

Extractive Visions: Sweden's Quest for China's Natural Resources, 1913-1916

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Abstract: The first half of the twentieth century was formative in shaping modern China's approach to natural resource extraction. A key issue in the earlier literature on this topic concerns the relationship between domestic and foreign actors and the role of colonialism in this context. The existing studies have focused almost exclusively on the relationship between China and the great powers. In this paper we widen the story by asking how the smaller Western nations behaved in relation to China's natural resources. Focusing on the case study of Sweden, we argue that the smaller Western nations were, as a matter of fact, at least as eager as the great powers to explore and exploit China for their own purposes. In contrast to the larger powers, however, they were rarely able to draw on military and political force to pursue these interests. They had to use other means. This paper scrutinizes how Swedish scientists, diplomats and industrialists joined forces to profit from Chinese natural resource extraction. Sweden's "extractive vision", as we call it, took as its point of departure the recruitment of Johan Gunnar Andersson, head of the Swedish Geological Survey, as a key advisor to the Chinese government from 1914. A whole network of Swedish actors – comprising high-level diplomats, leading banks, weapons manufacturers and steel companies – subsequently emerged, with the purpose of taking control over China's emerging iron ore and steel industry. The activities later on diversified to include other natural resources as well, such as antimony and petroleum. In the end, the efforts failed, but the experiences arguably played a significant role for later Swedish business endeavors in China.

Introduction

Following its humiliating defeat in the First Sino-Japanese War (1894-95), China embarked on a path to modernize itself. One of the key challenges in this context was to make productive use of the country's natural resources. Large supplies of coal, iron, timber and a range of other raw materials were identified as the *sine qua non* for the build-up of a modern Chinese industry and military. The challenge to actually make the resources available was daunting, partly because China lacked experience, knowledge, capital and infrastructure, and partly because a range of foreign powers competed with the Chinese for access to the country's natural resource base. As a matter of fact, much of the extractive activities that were already in place were controlled by foreign actors.

The foreigners took interest in exploiting China's natural resources both for the huge business profits that could be made and for their own concrete resource needs. While bulky key resources such as

coal, iron or timber, considering the high transport costs, could be rarely exported with a profit to Europe or North America, the Western and Japanese colonial settlements in China found themselves in need of cheap and reliable access to ever larger amounts of raw materials. Germany, for example, made sure its concessions in the Shandong peninsula, which it violently acquired in 1897, included exclusive rights to the peninsula's strategic coal mines; the Shandong Railway, built by the Germans in 1898-1901, then took care of shipping the coal to the German naval base at Qingdao and the fuel-hungry warships there. In the same vein British companies exploited a number of coal and iron mines in their "sphere of interest," which essentially covered the Yangtze Valley and surroundings and which was protected by British warships patrolling the Yangtze River. The United States, for its part, had Standard Oil work China's main oilfields. Japan also became very active, aggressively exploiting Manchuria's coal and iron resources in line with an ambitious resource imperialist strategy that also involved Korea and Taiwan.

In this paper we widen this story by asking how the smaller Western nations behaved in relation to China's natural resources. How did they position themselves in relation to the struggle between Chinese domestic interests and the Western great powers for the Middle Kingdom's fuel and mineral riches? To what extent did they take part in the "opening up" of China as a natural resource space? These are our overarching research questions. We will argue that the smaller Western nations were, as a matter of fact, at least as eager as the great powers to explore and exploit China for their own purposes. In contrast to the larger powers, however, they were rarely able to draw on military and political force to pursue these interests. They had to use other means.

Our analysis takes the form of a case study in which Swedish diplomats, businessmen, and scientists, in the immediate aftermath of the 1912 collapse of the Qing Empire, joined forces to leverage Swedish interests in China. More precisely, we trace how Swedish expertise in the field of science and engineering, together with a foreign policy centered on neutrality, were identified as tools that, or so the actors believed, could compensate for Sweden's political and military weakness in the quest for a quasi-colonial presence in China. At the focus in our narrative is, in particular, China's huge but yet-to-be-developed iron ore resources, although the Swedish "extractive vision", as we will call it, was later on broadened to include a range of other materials as well.

China in the context of Swedish industrial and foreign policy interests

At the turn of the twentieth century the Swedish interest in China and the prospects that its future development might offer was still lukewarm. The most important Swedish activities in the country were those of Swedish missionaries, which were fairly numerous and spread out around the provinces of the empire – from Yunnan and Mongolia to Shanxi and Xinjiang. In Shanghai, the main economic hub and colonial settlement, a few Swedish businessmen had also tried their luck, piggy-

backing on the activities of the imperial powers, though without much success. A consulate, headed by the Wijk trading company, formed the only link between these actors and the Swedish state. Sweden had not yet any diplomatic representative in Beijing, the imperial capital.

But Sweden's interest in China was growing. Especially after 1905, many Swedish analysts identified the Far East as a region that was likely to grow in strategic importance globally, both economically and politically. Japan's victory over Russia in the 1904-05 war both shocked and impressed the Western world, and China seemed to be set on a path to emulating much of the Japanese modernization strategy. At the same time Sweden saw its political union with Norway dissolve. The political and economic elite pondered on how to compensate for this loss, one key conclusion being that aggressive internationalization of Swedish business would provide a promising new avenue. It would strengthen the Swedish economy and lead the country to prosper, while also raising Sweden's reputation in the world more generally – a key task in its own right in this age of growing nationalist sentiments. Russia was identified as the most interesting “new” region for Swedish business, but the Far East was not far behind in the vision that gradually took form. Politics and industry joined forces in an orchestrated internationalization strategy, as show-cased by the 1905 reforms of the foreign policy bureaucracy. A consensus emerged that one of the main tasks of foreign policy must be to support Swedish business abroad, and foreign policy makers increasingly eyed Swedish business activities abroad as tools that could be mobilized for diplomatic purposes.

Extraction of natural resources was not a surprising focal point in this context. Everyone was aware that Sweden's own industrial development had hinged on the exploitation of the country's abundant resource riches, notably iron ore, forest resources, and hydropower. Considerable expertise – and pride – had accumulated here, as reflected not only in the tremendous success of a range of resource-based business enterprises, but also in proud state agencies such as the Swedish Geological Survey (SGU). The country also hosted a range of scientific and educational establishments that regularly produced world-renowned scientists and batches of highly competent graduates in fields such as chemistry, geology, metallurgy, and mining. Abroad, Sweden was especially renowned for its important role in the study and exploitation of iron ore – the very backbone of the industrial age.

In 1908 the Swedish Geological Survey (SGU), which at the time was led by Johan Gunnar Andersson (b. 1874), a young but ambitious geology professor and explorer, took the initiative to compile a survey of the world's iron ore resources. For this purpose SGU brought together geologists and mining experts from all over the world to a major conference in Stockholm. It took place in the summer of 1910. This event became a starting point for a Swedish awareness about China's natural resource riches, although most of these resources had not yet been mapped. The inputs to the conference from China made clear that its iron ore – and probably most other resources

as well – had so far only been explored in a very patchy way and by uncoordinated foreign and local interests. Knowledge of ore deposits and fuel resources was typically of an anecdotal nature at best.

A Chinese Geological Survey under Swedish Leadership

In the course of the years leading up to the demise of the Qing Empire in 1911, Chinese state and provincial leaders, along with Japan and the Western colonial powers, took growing interest in the vast country's natural resources as the *sine qua non* for industrial development and national security. Iron and coal were in this context regarded as by far the most strategic resources. This debate, which could be followed in Chinese newspapers, attracted the attention of Swedish expatriates. One of them was Erik Nyström, a young geologist with degrees from KTH Royal Institute of Technology in Stockholm and Uppsala University. Having arrived in China already in 1901, Nyström had found employment as a professor of geology and chemistry at a newly created university at Taiyuan in Shanxi Province. With time he came to develop close ties to China and learn fluent Chinese, although he also maintained a patriotic sense of mission for his home country. Making use of his robust Swedish training in the field sciences he often took the opportunity to leave the classroom and explore, together with his students, the province's natural resources. In 1912, this work eventually resulted in an English-language book, *Coal and Mineral Resources of Shansi Province*. It was subsequently translated into Chinese.

Building on his experience from Shanxi, Nyström came up with the idea that Swedish geologists might play an active role in systematically mapping the totality of China's natural resources. He reasoned that the new republican government, which took office after the demise of the Qing Empire, would be interested in a more scientific approach to industrialization and modernization. For this purpose he approached Sweden's main diplomatic representative in Beijing, G.O. Wallenberg. Wallenberg, following his appointment as Sweden's first envoy to Japan and China in 1906, knew little about geology. However, he had shown considerable skill in creating opportunities for Swedish interests in both Japan and China. Among other things, he had played a key role in forging a joint Swedish export initiative to China. During 1912, these activities had yielded a breakthrough, the most important Swedish success being an Ericsson contract for a telephone network to be built in Shanghai. It also seemed that Sweden, through a credit arrangement involving SEB, might win a concession for a major new railway, the planned Anhui Railway. Wallenberg was very optimistic about the future possibilities for Sweden in China, reasoning that China was a nation destined to become a major industrial power and that the Chinese, in seeking to achieve this, would be more interested in cooperating with small nations such as Sweden than with the large imperial powers. This idea would be a recurring point of departure for Wallenberg's diplomatic initiatives not only in the Far East, but subsequently in the Middle East as well.¹

¹ Ref Turkish chromium...

Nyström's initial idea was not directly related to any industrial Swedish interests. Instead, he suggested approaching the Chinese government with a proposition that one or more Swedish geologists enter into Chinese service for geological surveying purposes. He obviously thought of himself as a suitable person in this context, but reasoned that it would be even better if several Swedish experts could be attracted. If the Chinese government agreed, these persons could be charged with helping the Chinese to set up a geological survey organization. Wallenberg supported the idea, recommending Nyström to take it up for discussion with Johan Gunnar Andersson, head of SGU and the initiator of the 1910 world iron ore conference. When Andersson heard about Nyström's plan, he became so interested in it that he eventually proposed that he himself join forces with Nyström. He also asked his close colleague, the state geologist Felix Tegengren (b. 1884)², who similarly had played a crucial role in the context of the Swedish-led 1910 world iron ore survey, to accompany him. In the months that followed, Wallenberg and the geologists started to elaborate on a plan to set up in China "a geological survey after Swedish model and under Swedish leadership."

Internal political turmoil in China delayed the Swedish initiative by nearly a year, but following the coup d'état of 6 October 1913 and Yuan Shikai's definite rise to the Chinese presidency, Wallenberg and Nyström found the time ripe to approach the government and, in particular, the newly appointed Minister of Industry and Commerce, Chang Chi'en. The Swedes suggested that, given the "imperfectly known" Chinese iron ore deposits and the strategic importance of iron for any country with industrial ambitions, a commission of geological experts should be formed and "at once begin its work." The commission should preferably be led by the two Swedish professors Andersson and Nyström, while also including Tegengren and "some Chinese gentlemen chosen by your Excellency."³

Already during the Qing Empire, government advisory positions of the kind that the Swedes were seeking had generally been considered powerful tools for the foreign powers in their designs to influence Chinese governmental affairs. Following the revolution the stakes were further raised, as the whole state apparatus was now seen to be in flux and thus malleable. Following the coup d'état of 6 October 1913 and Yuan Shikai's definite rise to the Chinese presidency, the political situation stabilized and the foreign powers thought the time ripe to approach the new government, eyeing a one-time chance to take part in shaping the new Chinese state. All foreign powers eagerly sought

² The Finnish-Swedish Tegengren was born at Vasa, Finland. He studied at Helsinki and at the Swedish Mining Academy 1901-1907, before entering into the service of SGU in 1907. In 1919-1921 he would work for the Swedish Diamond Rock Drilling Company, after which he returned to China 1922-24 in the service as adviser to the Kailan Mining Administration. He worked as a consultant for China, Manchuria and the Soviet Union in 1924-28 before moving across the Pacific to taken on a position as chief geologist at the Norseman Corporation, Toronto and Newfoundland (1929-30). Then back in Asia, working for the Philippine Iron Mines Inc. and Ipo Gold Mining (1930-32). Returned to Sweden and a position at Boliden from 1933.

³ Nyström to Chang Chi'en, 21 October 1913.

access to important advisory positions, and the Swedes, accordingly, faced tough competition, especially from Germany.⁴ They tried to deal with the competition by explicitly distancing themselves from the great powers, whom Wallenberg and Nyström portrayed as unreliable profit- and power-hungry actors which did not really care about China's own development prospects. "To obtain unbiased judgment," Nyström explained to Chang Chi'en, the new Minister of Agriculture and Commerce, "I believe your Excellency will see the advantage of having on the commission foreigners of Swedish nationality, because Sweden has no undue ambitions in China."⁵

The Swedes thus, in their communication with their Chinese counterparts, took an explicitly anti-colonialist stance. They thought this would "generate big advantages for the Swedish name in the East" and "even elevate us above the other powers, with their more materialist purposes."⁶ The anti-colonialist approach was further concretized by Andersson, who suggested that one of the first missions for the Swedish geologists, if the proposed deal with the Chinese materialized, should be "to get a complete overview of the conditions on which concessions have been awarded to exploiters of foreign nationality." Andersson imagined that "one of the Geological Survey's most important tasks shall be to assist the Chinese government with its expertise to guard the interests of the Chinese state against the greedy pretensions of the foreigners."⁷ The Swedes would help the Chinese to "make sure that China's enormous mineral riches are made use of not only for the benefit of foreign concession owners, but to the greatest possible extent also of the Chinese state." In this context the Swedes intended to make clear to the Chinese that it would be "a great advantage" for them to "engage people from a small nation, which does not have such economic pretention tendencies as the great powers that are engaged in East Asia."⁸

Following a winter of intense correspondence between Wallenberg, the Swedish geologists, and Chinese officials, Wallenberg in February 1914 personally met with Chinese Minister of Industry Chang Chi'en and the Director of the Mining Bureau, Yang Ting-tung, to negotiate the deal in earnest.⁹ A few weeks later it was ready, Wallenberg being able to sign, on behalf of Andersson, the latter's contract for employment in Chinese state service. The contract opened up for Andersson, who now definitely emerged as the leading Swedish representative, to employ "assistants". This seemed to pave the way for Nyström and Tegengren to accompany Andersson, although their salaries would have to be sourced from non-governmental sources. Following the conclusion of the contract Andersson applied to the Swedish government for a one-year leave from his position as SGU head. Both the minister of agriculture Johan Beck-Friis and G.O. Wallenberg's half-brother K.A. Wallenberg, who had just been appointed new Swedish Minister of Foreign Affairs, showed

⁴ Andersson to Wallenberg, 5 January 1914

⁵ Nyström to Chang Chi'en, 21 October 1913.

⁶ Wallenberg to Andersson, 12 November 1913.

⁷ Andersson to Wallenberg, 17 December 1913

⁸ Andersson to Wallenberg, 19 December 1913

⁹ Wallenberg to Andersson, 12 February 1914

themselves very positive to the initiative, sharing Andersson's own view that his time in Chinese service might turn out highly beneficial for the long-term evolution of Sweden's relations with the new Republic of China.¹⁰

From Geology to Business

Andersson, following up on the anti-colonial Swedish rhetoric vis-à-vis the Chinese, told Wallenberg that he, in his new position, intended to “make clear to the Chinese that my program for the work will be China to the Chinese, and that I thus in all instances will represent the interests of the Chinese state vis-à-vis the foreigners”.¹¹ In his internal communications with other Swedish actors, however, he gradually developed a great enthusiasm for the possible utility of his new role not only for China, but for Sweden as well. In the end, this led the SGU head to devise several bold visions in which large-scale Swedish-led extraction of Chinese natural resources formed the point of departure – in a way that did not differ in any significant way from the ambitions of the great powers.

When the news about Andersson's unexpected new adviser position in China spread in Sweden, he was immediately approached by members of the Swedish industrial elite. This was largely a result of G.O. Wallenberg, who actively encouraged representatives of companies within his powerful family sphere to come up with ideas of how the Swedish geologists' work for the Chinese government could be exploited for business purposes. Andersson himself was in no way adverse to such discussions. On the contrary, throughout his career as a geologist he had always sought ways to make his science useful for his country, both politically and economically. Like many in his generation, he considered himself a great patriot and an obedient servant of his nation. He regarded it as his duty to continue in this role also while in Chinese service.

The Swedish industrialist that showed the greatest enthusiasm in the context of Andersson's Chinese position was Oscar Falkman (b. 1877), a well-known Swedish mining industrialist with far-reaching experience from abroad. Following his graduation from KTH in 1900, Falkman had spent several years at the Carnegie Steel Company in Pittsburgh, before returning to Sweden, where he in the years that followed became managing director of several important mining enterprises. He was generally very close to the Wallenberg family and later that same year he would marry G.O. Wallenberg's 23-year-old daughter Karin. Most importantly, he had just returned from a journey to the Far East and was able to share with the other participants at the meeting some first-hand impressions of Chinese industrial developments.

Before Andersson's leaving for China in spring 1914, Falkman took the initiative to invite selected members of the Swedish industrial elite to a secret meeting. The invited persons were all

¹⁰ Andersson to Wallenberg, 9 March 1914

¹¹ Andersson to Wallenberg, 21 March 1914

representatives of the Wallenberg industrial sphere. Apart from Falkman, who hosted the meeting, and Andersson himself, the participants counted Lorens Carlson (b. 1881)¹², director of the Wallenberg-controlled Swedish Diamond Rock Drilling Company, further the mining engineer K.F. Johansson, and, most importantly, the Jewish-Swedish industrialist and bank director August Nachmanson (f. 1878), head of the newly founded Wallenberg-owned AB Emissionsinstitutet, managing director of the Orkla Grube mining company in Norway, and member of the drilling company's supervisory board.

The purpose of the meeting to discuss “the possibilities for Swedish exploitation of ore and coal deposits in China, and other business activities in China related to this, for which excellent opportunities seem to have been opened up through the departure of Professor J. Gunnar Andersson to China”. Falkman, referring to his personal impressions from having visited China, had got the “lively impression that the time has come for an exploitation of the country's rich coal and ore deposits”. Sensing that big money could be made, he strongly argued that “initiatives should be taken from the Swedish side for a timely acquisition of the most promising deposits, after these have been investigated and exploitation recommended by a trustworthy expert.”¹³ With Andersson in charge of setting up a Chinese Geological Survey and Tegengren, one of the world's most experienced ore geologists, by his side, Swedish mining interests would have an advantage over other foreign nations in what Falkman thought amounted to a scramble for China's natural resources.

The other participants seemed equally enthusiastic. Director Carlson of the drilling company envisaged great prospects for his firm in China. Recognizing the potential competitive advantage of first-hand access to important geological information, Carlson happily agreed to dispatch one of the company's drilling experts to China – and pay for his salary while in Andersson's service. Nachmanson, for his part, regarded the current moment highly suitable as a starting point for a Swedish exploitation of China's resource riches. He therefore happily agreed to finance Tegengren's salary, while in Andersson's Chinese service, during a period of one year. One of Tegengren's main tasks would be to “look out for whether there in China could be some non-disposed deposits, in which Swedish capital could be invested.” Andersson, briefing Wallenberg about the meeting, stressed that it was “of greatest significance that the Chinese at the present state of the issue do not receive any information about his [Tegengren's] mission as an expert for the Swedish mining interests.”¹⁴ Nachmanson further proposed that K.F. Johansson, who participated in the meeting in his role as one of Sweden's leading mining engineers, be put at Andersson's service.

¹² Lorens Carlson was born in 1881. He studied at the Royal Institute of Technology and the Swedish Mining Academy (Bergshögskolan) 1900-1904, before entering into the service as an engineer at the drilling company. He remained its director from 1913 to his early death in 1932. See bio in August Nachmanson and Karl Sundberg, *Svenska Diamantbergborrnings Aktiebolaget 1886-1936*, p. 277.

¹³ Protocol of meeting at Director Oscar Falkman's office, Stockholm, 20 March 1914

¹⁴ Andersson to Wallenberg, 21 March 1914

Johansson in the end did not join Andersson. Tegengren, however, thanks to the Nachmansson's generous support, was able to accompany Andersson on his journey by train across Siberia to Beijing in early April 1914. Nyström, who had come to Sweden to regulate an inheritance matter that spring, also joined in, going back to Beijing by the same train. At Chita in eastern Siberia they picked up Carl Fredrik Erikson (b. 1878)¹⁵, a drilling expert in the service of the Swedish Diamond Rock Drilling Company, who had been working in Russia for some time but who had now been ordered by Carlson to join Anderson and Tegengren to Beijing. There, Erikson was officially employed as Andersson's private secretary.¹⁶

In the end Swedish industry thus came to provide direct financial support to the Andersson-led Swedish activities in China. The industrialists did so because they viewed Andersson's Chinese appointment as a unique point of entry for Swedish industry to the exploitation of Chinese natural resources, especially iron ore. As we will see, this vision, which in a number of ways contradicted the official purpose of the Swedish experts' planned activities in China, would soon be further scaled up. First of all, however, the Swedish geologists needed to establish themselves as trustworthy partners to the Chinese state actors – and demonstrate that their expertise could be highly useful for the newly formed republic.

Surveying China's Iron and Coal Resources

Andersson, Tegengren, and Erikson arrived in Beijing in mid-May 1914. One of Andersson's first priorities was to negotiate with the Ministry of Agriculture and Commerce about Nyström's employment as his assistant. Then, ten days after the arrival, Andersson, to his surprise, was informed that the Swedes were not the only foreign "mining advisers" that the government had employed. A Mr. A.S. Wheler, a British citizen, had also been employed. Wheler had earlier worked as a mining engineer for gold, diamond and tin deposits in India and Transvaal. "It is undeniably a dangerous experiment by the Chinese to, in this way, take two mutually independent gentlemen to start at the same time practically the same work. However, Mr. Wheler seems to be a nice and honest man with whom it should be possible to cooperate."¹⁷ Anderson then proposed that he and Wheler agree on a division of labour, which the latter accepted: while the Swedes would take care of surveying China's coal and iron resources, Wheler would focus on precious and rare metals (gold, copper, tin, antimony, etc.).

¹⁵ Erikson, born in 1878, had no formal academic qualifications, but far-reaching experience from employments at the mines of Norberg, Kallmora and Herräng. He joined the drilling company in 1898. In his role as a drilling expert he worked in Sweden, Norway, Italy, Russia, Spain, Austria, Japan, Switzerland and France. From 1929 he served on the supervisory board of the company.

¹⁶ August Nachmansson and Karl Sundberg, *Svenska Diamantbergborrnings Aktiebolaget 1886-1936*, s. 56.

¹⁷ 28.6.1914, Andersson reports to Wallenberg

On 3 June Anderson left on a first surveying trip to the “Western Hills” on an excursion, returning three weeks later. The purpose was to explore the coal basin at Chai T’ang. It went well.¹⁸

According to his report, the Chai Tang coal basin with an approximate of 33 square kilometers and an estimate average total thickness of the seams of 10 meters was calculated to contain at least 450 million tons of coal. The coal was partly anthracite partly bituminous, the qualities of which would become elucidated by the not yet finished chemical examination.¹⁹ In 1918 Andersson visited Chai Tang again and submitted a report to the minister of Agriculture and Commerce later. He surveyed the southern outcrop-zone, northern outcrop-zone and central field in Chai Tang and listed the numbers of probable workable reserves in each area respectively. In his report he also suggested where and how to make boring holes. At the same time, he was concerned about the transportation, he thought the rope-way was better than railway in Chai Tang.²⁰

The plan was then that Nyström return to the coal basin to explore it in further detail.

Increasingly, however, Andersson sought to convince the government that China’s situation with regard to coal was less of a problem, and that the key challenge from a strategic point of view had to do with iron ore. More precisely, Andersson argued with emphasis that it would be of critical importance for China to identify new, large iron ore deposits. In his communication with the country’s leaders, he also pointed to the highly unfortunate state of affairs that many of the best iron ore deposits so far known were controlled by foreign interests:

“The only Chinese Iron deposit which has, hitherto, created a modern large-scale Iron-plant is the famous Tayeh, in the province of Hupeh. This Iron-ore field, which is estimated to contain about 100 million tons of ore, corresponding to about 60 million tons of pig iron, is really a very precious treasure to the country, but it is not comparable in size to the enormous Iron-ores of the United States, Great Britain, Germany and Sweden. Furthermore, it is, from a national point of view, regrettable that the Chinese Government cannot at present exercise full control on the exploitation of the Tayeh deposit, and that large quantities of the best ore are annually sold to abroad on conditions which are little favourable to Chinese interests.”²¹

¹⁸ 28.6.1914, Andersson reports to Wallenberg

¹⁹ Report on the Chai Tang Coal Basin by J.G. Andersson

²⁰ Preliminary Report on Chai Tang Coalfield, Andersson to His Excellency Tien Wen-lieh, Minister of Agriculture and Commerce

²¹ Andersson to His Excellency Yuan Shih Kai, President of the Republic of China, 28 November 1914. “The future development of the Iron industry in China”

The government could not but agree with Andersson's observations. On 3 July 1914, then, President Yuan Shikai issued an official note in which he ordered Andersson "to apply his service especially to the Iron-ore problem, in order to investigate new deposits workable for modern large-scale industry."²²

Andersson himself spent the following weeks mainly on "organizational work" in Beijing. Tegengren and Erikson, however, left for a two-month surveying trip up to Inner Mongolia. Here they made use of their connections with another Swedish advisor in Chinese survey, F.A. Larsson, who in 1913, much thanks to Wallenberg's efforts, had been appointed the government's main advisor for "Mongolian affairs." Larson had a background as a Swedish missionary and had spent many years in the Mongolian region, gradually earning of reputation as the one single man who knew most about Mongolia.

POSSIBLY INSERT HERE SOME DETAILS ABOUT THE MONGOLIAN SURVEYING BY TEGENGRENN!

In the end of August Tegengren and Eriksson returned from this "pleasant journey". Andersson concluded that although it "didn't yield any mining-geological results of immediate importance," it generated far-reaching experience for a possible new trip that the Swedes hoped to undertake later on.²³

When Tegengren and Eriksson returned, Andersson himself was on an excursion to an iron ore deposit not very far from Beijing that Minister Chang had come to hear about. Andersson found that the deposits were very significant, and therefore wired Tegengren, who arrived and undertook a detailed survey. The ore was found to be of the same kind as the "poor Manchurian" iron ores. While the "poor" characteristics of the ore at first glance were interpreted as a problem, Andersson tried to turn it into an opportunity for Swedish industrial interests. He told his Chinese employers that the low grade of the ore meant that it "cannot be smelted directly but requires a preceding concentration process". Luckily, precisely such a process had recently been "developed for similar low grade ores by the mining engineers in my home country, Sweden." The implication was that these Swedish engineers could help the Chinese. As a first step in probing this possibility, Andersson ordered samples of the Lanchow ore to be sent to Sweden for "experimental treatment".²⁴

A second iron-ore discovery was made in September. The Swedes here cooperated with a Danish mining engineer, F.C. Mathiesen, who one day presented Andersson with "a remarkably beautiful

²² As quoted in Andersson to His Excellency Yuan Shih Kai, President of the Republic of China, 28 November 1914. "The future development of the Iron industry in China"

²³ Andersson to Wallenberg, 27 September 1914

²⁴ As quoted in Andersson to His Excellency Yuan Shih Kai, President of the Republic of China, 28 November 1914. "The future development of the Iron industry in China"

specimen of iron-ore". It was said to originate from Lung Kuan, in the HS ian-Hua-Hsien of Chihli province. Andersson, Mathiesen and Erikson decided to go and have a look at the deposit, which turned out to be a major one, leading the Scandinavian geologists to spend over three weeks at the site. The Lung-Kuan ore was richer than the Lanchow ore, and Andersson told his employers that it would be able to supply the strategic Hanyang Arsenal with the necessary raw material for about 100 years at the present rate of consumption!

After detailed survey of the Hsin-Yao and P'ang-Chia-Pu deposit near Lung-Kuan in 1914, nothing was done in a few years till in 1918 the Lung-Kuan Iron Mining Company obtained a permit to mine the deposits. Andersson found an extensive outcrops of the ore after the survey of Yen-Tung-Shan deposit which was in NE of HS ian-Hua-Hsien in May and June in 1918. In the end of 1918, the Yen-Tung-Shan deposit had been connected by rail with HS ian-Hua-Hsien. Since the regular mining operations were started, the maximum production of about 700 tons per day were recorded. At the same time, about 500 tons of ore were transported to Hanyang Arsenal every day. In 8 months, 100,000 tons of ore had been mined, out of which amount 40,000 tons has been shipped to Hanyang.²⁵

A third, even more promising iron-ore deposit that was surveyed that autumn by the Swedes was situated in the Yangtze Valley. The initiative of this discovery was reportedly "due to His Excellency General Feng Kuo Chang who had reported to the Department of Mines on the occurrence of Iron-ores near Nanking." Andersson dispatched Tegengren and a Chinese colleague, Lai Chi Kuang, to the site, which was located 45 li south of the city. The results were very encouraging. Tegengren estimated that the deposit contained about 40 million tons of very rich iron ore. If exploited, it would be sufficient to cover the present needs of the Hanyang ironworks for more than 200 years! First of all, however, the Swedes judged that "extensive stripping and some diamond drill boring" were direly needed to fully evaluate the deposit.

The ore field which was called Mo-Ling-Kuan extended in several iron bodies in the hills of Feng-Huang-Shan. In Tegengren's report, he first described that Japanese pressed the Chinese government mortgage the ore field for a loan. He also mentioned the protest from the provincial government and the local gentry. According to his report, the deposit in this field formed an almost continuous ore-body extending about 900 meters, the total horizontal surface area of the ore body is estimated 23,000 square meters. More than 2,000,000 tons might be taken to represent the upper and easily

²⁵ Felix Tegengren, *The iron ores and iron industry of China, including a summary of the iron situation of the circum-Pacific region*, Peking : Geological Survey of China, Ministry of Agriculture and Commerce, 1921-24, p.27-31.

minable resources. The surface outcrops was high quality of ore, the samples showed an iron content about 50-60%, while later samples in the trenches showed much inferior values.²⁶

Andersson himself in the meantime went north to the Kalgan area to look at “a very promising iron ore deposit, which we have come across in a way that has generated a certain sensation and given us an at the moment quite excellent ‘face’ at the ministry and the mining department.”

A Grand Swedish Vision

Filing an intermediate report to President Yuan Shikai in late November 1914, Andersson argued that the work carried out by himself and his Swedish assistants in cooperation with Chinese geologists opened up “totally new opportunities for China’s iron industry”. It was now high time to take some key strategic decisions on how to exploit the enormous new deposits that had been subject to geological surveying. In this context Andersson argued that a good starting point would be to look at the Swedish experience as one of the world’s leading and most advanced iron producers. “The present state of the Iron problem of China”, Andersson told President Yuan, “seems to me to offer remarkable parallels to the state of things in my own country ten years ago.” He argued that Sweden offered a success story, pointing to a series of measures recently undertaken that had “markedly strengthened the national independence and financial conditions of the country.” The Swedish mining industry was now “marked by technical perfection and splendid economical results.” There was no reason why China could not do the same.

The key to success, Andersson argued, lay in a proper mix of governmental and private initiatives and above all in the state’s ability to control and regulate the activities of private mining enterprises. Private interests should be allowed to play an important part, but the government must ultimately remain in control of the resources – especially so when the private companies were of foreign origin. Private companies should be allowed to take care of the “technical and commercial management” of mining projects, since states were rarely good at this. But the state should always remain the owner of the country’s mineral deposits. Applying this reasoning to the Chinese situation, Andersson argued that “it is most important that the new deposits are kept in the hands of the Government, and gradually developed so as to give the largest profit to the Chinese state.” This conclusion was relevant for all natural resources, but especially so for iron ore, due to its strategic importance for the military combined with the economic infeasibility, in case of failure to access domestic supplies, of importing iron ore from faraway overseas sources. The conclusion was that the Chinese government must do “everything possible to safeguard the national supplies of iron ores” and that “no concessions on Iron mines be granted to private individuals, but the Iron deposits of China be

²⁶ Felix Tegengren, *The iron ores and iron industry of China, including a summary of the iron situation of the circum-Pacific region*, Peking : Geological Survey of China, Ministry of Agriculture and Commerce, 1921-24, p.245-251.

declared State property to be utilized according to plans worked out by the Department of Mines and approved of by the Government.”

Following up on this report, Anderson approached the director of the Department of Mines, Chang Yi Ou [Zhang Yiou], with whom he had by now developed a very close cooperation. Here, Andersson argued that it was important to start thinking early on about suitable ways of attracting the necessary capital for the envisaged surge in Chinese state-led mining projects. The Swedish geologist pointed to the danger of technological or financial dependence on the foreign great powers. Such dependence, Andersson told Chang, could be lessened through “a participation of Sweden in the capitalization of your mining industry”. He here suggested that the government send a representative of the Ministry to Sweden “for the purpose of studying the Swedish iron industry... to visit the mines and the large ironworks, see the ovens, the electrical furnaces... also the well-developed railways, etc.” This person could then also “go to see the big Swedish financiers.” Andersson suggested that Chang himself may be the one to go, preferably accompanying Andersson on his planned return to Sweden for vacation in summer 1915.²⁷

The Chinese were obviously highly satisfied with Andersson’s work. In early January 1915 the government decided to extend his contract with the Survey for another year, along with Tegengren’s.²⁸ The regulatory and organizational reforms that were outlined at about the same time regarding the Chinese mining industry were also well in line with the Swedish recommendations. In late January 1915 Minister Chang Chien reported that in order to strengthen state control over China’s mineral riches the country should be divided into eight mining districts. The district headquarters would be under direct control of the Ministry of Agriculture and Commerce, and one of their first tasks would be to take a close look at the nature of foreign mining interests in their respective districts. The *Japan Times*, reporting on the reform, noted that “it is understood in future no mines shall be allowed to be mortgaged or used as security privately.”²⁹

Increasingly, the Chinese government identified Molinguan’s iron ore in the Yangtze valley as the key to expansion of the country’s iron industry. The Ministry of Agriculture and Commerce elaborated on a plan that foresaw massive exploitation of the ore along with the construction of new steel production facilities and, as a last step in the supply chain, a new arms factory. The overall goal was to make China independent of imported iron and steel, especially for military purposes. The Swedes played a unique role in shaping this development, not only in terms of their influence on China’s new mining regulations and geological surveying activities, but also through market surveys and concrete investment plans.

²⁷ Anderson to the Director of the Department of Mines, Chang Yi Ou, 11 December 1914 (in French)

²⁸ Wai Chiao Pu (Ministry of Agriculture and Commerce) to Wallenberg, 8 January 1915

²⁹ *Japan Times*, 29.1.1915, “Nationalization of Iron Mines”

In terms of actual surveying work, Tegengren, Nyström and Erikson spent much of spring and summer 1915 in the Yangtze Valley, delineating the Molinguan deposit in further detail. Wallenberg here also contributed by helping the scientists to organize several purchases of equipment needed in the field.

Andersson, meanwhile, following a proposal by Nachmansson of Emissionsinstitutet,³⁰ sought to gain more detailed insights into the iron ore market in the Pacific region and, most important, its expected future development. The goal was to find out whether it would be profitable to extract iron ore from Molinguan at an aggressive pace and sell it to countries in the Pacific region – essentially Japan and its colonies, the Philippines, Australia, the western states of Latin America, the US West Coast and the Canadian West Coast. Andersson and Wallenberg, expecting that Swedish banks and the Swedish mining industry participated in such a project, were eager to determine its profitability. Tegengren here assisted Andersson in compiling a questionnaire, and Wallenberg, from his base in Tokyo, then helped the geologists to distribute it to governments and mining departments in the Pacific region. In the questionnaire it was emphasized that the Molinguan deposit contained very high-quality iron ore, consisting of 58-60% iron and with only very minor pollutants in the form of 0.01-0.04% sulfur and 0.05-0.4% phosphorus. It was also indicated that the ore could become available in very large volumes, up to “something like half a million tons annually”. The Swedes were particularly interested in the price that could possibly be achieved. Andersson, however, discussing the questionnaire with Wallenberg, thought it important that the issue “be treated under discrete forms.”³¹

At the same time, the Swedes approached the Chinese government in an effort to make sure that Swedish industry would be allowed to play a central role in the exploitation of the Molinguan deposit. As a first step here, Andersson proposed that the government employ one of Sweden’s most experienced mining experts, Gunnar Dillner, for a period of six months. His task would be to “delineate a program for the development of China’s iron industry,”³² the most urgent part of which centered on “a plan for a steel plant and a weapons factory”. These factories were to be constructed in parallel with the preparation of ore extraction. They would be the main domestic users of the iron ore.³³ Dillner (b. 1875) belonged to the same generation of the Swedish industrial-political elite as Andersson, Nachmansson, Falkman and Carlson. He had graduated as a mining engineer from KTH in Stockholm, but had also studied at ETH in Switzerland and the famous Bergakademie Freiberg, Germany. In 1903 he had been appointed professor of metallurgy at KTH, where he had stayed until Axel Johnson & Co in 1907 acquired him as technical manager for their industrial works and mine.

³⁰ Nachmansson to Andersson,” [The Archive of Beiyang Government](#) • Department of Agriculture and Commerce”

³¹ Andersson to Wallenberg, 2 June 1915 (1st)

³² Andersson to Wallenberg, 2 June 1915 (2nd); Andersson to Minister of Agriculture and Commerce Tsao Chu Tsi.

³³ Andersson 2 Sep report

In this capacity he was the leader of the Avesta Iron Works and several mine fields. In 1912 Dillner had then entered in the service of Swedish government as chief of the Industrial Bureau of the Board of Trade. In 1913, finally, he had been appointed a member of the Royal Commission for Investigation of the possibilities of founding a Swedish Governmental Oil Industry. Following the outbreak of the war, however, his most important role was that as Chairman of the Royal Industrial Commission, which played the central role in organizing Swedish industry in a time of radical turmoil. In this context he had also been charged with investigating the best methods to develop the big minefields in Norrland belonging to the Crown. All in all, he seemed to be uniquely suited for the job.

In the end Dillner did not manage to embark on the envisaged task, because the Swedish government needed him, especially after the closure of Swedish supply lines following the North Sea blockade.³⁴ Although he thus never went in person to see the Molinguan deposit, however, he did take on the task of looking into the prospects for a Swedish-led exploitation of the Yangtze Valley's iron riches, compiling a thorough report that Andersson, having spent the summer in Sweden, brought to Beijing in early September 2015.

In his report,³⁵ which essentially took the form of a budget, Dillner focused on a comprehensive plan involving not only extraction of iron ore as such, but above all the construction of a big steel factory to produce pig iron, Martin iron and steel bar, steel plates, etc., along with a smaller steel factory to produce refined, high-quality steel. The big factory, in Dillner's design, would produce 150,000 tons of pig iron and 100,000 tons of different kinds of rolling steel. The pig iron was to be sold to Pacific countries or domestically. The rolling steel was to be used for things like railway tracks, steel bars, steel wire, etc. Key equipment needed for the factory included blast furnaces, coke ovens, rolling machines and an electric power plant. In terms of ore, the big steel factory would be in need of 420,000 tons of ore from Molinguan annually. 250,000 tons of coke would also be needed, along with 100,000 tons of pure limestone. 385,000 tons of steam coal would further be needed to fuel the electric power plant. The total costs for constructing the big factory was estimated to 10.5 million Swedish crowns or 6,560,000 Mexican silver coins (exchange rate: 1.6)

The small steel factory, for its part, would be designed for the needs of the Chinese military, and more precisely of a weapons factory that the Swedes proposed to build in the immediate vicinity of this smaller mill. The steel plant would be in need of only about 18,000 tons of iron ore per year. The scale of the plant meant that it would not be economic to produce pig iron on site; it could better be sourced from elsewhere. If good iron ore deposits were found nearby, however, Dillner thought it

³⁴ Anderson to Minister of Agriculture and Commerce, 2 September 1915, "The Archive of Beiyang Government · Department of Agriculture and Commerce"

³⁵ G. Dillner, Budget for Construction of a Steel Factory, 24 August, 1915, "The Archive of Beiyang Government · Department of Agriculture and Commerce"

worthwhile to consider erecting a large blast furnace, which could produce a lot of pig iron and sell the surplus pig iron on the market. This possible facility aside, the special steel plant would consist of three main factories: a raw steel plant (which was to use a Martin furnace to turn pig iron into brittle, low-carbon steel and then pour this basic steel into an electric-arc furnace that, with alkali elements being added, enabled getting rid of phosphorous and sulfur, and finally, by adding carbon, chromium and nickel, have the high-quality refined steel ready), a rolling facility, and an electric power plant (which would supply the rolling mill and especially the electric-arc furnace). The expenses were estimated at 2.56 million SEK. Storage and transport added another 1 million SEK in expenses.

During his time in Sweden, Andersson also followed up his earlier talks with the diamond drilling company, the mining industrial interests, and the financiers in the Wallenberg group. Moreover, he met with numerous Swedish experts in everything from geology to weapons. With Dillner's expert advice in the luggage, Andersson, during his trip back to Beijing in late summer, wrote a report to the Minister of Agriculture and Commerce, in which he further elaborated on the most suitable ways of exploiting China's iron ore. Commenting on Dillner's budget, he recommended that the big steel factory be built at Pukou on the Yangtze River, just opposite Nanjing. This meant that the Molinguan ore would have to be brought overland, preferably by a yet-to-be-built railway, to the river, which gave rise to costs. These costs were more than compensated for, however, by the ease with which other necessary raw materials could be brought to the site either by river barge or by the newly constructed Tianjin-Pukou Railway. These additional raw materials included huge volumes of coal, coke and limestone, along with further key inputs such as manganese and other alloying metals. For the small steel plant, to be built in Henan, it would further be necessary to acquire large amounts of nickel and chromium. The weapons factory would need additional metals, notably copper, zinc and antimony.

Concerning the Henan facilities, Andersson stressed that China needed to radically scale up its arms production. Referring to the ongoing war in Europe, he emphasized that "this is about life and death of the country." Large-scale access to modern weapons was clearly crucial in the twentieth century. "The power and strength of the country is not only about having enough soldiers and generals, but also about having enough weapons. Therefore the General should know that it must be the most urgent policy for the government to build modern kinds of weapons." To assist the Chinese, Andersson here proposed to invite a foreign expert. Due to the war, it was more or less impossible to get an expert from one of the belligerent nations. A good alternative, however, was to find an expert "from a neutral country." Conveniently, Andersson, during his summer vacation, had already enquired with people from various Swedish weapon factories. By far the most suitable person, he explained, was Rudolf Kjellman, Sweden's most famous weapon inventor-engineer with several decades of experience from the Stockholm Weapons Factory (which produced guns, cannons,

explosives, bullets, and so on) and Bofors. Kjellman had declared himself happy to become a consultant for the Chinese weapons factory.³⁶

All in all, Andersson's and Wallenberg's efforts to link up with Swedish industrial interests led the Swedes to devise an extremely ambitious and comprehensive plan for China's iron industry. They elaborated on the surveying needs and mining regulations and laws, but also on vast industrial projects involving the extraction of up to half a million tons of iron per year from the Molinguan deposit, the construction of railways and the erection of a huge new steel production complex on the Yangtze. They calculated the needs for additional raw material such as coal, coke, limestone and alloying metals. They carried out market surveys of the whole Pacific region in preparation for the large iron ore exports that they foresaw and produced elaborate designs of a special steel plant and a modern weapons factory. Swedish scientists, engineers and other experts were to play the most important roles as engineers and consultants throughout the construction process – and everything was to be financed by Swedish banks.

Beyond Iron: Widening the Swedish Vision

Building on their increasingly fruitful and trustful cooperation with Chinese state officials in the iron ore issue, Andersson and Wallenberg thought of ways to expand the Swedish involvement to other natural resources. In the context of the Great War, one of the most strategic resources was antimony, a metal of key importance in the armaments industry. Antimony was extracted in large quantities from Chinese ore deposits and exported in crude or refined form to several countries. Japan, for example, was almost totally dependent on China for its crude antimony supplies. One of the companies involved in both Japanese and European imports of Chinese antimony was a Swedish trading company, J.A. Kjellberg & Sons, which specialized in supplying the Japanese and Russian armies with antimony. In February 1915, Wallenberg, from his base in Tokyo, approached this firm with the idea that it might be possible to use Andersson's growing influence at the Chinese Ministry of Agriculture and Commerce and the Swedish mining ambitions in China to expand the Swedish benefits from antimony extraction and trade. Kjellberg's representative stated that "as currently the demand for antimony is extraordinarily large, due to the world war, and as the supply seems fairly limited, it, it would surely be of great interest for our firm if a cooperation with the Swedish mining interests in China could be brought about." More precisely, Kjellberg hoped that the Swedish mining-related actors already involved in iron ore would be willing to diversify into antimony extraction and refinement.³⁷

³⁶ Anderson to Minister of Agriculture and Commerce, 2 September 1915, "The Archive of Beiyang Government · Department of Agriculture and Commerce"

³⁷ Lennart Tham (J.A. Kjellberg & Sons, Tokyo) to Wallenberg, 25.2.1915.

Wallenberg then contacted Andersson in Beijing, suggesting that “the Swedish-Chinese ore syndicate acquire one or more antimony deposits and work them, and that Kjellberg take care of selling the extracted or refined ore.” Andersson was not in charge of antimony and other special metals at the Geological Survey; these sorted under his British colleague, Wheler. “But since I know your dominant influence and know that W. and you can cooperate very well,” said Wallenberg, “I have come to believe that the best result would be reached if you would like to and were able to take on this issue.” More precisely, he asked Andersson to try and find out how, in practical terms, antimony deposits in China could be acquired.³⁸

Andersson turned to his colleague and formal boss, Chang from the Mining Bureau, who coincidentally had just undertaken a trip to study the Chinese antimony industry. The input from Chang, however, did not give rise to much optimism. The main reason was that the Chinese antimony industry was already technologically advanced, which meant that it would be difficult to argue that the Swedes could deliver any crucial assistance (as in the case of iron ore). The only immediate possibility to enter the Chinese antimony business, Andersson concluded, would be to “buy mines that are already being worked”. Yet it seemed unlikely that the Swedish companies would be interested in buying such an already operational Chinese antimony mine during the war-time *hausse*, considering the risk of buying overvalued assets.³⁹

Taking on a *newly discovered* antimony mine, by contrast, could potentially be of interest.⁴⁰ This was probably one of the motivating factors for Andersson when, later that year, he urged the Ministry to dispatch Tegengren and Erikson on a lengthy geological surveying mission to southern China. The trip started on 12 November 1915. Escorted by ten soldiers, the Swedes travelled up the Yangtze River through a corner of Sichuan through Guizhou, Hunan, Guangai and Guangdong, finally arriving in Canton. The journey turned into a real adventure, but it did prove a success from a geological surveying point of view. Already in the beginning of the trip this Swedish expedition passed through an area of alluvial gold, and later on through areas resting on considerable tin and mercury riches, most of which had never been mapped. The most important task, however, was to investigate in detail an already known, but not yet surveyed antimony field in the interior of southwestern China. Spending several days at this site, Tegengren and Erikson came to witness how the local police regularly whipped thieves who had been captured while trying to steal – tempted by the skyrocketing wartime antimony prices – large pieces of antimony ore. The Swedes eventually returned to Beijing towards spring 1916, and Erikson then went home to Sweden in May.⁴¹

³⁸ Wallenberg to Andersson, 24.2.1915

³⁹ Andersson to Wallenberg, 18 March 1915

⁴⁰ Andersson to Wallenberg, 18 March 1915

⁴¹ See excerpt from Erikson’s travelogue as quoted in August Nachmanson and Karl Sundberg, *Svenska Diamantbergborrnings Aktiebolaget 1886-1936*, s. 57-58. Andersson to Director Lorens Carlsson, Svenska Diamantbergborrningsbolaget, Stockholm, 16 January 1916

Andersson himself spent most of the autumn 1915 in Beijing, where he, in his communications with the government, took all chances he could to offer Swedish expert advice and help in various fields. In iron ore, and in several other metal ores, Sweden seemed a natural partner. But Andersson arranged for his countrymen to play a role also in areas where Sweden in no way belonged to the world leaders. For example, when Minister Chow Tzu-chi asked for Andersson's opinion concerning a major coal mine whose technical management had been unsatisfactory, Andersson replied that the company operating the mine was most probably in need of "thorough reorganization" and that it might be worthwhile employing an expert from Europe to deal with this issue – "a suitable man who will be invited to go here for a time of maximum 4 months to investigate the conditions, offer his advice... and discuss an eventual future appointment with the board of directors of the coal mining company." Unfortunately it would hardly be possible, given the war-time conditions, to find an expert from Germany or Britain, Europe's by far most advanced coal mining nations. But an expert from Sweden might be possible to arrange. Andersson recommended recruiting a willing expert from the Billesholm coalmines in Skåne – the only ones in the country – and took on the task of arranging the recruitment.⁴²

Another interesting initiative by Andersson was the creation of a geological museum connected to the Geological Survey in Beijing. At a first glance, such an institution would seem to fill purely scientific and educational purposes. Andersson, however, saw his creation in a wider perspective, noting that the museum "gives me an excuse to inquire about all possible kinds of deposits and to request access to all possible documents that the Ministry may dispose of."⁴³ In what followed, the museum became a tool for the Swedish geologists to systematically look through various potential business opportunities in a whole array of natural resources. Andersson optimistically concluding that "we will probably be able to find ideas here regarding different kinds of deposits." Andersson became very enthusiastic, for example, about the prospects for a Swedish involvement in Chinese oil prospecting and exploration. A chance seemed to open up here as Standard Oil, which had cooperated for many years with China in opening up Shensi's oilfields, faced opposition from the government when seeking to extend the agreement, which in the end was not renewed after its expiration in late 1915. "Would you be inclined to reflect on petroleum?" Andersson asked Director Carlson at the drilling company in Stockholm, offering to push the ministry to dispatch Tegengren and Erikson to the oilfields.

Other possibilities included the antimony field that the Swedes had mapped in a preliminary way, and the rich copper ores in Yunnan that Andersson's colleague Ting [Ding Wenjiang] had recently described in a journal. In Andersson's view, there were hardly any limits to the opportunities for Swedish industrial interests regarding China's natural resources. Increasingly, he also sensed that he

⁴² Andersson to engineer K.W. Gerdhem, 19 January 1916.

⁴³ Andersson to Director Lorens Carlson, Svenska Diamantbergborrningsbolaget, Stockholm, 16 January 1916.

might use his position more forcefully to promote the Swedish extractive visions. Brainstorming with Carlson of the drilling company, for example, he came up with the idea that he could

“tell the Chinese: ‘you may use Erikson under the condition that his principals in Sweden get preferential rights to negotiate with you about the extraction of the deposit.’ These days I’m so intimate with my men that I could very well make such a proposal, which I would not have dared a year ago. ... I could press the Chinese to promise a kind of option for your group.”⁴⁴

Epilogue

The bold vision of a Swedish-led exploitation of China’s natural resources came to an end in 1916, mainly due to the increasingly chaotic geopolitical situation in Europe and East Asia. Gradually it became clear that the Great War would not be over soon. This made the Swedish industrial interests – and in particular the banks – hesitant regarding any large-scale foreign investment projects. Even more alarming was the dramatic political development in China itself. In December 1915 President Yuan Shikai proclaimed himself Emperor of China, thus reinstating the monarchy. This led to sharp protests both domestically and internationally. A number of province governors, starting with the military governor of Yunnan, rebelled. The period of “warlordism” had begun. Yuan Shikai himself died in June 1916. For the Swedish geologists in Beijing, as servants of the central government, this development was devastating. From now on it became impossible to sustain any vision regarding natural resource extraction in distant regions such as the Yangtze Valley or in southern China. The ambitious Molinguan iron ore project came to a standstill, as did the antimony prospects in southwestern China and the tentative Swedish involvement in Shaanxi’s petroleum industry.

For some time, Andersson and Wallenberg retained their enthusiasm and optimism. They continued to think that the time for large-scale Swedish-led natural resource extraction may still come. One had to be patient. Erikson left China in May 1916, Tegengren a year later. But Andersson himself chose to remain in China, concluding an extended contract for another five years in Chinese service. This, he told Director Carlson at the drilling company, would hopefully “be of use to our joint plans.” Carlson, along with Nachmansson of Emissionsinstitutet, agreed. Carlson and Nachmansson’s experienced manager colleague at Emissionsinstitutet, Emil Lundqvist, who, among other things, had earlier worked in the South African diamond mining industry, declared their continued interest in the Molinguan project. In the meantime, awaiting the right moment to launch the more ambitious projects, they elaborated on some possible minor projects that might be carried out without any big

⁴⁴ Andersson to Director Lorens Carlson, Svenska Diamantbergborrningsbolaget, Stockholm, 16 January 1916

risks – the construction of a small-scale factory for the production of steel wire was mentioned as an example.⁴⁵

But in the end, even these small-scale plans failed to materialize. Wallenberg continued to promote Swedish business interests in the Far East until he was transferred to Constantinople in 1920. Andersson, however, increasingly took on a new passion: that of fossil collection and Chinese prehistory. This ultimately paved the way for his fame as a scientist. In Sweden he would later be remembered as “Kina-Gunnar” and as founder of the Museum of Far Eastern Antiquities in Stockholm.

⁴⁵ Lorens Carlson to Wallenberg, 23 March 1916; Wallenberg to Andersson, 24 March 1916; Wallenberg to Anderson, undated (but probably late spring 1916).