carry out his ideas. He did so, but it was at a great expense and enormous loss. He sank millions, and was up to his eyes in debt, when the works were turned over to Sheng Kung Pao, China's multi-millionaire. Sheng bought them of the government, and, although he has nominally given them over to a stock company with a capital of $15,000,000 or so, he is still practically their owner.

Sheng Kung Pao lives at Shanghai, but he has able assistants here in the persons of V. K. Lee, V. T. Tsang and Wang Rok Shan, all business Chinese, who have been brought up in the works. Mr. Lee, the manager, is a native of Suchow. He was sent abroad to study the iron and steel plants of Europe and America, and from there brought back the plans upon which the plant was reorganized. Mr. Tsang comes from Nanking. He began his life here as an ordinary clerk, and has risen to be the vice manager, while Mr. Wang, the commercial director, who comes from Hongkong, has had a similar experience.

These three Chinese will rank as business men with the managers of the steel works of the United States. Each speaks English as fluently as any reader of this newspaper, and understands our books on steel-making.

I had letters of introduction to the managers from Mr. William Martin, our consul at Hankow, and in the absence of Mr. Lee my card was taken in to Mr. Tsang. Dressed in a black cap, a long silk gown and heavy cloth boots, I found him dictating directions to a stenographer. He looked like a classical Chinese professor, and I was greeted in English. After a chat of a few moments, he took me over to the technical director, Mr. Eugene Ruppert, and asked him to show me through the establishment. As he did so a Chinese brought in an important letter in French, a 4 Mr. Tsang and Mr. Ruppert discussed this in the French language, as though both were born Frenchmen. I doubt not Tsang can speak German as well, and that, although he has never been outside the empire.

MAKING STEEL EQUAL TO SWEDEN.

Leaving the offices, I went through the various departments of the steel plant with the technical director. Mr. Ruppert has been here for 17 years. He started in at the beginning with Chang Chi Tung, and is still one of the chief advisers and directors of the establishment.

I shall not attempt to describe the blast furnaces, the rolling mills and the foundries. They are just like those of Pittsburg, Cleveland, Chicago and other steel-making cities. They have the finest machinery, and they throw their old machines on the scrap heap when they become worn out or antedated. For instance, at the start a costly Bessemer plant was put in, and most of the smelting was done by that process. Then it was discovered that there was too much sulphur in the coal to get good results, and Siemens-Martin furnaces have been installed.

The steel now produced is said to be among the best of the world. I saw many tests which proved its excellence. These tests were performed with cold steel. One was on the little iron fish-plates which fasten the steel rails together as they lie on the ties. These plates a ½-inch thick, 3 inches wide and 1 foot or more long. They were put in a machine by which they were doubled up as though they were India rubber, and that without the sign of a crack. This was done with the cold iron. I saw cold railroad spikes twisted around and around until they looked like ropes, and sections of cold steel rails weighing 80 pounds to the yard twisted into gigantic corkscrews, without a crack or break anywhere showing. I stood upon a piece of one of these rails about five feet long beside myself and a Chinese workman, and had Mr. Ruppert snap my camera to show how it looks. A rail which can stand that kind of a test could not possibly break with the cold. It is as tough as wrought iron and can be bent up like a rope without cracking.

IRON RAILS FOR CHINESE TRUNK LINES.

As we went through the works I saw great piles of steel rails, weighing 85 pounds to the yard, which are now making for the Canton-Hankow road. They are being turned out at the rate of several hundred per day. Mr. Ruppert tells me that the most of the rails for the Chinese roads of the future will be made at Han Yang. The government is granting all its new concessions, with the proviso that the rails must be purchased of this Chinese factory, unless the bids of foreign firms are at least 5 per cent cheaper, the quality being the same. The Han Yang Steel works has furnished all the iron for the Hankow-Pekin trunk line, which is over 750 miles long. It supplied the rails for the railway from Nanking to Shanghai, and it is under contract to furnish those for the road now building from Kowloon, the port opposite Hongkong, to Canton. There is no doubt but that the Chinese can make their own railroad materials, and Mr. Ruppert tells me that they are now making steel rails and all sorts of structural steel at a profit.

CHINESE IRON FOR THE UNITED STATES.

During my walk through the rolling mill I asked Mr. Ruppert whether he ever expected to export steel to the American market. He replied:

"Most certainly not. At least not during the present generation. We have already shipped considerable pig iron to San Francisco and to Japan, and we have sent one shipment to New York by the Suez canal and sold it just to show that we could do so and make money. As for the present and for years to come, we can do better by supplying the Chinese demand. We have now in hand enough orders to keep us busy until the end of 1910, and we are receiving more every day. Indeed, it will be a long time before China can keep pace with her own needs in such materials. We are building new furnaces as rapidly as we can, and are already increasing our capacity. We have a scheme of expansion which will keep us busy for five years to come, and when that is done we shall be turning out 1,000 tons of steel per day. Even then we shall have more than we can do to supply our own wants."

"What kinds of steel are you making?"

"We make sheets, plates, angles, beams and bar steel, as well as all sorts of structural steel and steel rails. We make frogs, spikes, nuts and bolts, and our rails run from 50 to 100 pounds to the yard. All this is by the Siemens-Martin process, and that so well made that it will stand the tests of the British Lloyds, the German Lloyds and the British board of trade. Indeed, we are manufacturing as good steel as can be made anywhere."

LITTLE AMERICAN MACHINERY USED.

As we walked through the plant and I saw new machines being installed I asked as to whether much of the imports came from America.

"Not a great deal," said the technical director. "We use your locomotives in our yards, and we have some American machines in our steel works, but we find that we can buy better and cheaper in England and Germany, and that the terms they offer are easier than those of the United States. As it is now we have three Siemens-Martin furnaces in operation, two under construction and five under projection. Our daily output of steel is 250 tons, and we shall soon be making 300 tons more."

As we walked about I was surprised at how the new and old methods of working are carried on side by side. The ore comes down from the mines in great barges towed in by steam, and it is unloaded by coolies who carry out the lumps of iron stone in little rope baskets as big around as a wash basin. A half dozen of more chunks of red ore are piled up in each basket, and the coolie has two or three slung to the ends of a pole which rests on his shoulders, his load weighing perhaps 100 pounds. This is dropped into cars, and is thus carried to the smelting furnaces a half mile further on. The coolies who land the ore each receive 1 cent per hour. Near where such work was going on I saw modern cranes operated by steam engines lifting great castings and carrying them from one end of the yard to the other; and further on, inside the shops, traveling cranes handling pieces of iron of 50 tons each. In the same place they were casting steel ingots, and not far away the ingots, blazing hot, were passed through one set of rollers after another until they became writhing, flaming boa-constrictors, and finally steel rails of the cold blue color which they have when first laid on our railroad tracks.

CHINESE AS STEEL WORKERS.

I asked Mr. Ruppert as to the Chinese as steel workers. He replied:

"At the start they are not equal to Europeans, but we can train them to be as good, man for man, as any in the world. I have been employing Chinese for 17 years, and have used thousands right in these works. They are quick to learn. All we need do is to put a trained man over each new hand for a couple of weeks, and after that the amateur can be relied upon to do the work for himself. This is so even with complicated machinery. Take our new electric traveling cranes. If I have an employe who understands them I can let a Chinese coolie work with him for six days, and after that the coolie will handle the machine. All of our operations in making every class of structural steel, are performed by Chinese. They do their work honestly and well. All that is necessary is to have a good foreman in charge of each shop, and this is chiefly to keep the men from going to sleep. We prefer to use foreigners for foremen, and now have something like 18 or 20 in our employ as such. They are chiefly Germans or Belgians."

"What kind of wages do you pay?"

"Our Chinese mechanics and mill men get from 10 to 80 dollars Mexican per month; that is, from 4 to 32 dollars gold per month, or from 1 dollar to 8 dollars gold per week. This is high in comparison with the wages throughout the country, the common laborer outside receiving only about 10 cents a day."

"What are your hours?"

"They are 12, on all days except Sundays, when they are 24. We work day and night, and have day and night shifts. On Sunday we change the shifts, and for that reason they have double hours. This 12 hours includes one hour off for lunch, with double that time or more on Sunday."

"Do you have many strikes?"

"We have never had one, and have never had to shut down on account of labor troubles. We treat our men well, and they are attached to us. We have tenement houses which we rent to them at low rates; and also a first-class hospital with European doctors. We expect to establish a library and reading room, and also a technical school."

THE PLANT IN A NUTSHELL.

Before leaving the works, I asked Mr. Ruppert to give me an outline story of the plant in a nutshell. Here is the gist of his reply:

"The Hang Yang works were founded in 1888 by Chang Chi Tung, the installation plant being ordered through the Chinese ministry at London of English and Belgian firms. This consisted of three blast furnaces of 60 tons each, a Bessemer plant with two converters of five tons each, a Siemens-Martin furnace of 10 tons capacity, 20 puddling furnaces with one bloom mill, a plate-and-bar mill and one rail mill of 6,500 horsepower. To this installation were added the foundry and the shops for general repairs.

"The works were started in 1894 and at the same time were built an imperial arsenal for making firearms and ammunition, crucible steel and also a plant for the manufacture of powder and explosives. Until 1897 both the arsenal and iron works were under one management, and then the iron works went into the hands of his excellency, Sheng Kung Pao.

"It was under Sheng that the new plant was built. Everything was then modernized and plans were instituted which will eventually result in giving us 1,000 tons of finished steel per day.

"At present the works comprise two old blast furnaces producing 120 tons per day, and two new ones, one being now under construction, each of which will produce 50 tons per day.

"The steel works now have three Siemens-Martin furnaces of 30 tons each, and one of 10 tons, with two more under construction and five under projection. There is a metal mixer of 150 tons capacity, a rolling mill with ingot-heating furnaces, which has a cogging mill of 7,500 horsepower, a beam mill of 12,500 horsepower, a plate mill of 7,500 and a rail mill of 6,500 horsepower, together with several bar-and-speed mills of 150 horsepower each. In addition to this we have a chemical laboratory and testing works, large office buildings and all the other appliances of an up-to-date steelmaking plant."

FRANK G. CARPENTER.

PHOTO BY BUCK, WASH.

EUGENE H. C. LEUTZE,
Retiring rear admiral of the navy.

A FRIEND IN NEED.

In the Hungarian parliamentary session of 1861 a certain Baron Sajel lived in Pressburg with two intimate friends, George Majlath and Barthel Szemere. One day the baron became envious of their laurels. He called Szemere aside and said to him: "My good Szemere, write me a speech." "Most willingly, my dear friend. About what would you like to speak?" "It is all the same to me, if the speech is only a nice one—wonderfully nice." "You will be satisfied with me," he answered, and next day brought the manuscript. The baron memorized the speech and delivered it on the third day. The chamber re-echoed with "vivas" and applause. At this moment the president rose and asked, "Is anybody here to answer this speech?" The baron looked sneeringly around. The members all remained silent. Then Bartholomeaus Szepsy arose. He began, "Worthy gentlemen, what the orator said is from beginning to end incorrect." And then he began to show, in an able speech, the mistakes the baron had made. "Don't you believe him, gentlemen?" the baron cried angrily, interrupting him suddenly. "It was he himself who wrote the speech for me." Every one of the 32 members rolled in his seat nearly convulsed with laughter, and then and there the baron made a vow never again to speak in public.

IRS. IDA LEWIS WILSON.

Mrs. Wilson, commonly known as Ida Lewis, is the Grace Darling of the United States. She is 65 years old and has had charge of the Lime Rock lighthouse, Newport harbor, for 50 years. She has made a number of daring rescues and has many medals for bravery, one from Congress.