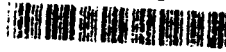


FOREIGN INTEREST IN THE
MINING INDUSTRY
IN CHINA

Dhananjayrao Gadgil Library



GIPE-PUNE-034158

C. Y. FISHER AND CHU

*Preliminary Paper Prepared for the Fourth Biennial Conference
of the Institute of Pacific Relations to be held in Hangchow,
from October 21st to November 4th, 1931.*

Published by
CHINA INSTITUTE OF PACIFIC RELATIONS,
SHANGHAI—CHINA

1931

ACKNOWLEDGEMENT

In compiling this brief summary the authors have consulted Dr. F. R. Tegengren's *The Iron Ores and Iron Industry of China*, Mr. William F. Collins' *Mineral Enterprise in China*, Mr. J. Morgan Clements' *Gold Placer Area in Mongolia*, Mr. Adachi Kinnosuke's *Manchuria*, Mr. Yu Ho-yin's *Report on the Fushun Mine* and a number of other publications.

Mention should be made of Dr. V. K. Ting's *Brief History of Chinese Mines Cooperated with Foreign Capitals*, also Dr. Ting's *Fifty Years of Chinese Mining Industry* in the *Shun Pao* Anniversary Volume, and Mr. T. F. Hou's *General Statement of the Mining Industry*, No. 3. These publications have been of great help.

The authors are particularly obliged to Dr. W. H. Wong, Director of the National Geological Survey of China, for his kindness in reading over the manuscripts, for his invaluable criticism and suggestions, and for his permission to make use of the records and files of the National Geological Survey.

C. Y. Hsieh

M. C. Chu

Peiping, July, 1931.

CONTENTS

I. HISTORICAL REVIEW.

- (1) The Beginning of Foreign Interest in Chinese Mines.
- (2) The Three Periods of Concession Development.
 1. The Battle of Concessions.
 2. The Period of Opposition and Redemption.
 3. The Mining Regulations of 1914.

II. THE CANCELLED CONCESSIONS.

- (1) The Shantung Bergbau Gesellschaft.
- (2) The Peking Syndicate Concession in Shansi.
- (3) The Coal Convention of Kirin and Heilunkiang.
- (4) The Kiangpeiting Concession.
- (5) The Eastern Pioneer Concession or the Morgan Concession.
- (6) The Yunnan Syndicate Concession.
- (7) The Tung Kuan Shan Concession.
- (8) The Mercury Concession in Kueichow.
- (9) The National Oil Administration and the Standard Oil Company.

III. MINING CONCESSION IN THE THREE EASTERN PROVINCES.

- A. The First Group: Entirely Foreign Controlled.
 - (1) The Fushun Mine (with a note on the Oil Shale).
 - (2) The Yentai Mine.
- B. The Second Group: Sino-foreign Controlled.
 - (3) The Penchihu Coal and Iron Mining Company.
 - (4) The Chenhsing Iron Mining Company and its Smelter
 - (5) The Chalinor Coal Mine.
 - (6) The Muleng Coal Mine.
 - (7) The Tienpaoshan Silver and Copper Mine.

IV. MINING CONCESSIONS IN OTHER PARTS OF CHINA.

- (1) The Kailan Mining Administration, Hopei.
- (2) The Chinghsing Mining Administration, Hopei.
- (3) The Mentoukou Coal Mining Company, Hopei.
- (4) The Yangchiato Coal Mining Company, Hopei.
- (5) The Fuchung Corporation, Honan.
- (6) The Luta Mining Company, Shantung.
- (7) The Von Grotte Gold Concession in Outer Mongolia.
- (8) The Pingyuan Gold Mining Company, Jehol.

V. SUMMARY AND CONCLUSION.

FOREIGN INTEREST IN THE MINING INDUSTRY IN CHINA

A Summary

I. HISTORICAL REVIEW.

1. *The Beginning of Foreign Interest in Chinese Mines.*

Following the Sino-Japanese war, the inherent weakness of the Chinese Empire was well recognized and there began a struggle of Foreign Powers to secure strategic points in Chinese territory or the right to exploit Chinese natural resources. The first action of this kind was perhaps the 'Tsaochow case. As a result of the murder of two German missionaries at Tsaochow, Shantung, in November 1897, the Germans without delay proceeded to take military action and the port of Kiaochow was occupied on the 14th of that month. The German Minister at Peking, Baron von Heyking, made five demands among which the privilege of building railways and working mines was included. It was under such conditions that the so-called Kiaochow Convention was signed on March 6, 1898, by which the Germans were given the right to construct a railway in Shantung and in addition were allowed to mine coal etc. at places within 30 li (ten miles) of the railway line, as for instance, in Wei Hsien, Po Shan Hsien, I Chow Fu, and Lai Wu Hsien. This is the most pronounced demonstration of concession-hunting conducted in the spirit of imperialism that the Powers ever made. On the other hand, co-operative mining enterprise between private Chinese concerns and foreigners conducted on rather an equality basis had already existed, as for instance, the Sino-American Mine at Mentoukou, the agreement of which was signed in 1896, two years before the Kiaochow Convention.

Following the German example there came demands of a similar nature from the other Powers. The mining rights of coal and iron in Shansi were secured by the Peking Syndicate in the same year, 1898. In 1899, the Jui Kee Company, a German concern, secured the mining rights of five mines in Shantung, and one year after, the famous Morgan Concession in Szechwan was granted. The Boxer Rebellion in 1900 and the Russo-Japanese war in 1904 both opened new opportunities for foreign invasion and as a result, the Tongshan colliery was transformed into a British enterprise while the Fushun mine has since become Japanese property. These two cases later proved to be of vital importance to the Chinese mining industry as both the Tongshan and Fushun mines have enormous coal reserves and this combined with their proximity to the coast and the railway has made it possible to produce so large and cheap a supply of coal that no other coal mines later developed by the Chinese can in any way compete with them.

2. The Three Periods of Concession Development.

In order to get a clear idea of the development of foreign mining concessions in China, we may divide it into three periods, each being characterized by certain peculiar conditions, through which the gradual change of China's attitude toward foreign aggression may be traced.

1. *The Battle of Concessions:* This period lasted from 1896 to 1906, for almost ten years, and was a most unfortunate chapter in the history of China. It was characterized by the most aggressive attitude of the Powers. In order to defend their self-interest or to gain something at the expense of others, the Powers became keen rivals to one another. This led to the remarkable struggle which has been so vividly described by Lord Salisbury, as the "Battle of Concessions." The period opened with the case of Kiaochow as has just been mentioned.

While the process of negotiation was complicated and each case forms an independent story, according to their special features the concession demands may be divided into four classes:

(a) Demands for mining rights along some railway line, as for example, the Kiaochow Convention, which provided to Germans the privilege of mining coal etc. in places within 30 li, or ten miles, of the projected Shantung railway. The Kirin and Heilungkiang Convention of 1902 with the Russians constituted another example by which the mine of Chalainor in Heilungkiang and several mines in Kirin were leased to the Chinese Eastern Railway, then under almost complete control of the Russians.

(b) Direct negotiation with the Chinese government for the grant of the whole or a part of the mineral resources of a certain province. Examples of this class are the Peking Syndicate's concession in Shansi for mining coal and iron in a great number of districts without definite boundaries, the five mines in Shantung granted to the German Jui Kee Company, and lastly the Yunnan concession for mining in seven districts in Yunnan province. All these concessions have involved an immense area of territory and consequently they have aroused strong opposition from the people.

(c) Special permission from the Chinese government (central or provincial) for the working of certain definite mineral deposits within prescribed mining areas. The noted Tungkuanshan concession of southern Anhwei in 1902, the Kiangpeiting concession of Szechwan in 1898, and the von Grote concession of northern Mongolia in 1899 all being to this class.

In several cases of the three above categories, the agreements were apparently concluded at the willingness of the Chinese government, but the companies which fought hard to obtain such grants made no serious effort to work the deposits. These concessions had really more political than economic significance.

(d) Agreement basis between a foreign company and its Chinese partners more or less on a basis of equality, and subject

to ratification by the Chinese government. The Kailan Mining Administration, the Chinghsing coal mine and the Lincheng coal mine all fall under this category. Some of these cases may be considered as purely economic enterprises, but examples are not lacking where foreign powers attach much political importance to the mining enterprises of their respective nationals.

2. *The Period of Opposition and Redemption:* The aggressive action taken by the Powers and the wholesale granting of concessions by the Imperial Government resulted in a strong movement of opposition and reaction among the Chinese people. An ill-feeling toward foreigners in general was gradually created. Patriotic movement spread in various parts of the country with a firm resolution to recover the rights of railway construction as well as mining. The people were quite determined that not only should future foreign economic invasion be prevented, but that what had already been lost should be recovered. Influenced or somewhat frightened by the well justified public opinion of the Chinese people the Powers had to modify their policy. With increasing backing from the people and with the changed policy of the Powers, the Chinese Government was in a position to negotiate with the parties concerned for cancellation or redemption of some of the concessions blindly granted. Thus the Morgan Concession belonging to a so-called Eastern Pioneer Company was cancelled by order of the Government, though the Company in question had not yet entirely agreed to it. The Peking Syndicate's concession in Shansi, the five mines in Shantung, the Tungkuanshan concession in Anhwei and the Tanshanwan coal mine in Hupeh were all taken back from their respective lessees by paying handsome amounts of compensation. These redemption funds were partly raised among the people, partly paid out from government revenue. Some of the concessions were voluntarily dropped, such as the French Company did with the mercury mine in Kueichow, after long years of unsuccessful prospecting

The most enthusiastic period of concession redemption took place from the years near the end of the reign of Kwanghsu to the beginning of Hsuantung, i.e. from 1907 to 1910. The total fund spent for this purpose amounted to over ten million dollars.

The question of concession redemption may be considered from different view points; opinions are still divided as to its real benefit. On the whole, the loss on the part of the Chinese Government was very great. The principal fault seems to have been the lack of adequate knowledge of the mineral deposits as well as the existing working conditions and equipments at the time of redemption. From our present knowledge it is clear that some of the concessions in question are really not rich enough to be worked by large scale methods, and the work that had been carried on and the equipments installed by the foreign companies were in most cases incomplete or futile. Apparently the foreign companies spent very small sums of money for the development of their respective concessions; yet the price for redemption for such almost unexplored, in many cases not workable fields amounted to no less than ten million dollars. No doubt some of the ignorant concessionaires who got worthless mining rights were compensated far beyond their own expectation and far above their merit. This kind of situation is most clearly manifested in the case of the Tungkuanshan iron ore concession which place was visited by Dr. F. R. Tegengren in 1917, who wrote the following:

“Apart from the road and a few shallow test pits, there remains of Sir John’s (Sir John Lister Kaye) enterprise hardly more than some ruins of primitive houses and a rusty engine under a shed. How the preparatory work done could have consumed the huge sum of 50,000 pounds sterling, is almost incomprehensible”.

3. *The Mining Regulation of 1914*: A new situation was created by the promulgation of the mining regulation in 1914. According to this regulation, foreign capital of not over 50% of the total is permitted in the mining industry and all Sino-foreign companies operating mines in Chinese territory are subject to Chinese jurisdiction. Modest and reasonable as it is, the regula-

tion has been severely criticized by some foreigners. However, the regulation has proved to be satisfactory in practice and since its promulgation it has been carefully observed by the great majority of the Sino-foreign mines. The only exceptional cases are the entirely foreign-controlled mines like Fushun and Yentai or mines organized under special agreements like the Kailan Mining Administration the Penchihu Coal and Iron Mining Company, etc.

From the above sketch, one can see the changing policy of the Powers from aggressive concession hunting to friendly co-operation conducted on an equality basis. It is regrettable, however, to record two more cases of concession grants, the peculiar circumstances attending which remind us of the period of 1896 to 1906. The first was the concession of the Fousin coal field, Jehol, granted to a Sino-Japanese company. This was in compliance with one of the demands made by Japan following the murder of a Japanese engineer in that region in the year of 1914. The other case and the most memorable one was the famous Twenty-one Demands by Japan in 1915 which included a number of mining rights in the eastern provinces and a limitation of the right of the Chinese Government over the Hanyehping Coal and Iron Company. The recurrence of such aggressive action is most unfortunate and causes ill-feeling on the part of the Chinese towards the foreign nation which uses such unjustifiable political pressure to secure economic rights some of which could have been obtained through lawful procedure.

II. THE CANCELLED CONCESSIONS.

It will be noted from the foregoing remarks that among the mining concessions granted in the period 1896-1906, those of the Germans in Shantung, the French in Yunnan and the Peking Syndicate in Shansi have already been cancelled or bought back by the Government, while others like the Fushun mine, the Yentai mine, etc. still exist; still others like the Kailan Mining Administration, the Chalainor Mine etc. have been reconstituted under

modified agreements. The second and the third groups of the concessions will be fully treated in later chapters, while the following is a description of the history, terms of agreement etc. of those concessions, the validity of which has already expired.

(1) *The Shantung Bergbau Gesellschaft*: The Shantung Bergbau Gesellschaft was organized following the Kiaochow convention of 1898 with a capital of 12 million marks. A special agreement was signed between the Company and the Shantung Provincial Governor. By that agreement it was provided that within a distance of ten miles on each side of the railway the opening of mines should be permissible for Germans and Chinese only. In the case of mines already being worked by Chinese, they might be permitted to continue working, but in such a way that no danger should accrue to underground operations by Germans beneath them.

On December 15, 1904, Baron von Munn made four additional demands, the most important part of which read as follows:

(a) Within ten miles from the railway line, only the Shantung Mining Company shall be allowed to use machinery in opening mines.

(b) Chinese subjects shall be allowed to continue their old method of working—the use of machinery shall not be permissible.

(c) Should the Shantung Mining Company decide to open mines by new methods within 30 li from the line, they shall give preliminary notice to the Governor of Shantung who will arrange that within two years of the date of the application all Chinese mines shall be required to suspend operations within an area of 15 li from the new mines about to be opened.

The above additional demands were, however, rejected by the Wai Wu Pu. However, the German Company proceeded to make a demand on the provincial authorities to close down several Chinese mines which seemed objectionable to them. Constant trouble then arose between the Germans and the local miners. A

further dispute took place between the Germans and the Wai Wu Pu in regard to a loan contract for the construction of the Tientsin-Pukow Railway; the Germans insisted on the mining right along the projected line as one of the securities, but this was again refused by both the Wai Wu Pu and the Shantung provincial government.

An agreement was finally reached for a clear definition of German mining rights in Shantung. The important features of the agreement were:

(a) The mining area of Poshan district was returned to China; and as to the Tzuchuan district, the mining area of the German Company was limited to a zone from Takueishan passing Lungkouchen to the eastern part of the said district.

(b) The Fangtzu coal field of Weihsien and the Chinlingchen iron deposit remained with the German Company.

(c) All previous agreements conceding other mineral lands of Shantung to Germany were cancelled.

As a compensation for the return of mining rights in Poshan and other districts, the Chinese Government agreed to pay a sum of 210,000 dollars.

The Germans then started prospecting and developing the Fangtzu coal field. Three shafts varying from 250-350 metres in depth were sunk with the finding of three seams of coal of 1-2 m. in thickness. The maximum output at that time reached 230,000 per year (1910) with an employment of 2500 laborers. A coal washing plant and a coke oven were erected. Since 1910 the mining operations at Fangtzu have ceased, partly on account of the War.

Mining at Hurgshan in the Tzuchuan field was started by the Germans in 1904. Three shafts of more than 200 m. in depth were sunk. A total of 15 seams of coal has been encountered, of which only three with a maximum thickness of 2.5 m. were workable. Maximum output reached 414,000 tons in 1913 and since that date mining has stopped as a result of the War.

Japan took over control of the German railway as well as the mines in Shantung immediately after her occupation of Tsingtao in 1914. Coal mining work was resumed and extended with an annual output of about 500,000 tons. The total products of coal from 1915-1922 reached 4,000,000 tons with a total net profit of 15,083,800 dollars. Since 1922, the three mines of Shantung including the coal mines of Tzuchuan and Fangtze and the iron deposit of Chinlingchen have been returned to China in accordance with the stipulations of the Washington Conference. These coal mines are now worked by the Luta Mining Company, a Sino-Japanese concern, a description of which will be given in a latter chapter.

(2) *The Peking Syndicate's Concession in Shansi.* In 1898 the Viceroy of Shansi ordered its Bureau of Commerce to arrange for a loan from the Peking Syndicate. An agreement was thereby signed which permitted the Syndicate to mine coal and iron in the region of Luan, Tsechow, Pingting, Yuhsien and Pingyang, covering nearly half of the province. The agreement provided that if mining lands belonged to the people, lease or purchase would be made by arrangement with the owners for a reasonable price. The agreement allowed 20% of profit earned to be paid to the Chinese Government in addition to production tax and customs duties. One month after, another agreement was signed which provided the extension of the Syndicate's right over that part of the contiguous area of Honan province situated north of the Yellow River. One can thus see what an enormous area was leased to the Syndicate.

At this juncture it might be well to say a few words on the history of the Peking Syndicate. In 1896 there came to Peking an Italian, Commandare Angelo Luzatte, with a view to starting some commercial enterprise in the Orient. After one year's travel and study, he returned to Europe and organized the Peking Syndicate, an Anglo-Italian combination with a capital of 20,000 pounds sterling. The Syndicate's main office was in London and it was registered under British law.

By the time the Chengtai Railway line had approached the town Pingtan in Shansi Province, the Peking Syndicate dispatched a group of engineers to Shansi to examine mineral deposits. Meantime the British Minister at Peking notified the Wai Wu Pu to the effect that the coal lands in the specified regions i.e. Luan, Tsechow etc. should be reserved and that the existing native mines should be closed. The stringent character of this notice aroused fierce opposition from all sides. While negotiations were going on the Shansi gentry formed a private company known as the Paochin (meaning "to protect Shansi") Mining Company. It was then proposed to recover what had been leased and in January 1908 the surrender of the Shansi rights was finally agreed to by the Syndicate for a payment of 2,750,000 taels. This large sum of money was entirely subscribed by the people of Shansi, so the Paochin affair has been frequently cited as one of the most noted instances in the nationalist movement in China. The Paochin Company now operates several coal mines with up-to-date equipment.

(3) *The Coal Convention of Kirin and Heilungkiang:* The relation between coal mining and foreign interest in the Three Eastern Provinces originated with the construction of the Chinese Eastern Railway. In 1898 the Sino-Russian Railway Convention was signed by which the Railway Company was given the right to mine coal or cut timber for its own use. Accordingly a coal mining contract was concluded in 1901 between the General of Kirin, and a Russian engineer. This contract gave the company the privilege of prospecting for and to working coal mines in Kirin. By the agreement neither Chinese nor foreigners were allowed to work coal fields lying within thirty li of the railway line, unless permission from the Railway Company was obtained. For coal fields lying beyond thirty li from the railway line the General of Kirin had full authority to issue permits to Chinese miners; but permission must again be obtained from the Railway Company in case a foreign or Sino-foreign mine was to be opened.

Following the examples of Kirin, the Generals of Fengtien and Heilungkiang concluded with the Russians similar agreements in regard to coal mining in their respective provinces. These agreements when brought up to the Throne for ratification in 1902, were drastically criticized and rejected by the Wai Wu Pu and the Bureau of Railways and Mines. The Generals of the Three Eastern Provinces were then ordered to revise the agreements with the Railway Company. Protracted negotiations for several years yielded no result; finally in 1907 a revision was arrived at, by which the Russians were given the same privileges as before for coal mining within 30 li of the railway line, but the Chinese should enjoy the same rights if the mines to be opened were not detrimental to the mines of the Russians. As to coal fields lying outside the thirty li zone, the Russians should enjoy no special privileges not granted to other foreigners.

In spite of the revision of the convention, the Russians had acquired concessions in Fushun in Fengtien, Chalainor in Heilungkiang and Taochiatun and Shihpeiling in Kirin. The two last named coal mines lying about 30 li S. E. of Changchun are also known as the Kuanchengtze coal field. Since the Russo-Japanese war, all these concessions except the Chalainor mine have been transferred to Japanese control.

The Fushun and Chalainor mines will be described in a later chapter. The Kuanchengtze coal field, though developed to some extent by the Russians, has been abandoned since Japanese occupation.

(4) *The Kiangpeiting Concession:* The Kiangpeiting Concession was granted to Archibald Little in 1898. Mr. Little formed in 1906 the Kiangpeiting Company with the object of mining coal deposits near Chungking in Szechwan Province. Strong protest and opposition rendered the Company's work extremely difficult, so in 1909, the foreign shareholders agreed to receive 200,000 taels for the cancellation of the whole concession. So far as can be ascertained neither important development work nor elaborate surface equipment had been put up by the Com-

pany, and how it could have cost the Chinese a sum of 200,000 taels is hardly conceivable.

(5) *The Eastern Pioneer Concession or the Morgan Concession*: In 1895, Li Hung-chang, while making his famous journey through Europe and America, made the personal acquaintance of Pritchard Morgan, a British financier of considerable influence. At the invitation of Li, Morgan paid several visits to China, accompanied each time by geologists and mining engineers. They made investigations of mines in Shantung, Jehol and other provinces. Finally their interest was directed to Szechwan and in 1898 a preliminary contract for mining rights in that province was signed. In the next year the Eastern Pioneer Company was formed, with a capital of 300,000 pounds sterling. A party consisting of Morgan himself and Dr. Jack, a geologist, and several others was organized in 1899 for a trip to Szechwan.

By the time of the formation of the Eastern Pioneer Company, there already existed several mining organizations in Szechwan. There were for instance the Yangtze Valley Company, led by H. L. Way, and the Szechwan Government and Merchants' Cooperative Mining Bureau. Since their arrival in Chengtu, Dr. Jack proceeded to negotiate for a joint working among these three organizations. In July, 1900, a preliminary contract for the consolidation of the Eastern Pioneer Company, the Yangtze Valley Company and the Szechwan Government and Merchants' Cooperative Bureau was agreed to.

The Maha mine, a well known gold deposit in Szechwan, became the first object of exploration by the Company. Actual working had hardly started, when the Boxer Rebellion broke out and the Company's work had to cease.

In 1901 Messrs. G. Jamieson and A. Little, acting as agents of the Company, endeavoured to resume the work at Maha. A joint undertaking between the Chinese and the British for the mining of petroleum, gold and antimony was suggested, and a company known as the Anglo-Chinese Szechwan Company was formed. In 1903 another agreement known as the Ningyuan

Agreement was entered into, which provided the surrender of Morgan's original rights, with the rights in Ningyuan and Yachow prefectures as exchange. This proposal was however rejected by both the Eastern Pioneer Company and by Morgan himself.

The outbreak of the Russo-Japanese war prevented any further negotiation until 1907, when the Chinese Government formally declared the cancellation of the Morgan Concession in Szechwan. The ground for this action was that the Company had not commenced work within six months after the contract was signed. The proclamation raised strong protest from the British. In 1909 Sir Edward Gray inquired into the matter and proposed a solution with the paying of a certain amount of compensation, but this was rejected by the Chinese Government. The entire case of the Morgan Concession has never been clearly settled to this day.

(6) *The Yunnan Syndicate Concession*: The Yunnan Syndicate, a half British and half French Company, was formed in 1898 with the object of prospecting for and working mineral deposits in Yunnan. Through the efforts of Emil Rocher, then Consul-General at Yunnanfu, a concession extending over an area of nearly 40,000 sq. miles, covering nearly half of the province and including mineral deposits of every description, was formally made to the Syndicate for a period of 60 years. An agreement known as the Yunnan Mining Convention was signed in June 1902 in Peking, by which the Syndicate was allowed to work either abandoned old deposits or new ones discovered by the Syndicate. No other company except with exclusively Chinese capital would be allowed to prospect for or work mines in the districts covered by the concession. If the designated districts yield no workable deposit the Chinese Government promised to exchange them against others which the Syndicate might designate, but their total number should not exceed seven. The working capital of the Syndicate was not to exceed 50,000,000 Tls. The Syndicate agreed to pay 25% royalty out of the net profit to the Chinese Government, 10% to the provincial government, and the rest to the shareholders.

Since 1903 the Syndicate has frequently sent out mining engineers to examine various mineral deposits in the regions designated, but no definite plan has been formed, or any actual work started. However the Syndicate became interested in the tin ore at Kochiu with a view to export it directly to Europe. This raised strong protest from the local tin dealers. One incident or another took place which heightened the ill-feeling between the company known as the Anglo-Chinese Szechwan Company was Syndicate and the local gentry. The provincial government finally proposed to give the Syndicate a sum in compensation for complete abandonment of their rights. After protracted negotiation between the Chinese Government and the Syndicate, an agreement was reached in August, 1911, accepting the offer of one and a half million taels by the Chinese, payable in instalments, as the price for redemption.

(7) *The Tungkuanshan Concession:* The Tungkuanshan iron deposit was worked as early as the Tang and Sung Dynasties, and later in the Ming Dynasty. Remains of slags and ruins of old workings can still be found in some of the hills. Both iron and copper are said to have been worked, giving rise to the name which means "Hill of Copper Officer."

In 1904 a concession of the Tungkuanshan deposit was granted to the London and China Syndicate, the promoter of which was John Lister Kaye, who had negotiated with the Chinese Government since 1899 for the working of some mines in southern Anhwei. The concession was to last 60 years and the Syndicate agreed to pay to the Chinese Government and local authorities one per cent of all capital raised, 5% ad valorem mining tax on the coal, iron etc. mined, and in addition the usual maritime customs tax of five per cent.

In the meantime a separate company called An Yu Company, financed partly by the Japanese firm Mitsui Bussan, was formed and entered into a contract with the Syndicate to operate the mines. Several test pits were then sunk and some machinery bought. The Syndicate itself seems to have done practically nothing beyond propaganda.

After a couple of years the Syndicate still showed no indication of active mining. On the other hand, the staff of the Company had repeatedly treated the natives in an offensive manner, causing disturbances and even loss of lives. The people then started a strong movement against the Company. They declared that the Company's rights had been forfeited because of its failure to commence work within one year after the signature of the agreement, and therefore the Chinese government should cancel the concession.

At a conference in the Wai Wu Pu in the presence of representative of the Anhwei gentry, someone proposed that the concession should be turned over to a joint undertaking of Sino-British capital. This was objected to by the Anhwei gentry and was dropped. An alternative proposal was to recover the concession by paying a certain amount of compensation. An agreement was finally reached in February 1910, by which the Chinese Government paid 52,000 pounds sterling for the redemption of the whole concession.

A great scheme was then formed by the Chinese to mine the redeemed deposit, but without success. What is now left of the famous Tungkuanshan concession is only a few shallow test pits, several houses, and one rusty engine together with a road of some length.

(8 *The Mercury Concession in Kweichow*: The mercury deposit in Kweichow is well known and has been worked at least since the beginning of the Ming Dynasty. Native methods of mining and smelting have long been developed and are followed even in the present time. In 1899 a foreign syndicate (Marteau and Durand) tried to work the mercury deposits in southern Kweichow on a modern scale but this proved to be unsuccessful. In the same year another Company known as the Anglo-French Quicksilver and Mining Company of China, Ltd. was formed with the object of developing big mining concessions in Kweichow. The company was interested at first in iron mining and smelting and an iron works was started. This proved to be a complete failure

owing to the non-existence of coking coal in its neighborhood. Then the company decided to work mercury and for this end the deposit at Wangshanchang was purchased. After several years' exploration this enterprise also proved to be not promising, and in 1906 the whole concession and property was transferred to a new company with the same name which was said to be capitalized at no less than 300,000 pounds sterling. The mining work continued until the Revolution in 1911, when local unrest caused the complete abandonment of operations. It is said, however, that exhaustion of payable ore at the lower levels was the true reason for the company's sudden cessation of work.

(9) *The National Oil Administration and the Standard Oil Company*: The oil field of Shensi province has long attracted the attention of foreign capitalists. In 1913 representatives of the Shensi gentry entered into negotiations with a Belgian syndicate at Shanghai, with a view to raise a loan in order to develop the oil field, but nothing resulted from this attempt. By February 1914 the Chinese Government announced the nationalization of all oil fields. At the same time, representatives of the government signed an agreement with the Standard Oil Company of New York for a joint enterprise. The agreement included also the Jehol district but after some prospecting work that field was given up and attention was centered in the northern region of Shensi. It was agreed that within six months after the conclusion of a successful survey a Sino-American company was to be organized with Socony supplying 55% of the capital while the concession rights were to be considered as 37½% capital from the Chinese Government, and the remaining 7½% was to be left to the option of the Chinese for two years. The company was to be governed by a board of directors to be composed of American and Chinese members proportionately appointed according to the amounts of capital furnished. The agreement was for a period of sixty years, during which period, no oil concession could be granted to any foreigner without the consent of the Standard Oil Company. The Chinese government agreed

to afford facilities for the transportation of the oil, and 1½ of all oil produced was to be presented as a royalty to the Chinese Government. The Chinese Government then organized the National Oil Administration which represented the Chinese interest in the enterprise and the Standard Oil Company started prospecting.

Altogether seven test wells, having an average depth of about 3,000 feet, were bored in the districts of Yenchang, Yen-an, Kanchuan, Chungpu and Tungkuan. By March 1916 it was finally reported that there was no hope of any large and ready supply and the work was discontinued. A sum of more than two and a half million dollars was spent—this was equally borne by the Chinese and Americans. At the time when the Standard Oil Company notified the suspension of drilling work, nothing was said about the agreement. The Chinese Government then announced the abolition of the National Oil Administration in May 1916 and transferred its duties and affairs to the Ministry of Agriculture and Commerce. Thus oil enterprises also came under the general application of the mining regulations. As the agreement with the Standard Oil Company stipulated that work must be started within six months after the conclusion of prospecting the term has long expired, thus ending the Shensi Oil concession.

III. MINING CONCESSIONS IN THREE EASTERN PROVINCES

A. The First Group: Entirely Foreign Controlled

(1) *The Fushun Colliery.*

The passing of the Fushun coal mine into the hands of the Japanese constitutes the most tragic chapter in the history of Chinese mining industry. This coal field is situated 75 li east of Mukden city, and extends from Kuchengtzu in the west to Lung-feng in the east. The thickest seam is over 200 feet which is unparalleled anywhere in the world, only containing thin part-

ings of shale here and there. The total thickness of the seam is about 400 feet. According to a recent estimate of the Japanese the total reserve amounts to 839,000,000 tons. If we calculate on the basis of an annual output of 7,000,000 tons, the reserve will last for more than one hundred years. The coal is bituminous, of medium quality, containing a large percentage of volatile matters, but very little ash.

In 1903 a Chinese merchant Wang Ch'eng-Yao obtained official permission to work the mine and organized a Hua Hsing Company. It had a Chinese capital of Tls. 100,000, with an additional Tls. 60,000 from the Russians. At the same time another Chinese organized a Fushun Company to excavate the coal at Yangpaipao, which was later amalgamated with Hua Hsing. In 1905, during the Russo-Japanese War the district was occupied by Japanese troops. Under the pretext that Hua Hsing is a Sino-Russian joint concern because of the Tls. 60,000 of Russian capital, the Japanese prohibited working at the mine and soon after occupied the mining field altogether. Wang applied for assistance from the Board of Foreign Affairs and the Board of Agriculture, Industry and Commerce, but the Japanese insisted on its Sino-Russian character and refused to hand it back. By 1903, taking advantage of unsettled conditions of the Court at Peking, Japan pressed the point, and the Manchu Government, being quite helpless, had to accede to Japan's demand. So the Fushun mine went into the hands of Japan together with the rights of the Antung-Mukden Railway.

An agreement was signed between China and Japan, consisting of 14 articles. The main points of the agreement are (1) tax for production is fixed at 5% of the price at the pit, to be paid to the Chinese Government. If the daily output is within 3,000 English tons then the price of every ton is considered to be one Haikuan tael, but if the production exceeds 3,000 tons then the price for a ton is considered to be one Japanese Yen. The export duty was fixed at one mace per ton, while all other

taxes, transit dues, etc. were exempted. The mine was to pay Tls. 50,000 annually to the Chinese Government as a royalty. (2) The mining area was designated as from Kuchengtzu to Lungfeng. (3) The concession was to last for a period of sixty years, and if at the end of the period the mine is not yet exhausted then the time is to be further extended. With the concluding of these articles, this huge reserve of treasure passed completely into the hands of the Japanese.

Since the Japanese obtained control, the mine was placed under the administration of the South Manchuria Railway Company. The work has been conducted on a grand scale and besides mining, they have developed the by-products such as oil shale, gas, coal-bricks etc. It is now the largest mining enterprise in the whole of China. When the Japanese first took the mine over, only Chienchinchai, Yangpaipao, Laohutai and Yentai were producing, a daily total output of not more than 300 tons. In 1911, the two Oyama shafts were completed and the output jumped to 4,000 tons. In 1915, mining was started in Wantawu and in the open cut at Kuchengtzu. In 1918, shafts were sunk in Hsintun and Lungfeng, a new open cut was made at Kuchengtzu, and the daily output reached the huge figure of 20,000 tons. The two open cuts have been joined together and another open cut has been made west of Laohutai. The annual output for 1927 was 7,412,210 tons, for 1928, 6,844,300 tons, of which Kuchengtzu alone produced three millions tons a year. The extent of the mining area, however, is somewhat open to question.

The Fushun coal, besides being sold in the various markets in the Three Eastern Provinces and supplying the use of the South Manchuria Railway, is exported through Dairen and Antung to north and south China, Formosa, Japan and the East Indies. The amount exported is about 40% of the total production.

The Fushun mine has a number of by-product plants on a grand scale. These include petroleum, heavy oil, tar, bitumen, etc.

There are thirty coking ovens capable of producing 100 tons of coke a day; and one coal-washing plant which has a daily capacity of 300 tons. The sulphuric acid plant manufactures every day one hundred tons of the acid. Besides, there are fire-bricks, coal-bricks, ammonium sulphate and amber which are produced in smaller quantities. The mine has its own electric light telephone, gas and water services which supply not only its own plants but the nearby cities and towns as well. On account of its complete and modern equipments the coal of the Fushun mine has a very low cost of production, only \$1.50 to \$1.15 to \$1.70 per ton while the corresponding figure for Chinese coal mines in North China is mostly above \$3.00. The daily average output per miner is about 1.5 tons.

Above the main coal seam and under green shale in Fushun there is a stratum of brown oil shale, having an average thickness of 120 meters. From the results of dry distillation tests by the Japanese it was found that the shale contains crude oil from 10%, down to 3 or 4%. In general, the uppermost part of the stratum contains the largest percentage of oil, while near the coal seam there is the least amount of oil present. The total amount of the oil shale, if calculated to the depth of 4,500 feet will be about 55,000,000 tons. The shale is not of very good quality and whether it is worth while to work it in large scale was a debatable question even among the Japanese themselves. However, there are evident advantages: (1) the shale covers the coal seam and in working the open cuts it has to be removed anyway, so the excavation really costs nothing, (2) the shale is liable to catch fire and so it is difficult to store the huge amount in its native state. Consequently, the South Manchuria Railway Company decided to make use of it, and after ten year's research, a definite plan was worked out. A sum of nine million Yen was raised and 80 dry distillators of internal combustion type were erected at Fushun, each distillator having a capacity of 50 tons per day. The whole plant is divided into dry distillation works, distillation works, and crude paraffin works. It was estimated that 50,000 tons of heavy oil could be produced in a year

and the works was expected to be expanded by and by. The cost of production, however, is very high, one ton of the heavy oil costs about 40. Though the by-products such as paraffin etc. help a little, it nevertheless cannot be regarded as a profitable undertaking. It is now learned that the South Manchuria Railway authorities have entered into an agreement with the Japanese Navy to the effect that the Navy will buy the whole stock of oil produced by the Company at its current market price, and in case such price should prove a loss to the Company, the Navy will make up the deficit. The world's oil reserve is not very plentiful and as oil is extremely important for national defence, the great powers have been struggling all these years to obtain control of oil fields. It is quite natural, therefore, that Japan would strain every nerve to develop this resource so unexpectedly acquired. But according to the Sino-Japanese agreement in 1909 Japan only had the right to mine the Fushun coal and nothing else was mentioned, so the Chinese Government has never recognized the right of the Japanese to extract oil from the Fushun shale.

(2) *The Yentai Mine.*

The Yentai coal mine is situated 72 li south of Mukden city and is now connected by a branch line of 25 li with the South Manchuria Railway. There are altogether 18 coal seams, only 5 of which are workable. The coal is bituminous in character, generally containing too much sulphur. It is estimated that the total amount workable is about 20,000,000 tons.

This mining field seems to have been worked as early as in the T'ang Dynasty, but its recent history dates from 1895 when an Englishman opened some pits at Mantoushan. Later on the Russians of the Chinese Eastern Railway obtained nine-tenths of the mining permits through private purchase. Mining work was started in 1899 but the equipments were all damaged at the Boxer's Rebellion. Conditions were about restored when the mine was occupied by Japanese troops in 1905.

The Japanese at once resumed the work in order to supply the use of the army. It was not until 1911 that the Government at Peking gave its consent to the Japanese control. The Japanese agreed to respect China's sovereign rights and pay the required taxes. Since 1907 the Yentai mine has been put under the control of the South Manchuria Railway Company, and this colliery is now considered as a division of that of Fushur.

The mine is worked by three inclines, with an annual output of about 150,000 tons. The daily average output per miner is 1.95 tons.

B. The Second Group: Sino-foreign Controlled.

(3) Penchiu Coal & Iron Works.

The Penchiu coal field is situated in the district of Penhsi in the province of Liaoning. As early as in the reign of Chienlung coal mining was permitted in this locality. The mining pits flourished during the reigns of Hsienfeng and T'ungchih but in the early years of Kuanghsu the pits were becoming too deep to make the work profitable. During the Russo-Japanese War the Japanese capitalist Okura with the sanction of the Japanese authorities in South Manchuria organized the Okura coal mining company and started work in the colliery. The next year the Chinese governor at Mukden instructed the commissioner of foreign affairs of the province to lodge a protest, but the work went on regardless of Chinese objection. Then in 1907 the Mukden governor had to negotiate with the Japanese in order to form a joint company. By 1910 an agreement was finally concluded by which the Penchiu Coal Mining Company was organized as a Sino-Japanese commercial concern with a capital of 2,000,000 dollars, to be furnished equally by the Chinese and the Japanese. The Japanese put up the equipments as their share of the capital, while on the Chinese side, the mining area was considered as equivalent to \$350,000 while the remaining \$650,000 was to be subscribed. By 1911 the iron mine at

Miaerhkou was added to the sphere of activity of the company and an additional million dollars from each side was raised. The enterprise was then known as the Penchihu Coal and Iron Mining Company Ltd. Three million dollars more capital was again added bringing the total up to \$7,000,000.

The important points of the agreement included: (1) The profit of each year, after deducting 8% as sinking fund, the remaining 65% as bonus to Chinese and Japanese shareholders. (2) The agreement will last thirty years, at the end of which period the company is to dissolve and the mine to be acquired by the Chinese Government. But if the Chinese as well as Japanese shareholders wish to renew the agreement, an extension may be permitted. (3) There is to be one Chinese and one Japanese managing director. (4) A production tax of six candareens per ton is to be levied, and the product is to pay a duty of one mace per ton when exported. Besides, the mining area is to pay a land tax of two mace a mow per year, but all other taxes and transit dues are exempted. When the iron works was incorporated some additional articles were attached to the agreement, the gist of which is (1) that the Chinese Government does not regard the Miaerhkou iron deposit as capital investment, but for every ton of iron mined two maces is to be paid to the government for the education of mining students, and (2) that the production tax is to be one mace per ton, while export duty is to be paid in accordance with the tariff schedule.

The Penchihu coal field contains 17 coal seams, 8 of which are workable, having a total thickness of 40.5 feet. The coal is of medium bituminous quality, easy to coke. The iron deposit has a stratified formation, partly rich and partly poor. The rich ore contains 65% of iron, of which there are two workable layers, the upper one is 40 feet thick while the lower is 30 feet. The poor ore contains a great deal of silicic compounds and has only about 35% of iron. At present work is mostly concentrated on the rich ore but the company has installed Grondal Magnetic

Separators by which process the poor ore can be brought up to over 60% in purity. The latest report gives the general condition of the mines as follows:

Coal Production	Three inclined shafts, with complete equipments.	Annual output about 500,000 tons.
Iron Production	Four mines between Nan-paiya and Miaoerhkou being worked.	Annual output of ore about 100,000 tons.
Iron Smelting	Two furnaces with a total capacity of 130 tons, one in operation.	Annual output of pig iron about 50,000 tons.
Coking	Forty coking ovens having a capacity of 8 tons each.	Annual output of coke about 80,000 tons.
By-Products	Ammonium Sulphate, Pitch tar.	Annual about 700 tons Annual about 2,000 tons
Employees	Miners 5,500 (94% Chinese and 6% Japanese) Staff 30 (40% Chinese and 60% Japanese)	

The Penchihiu coal, besides supplying the South Manchuria Railway, Anshan Iron Foundry and the Company's own Foundry, has a market in the Three Eastern Provinces and sea ports in North and South China.

(4) *Chenhsing Iron Mining Company.*

In April 1915, by an ultimatum, Japan demanded from China, among other things, the right to work mines in joint enterprise in South Manchuria and Eastern Inner Mongolia. As China was compelled to accept the demands, the Chinese Government later on designated ten mining localities as concessions to Japan. Among these was the Anshan iron deposit. According to Chinese law governing the mining industry, though Sino-foreign joint enterprise is permissible in other lines of mining, iron deposits are considered state property and no iron mining can be carried out except with special permission from the Ministry of Agriculture and Commerce. But in these concessions to Japan iron was treated just as any other kind of mineral. In November of that year two Chinese business men with one Japanese organized the

Chenhshing Iron Ore Mining Company, to mine the Anshan iron deposits. The mining area consists of 7 localities with a total of 23 square li and more than 2,000 mow of land. The main points of the contract were: (1) The company's activity is limited to the mining of iron ore and its subsidiary enterprises; all workmen must be Chinese. (2) The capital is fixed at Y.140,000 to be raised by the Chinese and Japanese in equal amounts. (3) There are to be two directors-general, one Chinese and one Japanese. (4) The net profit made by the company after paying 8% stock dividend shall be divided thus: 30% as sinking fund, 15% as bonus to the staff, and 55% as bonus to shareholders. (5) The company will operate for sixty years; at the end of this period the concession is to be cancelled and the company dissolved; no extension will be permitted.

After the organization of the company, mining was started in East and West Anshan, Yingtaoyuan, Takushan, and Wangchiaopao, altogether 5 localities. The method of work comprised open cut, shaft and incline; one shaft being 80 meters deep. There are about 3,000 laborers employed, with an annual output of about a million tons of ore. The cost of production per ton of ore is Y.5.40. The ore is about the same in quality as that produced at Penchihu, some rich and some poor. The poorer kind of ore must be subjected to the magnetic concentrating process before it is sent to the smelting furnace. The annual production for 1926 and 1927 of the various mines is as follows:

Mines	1926 (tons)	1927 (tons)
West Anshan (rich)	21,240	33,511
East Anshan (rich)	4,865	—
Takushan, rich	3,158	190
Takushan, poor	924,473	734,000
Yingtaoyuan (rich)	21,735	22,783
Wangchiaopao (rich)	71,743	98,523
Total for rich ore	122,742	155,009
Total for poor ore	924,473	734,000
Grand total	1,047,215	889,009

It is evident from the above table that the poorer ore occupies more than 80% of the production and it is entirely produced from the Takushan locality.

The ore is transported to the Anshan foundry to be smelted, a distance of about 3 miles. This foundry was established by the South Manchuria Railway Company in 1917 with a capital of Y.30,000,000, purely Japanese capital. In 1919 the first smelting furnace began to operate and the next year the second furnace also went into operation, each of these having a daily capacity of 300 tons. A third furnace of 500 tons capacity was built and started to work in March 1930. With the three furnaces working at full capacity, there will be a daily production of 1,000 tons which means 400,000 tons a year. The Anshan works also built 165 coking ovens, producing coke and other by-products. Fire bricks and cement are also produced. The volume of the production is as follows:

Name of Product	1925 (tons)	1926 (tons)	1927 (tons)
Pig Iron	89,675	106,327	192,890
Coke	116,600	217,100	————
Tar	4,200	8,300	————
Ammonia	1,300	3,200	————

Analysis of the pig iron shows the following composition:

Iron 94%	Carbon 3.8%	Sulphur 0.075%
Phosphorous 0.14%	Manganese 0.18%	Copper 0.005%

The pig iron produced is mostly sold to Japan for making steel, at a price of Y.44.00 per ton in 1928. There are 1,600 work men, 97% of them being Chinese, the rest Japanese. The staff is entirely Japanese.

It can be seen from the above account that although the Chinghsing Iron Mining Company is nominally under Sino-Japanese joint control, the huge iron ore reserve in South Manchuria is really under the complete control of the Japanese by its close relation with the Anshan iron works. In fact all the iron mines of the company are entirely and freely operated by the South Man-

churian Railway Company, and the Chihhsing Company exists only in the sign board scarcely noticeable outside a small office room near the Anshan iron works.

(5) *Chalainor Lignite Mine.*

This lignite field is situated 40 li west of Manchuli. In 1902 the Russians opened the mine without any permission. Later in the year, however, the military governor of Heilungkiang entered into an agreement with the Russians with the understanding that the mining company was to have rights of preference in any coal mine of the province. This was vetoed by the Board of Foreign Affairs. By 1907 another contract was agreed upon. The mining area was limited to within 30 li along the railway, within which area the company was permitted to operate, though the Chinese had the same rights as the Russians. Beyond the limit, the Russians could not interfere. The mining tax was fixed at 12 candareens per 1000 catties, and for every pit a tax of 17.64 taels was to be paid. The mine was consequently operated by the Chinese Eastern Railway Company. Several shafts were sunk and the mining works was well equipped. A light railway connected the shafts to the trunk line. At the height of production the annual output reached over 300,000 tons. Trouble with water had interfered with the production, but it was on the way to recovery when the Sino-Russian struggle took place in 1929. It is learned that the mine suffered heavily as the result of military operations.

The lignite is weak in heating power and contains too much moisture. As it cannot compete with the coal from Fushun or Muleng, there is no other market than supplying the railway and the household use of the neighborhood. Following are the figures of sales for three years ending 1928.

	Output	Railway Use	Household Use	Total
1926 (tons)	164,400	84,274	48,919	133,193
1927 (tons)	239,250	150,245	52,536	202,781
1928 (tons)	269,400	225,514	692	226,206

There are a number of seams, the main one being 24.7 feet thick. Analysis shows the following composition:

Moisture 20.93%	Volatile Matters 36.35%
Fixed Carbon 39.03%	Ash 3.69%
Calorific power 3443	

Before the closing down in 1929 there were 1300 workers, 70% being Chinese, 30% Russians.

(6) *Muleng Coal Mining Company.*

This company was organized in 1924 by the Kirin provincial authorities with a Russian private concessionnaire. The Chinese side had the mining right which was considered as supplying \$3,000,000 in capital, while the Russian supplied a capital of \$3,000,000 in cash. The coalfield is stretched across the two districts Muleng and Mishan at the head of the Muleng River. It is 65 Km. north of Hsiachengtzu station of the Chinese Eastern Railway and 452 Km. east of Harbin. The mining area consists of 28 square li and 15 mou. There are three coal seams known, having a total thickness of two meters. The mining operation is under joint control of Chinese and Russians. The board of directors is presided by a Chinese president. The Mining Regulations of 1914 and its related rules are observed in all the provisions concerning Sino-foreign joint mines except that the mining right has not been officially sanctioned by the Central Government. The coal is bituminous, as the following analysis shows.

Moisture 3.10%	Volatile Matter 23.12%	Fixed Carbon 57.08%
Ash 16.10%	Sulphur 0.60%	Calorific power 6600

The company commenced prospecting and road building in the Spring of 1924, and by the winter of the following year coal was produced. There are two main shafts, one 38 meters deep, the other 51 meters. These are for hauling coal while there are a number of ventilating shafts besides. Eight pumps were installed with a capacity of 1200 gallons per minute. As the maximum influx is about 34,000 gallons per hour the pumping power is sufficient to meet the requirements. But the roof is not strong, a fact which entailed a heavy expense for props. The cost of production per ton is therefore as high as \$4.90, while the actual mining alone costs \$3.00.

The output increased every year, the highest mark being 280,000 tons. The coal is sold along the Chinese Eastern Railway and in Harbin. On account of the competition of Fushun coal it is difficult to extend the sales very far. The figures for the last four years' output are as follows:

1926 (tons)	104,343
1927	281,037
1928	281,037
1929	210,000

The company is doing good business. It earned over \$1,500,000 profit in 1928.

(7) *Tienpaoshan Silver and Copper Mine*

The Tienpaoshan silver and copper mine is located about 80 li West of Yenki in Kirin Province. It has long been known to the natives, but its richness in silver content was not realized until exploration work was carried out by the Tienpaoshan Mining Bureau in 18911. This Bureau was an official organization with K. T. Chen as its director, the first person who has paid any special attention to this deposit. Native methods for mining and smelting were used, giving fairly good results. The maximum output at that time amounted to 800 taels of silver per day. A total of 160,000 taels of silver was produced during one year's operation. Then as the work became deepened, water trouble began to be serious, and as there was no pumping equipment, the old pits had to be abandoned. Several new pits were sunk to search for ore, but yielded no good result. The mine was therefore left in a very difficult position, when the Boxer's trouble broke out and the mine was almost wholly ruined.

With the restoration of order in 1901, the assistant director of the mine attempted to resume work by entering into an agreement with the American firm Kung Li Company. This scheme was discontinued as a result of the Russo-Japanese war in 1904. The contract was eventually cancelled, as the American firm did not show enough interest in the enterprise.

Meanwhile the General of Kirin impeached K. T. Chen on the charge that he had misappropriated government revenue amounting to 10,000 taels. In order to pay up this amount, Chen made a secret agreement with the Chun Hu Company, a Japanese firm, for a private loan of 60,000 taels. By this agreement, the Japanese were to pay a first 20,000 taels for the immediate use of Chen, while the rest of the payment was deferred until the company has made enough profit. The agreement provided also that Chen was to receive 30% royalty out of the net profit.

Although Chen met his obligations with the money from Japanese sources, the above agreement was not recognized by the Chinese authorities. In spite of this the Japanese soon started work at the mine. The Japanese Minister in Peking then put forward the claim that Tienpaoshan lies in a region between China and Korea and that its exact sovereignty still requires investigation. A long period of negotiation followed, and by 1909 a final decision was arrived at by which the Tienpaoshan mine was to be worked by a Sino-Japanese Company under direct supervision of the Chinese officials. The Company was organized and approved in 1915, which included neither K. T. Chen nor the Chun Hu Company but a separate group consisting of S. W. Liu on the Chinese side and one Japanese merchant. An agreement was concluded in which the following are the important points:

(1) The Company has a working capital of 550,000 dollars, to be equally subscribed from the Chinese and the Japanese.

(2) The Company shall maintain one Chinese and one Japanese superintendent of equal authority.

(3) The Company must observe the existing Chinese Mining Regulations and pay tax etc. according to the rates fixed therein.

(4) The period of joint working was fixed at 50 years and after that time no prolongation shall be allowed.

The Tienpaoshan Sino-Japanese Company thus organized was to mine chiefly copper, while silver and lead which once formed the chief attractions become now only of secondary importance.

Mining development consisted of a shaft of about 100 ft. in depth and a tunnel; besides, there is a fairly good equipment of power plant, gas engine, etc. A smelter comprising one blast furnace, ten roasting ovens and four cupellation furnaces has also been installed. From the mine to Lautoukou station the Company has built a light gauge railway about 30 li in length. The output of copper and lead slabs from 1917 to 1920 is as follows:

	Copper slabs	Lead slabs
	(tons)	(tons)
1917	360.5	26.0
1918	341.7	0.33
1919	328.1	—
1920	289.8	70.8
Total	1,320.2	97.2

All the products turned out from the smelter are exported to Japan for refining. Since 1920, both the mine and the smelter became again idle.

IV. MINING CONCESSIONS IN OTHER PARTS OF CHINA

(1) *The Kailan Mining Administration*

This coal field is situated in the northeastern part of Hopei (Chihli) Province along the Peiping Mukden Railway line and between Tientsin and Chinwangtao. It is commonly known as the Kaiping Coal Basin.

The history of the Kailan Mining Administration is a complicated one. Only a broad statement can be here presented. The present Mining Administration is the result of the joint operation agreement of the Chinese Engineering and Mining Company (British, known in Chinese as the Kaiping Company) and the Lanchow Mining Company (Chinese) which was concluded in 1912. The history of the modern mining of the Kaiping coal basin dates back to the 4th year of Emperor Kwanghsu (1878) when Li Hung-chang, then viceroy of Chihli, petitioned the throne and obtained permission to organize a mining bureau at Kaiping for

the supply of the Chinese Navy. The original scheme was to make it a private business enterprise under direct official supervision, with a capital of 1,200,000 taels, which scheme comprised purchasing land and equipping the mine, building a railway, opening up a canal, and developing a port at Chinwangtao. By 1900, when the Boxer Rebellion broke out, the railway line was eventually occupied by Russian troops. The director of the Mine, Chang Yen-mao, apprehensive lest the semi-official character of the works might lead to a similar occupation by the Russians, consulted its German Vice-director, Detring, for precautionary measures. Thereupon Detring entered into negotiation with H. C. Hoover, representative of Messrs. Bewick Moreing & Co. of London. An agreement of nine articles was therefore signed on July 30, 1900 by which the entire property of the Kaiping Mining Bureau was transferred to a limited company organized and registered under British law, with a capital of 1,000,000 pounds sterling. But Chang Yen-mao refused to hand over and so an additional supplementary agreement of 13 articles was concluded, which finally resulted in the complete transfer of the Bureau's works, machinery, buildings, canal, and wharves and warehouse at Tientsin, Chefoo and Chinwangtao to the hands of the British company, without any compensation.

In 1903 owing to some disagreement about administrative affairs between the British and the Chinese, the viceroy of Chihli took the occasion to impeach Chang Yen-mao for having secretly sold the mine without authorization. Subsequently Chang was ordered to go to England to sue the British Company. The plaintiff brought out two important charges, firstly, that the agent of the British Company resorted to threats in obtaining the transfer, and that the main agreement became invalidated because the supplementary agreement was not executed, and secondly, that the defendant, aside from 200,000 pounds sterling, never put up any real capital and so the Chinese shareholders were put in a disadvantageous position and should be compensated. At the conclusion of the hearing the British court declared that the supplementary agreement must be executed by the defendant, and as to

compensation, the plaintiff might bring another suit. Thus the legal process seemed to result in a victory for the Chinese but the supplementary agreement was never put into execution and the enterprise never resumed its status as a private business under official supervision, or even as a Sino-British joint concern.

By 1907 the Chinese organized a Lanchow Mining Company. The Kaiping coal basin has a very extended area, but according to the original terms the Kaiping Mining Bureau was only authorized to work within a radius of ten li around Tongshan. Consequently the Lanchow company started sinking new shafts outside the designated area chiefly at Chaokochuang and Machiakou. The Chihli province supplied 500,000 taels as capital and an additional 1,800,000 taels was raised from private Chinese sources. The first shaft was opened at Mackiakou in 1908 and the next year a formal permit was issued by the Ministry of Agriculture, Industry and Commerce. Meantime, the British Minister in Peking had lodged a protest on the ground that the new company infringed on the rights of Kaiping and demanded cessation of work, but the Viceroy replied that the Kaiping transfer had not been recognized by the Chinese Government and so the Kaiping Company had nothing to claim. Meanwhile the Lanchow Company became a keen rival of Kaiping in the coal market.

The success of the Lanchow Company led the Chinese to consider the buying out of Kaiping altogether. So in 1910 the Chihli Viceroy Chen Kuei-lung proposed to issue Government bonds to the amount of 1,000,000 pounds with which to buy the entire Kaiping stock. After a protracted negotiation the British side agreed to accept the bonds but raised the amount to 1,780,000 pounds. At this stage, another proposal was put forward to the effect that the Lanchow Company was to expand its stocks for five more million taels, and to issue company loan bonds secured on the mines so as to buy over the Kaiping concession. But the British objected because this would be without the advantage of Governmental security. Before anything definite took shape the Revolution came about in the autumn of 1911 and all negotiations were perforce discontinued.

At this juncture the Kaiping Company resorted to a policy of under-selling. The dust coal which usually sold for \$6.40 per ton suddenly dropped to \$3.00. This resulted in heavy loss on both sides. In order to stop this competition a proposal for joint operation was brought about. By June 1st 1912 an agreement was finally signed. The agreement contained seventeen articles with eight supplementary articles and nine appendices. The main points of this settlement consist of (1) an office called Kailan Mining Administration is to be set up in Tientsin jointly by the two companies in order to manage the affairs of the companies, (2) each company shall have a board of directors, the Kaiping board to be in London and the Lanchow board in Tientsin, and from each board three directors shall be elected in order to form the council of the joint administration, and if the vote of the council comes to a tie, that company which has undertaken the issuing of more debentures is to have one extra vote, (3) each company is considered to have a capital of 1,000,000 pounds sterling, and if extra capital is needed the Kaiping company shall issue company loan bonds, (4) if the annual profit of the administration is below 1,000,000 pounds, the Kaiping Company shall share 60% while the Lanchow Company shall receive 40%; any profit in excess of 300,000 pounds is to be shared equally by the two companies. (5) After ten years from the signing of the agreement the Lanchow Company has the right to purchase the whole property of the Kaiping Company at a just price agreed upon by both parties.

The coal bearing formation of the Kaiping basin may be divided into an upper and a lower part. The lower part has a thickness of 70 to 80 meters containing only one unimportant coal seam. The upper part is about 600 meters thick containing more than ten seams of coal of which five or six are workable. These seams are from one to ten meters thick. The coal is bituminous containing volatile matter from 25 to 35%. According to the latest estimation the total reserve is 757,000,000 tons, so if we consider the portion already excavated as 70,000,000 tons, the remaining portion has still 687 million tons. With an annual output of 5 million tons, it may last another hundred and thirty years.

The Kailan Mining Administration has now six mining areas viz. Tongshan, Hsipei, Linhsi, Machiakou, Chaokochuang and Tangchiachung. The first three were originally operated by the Kaiping Company, the next two belonged to the Lanchow Company while the last one was opened only in 1925 long after the amalgamation of the two companies. There are altogether 16 shafts, the deepest of which reached a depth of 1898 feet, the deepest mining shaft operated in China. The power used is electricity, although some of the hoisting plants are operated with steam. The largest power station is at Linhsi which supplies not only its own area but Tongshan, Chaokochuang and Machiakou as well. Two coal-washing plants of new style have been installed also at Linhsi.

There are more than thirty thousand miners in the mines. The daily average output is as follows (the figures given being those obtained in 1928):

Mining Area	Daily total output (tons)	Daily labor engaged (average)	Average output per man (in ton)	Average wage per man (Chinese currency)	Production cost per ton (Chinese currency)
Tongshan	1,500	6,000	0.250	0.425	2.180
Linhsi	3,000	5,650	0.531	0.436	1.880
Machiakou	2,500	5,000	0.500	0.445	1.350
Chaokochuang	5,000	9,850	0.508	0.457	1.650
Tangchiachung	2,000	3,200	0.475	0.445	1.730
Total	14,000	30,700			
Average			0.443	0.446	1.756

From an investigation made in 1923, when the total number of miners employed was just beyond 20,000 it was found that Chaokochuang had the largest output with Linhsi and Machiakou next in amount, while the cost of production was the lowest at Machiakou, being about 90 cents per ton. It is now over one dollar.

It may be noted that Tongshan and Linhsi mines, originally of the Kaiping Company, now yield only some 4,500 tons a day, while Chaokochuang and Machiakou which belonged to Lanchow produce 7,500 tons daily. Taking out the figures for Tangchiachung which is a joint enterprise, it is quite evident that the

Lanchow part produces more than 60% of the coal, but according to the arrangement Lanchow can only get 40% of the profit!

The Kailan coal is sold in nearly all parts of China and even reaches Japan and the East Indies. Since 1926 the Peiping-Mukden Railway has laid down double track between Tongshan and Chinwangtao, and the transportation of coal from the mining fields to the port is conducted with the rolling stock of the Mining Administration. The Chinwangtao port has been developed by the Mining Administration with modern wharves and warehouses and a fleet of private freighters. In 1928, 78% of the water transportation was conducted in their own vessels.

The following figures show the amount of sales and annual profits for three successive years:

	Sales in tons	Gross profit	Net profit	Dividend paid
1926	2,898,353	————	\$2,839,290	10%
1927	3,790,353	\$9,504,715	\$6,004,093	15%
1928	4,511,000	\$12,554,555	\$8,368,558	25%

(2) *The Chinghsing Mining Administration.*

The Chinghsing mine is situated in a village named Kang-toutsun northeast of the district of Chinghsing (Hopei Province). It is 20 li to the north of the Chengtai Railway, the nearest station being that of Nanhotou which is 44 kilometers from Shihkiachuang. The mining area is about 38 square li. Six coal seams are known to exist, and the first, second, fourth and fifth are being worked. The thickness of the seams is as follows:

1st	4 feet
2nd	7 „
4th	6 „
5th	24 „

The coal is bituminous, well adapted for coke making.

The history of the Chinghsing mine dates back to the year 1899 when Chang Feng-chi, a native of Chinghsing, made a contract with the German Hanneken. After a lapse of two years

Hanneken and others began to organize a mining administration with a borrowed capital of 50,000 taels. But the articles of the contract were found to be in contravention to Governmental regulations and after several revisions, Chang Feng-chi and Hanneken concluded another agreement in 1905, limiting the mining area to 30 square li, with a working capital of 150,000 taels. The Viceroy of Chihli vetoed the agreement on the ground that both the area and the capital were open to question, and consequently a new proposal was brought forth to make it an official and foreign joint enterprise. The negotiations concluded in 1903 and an agreement of 17 articles was signed. It is provided that the Chinghsiang Mining Bureau, a provincial organ, is to co-operate with the Chinghsing Company of Hanneken to form the Chinghsing Mining Administration with a capital of half a million taels. The Bureau put up its mining rights as 200,000 taels capital while the Company considered its works and buildings as worth the same amount—the remaining 100,000 taels to be raised separately. When China declared war against Germany in 1917 the Ministry of Agriculture and Commerce took over control of the mine. By 1922, after the signing of the new Sino-German Treaty, Hanneken again approached the Chihli provincial government to resume the co-operation. A new contract was signed by which German capital was limited to 25% the remaining 75% to the Chinese. At present the administration has a capital of \$4,500,000 which is apportioned according to that ratio.

The Chinghsing colliery has now 5 shafts, three of which are for the purpose of hauling coal. They are called the South shaft, the North shaft and the New Shaft. The South and North shafts are 400 meters apart while the New shaft is 1500 meters from the North one. The depth of the shafts is from 150 to 250 meters. There are 24 boilers, 4 electric power plants, 3 steam engines, 3 hoisting plants, 13 pumps and one compressed air machine. Two thousand and five hundred laborers are employed. The average wage for a ton of coal produced is \$0.43 and the average daily output per laborer is 0.7 tons. The colliery is capable of producing five or six hundred thousand tons a year, but owing to military

operations during recent years production has been greatly handicapped by the shortage in railway wagons and the output was forced down to about two hundred thousand tons. The coal is carried by a light railway from the colliery to the Nanhotou station, a distance of 24 li. The cost of production including transportation to Nanhotou is about \$2.70 per ton. The selling price at the colliery is \$3.00 and at Shihkiachuang \$4.20.

The Administration proposed to establish a coking plant at Shihkiachuang in the early years of the Republic, but after many difficulties it finally went into operation in 1928. There are now 2 coke ovens, one of them erected only recently. The capacity for coke production is about 100 tons per day. Besides, there is a by-product distillation plant from which gasoline, oil, tar, pitch, ammonium sulphate, etc. are produced. The annual output of coke varies from 4,000 to over 10,000 tons together with 100 tons or more of oil. Coke from Chinghsing is sold in Shansi and along the Peiping-Hankow Railway, while the gasoline has a ready market in supplying the bus services.

The administration has a director who is appointed by the Hopei Provincial Government, two vice-directors, one Chinese and one German. Under the directors there is the head office which controls the mining plant, the coking plant, the main and branch sale offices. Altogether seven Germans are employed.

(3) *The Mentoukou Mining Company*

(Also Tung Hsing Company)

The Mentoukou Mining Company is a Sino-British limited company, with a capital of Tls. 200,000, equally financed and controlled by the two nationalities. The colliery is situated 8 li South West of the Mentoukou station on the Peiping-Mentoukou branch railway line. The colliery is connected by rail to the above-mentioned station. This mining concern was originally named Yu Mao Company, organized in 1913 by a Chinese merchant Ho Yu-tuan with a Belgian. Their scheme was turned down by the civil governor of Chihli, so they submitted another plan with a capital of Tls.

100,000 shared equally by the Chinese and the foreigners, in accordance with the regulations. In January 1915 Ho surrendered his rights to Chao Yu-shu and by December Chao and the Belgian again transferred part of their holdings to another Chinese and an Englishman. The new shareholders obtained official permission. Later on they applied several times for extension of the mining area, but it came into conflict with the area of the Tung Hsing Company on the east side, and a legal dispute ensued for several years. In the summer of 1916 the Ministry of Agriculture and Commerce sent a mining expert to have the disputed area surveyed. Finally it was decided that Yu Mao should surrender 212 mow of land to Tung Hsing in deference to the latter's rights of priority. But Yu Mao's extension besides this was found to be proper and the Ministry finally gave its official sanction. In all, Yu Mao obtained permission for 4,486½ mow by 1918, and the same year it was re-organized into a Sino-British joint company.

The Tung Hsing Company had an even more complicated history. As early as 1879 a Chinese named Tuan I-San obtained official permission to open coal pits in the west slope of Wei-chiatsun which was called Tung Hsing Coal Pit. In 1896 owing to lack of capital, an American was invited to furnish money and operate the mine jointly. Later on it passed through the hands of two Germans and one Englishman and the mine finally went in 1907 into the hands of the Yung Sheng Company of Tientsin which is British, and at the same time a Chinese named Wu Mao Ting also joined in. All these transactions were done privately without official permission, so in 1908 the Wanping district magistrate reported the matter to the Viceroy of Chihli who ordered the mine to be closed. Then in 1911 Wu Mao Ting submitted a petition to organize a Sino-foreign joint company in accordance with the ministerial regulations, and the next year (the 1st year of the Republic) a formal permit was granted.

According to the agreement, the capital for the corporation was limited to Tls. 1,000,000, to be subscribed equally by Chinese and foreign shareholders. The company shall have one Chinese chief

director, while other directors and the treasurers shall be equally Chinese and foreign in number.

After the organization of the company, the colliery worked only intermittently owing to the over-abundance of water, and the output was most uncertain. Moreover, there were quite a number of old-fashioned pits in the surrounding areas and keen competition in the sales was the result. The company then made a number of borings in various spots in the hope of finding new and better coal seams. Although the results obtained were fairly good, the dispute with Yu Mao quickly followed which distracted the company's attention for a number of years. Unfortunately the mines were completely submerged by the flood in 1917 and part of the equipment was carried away by water. Work in the colliery was therefore stopped and has not yet been resumed. The annual output of Tung Hsing is not known but its highest record was perhaps 400 tons a day.

The Mentoukou Company has now four shafts, among which the No. 3 shaft is the largest, being 6 meters in diameter and 600 feet deep. But as the colliery is situated in the center of a basin, the water from the small pits all around is concentrated into the colliery. There are now 8 electrical pumps having a total capacity of 2,000 gallons per minute.

During recent years on account of the disturbed state of transportation and the competition of native pits which the Mentoukou Company has had to suffer, the annual output has been less than 100,000 tons. In August 1929 the mine was completely flooded and as a result the production for that year was as low as 8,000 tons a day. According to its present constitution there is a Chinese as well as an English Manager and Engineer-in-chief, besides other officers.

(4) *The Yangchiato Mining Company*

This mine is situated 15 li northeast of the Mentoukou station, north of Yangchiato. It is 3 li from Chunchang from which there is a branch railway connected with the Peiping-Mentoukou Railway.

Originally it was called Chung Hsing Company, for which a Chinese, Chen Chuan-Fu secured a permit from the Ministry of Agriculture, Industry and Commerce in 1908. After a few years of work a sum of more than two hundred thousand taels was spent but not much was accomplished. In 1916 Chen entered into an agreement with a Japanese to form a Sino-Japanese Company. By the terms of the agreement, the mining rights, buildings and machinery were considered equivalent to Tls. 40,000 while the Japanese furnished another Tls. 40,000 capital; and any profit, after deducing interest, reserve fund and bonus, was to be shared equally by the Chinese and Japanese. At present the company has a chief and an assistant manager; the chief manager is a Japanese while all other officers are Chinese. There are 5 seams of coal under work, from one to six feet thick, the total thickness being 15½ feet. The coal is anthracite but its quality is very poor. Two inclines have been opened. The machinery consists of a hoisting machine and seven boilers. Owing to the abundance of water, ten pumps were installed which are capable of pumping 2,500 cubic feet of water per minute, just about sufficient to meet the situation. Four screens were established for the sorting of coal; in addition there are 15 ovens. The coal after 3 days' continued heating closed up in the ovens will turn out in much better quality. Difficulty in transportation has hit the business of the company whose annual output is now only a little over 10,000 tons.

(5) *The Fuchung Corporation*

The Fuchung Corporation is the combination formed between the British Peking Syndicate and the Chinese Chungyuan Company in 1915. The Peking Syndicate was organized in 1896, with a total capital of £1,240,000. In 1898 a Chinese named Wu Shih-chao organized a Yufeng Company to work the coal field around Huai-chingfu, north of Huangho, but in the same year Yufeng transferred its rights to the Syndicate. By their contract it was considered that Yufeng made a loan of Tls. 10,000,000 from the Peking Syndicate on the strength of which the Syndicate was to have rights to develop coal mines and to build a railway. The contract was to last for sixty

years and was signed by Wu Shih-chao and the director of the Syndicate. An area of 60 square li Northwest of Hsiuwu district was designated as the mining field known as the "Yellow Concession". Later on, a further 20 square li was added which was called the "Red Concession". In 1902 official permission was granted to the Syndicate to build the Taoching Railway, which was opened to traffic three years later. But the railway was again bought over the Chinese Government for £800,000 borrowed from the Syndicate.

At this time a number of native pits were being operated all around the named concessions, and besides, there were four Chinese companies, Chungchou, Ningteh, Pinghsin and Yutai, all having mining areas in conflict with the holdings of the Peking Syndicate. The Syndicate demanded redress from the Government on the strength of its contract with Yufeng Company, so in 1909 the Honan Commissioner for Foreign Affairs signed an agreement with the chief director and the chief engineer of the Syndicate, thus giving a definite legal status to the original contract. A dispute over the Red Concession was again raised in 1913, as a result of which the Taoching Railway refused to transport the coal of the Chungchou Company. After a joint conference of all concerned it was decided that the Chinese Companies, Chungchou, Yutai and Mingteh were to join together to form a new Chungyuan Company, and the Chungyuan Company was in turn to join with the Syndicate to form the Fuchung Corporation based on a scheme of separate mining but joint sale.

The Fuchung Corporation was formally organized in June 1915 under the following terms: (1) it has a capital of Tls. 1,000,000 furnished equally by the Peking Syndicate and the Chungyuan Company, (2) net profit from the sales is to be divided in proportion to the amount of coal produced by each side. (3) the corporation is to have a board of six directors, three to be nominated by each organization, besides which there will be a Chinese as well as a foreign general manager, (4) the Fuchung corporation shall pay taxes in accordance with government regulations, (5) if within the prefectures of Weihwei and Changteh, north

of Taoching and west of the Peking-Hankow lines, there is going to be any Sino-foreign mining enterprise the Syndicate has the right of priority as the foreign investor, but this does not apply when it is a purely Chinese concern. (6) the agreement is to expire at the end of sixty years.

By the terms of the new agreement the Syndicate obtained another extension of 5 square miles of mining area. The concession to the Syndicate may last 50 years, but if within that period three-fourths of the shares of the Syndicate should have been obtained by the Chinese, then the mining may pass entirely under Chinese control. The coal produced pays a production tax of 5 cents per ton. From the net profit, after a reserve for refunding of the shares and a general reserve are deducted, one-fourth is to be paid to the Chinese Government as royalty.

The mining of the Syndicate was carried on at Chiaotao, Lifeng, Wangfeng and near such villages. Altogether there are more than ten shafts having a depth of 300 to 400 feet. Near Lifeng and Chunlintsun a great many native pits were in operation and the coal thus produced was bought over by the company. The main coal-seam is about 10 feet thick, the coal being anthracite of good quality. The only difficulty is that water exists in overabundant quantity and so the company had to do its best to combat it. Since the mine was opened in 1902 it has been completely flooded three times already. By 1917 there were installed more than 30 pumps, capable of raising 900,000 gallons of water in one hour, which barely met the situation. The Chung-yuan coal field is much less subject to the menace of water and so it needs no such elaborate equipment, and the cost of production is therefore lower.

The Peking Syndicate mine had a very profitable business for over ten years. But in 1925 when the May Thirtieth Incident occurred in Shanghai, the sympathetic wave of patriotism pervaded the mining areas. A serious labor strike took place and all officers of the colliery left their post. The works had of necessity to come to a standstill and military movements soon followed

which paralysed the railways as well as the mines. The mines of the Peking Syndicate have lain idle for the last few years with buildings tumbling down and machinery going to rust. The mines of Chungyuan Company have been taken over by the Honan provincial government and continue producing over 2,000 tons a day.

(6) *The Luta Mining Company*

According to the Shantung Settlement reached at the Washington Conference the three mining enterprises in Shantung, viz. Tzuchuan, Weihsien and Chinlingchen, were to be transferred to a company with a special charter from the Chinese Government. Consequently a Sino-Japanese joint company named Luta was duly organized and took over the mines. Work has been commenced at the coal fields of Tzuchuan and Weihsien but the Chinlingchen iron deposit has not been tapped yet. The Tzuchuan coal series contains 12 seams both bituminous and anthracite. The seams range from 1 to 9 feet in thickness, with a total thickness of some 30 feet, about 24 feet of which is workable. There are now 5 seams being worked and 14 shafts have been opened, 6 at Tzuchuan, 3 at Shihlichuang, 3 at Nanwang and 2 at Takunlun. The deepest shaft is 365 meters and the shallowest 55 meters. With very good equipment and more than three thousand miners, Tzuchuan produced 506,436 tons of coal in 1928, while Weihsien's output for the same year was 109,986 tons.

(7) *The Von Grotte, Gold Concession in Outer Mongolia*

Placer gold is widely distributed in Outer Mongolia, being found on the Kudara, Iro, Kuitun, Tola and Orbon rivers in the Selenga and Lena drainage area. One of the specially rich belts is found in the Khanates of Tushetu and Tsetsen covering nearly 250,000 sq. miles of territory, which, as will be noted below, was granted to Von Grotte in 1898, and was known as the Von Grotte Concession.

The area is easily accessible through Urga on the south, or Verkhne-Udinsk on the Trans-Siberian Railway and Kiachta on the north. From Urga to the different placer areas, the distance varies from several miles to some hundreds of miles, generally easily accessible by motor car. Thus communication facilities are fairly good in comparison with gold mines in other parts of China.

During the middle of the reign of Kwanghsu, Russians often came across the boundary to mine gold in the different placers without permission from the Chinese Government. Mr. Von Grotte, then the head of the customs office in Tientsin and a friend of Li Hung-Chang, had travelled extensively in Outer Mongolia and became interested in the gold mining possibilities of this area. He then made petitions to the Chinese Government as well as to certain Mongolian princes proposing measures for the development of gold mines in Outer Mongolia. The proposal was adopted by Lien Shun, Chinese Commissioner at Urga, and a concession covering 250,000 sq. miles in the two Khanates of Tushetu and Tsetsen was granted to him in 1898. A company known as the "Joint Stock Company for Mining Enterprise in the Tushetu Khan and Tsetsen Khan Aimaks of Mongolia" or in more simplified terms "Mongolor Company" was organized, which was under direct supervision of Chinese officers, though financed entirely by Russian capital. Actual operations were begun in 1899, but they were interrupted following complaints from the Mongolian princes for endangering the "*Fengshui*" and for interference with pasturage rights. Eventually the concession was cancelled by order of the Imperial Government; but upon agreement to pay an increased royalty by the Company which amounted to 15% of the net profit, and other conditions, the concession was renewed in 1903. Operations were resumed, and new fields were developed, numbering more than ten during its most prosperous period. A commissioner to supervise gold mining affairs was appointed by the Chinese Government with his head office at Urga. The maximum output in 1911 reached 59,600 ounces of gold.

Following the Chinese Revolution in 1912 Outer Mongolia declared self-government. As a consequence, Von Grotte was forced to leave his office and a reorganization of the Mongolor Company took place. The royalty which was originally enjoyed by the Chinese Government, now began to go entirely to the Mongolians. Operations were continued but on a much reduced scale owing to the decreasing in gold value in most of the placers; and eventually in 1915, the lode deposit at Doun-Modo was explored by large scale method. Output from this region amounted to 400 or 5,000 ounces of gold in 1915-1916; since 1917 its output again decreased to only a few hundred ounces. As both the places and the lode deposits yielded no appreciable amount of gold, the Company had to experience very difficult conditions which was manifested by the fact that since 1917 several loans have been concluded by the Company from the Mongolian government for the maintenance of the Company's operations.

In 1920 the American firm "Mongolian Trading Company at Urga" became interested in the gold mining enterprise there. A contract was signed with the Russian manager of the Mongolor Company, for the transfer of the mining rights for a period of sixty years. This contract, however, has never been ratified by the Chinese Government. The Mongolian Trading Company transferred again the whole mining rights to a Peking Mongolor Mining Company, with a capital of 600,000 dollars. As stated in the agreement of the transfer, the Peking Mongolor Company agreed to pay 16.5 per cent of its net profit to the Chinese Government and 5 per cent to the Mongolor Company as royalties. Until now not much work has been started by the Peking Mongolor Company owing to the unsettled conditions in the placer regions during recent years.

According to the prospecting work carried out by the Russian Company, the dredging ground in the Kudara valley has yielded on average 22 cents per cubic yard. The gravels already worked averaged around 30 to 35 cents per cubic yard, with some of it running from 2 to 3 times as high. The pay streaks average from

2 to 3 ft. thick and the gold has a fineness from 862 to 974, as reported from 12 different localities—nine placers and three veins.

The total production of gold from the concession area of the Mongolor Company from 1910-1919 as recorded in the Company's report is 319,347,687 in troy oz. or \$5,770,333 in U.S. currency.

(8) *The Pingyuan Gold Mining Company*

The history of the Pingyuan Gold Mining Company dates back to 1899 when two Chinese merchants petitioned the authorities for permission to open up three gold mines at Houchiati, Chengtzeshan, and Wangchiachuantze in Jehol. This was permitted and S. L. Wang was made superintendent of the mine. In 1902 Wang in co-operation with an English merchant (Mr. Ida) petitioned to form a Sino-British Company, known as the Pingyuan Gold Mining Company. Before the company was duly ratified, the English merchant, owing to illness, went back home. This was followed by unsettled conditions during the Russo-Japanese War which prevented the development of the company.

An agreement was reached between Ida and Wang in Oct. 1905 by which the capital of the Company was fixed at 1,000,000 taels. The expenditure of the years from 1899-1905 was estimated at 300,000 taels and this amount was counted in the total capital.

This agreement was, however, disapproved, for the reason that part of the boundary was erroneously marked and that the area of the concession was not in accord with the original proposal. Consequently the Government ordered the Company to make an accurate survey of the area in question and to draft a revised agreement. After prolonged negotiation and considerable exchange of documents, an agreement was signed in February 1909 in Jehol. This agreement consisted of ten articles, with two supplementary articles and four appendices. The important points of the agreement are:

(1) The mining area is limited to three localities only, i.e. Houchiati, Chengtzeshan and Wangchiachuangtze.

(2) The capital amounting to 800,000 taels is to be equally subscribed from the Chinese and the foreign sources. Any further subscription of capital will be accordingly divided.

(3) Ten per cent ad valorem production tax for both silver and gold is to be paid.

(4) Mining operations must be started within 6 months from the date of the issue of the permit.

Between 1910 and 1914 the company started development work by opening a shaft at Houchiati with a depth of 190 ft. Drifts were made at various levels to search for paying ore body, but only very thin veins of 7 to 3 inches were found, which yielded on average very few ounces of gold per 1000 catties of rock. The mine's operation was entirely stopped after 1914 on account of the European War. It is believed that had it not been for the War, the poor quality of the ore would also have rendered the company a complete failure.

V. SUMMARY AND CONCLUSION.

(a) *Foreign Capital in Chinese Coal and Iron Industries.*

The above is a brief and by no means exhaustive review of foreign interest in the mining industry in China. In order to summarize, the following Table I is prepared, which is in the main a revision of the tables in Dr. V. K. Ting's "Fifty Years of Chinese Mining Industry."

From a glance at the table one finds the apparent insignificance of the entirely foreign-controlled mines, which are now only two in number, namely, Fushun and Yentai, both owned by the South Manchuria Railway Company. But when one is aware of the fact that Fushun is the leading producer of coal in China whose output amounts nearly to one third of the total output in China,

the real importance of foreign control in the Chinese mining industry can be realized.

In the second place foreign interest is represented by Sino-foreign enterprises. With the exception of the Chinghsing Mining Administration in which Chinese capital comprises three-fourths of the total, all other companies of this class generally have their capital provided equally from Chinese and foreign sources. Most of the agreements concluded give equal authority to Chinese and foreign shareholders. Whether this has been strictly followed in practice, it is difficult to say; but the technical supervision in most cases falls in the hands of the foreigners. The most noted examples are the Kailan Mining Administration and the Penchiu Coal and Iron Mining Company.

The prominence of foreign interest in the mining industry in China is manifest when Table II is consulted. This is taken from the third issue of the "General Statement of the Mining Industry" No. 3, compiled by Mr. T. F. Hou. According to this table the coal output from both the foreign and Sino-foreign controlled mines worked with modern methods have an output of only 12-14%. The rest is represented by small native mines widely scattered in different parts of the country and constituting therefore no vital factor in face of foreign competition.

Among the foreign concerns, Japan leads by having one third of the total coal production. Then comes England, with 7-9%, Germany, 0.8-1.6% and lastly Russia, only 0.2-0.3%

At present the mining industry in China is hardly anything but coal mining, so a study of foreign interest in this branch of enterprise is sufficient to show the relative importance.

A few words may be said about the iron mining and smelting industry in China. Following is a list showing production of iron ores by some of the modern mines:

Name of companies.	Location	Capital	1926 (tons)	1927 (tons)	1928 tons
Hanyehping	Tayeh	Chinese with Japanese loan.	85,732	243,632	419,950
Hupeh Prov Bureau.	Hsiangpishar	Chinese	103,822	76,629	212,533
Penchihu.	Miaoerhkou.	Sino-Japanese.	93,000	91,000	115,000
Chenhsing.	Anshan.	„ „	472,985	539,604	540,000
Yufan	Fanchang	Chinese with Japanese loan.	204,080	167,450	112,390
Paohsin Co.	Tantu	Chinese.	61,240	52,990	64,000
Fuli Mining Company.	„	„	2,152	930	454
Paochin Co.	Yangchuan.	„	10,000	9,000	10,573
Total			1,033,011	1,181,235	1,474,900

Name of company.	Location of Furnace.	No. of Furnace.	Full smelting capacity per day.	1926	1927	1928
Lungyen Co.	Shihching-shan.	1 at 250 tons	250 tons	—	—	—
Hanyehping	Hanyang	2 at 250	—	—	—	—
„	Tayeh	2 at 75	650 „	—	—	—
Yangtze Engineering Works.	Hankow	2 at 450	900 „	—	—	—
Penchihu.	Penchihu	1 at 100	100 „	7,498	—	5,814
S. Manchuria.	Anshan.	2 at 20	—	—	—	—
		2 at 140	320 „	51,000	63,224	84,345
		2 at 300	—	—	—	—
		1 at 500	1,100 „	162,500	165,054	160,000
Paochin	Yangchuan	1 at 20	20 „	4,800	4,000	4,814
Hungyu	Sinhsiang	1 at 25	25 „	—	—	—
Wuhsing	Putung, Shanghai.	1 at 12	45 „	—	—	—
		1 at 33	—	—	—	—
Total		19	3,410 „	225,798	232,278	254,973

The above table shows clearly the dominance of Japanese control in the iron mining in China. Besides Hanyehping and Yufan companies which have long term loan contracts with the Japanese and are therefore obliged to deliver ore at a pre-arranged price for a number of years, the mines with purely Chinese capital have also depended upon Japan as the sole consumer of the iron ores.

The following table shows the present situation of the iron smelting industry in China.

The above table shows again the importance of Japanese interest in the iron smelting industry in China. It is to be noted that only Japanese or Sino-Japanese financed smelters are actually turning out pig iron; the Chinese owned smelters all remain idle.

(b) *Chinese Attitude toward Foreign Capital in
Chinese Mining Industry.*

Besides the mining concessions obtained by foreigners through political pressure of various illegal means, it is interesting to inquire what is the legal standing of foreign capital in Chinese mines and what is the real Chinese attitude toward it.

The development of Chinese mineral resources by foreigners or by foreign capital was an idea rather forced upon the Manchu Government by both the Sino-British treaty of 1902 and the Sino-American treaty of 1903. By these treaties China promised to promulgate mining laws by which foreigners shall be allowed to work mines in China in accordance with the common practice in other countries. Following this a set of mining regulations was drafted in 1907 under the care of the two well-known statesmen Chang Chih-tung and Wu Ting-fang. The regulations were officially promulgated in 1908. By these the foreign capital in any enterprise was limited to 50% of the total.

The same policy was followed by the Mining Regulations of the third year of the Republic, or 1914, with the additional provision

that the general manager of any Sino-foreign company shall be Chinese. A later ruling excluded foreign capital from any small mines which do not employ machinery.

This attitude of the Chinese which remained unchanged before and after the Revolution was severely criticized by foreigners. The criticism was however largely unfounded, and the real Chinese intention was misunderstood. First, China did not recognize that she has any obligation to open unconditionally her mineral resources to foreigners. This is by no means the practice in all other nations. She considered that her treaty obligation is entirely fulfilled by permitting foreign participation in Chinese mines under reasonable conditions. Secondly, with the extraterritorial rights still existing, it is not possible for China to open unconditionally her interior to foreigners. Foreigners who do not care to observe Chinese laws obviously can not enjoy the same rights as the Chinese. Considered from this point of view the Chinese thought it already very generous to have allowed foreign participation to the extent of 50%. Thirdly, by practical experience, the foreign mining enterprises, instead of being peaceful enterprises as should be expected, often turned into political aggression greatly endangering Chinese sovereignty and vital economic interest. It is therefore quite natural that the Chinese government should have taken proper measures for self-protection. Such measures as the excluding of the iron ore mines from the common regulation for foreign participation were in fact too late when all the important iron ores resources had already passed so regrettably under more or less foreign control.

The Chinese point of view is concerned not so much over the right of foreigners in participating in Chinese mines as over the interest of China herself in utilizing foreign capital and technical skill in the development of her underground resources. China will readily admit foreign cooperation on the condition that the enterprise shall not infringe on her national rights and interests. A not unusual objection raised by foreign business men against the Chinese attitude is that practically it is not possible for for-

oreign capital to work profitably with only 50% of the control of the enterprise. They claim that unless they get almost complete control of the undertaking, it is bound to be a loss owing to Chinese inexperience etc. in the management, and therefore Chinese mining regulations are in their eyes impossible to observe in so far as it concerns the limitation to 50% capital and Chinese predominance in the management. This was one of the main points on which it was found so difficult to agree between the Chinese Government and the Standard Oil Company, when they discussed in 1915 the Sino-American joint exploitation of the Shensi oil field. The American side maintained that the Standard Oil Company must have 60% of the share while China maintained that 50% should be the maximum. The agreement later concluded gave the Americans 55% of the share, but the oil business was then excluded from the general application of the mining regulations and so was beyond the province of the Ministry of Agriculture and Commerce. In the 1912 agreement of the Kailan Mining Administration, the English manipulated to secure some preponderance over the Chinese in the directory board although nominally on equality basis. But this is precisely the point on which the Chinese public opinion does not feel satisfied.

The half and half basis in Sino-foreign joint enterprises is however fully observed in several mines such as Penchihu, Luta and Muleng. The fact that from long experience no difficulty has been felt in these enterprises proves beyond doubt that the 50% system is quite practicable. Furthermore, in the Chinghsing coal mining company as reorganized after the World War, the German share is only 25% of the total and is represented in such proportion in the general management. The company has so far worked very well. There is therefore absolutely no ground for the fear that limitation to the foreign share should prevent at all Sino-foreign cooperation in Chinese mining affairs. It is also clear that foreign cooperation in supplying capital or technical skill has been and is most welcome by the Chinese people. Most if not all of the past difficulties in such cooperation were due to the political significance it assumed or at least seemed to possess.

The promulgation of a new Mining Law on May 26, 1930 by the National Government in Nanking has opened up another situation. By this Law foreign capital is admitted only in case of a Sino-foreign joint enterprise which must, moreover, conform with the following limitations:

- (a) More than half (at least 51%) of the total capital invested must be Chinese.
- (b) More than half of the directors must be Chinese citizens.
- (c) The president of the directory board as well as the chief manager must be Chinese citizens.

The Law further specifies that the lease of the nationally controlled deposits such as iron, copper, petroleum and coking coal shall be limited only to Chinese citizens. Foreign capital partaking in the development of government mines of nationally controlled minerals is permitted, but the amount can not exceed half of the total, i.e. under the same limitation as with private concerns.

Foreign capital is not to be admitted in small mines. A penalty of imprisonment for a period not exceeding three years or a fine not exceeding 3,000 dollars shall be imposed for illegal transfer or mortgage of any acquired mining rights to foreigners.

All such restrictions have no other meaning than to provide a legitimate safe-guard of the Chinese national right and interest. Such a safe-guard is fully justified by the particular political conditions under which China is still placed and also by the experience of so many regrettable incidents in mining affairs, the memory of which is still so fresh with the Chinese. It remains for the foreign mining men to demonstrate by practical examples their sincerity in helping to develop Chinese mineral resources with purely financial aims and friendly consideration without any political background. By such examples only can there be reestablished mutual confidence which is so necessary for satisfactory cooperation in the great task of opening up the natural riches of this vast country for the benefit of China and the rest of the world.

Table I. Foreign Interest in Chinese Mining Industry.

A. Entirely Foreign Control

Kind of Mineral.	Location	Nationality Concerned	Commercial Control	Production (tons)	Remarks
Coal.	Fushun, Liaoning	Japan	South Manchuria Railway Company.	6,844,300 (1928)	Originally Sino-Russian, was occupied by Japan during the Russo-Japanese War. Duly ratified by China in 1909.
"	Yentai, Liaoyang, Liaoning.	"	" " "	154,900 "	" " "
"	Kwanchengtze, Kirin.	"	" " "	—	Same as above. Not worked now because of inferior quality of the coal.
Iron	Anshan, Liaoning.	"	" (Smelting plant) "		Three blast furnaces of 1,100 tons daily production, capital 80,000,000 Yen.

B. Sino-Foreign Mines under Special Organized Agreement.

Kind of Mineral.	Location	Nationality Concerned	Commercial Control	Production	Capital	Amalgamated in	Origins of Foreign interest.	Remarks
Coal	Kaiping & Tangshan, Hopei.	Sino-British	Kailan Mining Administration.	4,958,000 tons	\$2,000,000 (Chinese & British each)	Dec., 1911.	Secret agreement of Detring with Messrs. Bewicke Moreing & Co. of London.	
"	Ching Hsing, Hopei.	Sino-German.	Chinghsing Mining Administration.	268,135 tons	\$3,375,000 (Chinese) 1,125,000 (German)	1898	Secret agreement between Chang Feng Chi & Hanneken.	
" (anthracite)	Siu Wu, Honan.	Sino-British.	Fushun Co-operation	310,000 (entirely from the Chun Yuan Co.)	\$1,240,000 (Peking Syndicate) \$5,000,000 (Chun Yuan Co.)	1915.	Loan contract of Yu Feng Co. with the Syndicate.	Separate mining & joint selling.
Coal	Penchi Hsien, Liaoning.	Sino-Japanese	Pen Chi Hu Coal & Iron Mining Co.	486,000 tons	Chinese & Japanese each \$1,000,000.	April, 1910.	Taken over by the Japanese since the Russo-Japanese War.	
Iron	Miao Erh Kou, Penchi, Liaoning.	"	" " "	115,000 (1928)	\$5,000,000	April, 1910.	" " "	
"	Kung Chu Ling, Liaoyang, Liaoning.	"			Y.1,000,000	1919	Special permission by the Chinese Government	
Silver & Copper.	Tien Pao Shan, Yenchi, Kirin.	"	Tien Pao Shan Mining Company.	289.8 (copper) 70.8 (Lead) (1920.)	Chinese & Japanese each \$500,000.	Sept. 1916.	Loan contract of K. T. Chen with the Japanese Chun Wu Company.	Under direct supervision of the Chinese Government. Abandoned since 1920.
Coal	Sin Chiu, Fusin Hsien, Jehol.	"	Tasin Tai Hsing Mining Company.			Oct. 1915.	Following the murder of a Japanese Engineer in that region in 1914.	
Gold	Chien Ping Hsien, Jehol.	Sino-British	Ping Yuan Gold Mining Company.		Chinese & British each Tls. 400,000.	1911.	Private agreement of S. L. Wang & S. S. Sun with an English merchant.	Work stopped on account of European War.
Coal	Tzuchuan & Wehsien, Shantung.	Sino-Japanese.	Luta Mining Company.			1922	By the Washington Conference.	Chinlingcheng Iron deposit is at present not worked.
Coal	Chalainor, Heilungkiang.	Sino-Russian	The Chinese Eastern Railway Company.			Convention of 1902.	Russian worked it in 1902 without permission.	

C. Sino-Foreign Mines Registered under existing Mining Regulations.

Kind of Mineral.	Location	Nationality Concerned	Commercial Control.	Date of Registration.	Mining Area	Production (tons)	Remarks.
Coal (Anthracite).	Ment'oukou, Wuan-Ping Hsien, Hopei.	Sino-British	Ment'oukou Mining Co.	1918	4,486 Mou		Formerly called Yumao Co. Reorganized in 1918.
"	" " "	" "	Tung Hsing " "	1912	4,770 "	6,300 (1928)	Work stopped on account of flood by underground water in 1917.
"	Yangchiat'o, Wuan Ping Hsien, Hopei.	Sino-Japanese.	Yangchiat'o Coal Mining Company.	Feb. 1917.	560 "	47,039 (1928)	
Lead	Tsingchengtze, Fengcheng, Liaoning.	" "		Jan. 1918.	1,820 "	462 (lead-ore) (1927)	
Coal	Fushihling, Kirin.	Sino-Russian		June, 1915	670 "		Permit not yet issued by the Chinese Government. Now leased to some Chinese for small scale working.
"	Poshan, Shantung.	Sino-Japanese	Potung Coal Mining Co.	July, 1924.	5,300 "	44,078 (1928)	Formerly Heishan Coal mine of entirely Japanese capital. Became Sino-Japanese after the Washington Conference. Present capital \$1,500,000 equally divided between Chinese & Japanese.
"	Tzuchuan, Shantung.	" "	Hwawuling Coal Mine.	1925	4 sq. li, 153 Mou.	49,350 (1928)	Formerly Nan Ting Coal Mine of Japanese capital. Became Sino-Japanese since 1925. Present capital \$5,000,000.
"	Changchiu Hsien, Shantung.	" "	Hsühwa Coal Mine.		30 sq. li.		
"	Muleng Hsien, Kirin.	Sino-Russian	Muleng Coal Mining Co.	1924.	28 sq. li, 415 mou.	281,037 (1928)	Contract entered between the Kirin Provincial Government and a Russian merchant with a total capital of \$6,000,000.
Iron	Anhan, Haicheng district, Liaoning.	Sino-Japanese.	Chenhhsing Mining Co. Chenhhsing Mining Co.	1915.	23 sq. li 2000 mou (including 8 localities)	Rich ore 155,009 Poor ore 734,000. (1927)	Result of one of the famous 21 Demands in 1915. Now registered under the existing Mining Regulations.

D. Mining Concessions Redeemed by the Chinese

Kind of Mineral.	Location	Concessionaire	Date of Agreement.	Redemption. Date of Re-	Amount of Compensation.	Present Owner	Remarks.
Coal & Iron.	Yu, Ping Ting, Lu Shih, Ping Yang, etc in Shansi.	Peking Syndicate (British)	1898	1907	₹2,700,000	Pao Chin Co.	Redemption proposed by the Shansi gentry who were also responsible for the subscription of a part of the fund.
Iron.	Tung Kuan Shan, Tung Lin Hsien, Anhwei.	John Lister Kaye	1904	May, 1909	\$520,000	Chin Tung Co.	Agreement cancelled for nonworking within specified period.
Coal & Iron.	Kiangpeiting, Szechuan.	A. Little (British)	1905	July, 1909.	₹220,000	Kiang Ho Mining Company.	" " "
Different kinds.	Five mines of Shantung.	Jui Ki Co. (German)	1899	Nov. 1909	₹340,000		
"	Within 30 li 11 along Tsingtao-Tsinan Railway line.	German Government	1898	July, 1911.	\$210,000		
"	Seven districts of Yunnan.	Yunnan Syndicate (British & French)	1902	July, 1911.	₹1,500,000		
Coal	Tan Shan Wan, Yang Sin Hsien, Hupeh.	French merchant.		April, 1912.	₹800,000	Hupeh Provincial Bureau.	Proposed by the late President Li Yuan Hung.

E. Concessions Cancelled by the Chinese Government without Compensation.

Kind of Mineral.	Location	Concessionaire.	Date of Agreement.	Date of Cancellation.	Reason of Cancellation.
Coal, Iron & Mercury.	Tungjung, Kweichow.	Austrian merchant.	1899	1905	Expiration of term owing to unsuccessful prospecting.
Gold.	Chaowu district, Fukien.	Tatung Co. (French)	1902	1907	For not paying license fee.
Coal.	Wukang, Yukan Hsien, Kiangsi.	The Sino-Japanese Industrial Company.	July, 1914.	Feb. 1915.	Duplication of mining right.
Coal.	Fengchen & Loping, Kiangsi.	Shun Chi Co. (Sino-Japanese).	1914	1918	Expiration of prospecting terms.
Gold.	Hailung & Haichang, Liaoning.	Shanluwantze gold mine (Sino-British).	1909		Petitioned by a Chinese Y. C. Tan, but never worked.
Gold.	Peitaoho, Lanping Hsien, Hopei.	Taifeng gold mining Co.		1918	Cancellation after China declared War against Germany.
Asbestos	Tsinshihling, Lingyuan, Jehol.		March, 1914	1918	
Asbestos	Kwakou, Fengning, Jehol.				

F. Concessions not Settled.

Kinds of Mineral.	Location	Foreigner Concerned.	Remarks
Gold	West side of River Amur	Russian	Contract entered in 1901 between Chinese and Russians, cancelled in 1907; both parties claimed compensation, case not yet settled.
All kinds of Minerals.	Szechuan	British	Contract signed in 1898 between the Szechuan Government Bureau of Mines & Mr. Morgan. Cancelled on account of expiration of terms, the English party not yet agreed to it.
Petroleum.	Sinkiang	"	Petitioned for prospecting by the Chun Hwa Mining Co. a Sino-British concern, but case was settled on account of opposition by Sinkiang gentry.
Coal	Kwangtung	"	British merchant entered into contract with Kwangtung Provincial Government in 1920, not ratified by the Central Government.
Coal and Petroleum.	Shansi	"	Contract between Peking Syndicate and Shansi Provincial Government in 1920, without ratification of Central Government.

G. Chinese Mines Having Moan Contract with Foreign Concerns.

Kind of Mineral.	Location	Name of Company	Date of Establishment.	Amount of loan	Creditor	Security	Remarks
Coal & Iron.	Tayeh, Hanyang in Hupoh, Ping Hsiang in Kiangsi.	Hanyehping Co.	June, 1884	Y.12,000,000	Imperial Iron Works at Wakamatsu, Toyokogyo Bank etc.	Mine & equipment.	The loan is to be repaid by the delivery of iron ore at a low fixed rate through a certain number of years.
Iron.	Taochung, Fanchang, Anhwei.	Yufan Company.	July, 1914.	\$200,000?	Sino-Japanese Industrial company.	Iron Ore.	

Table II. Coal Output of 1926-1928 of the Foreign or Sino-foreign Controlled Mines.

Name of Company	Capital	1926 (tons)	1927 (tons)	1928 (tons)	Province
Fushun & Yentai Mines	Japanese	6,231,229	7,553,210	6,999,200	Liaoning (Fengtien)
Penchiho Coal Mining Company.	Sino-Japanese	408,000	394,000	486,000	
Tsaiho Mining Co. (Niusintai)	" "	54,673	55,000	—	
Tienschun Co. (Fushun)	" "	—	10,000	45,000	
Tienhsing Co. (Fushun)	" "	—	—	—	
Kailan Mining Administration	Sino-British	3,582,000	3,683,000	4,958,000	
Chinghsing Mining Administration	Sino-German	339,346	341,588	268,135	Hopei
Ment'oukou Mining Company.	Sino-British	161,730	80,000	6,300	(Chihli) Honan
Yangchiato Mining Company.	Sino-Japanese	39,963	29,396	47,039	
Peking Syndicate	British	116,673	—	—	
Luta Mining Co.	Sino-Japanese	708,683	742,015	616,422	
Hsuhwa Company.	" "	—	—	5,000	
Potung Mining Co.	" "	20,034	26,166	44,078	
Hwawuling coal mine.	" "	58,763	52,045	49,350	Heilungkiang
Chalainor coal mine.	Sino-Russian	164,400	239,250	269,400	
Muleng Coal Mine Company.	" "	104,243	208,633	281,037	
Laotoukou Coal Mining Company.	Sino-Japanese	12,000	17,986	18,000	
Yuki Co. (Hwoshiling).	Sino-Russian	—	9,200	20,000	Kirin.
Total		12,017,327	11,450,141	14,117,177	
Proportion to the total coal production of China.		52.15%	55.64%	56.26%	
Total production of modern coal mines of purely Chinese capital.		3,344,724	2,983,194	3,169,374	
Proportion to coal production of capital		14.5 %	12.3 %	12.6 %	
Production of Japanese Capital		6,890,080	8,220,790	7,656,752	
Proportion to the total.		29.9 %	34.0 %	30.5 %	
Production of British capital		1,688,533	1,881,500	2,482,150	
Proportion to the total		8.6 %	7.7 %	9.8 %	
Production of Russian capital		216,521	348,166	419,918	
Proportion to the total.		0.8 %	1.4 %	1.6 %	
Production of German capital		84,837	85,397	67,034	
Proportion to the total.		0.3 %	0.3 %	0.2 %	

THE
DISTRIBUTION OF POPULATION AND
LAND UTILIZATION IN CHINA

By

W. H. WONG

Director

The National Geological Survey
of China

CHINA INSTITUTE OF PACIFIC RELATIONS

**COPIES of this pamphlet may
be had at Mex. 75 cents, from
the China Institute of Pacific
Relations, 123 Voulevard de
Montigny, Shanghai, or from
the office of the Institute in
Honolulu.**

Printed at
TIENTSIN, CHINA