

Railway situation in China / by George E. Anderson

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SENATE
COMMISSION ON RAILWAY EDUCATION
WASHINGTON, D. C.

DEPARTMENT OF COMMERCE AND LABOR
BUREAU OF MANUFACTURES

A. H. BALDWIN, Chief

SPECIAL CONSULAR REPORTS—No. 48

RAILWAY SITUATION
IN CHINA

By

GEORGE E. ANDERSON

Consul General at Hongkong



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LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF MANUFACTURES,
Washington, June 22, 1911.

SIR: I have the honor to submit herewith a report by Consul General George E. Anderson, of Hongkong, on the railway situation in China. The report embraces a general survey of railway conditions in that country, a detailed study of the five principal groups into which the lines of the Empire may be divided, and a statement of the opportunities, present and future, for the sale of American equipment and material. The presentation of this information is believed to be timely, in view of the participation of American financiers in the recent \$30,000,000 Hukuang loan secured by the Chinese Government, the \$50,000,000 Government loan just agreed upon, and the probable participation in a further loan of \$20,000,000 which will be made in case certain railroad plans are carried out.

Respectfully,

A. H. BALDWIN,
Chief of Bureau.

To HON. CHARLES NAGEL,
Secretary of Commerce and Labor.

RAILWAY SITUATION IN CHINA.

GENERAL SURVEY OF CONDITIONS.

According to the best information available, which represents some months of correspondence with various portions of the country as well as official confirmation of lists thus prepared, the Empire of China now has about 5,404 miles of railway in actual operation or so far advanced in construction that operation is a matter of a few months' time.

There is in course of actual construction and more or less advanced toward completion and operation, a total of about 1,702 miles, some of which will come into operation within a few months and some of which probably will not be completed for several years. There is projected, with more or less definite plans of construction, surveyed or unsurveyed, authorized by the Chinese Government or not, a total of 13,434 miles. The latter figure represents principally the lines for which plans have been made and surveys ordered by the Chinese Government, but includes also some roads projected by local capitalists in various portions of China, lines for which concessions have been asked and in some cases obtained of the Chinese Government by foreign interests, and all the various local railway enterprises, some of which are of more or less indefinite backing, but many of which will probably be the railways next constructed in the country.

The preceding figures are based upon lists given later in this report of railways in operation or under construction and those surveyed or seriously projected. While these lists are probably faulty in some respects as a result, first, of indefinite and ill-defined plans and uncertain construction work, and, second, of differences in nomenclature and romanization of Chinese names in the several provincial dialects or languages, they are offered as the best information obtainable at this time from official and other sources.

PROGRESS OF WORK DURING PAST YEAR.

In spite of great projects and many promising features, the railway situation in China at the beginning of 1911 does not presage the immediate development of the country along modern lines. Much has been accomplished, but, in spite of the fact that the interest of the entire world has been centered to an unusual degree upon the building of railroads in China, that both Chinese and foreign statesmen well understood that the first requirement in the development of the country's resources and its advancement is railroad construction, and that railway systems aggregating more than 13,400 miles have been planned, of which 5,000 miles have been surveyed in a more or less definite and final manner, the construction during 1910 of railways of

all classes, including extensions of existing lines, further work on lines already commenced and operated to a certain degree, and entirely new lines, has not exceeded 500 miles, and at least part of this construction must be credited to the previous year.

Of this construction, about 275 miles is accounted for in the work on the Tientsin-Pukow system, of German ownership. The Ichang-Wanhsien line and other Yangtze Valley lines account for about 40 miles; the extension of the Canton-Hankow system north from Canton, including branch lines to various points, and the extension of the same system south near Changsha, including lines to mines, 80 miles; the Canton-Kowloon Railway, the Sunning Railway extension, and work on the Amoy-Changchow and other coast lines, 75 miles; the extension of the French Railway from the south to Yunnan, 60 miles; and apparently about 60 miles of new road were constructed in the Manchuria country during the year. Practically none of this is actually new work, most of it being the continuation of work commenced in other years.

The fact is that while plans for new railways in China are common, actual development is proceeding slowly. New plans are carried out with difficulty, modified, or abandoned. For this there are several causes, most of which appear reducible to one or two circumstances—either the people are unwilling that other nations should furnish the money to build the roads, and have not the money themselves, or, if willing to borrow from abroad for such work, other considerations have so far prevented the placing of the necessary loans under admissible conditions and circumstances.

FINANCIAL PROSPECTS UNFAVORABLE.

While these and other influences, and the general poverty of the country, are preventing the realization of these great enterprises, there is little if any actual encouragement for the Chinese public to invest what funds they can raise for such purposes. Of the greater systems under Chinese control, practically none are paying their way, all things considered.

In connection with the retirement of a Chinese official last year it was stated that losses on the several principal roads the previous year had been approximately: Shanghai-Nanking, 1,000,000 taels; Chengting-Taiyuen, 600,000 taels; Tao-Ching, 100,000 taels; Pien-liang-Loyang, 600,000 taels; Peking-Kalgan, 150,000 taels; West Mausolea, 15,000 taels. The Pinghsiang line realizes a profit, and the Peking-Mukden and Peking-Hankow lines bring in about 11,000,000 and 9,600,000 taels, respectively. For these two lines, after deducting the expenses and interest, there is a net profit of 9,000,000 taels, of which, after making up the above deficiencies, is left about 6,500,000 taels. The record for 1910 seems to be about the same.

The Ministry of Posts and Communications has memorialized the Throne as to the Shanghai-Nanking Railway, that the income of this line in the last year was about 1,796,000 taels. The contra was 1,214,000 plus 1,662,000 taels interest, thus showing a debit balance of 1,080,000 taels. Of the lines reported as realizing a profit, it is further to be considered that deterioration has not been allowed for, and this, in the case of the Peking-Hankow line, is said to be particularly important. The Japanese lines in Manchuria have been paying dividends of 6 per cent and all interest charges.

CHINESE RAILWAY ENTERPRISES.

However, most of the smaller lines, particularly along the lower coast, are paying their way, and some are realizing satisfactory profits. These lines are being multiplied, and even some of the larger plans are being carried out. In several portions of the Empire Chinese enterprise and Chinese capital, without the assistance of foreigners, have accomplished something real and tangible. In the far north the Peking-Kalgan Railway extension is an example of what can be done in this line. In the far south the Sunning Railway, a small railway, but one completely Chinese in capital, construction, and management, is another example. The work of the German interests in Shantung indicates what foreign interests would do if allowed to work. The Canton-Kowloon Railway is an example of what Chinese and foreign combinations are doing, the foreign section being complete and the Chinese section in the course of completion. Work on the great north and south system of the Canton-Hankow line is exceedingly slow, even under official urging. Construction upon the east and west system of the Hankow-Chengtu line is more promising, though the immediate future is beset with rumor. Work on the east and west system farther north and crossing Shensi is practically nil, and little is promised for the current year.

In spite of the comparatively small volume of actual work, plans are numerous and without limit in their scope. Among lines projected by the Government are two over 800 miles in length, one over 1,200 miles, and another about 2,000 miles. These are of great practical importance to both Europe and Asia, for they mean actual railway service between London and Peking, for example, in less than 10 days, or from London to Hongkong, all by rail except the English Channel, in less than 14 days. The lines are so vast, individually and in the aggregate, that they appear mere dreams of the future, whereas they are lines the early realization of which is demanded by the political and economic position of China. Incidentally, many advantages the United States, even the Pacific coast, is supposed to have in its proximity and direct steamer connections with China are disappearing in the increasingly rapid communication Europe has with all portions of China and Asia by railways.

GREAT SYSTEMS PLANNED.

The Chinese Government, under the administration of Tang Shao Yi in the Railway and Communications Department, planned a complete system of railways, connecting the various commercial centers of the Empire. This plan included the construction of one or more railways from the present Peking Railway system to connect with the Trans-Siberian Railway near Lake Baikal or farther west, and thus cut off about two days in the journey from Europe to Peking and points south; a railway into Mongolia, another into Tibet, and still another into Kokonor. Tang Shao Yi urged the construction of the system across Shansi and Shensi, the system parallel to the Yangtze River, the connection between the Yangtze and Yunnan, the Canton-Hankow line—in short, he planned railways where they

must some day come. The realization of these plans is problematical. Nevertheless, the trend of events seems to indicate that they will be pushed to realization as rapidly as conditions permit.

GOVERNMENT RAILWAY POLICY.

One of the chief features of the present railway policy of the Chinese Government seems to be the disposition to take over all railway enterprises which have been undertaken by private capital, but which have been unduly delayed in execution. For example, the recent troubles in the Chekiang Railway Co. led the Government to step in and announce that it would take over the entire enterprise. The company is reported to have sent a representative to Peking to change the determination of the Government, but at last accounts the latter was adhering to its decision. Similar action has been taken in a number of cases, and it has been announced by the Board of Communications at Peking that all railway-building privileges granted to private interests must be put into operation during the present year or the Government will take them over. However, the Chinese gentrymen interested in building roads with Chinese capital find it difficult to raise the money. Unfortunately, the fact that some of the railways already in operation have been ill managed or have been operated under conditions that render it impracticable to secure fair returns on the Chinese capital invested in them is a constant discouragement. While the record of actual construction in 1910 is not very promising, considering the railways planned and needed, the prospect for 1911 is still less promising. Almost no new enterprises have been inaugurated or are about to be inaugurated, and enterprises finished in the past year or about to be finished will have little or no part in the current year's record.

That present conditions in the railway situation of China can continue indefinitely is impossible. The pressure from the people in favor of railway construction, taking the country as a whole, is growing. The demands of trade in the interior are becoming more pronounced in favor of rapid, safer, and better communication. Throughout China, particularly in the districts accessible to coast ports, improved means of communication are being brought into use, such as motor and steam boat services on the rivers and canals, and in some localities improved roads and automobile service. These improvements are accentuating the need and the advantage of railways, and public sentiment is slowly but surely preparing for great railway development.

GENERAL GROUPING OF LINES.

For convenience in examining the situation in China, the railways, present and prospective, may be divided into five divisions or systems. The first division includes the railways about Peking and extending into Manchuria to the northeast and into Mongolia and toward the northwest. The second division includes the railways in the country between Peking and the Yangtze Valley, including particularly the German lines in Shantung Province and to the south, and the lines projected both north and south connecting with the Yangtze River and east and west connecting the north and south

lines and extending to the sea. A third division may be made of the railways of the Yangtze Valley. A fourth includes the railways in and about the Hongkong-Canton district and those in the country between that district and the Yangtze Valley and in the Provinces of Kwangtung and Kwangsi tributary in a trade way to Hongkong and Canton. The fifth division includes railways in the border country between these ocean-trade districts and French China, Burma, India, and Tibet. These divisions merely represent more or less general movements of railway organization, construction, and operation.

MANCHURIAN SYSTEM.

Of the 5,404 miles of railway actually in operation in China, 2,433 miles are in what may be termed the Manchurian division. About two-thirds of the roads operated are Japanese and Russian. In this portion of China railway construction has been hastened in recent years for a number of reasons. The general aspect of the railway situation in Manchuria has changed comparatively little in the past year.

The Kirin-Hoiryong line is held in abeyance until the completion of the Kirin-Changchun (Kuangchengtzu) line. It is expected that the latter line will be in operation by September of the current year. During 1910 work was continued with little interruption, and on the whole it has been successful. The line is constructed by Chinese and Japanese interests, each furnishing half the capital; but the railway will have comparatively little traffic until the Hoiryong extension via Kirin and Omoso to the Chientao district and the banks of the Tumen is built. A branch line will run from there to the treaty port of Hungchun, and Japanese owners of connecting lines plan to connect it with their harbor of Chyongjin in northern Korea (Chosen).

During 1910 surveys of the Kalgan-Suiyuan-Kwei Huangcheng line were made under the direction of the Chinese Government and work is being prosecuted with some rapidity. The railway is to open up a part of China now practically unknown to the outside world. It is promised that the road will be running as far as Tienchen by the spring of 1912. It is planned to extend the line to Urga and Kiahtka and it may therefore form a link between Peking and the Trans-Siberian Railway, which will reduce the transit period between Europe and the Chinese capital by about two days' travel.

KALGAN-SUIYUAN LINE.

Within the past few weeks (April, 1911) it has been announced by the Government at Peking that the Kalgan-Suiyuan line is to be extended by the Government within five years to Ilifu, the capital of China's most distant Province on the Russian frontier, a distance of about 2,000 miles. This enterprise was first projected by Tang Shao Yi, and was seriously considered about the time of the completion of the Peking-Kalgan line. The enormous expense of the undertaking, however, caused the enterprise to be held in abeyance. Recent events have led to the present determination to build the line as soon as possible. The expense, of course, will be enormous, but there is strong probability of its commercial success from the beginning. There is heavy caravan traffic between North China and

the country in question, which is known as the "New Dominion," and the possibility of diverting much of the tea traffic with Russia to this route is promising. Possibilities of developing grain country also are immense. However, the line would probably not be justified at this time except as a governmental undertaking. Up to the present, it does not appear that this enterprise is to supersede the proposition to extend the Kalgan line to Kiahtka via Urga.

The ultimate plan of the Kalgan-Suiyuan line is for it to connect with a north and south line bisecting Shansi Province, though at latest report there was no definite work being done on this road.

Chinese merchants are projecting a light railway from Harbin to Shuihue and Huilun, about 150 miles, for which 5,000,000 taels are being raised. The native press reports that of this sum 3,000,000 taels has been pledged by two native banks, and merchants are to furnish the balance.

Aside from work commenced before present conditions developed there is little actual advancement promised in this portion of the country. Nevertheless it is here that railway enterprise is likely to have its best returns both to the investor and to the country.

SUMMARY OF SYSTEM.

In the Manchurian system the mileage in operation is 2,433, under construction 338, and surveyed or projected 4,760. A list of the railways in operation or projected, with a brief statement regarding them, follows:

IN OPERATION OR UNDER CONSTRUCTION.

Kirin-Hoiryung: Section of Manchurian; 78 miles; under construction by Japanese-Chinese organization; will be in operation in September, 1911. Branch will run to Hungchun, and it may be connected with Japanese lines in Korea (Chosen).

Peking-Tientsin-Tangku-Hsinminfu (Chinese): Gauge, 4 feet 8½ inches; 484 miles; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Hsinminfu-Mukden (Chinese): Gauge, 4 feet 8½ inches; 38 miles; purchased from Japanese; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Koupangtzu-Newchwang (Chinese): Gauge, 4 feet 8½ inches; 57 miles; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Peking-Tungchou (Chinese): Gauge, 4 feet 8½ inches; 12 miles; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Peking-Lukoukhiao (Chinese): Gauge, 4 feet 8½ inches; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Peking-Kalgan (Chinese): Gauge, 4 feet 8½ inches; 125 miles; Chinese Imperial Railway Administration of North China (combined Chinese and British capital). In operation to Kalgan; now being extended to Kweiuangcheng in Shensi Province.

Kalgan-Suiyuan Railway: Preliminary surveys were made in 1910 under orders of the Chinese Imperial Railway Administration of North China, and the route will probably be via Tatung. Trains are expected to run as far as Tienchen, a distance of 50 miles, in the spring of 1912.

Kaopaitien-Hsiling (Chinese): Gauge, meter; 36 miles; light railway to Imperial Tombs; Chinese Imperial Railway Administration of North China (combined Chinese and British capital).

Dalny-Kuanchengtzu (Japanese): Gauge, 4 feet 8½ inches; 433 miles; line from Dalny to Suchiatun will be doubled (236 miles); South Manchuria Railway Co.; converted from 3 foot 6 inch gauge; Japanese South Manchurian Railway system.

Kuanchengtzu-Changchun (Japanese): Gauge, 4 feet 8½ inches; 5 miles; to connect with Chinese Eastern Railway (Russian); South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Nankuanling-Port Arthur (Japanese): Gauge, 4 feet 8½ inches; 30 miles; South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Tashihchiao-Yinkou, Newchwang connection (Japanese): Gauge, 4 feet 8½ inches; 13 miles; South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Suchiatun-Fushun (Japanese): Gauge, 4 feet 8½ inches; 37 miles; South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Tafengshen-Liushutun (Japanese): Gauge, 4 feet 8½ inches; 3½ miles; South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Yentai-Taikang (Japanese): Gauge, 4 feet 8½ inches; 10 miles; South Manchuria Railway Co.; converted from 3 foot 6 inch gauge in May, 1908; Japanese South Manchurian Railway system.

Antung-Penchihu-Mukden (Japanese): Gauge, 2 feet 6 inches; 171 miles; light railway under conversion to 4 foot 8½ inch gauge; concession; probably completed in 1913.

Kuanchengtzu-Harbin, etc. (Russian): Gauge, 5 feet; 1,077 miles; Chinese Eastern Railway; includes lines east and west to Russian frontier.

SURVEYED OR PROJECTED.

Chinchowfu-Aigun Railway (British-American): The preliminary agreement for this railway was signed in January, 1910, for American loan and British construction; the length of the line will be 750 miles.

Hsinminfu-Fakumen (Chinese): Gauge, 4 feet 8½ inches; 420 miles; proposed extension via Taoan to connect with Chinese Eastern Railway at Tsitsihar.

Kirin (Hoiryong) Railway: This line will be 240 miles long, and is to be undertaken on the completion of the Kirin-Changchun line, probably in the fall of 1911; surveys have been completed.

Shansi Railway: Line of about 450 miles projected by the Board of Communications bisecting the Province of Shansi, north and south; to pass through Tatung and there connect with the east and west extension of the Kalgan Railway.

Suiyuan-Ilifu Railway: Announcement made by Chinese Government or intention to extend Kalgan-Cuiyuan line to Ilifu Russian border, the whole to be completed in five years; Chinese Government enterprise; about 2,000 miles.

Suiyuan-Kiahtka line: Proposed extension of the Peking-Kalgan Railway; about 750 miles; some survey work being done, but financing of the system is uncertain; completion is promised in five years.

Harbin-Hsuihue and Huilun (Chinese): Light railway of about 150 miles; preliminary surveys in progress.

SHANTUNG-YANGTZE SYSTEM.

Some of the projected railways from Peking into the western and northwestern country have a direct relation with lines in operation and projected immediately south of the imperial capital. Of immediate importance, however, is the recent construction in Shantung and neighboring Provinces, the most successful work in Chinese railway fields in 1910 being in this part of the Empire. In this great, rich section of China, in which the successful long-distance railways have heretofore been constructed, several railways were brought to successful completion and into efficient operation.

During 1910 the most notable lines completed were portions of the great German system in Shantung, which extends from Tientsin to the Yangtze River, and is generally known as the Pukow-Tientsin Railway. The southern portion of the system is in operation from Pukow, opposite Nanking on the Yangtze, to Linghwaikwan, a dis-

tance of about 94 miles. It is expected that the line will be completed and in operation to Hsuchowfu by the end of the current year.

The northern sections of this system have been completed and put into operation as follows: The Tientsin-Tsinan lines have been in operation since November, 1910; the track to the south is complete to Hsuchowfu, but at present the Yellow River is crossed only by a ferry. Work on the difficult enterprise of bridging this great stream is proceeding steadily, but it will be two years before trains can be run across the bridge. In the construction of this road there have been and are yet to be met many engineering difficulties, the most serious being those relating to the handling of flood waters from the river and canal systems crossed by the line. These flood waters in recent years have caused hundreds of thousands of deaths in the flat country the road traverses. Excepting the Yellow River bridge, it is expected that within a year the entire line will be completed, thus giving the Yangtze Valley connections with the sea at Tsingtau and opening up a great territory between the Peking-Hankow line and the sea.

The completion of this railway will have a marked influence in preventing or at least in modifying the great famines caused by the floods in this portion of China, which have invoked the sympathies and the assistance of the world, particularly the people of the United States.

PLANS FOR MIDDLE NORTHERN TERRITORY.

In the middle northern territory there are a number of ambitious plans for lines running to the west, one being to connect the lines now running or rather under construction and projected into the Province of Kansu, with a series of lines running into what is known as the "new territory," the country toward the Russian border.

Under a concession formerly held by Belgians, but now worked by Chinese, a line is slowly being constructed from Honan, a city of Honan Province, to Sianfu, the capital of Shensi Province, as a part of the Peking-Hankow system. In February, 1911, coolies were at work on the embankment of this line a few li west of Sinan, a small city about 20 miles from Honan. Three years have been occupied in the work so far done. The correspondent estimates that if the work progresses at the present rate the line of embankment will be completed to Sianfu, in Shensi, in 37 years. It is understood that the company expects to push the construction of the line as soon as financial arrangements can be made. Its last reported financial operation was the placing of a loan of 5,000,000 taels with Chinese banks in May, 1910.

The Board of Communications at Peking has planned an extension of this line to Lanchow, the capital of Kansu Province, and the survey for this extension is to be completed in 1911. The Board of Communications has also announced its intention of extending this line from Lanchow to Ilifu, on the farthest frontier of the Empire, the terminus of the proposed extension of the Kalgan-Suiyuan line, about 1,250 miles distant. Surveys for this great extension have been ordered to be commenced immediately. While this great system, connecting the frontier of the Empire with the interior to the south-

east as well as with the imperial capital, appears to have been decided upon, no definite plans for financing the proposition have yet been adopted.

CONSTRUCTING SMALL LINES.

During the year also there has been considerable work done in connecting existing lines with coal and other mines and in extending the connections of present lines in small but necessary spurs. A notable feature of the situation in this portion of China is the comparatively rapid development of the desire for railways tributary to the lines already constructed; that is, an appreciation of the need, in the development of local industries, of close and convenient connections with the trunk systems. This is particularly noticeable along the coast above the Yangtze River, where a number of Chinese cities have shown anxiety to secure connections with the Pukow Railway and the Peking-Hankow Railway, and between these railways and the Grand Canal. Several cities, notably Chinkiang, are commencing to appreciate the fact that they must have railway connections at once or their present position in the trade of the country will be lost.

Local industries, like the salt industry in Kiangsu Province and various mines in portions of the country to the north, are demanding and are gradually securing railway facilities. A number of these small lines are projected for connecting the existing lines and for serving them with many branches and connections. Among the new enterprises of a serious sort are the projected lines to connect the Tientsin-Pukow system with the Grand Canal, and cross lines at the Shantung-Kiangsu border from Lintscheng to Taierschuang to take the place of the projected Hantschuan-Ihsien line; the Kaomi-Ichow line to connect the German neutral territory with southern Shantung; and the Kaifong-Haichow line, furnishing an outlet at the seaboard for the east and west line through Honan and projected all the way to the Russian border.

The Kaifong-Haichow section of the line is delayed for lack of money, and in April, 1911, it is reported that the Chinese projectors are negotiating with an English concern for placing a loan for funds. It is also reported in the native press that the Chinese projectors of the Ichow line are negotiating with the Deutsche Asiatische Bank for a construction loan. Surveys for all the lines are reasonably complete, considerable work upon them having been done in 1910.

OTHER ROADS PLANNED AND SURVEYED.

During the past year more or less complete surveys were made for the line from Sinyang, on the Peking-Hankow line in the southern portion of Honan Province, to Fungyang, one of the principal points on the Tientsin line in Anhwei Province. This line is projected by the Board of Communications at Peking, but no announcement has been made as to when the work will be pushed to completion. No work has been done, other than surveys, on the line from Chengting, on the Peking-Hankow line in Shantung Province, to Tehchow, on the Tientsin-Pukow line on the northern border of Shantung Province. This is the most northern of the lateral lines

projected by the railway board in Peking. The proposed line to connect Chefoo with the interior lines at Weihsien seems to be quiescent for the time being.

The holders of licenses for dealing in salt have decided, with Government permission, to build a railway from Icheng, near the Yangtze, to Taichow, with a branch between Icheng and the salt depot at Shiherwei, on the Yangtze, all in the Province of Kiangsu. This line will cross the Grand Canal at Kwachow and pass up the eastern bank of the canal as far as Yangchow, a good-sized city, whence it will go to Taichow via Hsiennumiao. The total distance will be 48 miles, which has already been surveyed. The line will be of standard gauge, and the earthwork will be light; but there will be some important bridge work, one bridge of 800 feet and another of 250 feet being necessary, besides many smaller bridges. It is expected eventually to extend the line to Haichow, at the north end of the Province.

Another railway was projected from Kwachow parallel with the Grand Canal to Tsingkiangpu and on to Haichow, but up to the present the capital has not been raised, and the project seems to have been temporarily abandoned. This line would also partly depend on the carriage of salt, which is produced at Haichow, but there would also be a large passenger traffic. A railway between Pukow and Kwachow is also under consideration, and would possibly save the future of Chinkiang.

TROUBLES IN OPERATION.

In the railways in operation in this portion of the Empire there has been considerable financial trouble. The greatest railway in this section at present is the Peking-Hankow Railway, the northern section of the great trunk line north and south through China, in which American interests were once involved and which represents the most important railway element in the country. This railway has been in operation for about five years.

All authorities seem to agree that, though it reports a profit of about \$4,000,000 local currency, or about \$1,680,000 gold, per year, it is deteriorating very rapidly in physical upkeep. The Chinese railway authorities claim that this deterioration is due largely to the fact that the foreign interests which formerly owned it knew it was to be transferred to the Chinese and neglected it, with the result that now its upkeep is more difficult and expensive than it should be. The railway's accounts show no proper allowance for deterioration, and the showing of a profit is more or less a matter of unscientific bookkeeping, the impairment of the railway plant resulting, in fact, in dividends from the railway's capital.

The general opinion is that a financial reorganization will be necessary to put the railway upon a safe and satisfactory basis. That this reorganization is coming seems beyond doubt and is only a matter of time. It is almost certain to lead to very important developments in the reorganization of railways in this portion of China generally, and will have a marked influence upon the course of Chinese railroading for years to come.

SUMMARY OF SYSTEM.

The railways in operation in the Shantung-Yangtze system aggregate 2,038 miles, with 680 miles under construction and 3,094 miles surveyed or projected. A list of these lines follows:

IN OPERATION OR UNDER CONSTRUCTION.

Peking-Hankow (Belgian-Chinese, formerly American): Gauge, 4 feet 8½ inches; 755 miles; complete and in operation for about five years.

Lianghsiang-Hsientuli (Belgian-Chinese, formerly American): Gauge, 4 feet 8½ inches; 12 miles; branch of the Peking-Hankow to local coal mines.

Liuliho-Choukechuang (Belgian-Chinese, formerly American): Gauge, 4 feet 8½ inches; 10 miles; branch of the Peking-Hankow line to local mines.

Kaoyih sien-Lintscheng coal mines (Chinese): Gauge, 4 feet 8½ inches; 11 miles; branch of the Peking-Hankow to local mines.

Kaifong-Honan (Belgian-Chinese): Gauge, 4 feet 8½ inches; 120 miles; via Chengchou; contracted by the Compagnie Générale des Chemins de Fer et Tramways de Chine; now in Chinese control.

Tsaochuang coal mines-Yihsin-Taierchuang (Chinese): Gauge, 4 feet 8½ inches; 31 miles; now connects with Tsingtau-Pukow system.

Tangho-Chinwangtao (British): Gauge, 4 feet 8½ inches; 6 miles; Chinese Engineering & Mining Co.; branch from Tientsin-Hsinminfu or Mukden line to reach coal mines.

Peking-Mentoukou (Chinese): Gauge, 4 feet 8½ inches; 16½ miles; in full operation.

Shihchiachuang-Taiyuan, Shansi (French): Gauge, meter; 151 miles; purchased by French syndicate from Russo-Chinese Bank.

Tientsin-Yihsin Railway; north half of Tientsin-Nanking or Pukow system (German): Gauge, 4 feet 8½ inches; about 400 miles; half completed; operated to Tsinan.

Yihsin-Pukow Railway; south half of Tientsin-Nanking system: About 200 miles; half completed and operated to Linghwaikwan, about 94 miles from the Yangtze; German ownership.

Tsingtau-Yihsin (German): Gauge, 4 feet 8½ inches; 200 miles; Shantung Railway Co. operating the whole.

Taokou-Tsechou (Chinese): Gauge, 4 feet 8½ inches; 130 miles; worked by Peking syndicate.

Tsingtau-Pukow (German): Gauge, 4 feet 8½ inches; 256 miles; Shantung Railway Co.; single line, with earthwork to accommodate double line; opened to traffic to Tsinan in November, 1910.

Changtien-Poshanhsien (German): Gauge, 4 feet 8½ inches; 28 miles; Shantung Railway Co.; single line, with earthwork to accommodate double line; branch of German Shantung system.

Hsuehowfu-Chinkiangpu Railway: 120 miles; construction of this line has been begun from Chinkiangpu and is proceeding slowly.

Honan-Sianfu, Shensi: Gauge, 4 feet 8½ inches; 240 miles; concession formerly held by foreign interests, now being worked by Chinese; embankment completed for about 25 miles, to point west of Sinan, in Honan Province.

SURVEYED OR PROJECTED.

Chefoo-Weihsien Railway: 170 miles; this line will connect Chefoo with the Shantung Railway; surveys completed but funds lacking.

Chengting-Techow Railway: 170 miles; this will connect the Peking-Hankow Railway at Chengting and Tientsin-Pukow Railway at Techow, in northern Shantung Province; projected by the Board of Communications and surveys completed; construction uncertain.

Singyang-Fungyang: Projected by the Board of Communications at Peking, east from the Peking-Hankow Railway at Singyang to the Tientsin-Pukow line at Fungyang, 100 miles; survey completed in 1910; no funds at hand.

Kaifong-Haichow (Chinghai) Railway: 70 miles; intended to provide an outlet to the sea for the great trunk line from west to east, in addition to the existing line from Honan to Kaifong; delayed from lack of funds.

Tatungfu-Fuchofu (Tungpu) Railway: 450 miles; this railway will connect the north and center of Shansi Province with the Shansi Railway at Tungkwan,

south of Puchowfu, on the Hoangho or Yellow River; only the construction of the section from Taiyuan to Hingyaohsien (60 miles) appears to be in immediate contemplation, and work is delayed from lack of funds.

Sianfu-Lanchow Railway: 380 miles; this line is in the program of the Board of Communications for the completion of the survey in 1911, but no report of what has been done is yet to be had; line to be extended to Ilifu, as noted below.

Lanchow-Ilifu Railway: 1,250 miles; also referred to as the Kansu New Dominion line; projected by the Board of Communications at Peking as a Government undertaking and surveyors have been instructed to commence work at once.

Kaomi-Ichow, connecting Ichow with Tsingtau-Tsinan Railway (Chinese): 40 miles; delayed from lack of funds.

Lintscheng-Taierchuang: Takes place of projected Hantschuan-Ihsien line connecting north and south railway with the Grand Canal at Shantung-Kiangsu border; 48 miles; survey in progress.

Icheng-Taichow, Kiangsu (Chinese): Gauge, standard; 48 miles; from the Yangtze to Taichow, in Kiangsu, with branches to connect salt depot at Shierhwei.

Kwachow-Haichow, via Tsingkiangpu, for transportation of salt: 100 miles; from the Yangtze north through Kiangsu to the sea; preliminary surveys made, but no funds in hand.

YANGTZE VALLEY SYSTEM.

The Yangtze Valley railways in China are in some respects the most interesting problems in the country. The country they serve, or are planned to serve, is in most respects the richest portion of the Empire, and under ordinary circumstances would be the most promising. However, most of the railways, both those constructed and those proposed, parallel the Grand Canal north and south and the Yangtze River east and west. The result is that the vast mass of freight is still carried in native boats, and will continue to be so carried in the future, in spite of railway facilities. Only rich cargoes, like silks, or cargoes of material that can be handled to advantage by machinery or by standard equipment, like coal or ore, can be counted upon by the railways.

For example, the Shanghai-Nanking Railway, one of the best equipped of the new lines in the country, well built and well started by foreign promoters, has found it impossible to make money so far, because of the competition of Yangtze River steamers. The Shanghai-Hangchow line, while apparently enjoying a good business and in a position to prosper, has been in the public eye for some time as a result of troubles in the Chekiang Railway Co. and allied interests, and questions of management have so far mixed the situation that the exact financial position of the railway is uncertain, although admitted losses are great. It is announced from Peking that as a result of the general unfavorable situation in the company the Government is to take over the line and carry it forward as a Government enterprise.

HANKOW-SZECHWAN LINE.

These and other conditions have disturbed the general development of railway enterprise in this portion of China, and to some extent the proposed construction of a railway line connecting Hankow and Chengtu and Chungking; the great cities of the Province of Szechwan, that immense inner empire of China, which is one of the richest portions of the world, shut off from the rest of the world by the rapids of the Yangtze and without any railway connections whatever.

The exact status of this great enterprise is not known. Capital has been raised and spent upon it to the amount of about \$7,250,000 gold. During 1910 work was pushed upon a portion of it with great energy. In spite of financial difficulties and changes in plans, which, in February, 1911, led to the report that the company had decided to abandon its work upon the main section then under construction near Ichang and to transport its materials and transfer its energies to the immediate construction of a railway from Chengtu, the capital of the Province, to Chungking, its principal commercial center, the work has been pushed with considerable energy, as may be realized from the announcement that during most of 1910 from 10,000 to 15,000 coolies were engaged in construction work on the line out of Ichang. Contracts were let for a tunnel 6,200 feet long, about 50 miles from Ichang; for two tunnels of about 1,000 feet each about 25 miles from Ichang; for 50 bridges, great and small; and for the construction of a station building and various terminal and administrative buildings at Ichang. Vast quantities of cement, rails, and other materials, and several locomotives and other rolling stock were bought. The road itself has been nearly completed for about 20 miles, including a tunnel of 700 feet about 15 miles from Ichang. During 1911 work is to be done on a larger scale than ever.

PRESENT WORK ON LINE.

A correspondent under date of April 4, 1911, reports:

The total distance now under construction is about 100 miles. There are at present nearly 50,000 coolies at work on the 10 sections between Ichang and Wanhsien. The rails being laid down on the main line are of 85-pound weight, 13 ties to the rail. Trains are being run twice daily between the wharf at Ichang and the rail end for transporting material. The station at Ichang is now nearing completion. Three storerooms were completed some time ago and they are now in use. The head office buildings are now under construction. All the bridges and drains in the first section are completed, and those for the other section are being prepared. Over 40 construction cars of Chinese construction are already in use carrying material, and in the workshops passenger cars are being rapidly built. First and second class cars are already built and are ready for use. The machine-shop plant is about to be put into the newly built workshops. From the American Bridge Co., of New York, eleven 100-foot spans have been ordered, and delivery will be made in May. Another order for 200,000 drums of cement has been given out. Two million superficial feet of Oregon pine logs and planks have been contracted for.

CONTRACTS PLACED—CONNECTING LINES.

Announcement is made that the company has placed a contract for two specially constructed steamers and a number of 200-ton lighters for the transportation of materials for the line now building and for the construction of the Chengtu-Chungking line up the Yangtze and through the famous rapids. The Chengtu-Chungking line is to be constructed at once if the company can raise more money, which it expects to be able to do, as the Chengtu-Chungking line offers fine financial prospects from the very beginning because of the wonderfully rich country it will serve. Prospects are that work on this system will be rapidly advanced in spite of engineering difficulties of considerable magnitude and involving great expense.

Part of the construction of this great Szechwan system is to be paid for from the proceeds of the \$30,000,000 Hukuang loan, which was

proposed by British, American, German, and French interests and which was brought before the Chinese authorities by representatives of the powers at the beginning of the present year and recently consummated. From Ichang to Wanhsien the Chinese company is building the line, and from Wanhsien to Chungking a road is to be constructed by a new local company. The line from Chungking to Chengtu now about to be undertaken by the Szechwan Railway Co. would form the last portion of the system connecting the capital of this great Province with the sea, thus carrying out the original purpose of the projected line, but by a different route. It is estimated that the line from Hankow to Chengtu will cost over 50,000,000 taels, or about \$32,000,000 gold. Of this about one-sixth has been raised and expended upon the work.

SMALLER LINES DELAYED.

The construction of smaller lines and connections of the larger lines in this central portion of China seems to be almost entirely suspended. The reason in almost every case appears to be a lack of funds on the part of the Chinese promoters and an unwillingness to place loans abroad. Thus, in the case of the proposed line from Nanking or Wuhu to the sea at Ningpo by way of Hangchow, a company was formed at Wuhu some years ago with the title "Anhui Railway Co.," for the purpose of constructing a line from Wuhu to the town of Kwangtechou, near the frontier of Chekiang Province. Work was commenced in 1906. Up to date all that has been accomplished is the construction of the embankment as far as the village of Wanchih, some 30 miles from Wuhu, and the construction of two or three single-track bridges in that section. The site of the future terminus, on the foreign settlement at Wuhu, has not even been filled in. A few trolley lines and dumping wagons, with some piles of sleepers, are the only indication that railway works are, or have been, in progress. No machinery, rolling stock, or other requisites of a railway have been imported, and, so far as known, none have been ordered. The progress made in 1910 is represented by the dumping of several thousand cubic yards of filling on the site of the terminus at Wuhu. As regards the future, more activity is promised, owing to the return to China of Lord Li Ching-fang, formerly Chinese Minister in London, and now vice president of the Board of Communications. Lord Li was one of the original promoters of this line. It is promised that the line will be completed to Wanchi, a distance of 70 li, or about 24 miles, during the current year.

A proposal was made some years ago to extend the Nanking City Railway to Wuhu, but lately nothing has been heard of this suggestion. The Anhwei authorities seem favorably disposed toward railways and the public appears anxious that lines should be built with Chinese money, but the latter does not appear to be forthcoming in sufficient quantities.

The Ningpo end of the general Nanking-Hangchow-Ningpo enterprise seems to be in a state similar to that of the northern portion. A large amount of earthwork was completed soon after the enterprise was first inaugurated, the total amounting to about 50 miles. Space in the foreign settlement at Ningpo (Kiangpeian) was cleared for the station, but the entire enterprise seems to be held in abeyance be-

cause of the Chekiang company's financial condition. The authorities of the company are making no announcements as to plans or prospects.

KIUKIANG-NANCHANG LINE.

The exact situation of the railway from Kiukiang to Nanchang, the capital of Kiangsi Province, is doubtful. The line was surveyed in 1905, but actual construction work did not commence until 1908. In April, a year ago, the Chinese Customs Commissioner reported that the chief engineer had declared the first section of 32 miles so near completion that there was no reason why it should not have been opened last summer. At that time all the grading was finished, track had been laid for 6 miles, and most of the bridges were completed. However, financial troubles, which have interfered with the progress of the work from the beginning, set in during the summer and the work was greatly retarded. In June, 1910, the company was reported to have borrowed 2,000,000 taels from native banks, but, as has generally been the case with loans contracted for from native sources, the money was not forthcoming in a way to enable rapid work to be done. Trains are running over a short distance of the road only, general operation and more extended use being prevented by incomplete bridging. The work generally has all but stopped because of financial troubles.

The rails and fittings for this road were manufactured by the Hanyang Iron & Steel Works at Hankow. The bridge steel, cars, locomotives, and considerable other material are from the United States. The staff, until very recently at least, was entirely Japanese. The line passes through exceptionally easy country for railroad building, but involves the construction of several notable bridges, among them being a seven-span bridge about $3\frac{1}{2}$ miles from Kiukiang and a truss bridge of about 800 feet 50 miles from Kiukiang. The road taps an exceptionally rich country, from which great quantities of tea and other agricultural products are exported. Between comparatively low cost and prospective unusual earning power, the immediate financial success of the enterprise is expected, but the difficulty of securing so large a capital from native sources is likely to embarrass the management for some time.

So far as can be learned, there is at present little or no intention to build a line from Soochow to Hangchow as had been planned. It seems to be realized that a line almost alongside the Grand Canal is hard to make pay. At one time there was talk of a small branch line from Soochow to Changshuhsien, a city about 17 miles to the northeast of that city, but of late nothing has been said about it. The officials of that district are friendly toward railways. The consulate's correspondent reports that the people use the present line largely.

FINANCIAL PROBLEMS.

In this part of the country the financial difficulties of lines already constructed are becoming serious. The Shanghai-Nanking line is losing money rapidly. Its manager claims that the imposition of likin, or internal-revenue tax, upon goods passing through certain stations forces the shipment of freight by the Yangtze River,

where there are fewer tax stations, and therefore lower charges. But it appears also that the railway is troubled by faulty traffic conditions. While the line travels through populous and industrious regions and connects two of the most important commercial districts of China, two great drawbacks are to be noted: First, the line is too expensively built (it cost 120,000 taels, or \$85,000, per mile) and the capital charge per unit of traffic is too large; second, the line runs along navigable canals and rivers that can carry goods at a much cheaper rate. Only by the development of traffic in light, valuable goods, in the transportation of which time, safety, and ease of handling are elements, and in the development of a heavy passenger traffic, can it look for success. This road has announced in the past few weeks that hereafter no student tickets between Nanking and Shanghai will be issued, and the list of pass holders is to be greatly curtailed. The student tickets were reduced-fare tickets issued for the use of persons attending educational institutions in Shanghai.

There is a similar state of finances in the Shanghai-Hangchow line. Although the expense of construction was comparatively much less the competition of the Grand Canal connections with Shanghai makes it difficult for the line to pay. For many years, even under modern trade conditions, there has been a regular service for freight and passengers between Shanghai and Hangchow, Soochow, Huchow, and other Chekiang points by house boats and barges, towed by steam launches. This is not so rapid as a railway service, but it was and is cheap, and the competition it forces upon the railway is extremely keen.

These unfavorable results of operating railways in the Yangtze Valley, the uncertain course of railway finance, and the general lack of money in the country with the indisposition of Chinese gentrymen to resort to foreign loans for railway construction, explain the backward state of railway enterprise generally.

SUMMARY OF SYSTEM.

The Yangtze Valley system has 328 miles in operation, 300 miles in actual course of construction, and 1,304 miles surveyed or projected. Details as to the various lines follow:

IN OPERATION OR UNDER CONSTRUCTION.

Shanghai-Woosung (British): Gauge, 4 feet 8½ inches; 10 miles; purchased from Chinese; British and Chinese corporation.

Shanghai-Nanking (British): Gauge, 4 feet 8½ inches; 193 miles; via Chinkiang; double line Shanghai to Soochow (54 miles); British and Chinese corporation.

Shanghai-Hangchow (Chinese): Gauge, 4 feet 8½ inches; 125 miles; Chekiang Railway Co.; in operation from Shanghai to Hangchow.

Wuhu-Hangchow (Chinese): Gauge, 4 feet 8½ inches; 150 miles; work proceeding slowly from Wuhu to Kwangtechou, embankment and most bridges being completed to latter place; no line in operation.

Hankow-Ichang-Chengtou line (Chinese): Gauge, 4 feet 8½ inches; 800 miles projected; 20 miles on Ichang-Chengtou line completed and rate of construction is being increased; company has decided to build Chengtu-Chungking line at once.

Kiukiang-Nanchang (Chinese): Gauge, 4 feet 8½ inches; 130 miles; northern section of Kiangsi Railway; to be extended to Chian, Nanan, and Shaochou, or about 430 miles in all; about 35 miles practically completed.

SURVEYED OR PROJECTED.

Hangchow-Ningpo (British): Gauge, 4 feet 8½ inches; 120 miles; construction and control nominally in hands of Chinese Government; concession granted to British and Chinese corporation; some work at Ningpo stopped for lack of funds.

Soochow-Changshuhsien, branch of Shanghai-Nanking system; 16 miles; construction delayed from lack of funds.

Soochow-Hangchow line: Projected line from Soochow, on Yangtze River, to Hangchow, capital of Chekiang Province; 60 miles; little prospect of construction for the present.

Pukow-Kwachow: Line of about 80 miles projected largely to save trade of Chinkiang; realization delayed from lack of funds.

Chengtú-Chungking line: Portion of the proposed great Hankow-Szechwan system; Chinese ownership; about 200 miles; material now being taken to the territory for immediate construction.

KWANGTUNG SYSTEM.

There are three features of the railway situation in the south coast country of China that merit attention. The first relates to the slow advancement of the work upon the Canton-Hankow Railway, the great north and south line which is to connect the Yangtze Valley at Hankow and all the great country between with the ocean at Hongkong. The second is the construction of a large number of small lines and connections in and about the lower end of this great trunk line, which are to connect Canton and Hongkong and Macao, as well as all the industrial centers of the lower Chinese coast. The third is the proposed system of railways in the Provinces of Kwangtung and Kwangsi to connect the Canton-Hankow system and the smaller railways of the south coast country with the interior and eventually with the railways on the border to the west and south.

The construction of the southern section of the Canton-Hankow Railway, the system once owned by an American syndicate, is proceeding upon a sectional basis. As a result of the agitation following the transfer of the northern section of the Canton-Peking line to Belgian interests, the American syndicate sold its interests to a Chinese syndicate which proposed to construct the line upon a sectional basis; that is, the Chinese interested in the enterprise in each Province traversed by the line are to furnish the capital for the section of the line in such Province. There have been some modifications of the proposition, but in general this plan is being followed. However, the northern portion of the line has been advanced by the need of serving certain coal and iron mines, connecting them with water transportation for Hankow, and the southern section of the general line has been advanced by local Kwangtung Province interests and the fact that a portion of the system was already constructed and in operation. The middle section, the trunk line, drags along without actual progress. Probably something will be done now that the Hukuang loan has been concluded.

PROGRESS OF ROADS IN NORTHERN SECTION.

The situation as regards the northern section and the small railways constructed to serve the coal and other mines is indicated in a general way by a letter from a correspondent at Changsha, who writes, under date of March 13, 1911:

The Chuchow-Changsha section of the Yuehhan Railway, which was commenced in August, 1909, has made fair progress. Most of the rails have been

laid, though the grading has not yet been quite completed; but little ballasting has been done and August next is the nearest date on which light trains may be able to run through. It is not expected that the line will be ready for the transport of coal, for which the stretch is primarily intended, until next year. The Pinghsiang-Chuchow line runs regularly and seems sufficiently good for the purpose for which it is intended. It is intended to commence work on the Changsha-Yochow section of the Yuehnan line during this year, probably in three places. Regulations for the purchase of ground are out, the prices are fixed, and landowners are urged to accept as small sums as possible in order to obviate the raising of a foreign loan. Payment in shares may be accepted. South from Chuchow to Chenchow a detailed survey will be commenced this year. It is expected to complete the Yochow-Chenchow section within five years. Local feeling is entirely in favor of building the railways without foreign assistance.

THE SOUTHERN SECTION.

Of the extension of the existing railway at Canton north to connect with the Hunan section of the through system about the same report as to progress may be made. Correspondents report that the line is open to traffic at present (in March, 1911) up to Kouwong-shek, 58 miles from Canton. The end of the track is about 9 miles farther, to which point the road is to be opened soon. Grading and bridging between there and mile 79 is about completed, except for one small hill that the company has been unable to purchase because of "Feng Shui" objections, but prospects are for an early settlement. Between miles 79 and 85 the grading, while light, can not be done at present, because of objections by the natives. The smaller bridges between miles 79 and 85 are all complete, however, and the two larger ones are well under way, so that seven or eight months should find them ready for track. Bridging and grading between miles 86 and 112 is at least 75 per cent complete, and will be ready for track in six months. Grading and bridging is going on between miles 112 and 130 and should be completed within 12 months. Contracts have just been let for all work between miles 130 and 140, though work between these points probably will require two years. This will bring the line to Shiukwan, the largest town on the North River and where there is considerable good coal. The line has been located as far as mile 180, and a party is now in the field finishing the location, the line in Kwangtung Province to be approximately 210 miles long.

Had the company been able to enforce its rights, the line would be now at least to mile 130, but the opposition of the villagers is strong, and as a result the company is greatly embarrassed. If the management of the company is able to compel the natives to sell the right of way and not interfere with the construction of the line and the directors allow the engineer in chief to go ahead, the line will undoubtedly be to Shiukwan in two years. The country along this line is not thickly populated and the company will get little business; in fact, until the line receives through business from the north it is very doubtful if it can pay.

The nature of this opposition is characteristic of many portions of China. For example, gentrymen have opposed the connection of the Hankow-Canton line as far as completed with the Kwongkow road, a line serving a neighboring district, on religious grounds. In the construction of the line north from Canton in particular the natives have been exceedingly troublesome, though much of the

same sort of opposition is encountered in other portions of the Kwangtung and lower coast country. It may safely be said that popular support of railways is lacking in many portions of South China, and in some cases the opposition of the mass of people is so strong that the construction of lines already in hand and for which money and materials are fully provided is seriously interfered with and may be indefinitely delayed.

PROSPECTS IN KWANGSI.

The situation in the Province of Kwangsi and in Kwangtung in its relation to the development of traffic between the Hongkong-Canton field and the interior of these Provinces and the Province of Yunnan and eventually of the connection of Hongkong and Canton with the French railways coming up from the south in the border system and with British railways from Burma is uncertain. The economic aspect of this situation in its relation to both French and British connections to the south and the importance of such railways in connecting Hongkong with India and Siam has been indicated in previous reports from this consulate general.

The early construction of the through lines is doubtful, while the construction of small local lines that later may be incorporated into parts of trunk-line systems is progressing. The line of immediate development at present seems to be along West River and, practically, is measured by progress or no progress in the propositions to connect Wuchow, on West River, with Canton, and to connect Nanning and other up-river points that can not be reached by water except in comparatively small boats with Wuchow, thus not only connecting them with Canton but affording them direct river connection with Hongkong. Among the Chinese there is general appreciation of the benefits of such connections and officials concerned seem to be favorable to the construction of the lines, but both officials and Chinese capitalists concerned seem disposed to insist that these lines shall be constructed and operated by Chinese capital without any foreign connection whatever. The gentrymen so far have insisted upon retaining the entire matter in their own control, the result being that because of their inability to raise money and to manage such an enterprise nothing has been done.

HISTORY OF WORK IN KWANGSI.

The general situation in this portion of China is indicated by the history of the railway movement in Kwangsi Province. In 1907 a company was formed to undertake railway construction all over the Province, the capital to be \$15,000,000 Hongkong currency in shares of \$5 each, so as to enable all classes of the population to join in the enterprise. Up to the present, however, only \$300,000 have been subscribed, and the company is to be wound up and the money returned to the subscribers.

In 1909 the provincial government planned to build a railway from Kweilin, the provincial capital, to Changchow, a town on the frontier of the Hunan Province, a distance of 110 miles, and 3,000,000 taels were set aside and engineers of an English concern were engaged to survey the road. The survey lasted from July to December, 1909,

and the estimated cost of the line was 6,000,000 taels, or about \$4,250,000 gold. In consequence the government decided to form a semiofficial, semicommercial company, the government to subscribe half the capital and the merchants to provide the remainder. However, the merchants, although the shares cost only \$5 each, have not yet been able to raise their part. This company is called the Kweichun Official and Commercial Railway Co., and the line is intended to join a branch railway to be built by the Hunan gentrymen from the frontier to the town of Hongchow, where it will connect with the Canton-Hankow trunk line.

OTHER LINES PROJECTED.

In 1910 another commercial railway company, called the Ng Yap Railway Co., was formed to build a railway from Wuchow to Nanning, a distance of 360 miles, but with no definite plan or capital. Chinese were employed to survey the road as far as Konghau, about 33 miles from Wuchow, and they reported that this branch could be built for about \$2,000,000. A prominent Chinese capitalist took the matter in hand and agreed to raise the necessary funds, but the latest reports do not promise much financial support.

In February, 1911, a surveying party, sent by the Government at Peking, under a Chinese civil engineer, proceeded into the Province of Yunnan, its mission being to study a projected line from Mengtze to Nanning, and thereafter to survey the projected line from Nanning to Wuchow. In November, 1909, another party sent by the Central Government surveyed a line direct from Kweilin to Nanning via Lieuchowfu. However, nothing further has developed.

In Yunnan a number of surveys have been made to the west, the "Far West" of China. Engineers are at work on a route for a line north of Yunnan to Szechwan and to connect with the projected lines in Hunan. The Yunnan line will probably be built to Suifu or Luchow, on the upper Yangtze, a distance of about 450 miles.

THE COAST LINES.

Among smaller lines, both in operation and proposed, there is more promise of advancement and more actually done. The Sunning Railway, organized, surveyed, constructed, and operated under a Chinese capitalist who learned railroading and made his capital in Oregon and Washington, is being rapidly extended and will be open to Kongmoon, on the Pearl River, in July. It has been in operation to Kungyik for about a year and a half. The line to Kongmoon is completed with the exception of bridges.

It is promised also that the Canton-Kowloon Railway will be opened in August or September. The British section of 21 miles was completed and opened in October, 1910, and a portion of the Chinese section was opened to traffic three months later. The completed through line will be operating by the last of September. The line, particularly the British section, has been expensively built, the latter averaging \$250,000 gold per mile, for it passes through difficult country. The colony of Hongkong, which has built the line as a protection to its present trade and as a means of extending its trade in the future, is paying \$520,000 Hongkong currency, or about \$218,000

gold, out of its revenue for the support of the road, over and above its earnings, for the current year. The entire Canton-Kowloon line parallels the Pearl River between Hongkong and Canton. The trip by water takes about five and a half to six hours, or by night a short and comfortable night trip. In neither passenger nor freight traffic between here and Canton is the situation promising. However, in through traffic with the Canton-Hankow system, when completed, will its reason for existence be shown. Its chief justification is in the promise it gives of connecting foreign trade at Hongkong with a great portion of the interior of China.

The extension of the Swatow-Chouchowfu Railway to connect with the Canton-Kowloon Railway is thought to be something more than a possibility. The formation of a company for that purpose is announced from Swatow. The company is to start with a capital of \$20,000,000 (\$8,400,000 gold) divided into 2,000,000 shares of \$10 (\$4.20 gold) each, to construct a line from Shenchun, on the Canton-Kowloon line, running via Tanshui, Haifong, Lufung, Huilai, Puning, and Kityang to Chouchowfu, a distance of over 200 miles. This enterprise will give considerable portions of the coast railway connections with the Hongkong trade territory, and will be a long link in the proposed line to connect Foochow and Canton.

CANTON-MACAO AND FUNGTAUEN-SAIWAN LINES.

A concession was recently granted Leung Wan Kwai, a Canton merchant, for the construction of the Canton-Macao Railway. He has been ordered to proceed to Canton at once and commence the work at an early date. The source of his capital, which must be considerable, is not stated, but it was announced that, because of its strategic importance, the Chinese Government is to construct this railway, and the viceroy of Canton has been instructed to make the survey as soon as possible in order that work may be commenced at an early date. Which plan, if either, is to be followed is uncertain, but there seems to be good reason to expect that something definite toward the accomplishment of this enterprise will be developed during the current year.

It is said that the scheme for building a railroad between Fungtauén, on the West River, 15 miles east of Wuchow, and Saiwan, in the Hohuen district, is to be put into effect. Saiwaan has rich coal mines and the road is to be built by the coal company operating the mines. It will connect the mines with river traffic on the West River, or, in other words, with cheap freight connections with Canton and Hongkong. Proclamations have already been issued by the officials commanding the people to sell the right of way to the road, and the route has been surveyed. This road will be of great commercial value to the Province, as Hohuen is one of the most productive farming sections of Kwangsi. At present the only means of transportation is the Hohuen River, which is very small and has numerous rapids that make it impossible to run launches.

The Government at Peking has taken special interest in the Kwangtung-Kwangsi-Yunnan railway situation. Very recently it was announced formally from Peking that the Throne has acceded to the request of the Ministry of Communications to send surveyors and engineers to Kwangsi Province to have the routes suitable for the construction of railways carefully surveyed.

SUMMARY OF SYSTEM.

The Kwangtung system embraces 314 miles in operation, 384 miles in actual course of construction, and 1,943 miles surveyed or projected. Details of the various lines follow:

IN OPERATION OR UNDER CONSTRUCTION.

Canton-Hankow (Chinese): Gauge, 4 feet 8½ inches; 170 miles; part of main north and south trunk line 720 miles long; 60 miles of line in operation and 90 miles of embankment completed; work delayed by opposition of villagers to railway construction; some sections included in list of projected lines.

Hunan Railway (Chinese): Part of Hankow-Canton system, or otherwise known as Chuchow-Pingsiang line; 77 miles; line in operation from Pingsien coal mines to Chuchow since February, 1911; line from Chuchow to Changsha nearly complete and will be in operation in September, 1911.

Canton (Sanshui) (Chinese): Gauge, 4 feet 8½ inches; 32 miles; double line Canton to Fatshan (10 miles); bought from American Development Co.; part of Canton-Hankow system.

Swatow-Chouchowfu (Chinese): Gauge, 4 feet 8½ inches; 25 miles; to be extended, by a company formed recently, to Sheklung on the Canton-Kowloon Railway, about 200 miles.

Sunning Railway (Chinese): 55 miles; open from Kungyik to Kongmoon (35 miles) in July, 1911; Chinese capital and constructed by Chinese.

Amoy-Changchow (Chinese): Gauge, 4 feet 8½ inches; 30 miles; about one-third completed in January, 1911, and operated so far as completed.

Canton-Kowloon (Chinese and British): Gauge, 4 feet 8½ inches; 111 miles; 21 miles in British territory; British and Chinese corporation; about 60 miles in operation; whole line to be in operation in June, 1911.

Kiukiang-Nanchang Railway: First section, 32 miles, in partial operation; 130 miles in all; progress delayed by lack of funds.

SURVEYED OR PROJECTED.

Chuchow-Hengchow line (Chinese): Section of Canton-Hankow line; 100 miles; detailed surveys to be commenced this year; entire system from Hankow to Hengchow to be completed within five years.

Changsha-Yochow line (Chinese): Part of Canton-Hankow system; 120 miles; work to be commenced in three places during 1911; will be completed in three years.

Hengchow-Shiuchow line: Part of Canton-Hankow system; 225 miles; survey completed; work to be completed within five years as lines from north and south are brought together; probably to be financed entirely by the Hukuang loan.

Wuchow-Nanning Railway: Surveys complete from Wuchow to Konghow, near Nanning; 360 miles; surveys being continued under instructions of Government at Peking in connection with the Nanning-Mengtsze line; no funds yet available.

Kweilin-Changchow (Kwangsi) Railway: 110 miles; surveys were made in 1909, and provincial government subscribed 3,000,000 taels as half estimated cost; merchants unable to raise the rest, and construction is delayed.

Yunnan-Szechwan Railway: 450 miles; two American engineers and a corps of Chinese students have been engaged in surveying this line during 1910; prospects of immediate construction uncertain; will probably touch the Yangtze at Suifu or Luchow.

Chouchowfu-Canton line: To extend from Chouchowfu terminus of the Swatow Railway to Sheklung or Shenchun on the Canton-Kowloon line by new company recently formed with \$8,400,000 gold capital; about 250 miles.

Swatow-Chenghai line: Light railway to connect Swatow with various fruit districts; enterprise is said to have plenty of local backing and will be realized; about 15 miles.

Macao-Canton (Fatshan) Railway (on the Canton-Sanshui line): 75 miles; a concession for the line was granted to a Chinese merchant syndicate in 1911, with the understanding that the work should commence at once.

Fungtauen-Saiwan Railway (Chinese): Line to connect coal mines at Saiwan with steam traffic on the West River near Wuchow; 30 miles; work to be commenced at once.

SOUTHWEST BORDER SYSTEM.

The situation in the border country between the more settled country of Kwangtung and Kwangsi and parts of Yunnan and the French Burmese and Tibetan borders represents more promise than realization. During the past year the French railway to Yunnan was completed. This line, known as the Yunnan-Anam Railway, extends from Laokai, on the China-Tonkin frontier, to Yunnan, the capital of the Province, a distance of about 310 miles. It was opened to traffic in April, 1910. The natives have been quick to realize what the railway means to them, and already they are projecting a number of branch lines, among them being a light line from Mengtze-Pichichai to the Kochiu tin mines, a distance of about 30 miles. This line will have an abundance of traffic and will probably be profitable at once.

Of the projected lines, the most interesting are the lines planned to connect the Chinese north and south system and the French and British lines to the south. The connection with the French lines to the south at Yunnan is not only practicable, but would be realized in a very short time if the Chinese would grant concessions to the French interests involved. This proposed line of development runs both to the north from Yunnan to Luchow, with the plan of connecting with the Chinese east and west lines along the Yangtze and thus with the northern system, and also to the northeast to connect the French lines with the Kwangtung system, and thence to the systems of the north.

ACTIVITY OF FRENCH INTERESTS.

The French railway interests in Indo-China are reaching out in all directions for the development of their system. It has been announced in the press of the Far East that the Siamese Government has definitely decided to build the connection between its own lines and the French lines into Saigon, as well as to the south, connecting with Singapore, by means of a French loan. This, of course, means the further extension of China's railway connections through the Yunnan Railway. Owing to the fact that this French line to Yunnan ends in a sort of cul-de-sac, it has not been profitable, and a concession which will enable the French interests to open up additional country to feed their line is urgently asked.

However, there are similar requests from British interests to the west for concessions to enable British interests to open connections with India and Burma and with India through Tibet. These connections would be of international importance. The engineering difficulties are said to be numerous and all but insurmountable. The connection from Szechwan Province through Tibet is proposed with the idea that it can follow the caravan and trade routes from Chungking west to Batang south along the caravan routes now used to transport goods from India to Tibet. This caravan service connects with a special steamer sailing at stated periods from Glasgow with British goods for this trade. The light railway from Bahmo to Tengyueh is a portion of this transportation system. The Tibet route seems to be offered as an alternative route to the connection between Tengyueh and Yunnan.

The actual prospects of the British interests seeking the concessions for the roads either by way of Tibet or by way of the more southern route, are uncertain. Native press dispatches report that the viceroys of Yunnan and Szechwan are endeavoring to raise money from native sources to construct the railway into Tibet as a Chinese undertaking. It appears that these enterprises are being urged forward in earnest. That the actual construction of these lines is difficult is well understood but it is merely a matter of expense, not of feasibility. Probably one of the greatest series of tunnels in the world will be required to connect the valleys of the Bramaputra and the Yangtze. The engineering on the French railway into Yunnan is said to be highly illustrative of the most modern accomplishments in this line.

CONNECTIONS WITH KWANGTUNG.

The other general system of connections proposed is between these railways from the south and the Kwangtung system. The French interests have proposed a connection between the Yunnan line and Nanning to connect with the Wuchow-Nanning line discussed in connection with proposed developments in the Kwangtung division. The Chinese authorities have so far refused a concession to foreign interests and are working on the proposition themselves. The Board of Communications through local authorities plans a line from Nanning to connect with the Yunnan line at Mengtze. Surveys for this line are being made. The route will be about 400 miles in length and latest reports seem to indicate that the proposed route is by Kaihwa and Kuangnan and thence down the river valley to Nanning. While the route presents no great difficulties, apparently, the road is likely to be expensive. No provision for the necessary capital has so far been made.

COUNTRY TO BE OPENED.

While many of the plans of these frontier district railways are more or less uncertain and the immense distances involved and the great engineering difficulties would make the cost of construction very high, it is to be considered that much of the territory to be opened by such roads is very promising. The Yunnan-Szechwan Railway, for example, will connect the Province of Szechwan, probably the richest district in China, with the sea, and at the same time it will open up mineral country of great richness. The various portions of Yunnan contain deposits of tin, antimony, iron, and coal, which are being worked profitably and on an increasing scale even with present transportation facilities. The agricultural possibilities of the country, largely a tableland at a comfortable altitude, are almost without limit. The climatic and scenic attractions of Yunnan and portions of Szechwan are very great and in time will doubtless draw a large tourist traffic.

Much of the country to be traversed by these frontier lines is almost mediæval in its condition. The glens of the borderland of Yunnan are often held by chieftains under a species of feudal tenure. It is said that in parts the crossbow is still the most advanced of weapons. In many districts the railway surveyors are the first white men seen by natives. The distribution of some of China's surplus millions into the comparatively lightly populated Yunnan

country would open up great possibilities of development and at the same time would relieve the pressure of population in more congested districts. The trade from this country now consists largely of shipments of tin, antimony, and other mine products, and various agricultural products outward, and of cotton goods and yarn and various foreign commodities inward; but all trade in this portion of China is hampered by lack of transportation facilities. The people of the Province, as a rule, are favorable to railways, quickly take advantage of those constructed, and are quite willing to help in the construction of others.

YUNNAN-SZECHWAN LINE.

The Yunnan-Szechwan line seems to be one of the projected lines that is in the way of immediate construction. The capital raised for its construction is said to exceed 12,000,000 taels, or about \$7,250,000 gold. An engineering party under the direction of two American engineers, composed largely of Chinese engineers trained in China and Japan and Chinese engineering students, has been engaged for several months in the survey of the route. However, the exact route is yet to be determined, its financing has not yet been arranged, and the date of commencement of construction is still uncertain. Considering the hesitancy shown in some phases of the Hankow-Chengtu Railway enterprise, it is possible that this line from the south, connecting Szechwan with the sea through French territory, will be the first to tap the immensely rich country about the upper reaches of the Yangtze and its sources. Such a development would be certain to have important results in the course of trade in that portion of China, a trade now almost wholly British. In any event, sooner or later this immense trade will be opened up and by more than one route and probably by more than one national interest. At present, however, it is the determination of the Chinese people and officials to construct the railways within China themselves.

SUMMARY OF SYSTEM.

There is only one railway in operation in this frontier portion of China. This and the projected lines may be listed as follows:

IN OPERATION OR UNDER CONSTRUCTION.

Laokai-Yunnan (French): Gauge, meter; 291 miles; in operation to Yunnan; will be extended to Luchow if concession can be obtained.

SURVEYED OR PROJECTED.

Szechwan-Tibet-India line: About 850 miles; projected by a British organization at Shanghai, which has asked for a concession from the Government at Peking.

Langson-Lungchow Railway (French): Gauge, meter; 46 miles; proposed French extension of the Hanoi-Langson line; it is proposed to continue this line to Nanning (150 miles); nothing has been done because of the refusal of the Chinese Government to grant a concession.

Mengtsze-Nanning line: Projected by Peking Government; 400 miles; now being surveyed by Government engineers.

Bhamo-Tengyueh (Tienmien) Railway: Gauge, 2 feet 6 inches or meter; 123 miles; preliminary surveys have been completed.

Mengtsze-Kochiu: Light line to connect tin mines with Yunnan-Anam French line.

Tengyueh-Yunnan: Line projected by Chinese to connect with British lines in Burma; owing to great engineering difficulties it is doubtful when the latter could be constructed; about 400 miles.

Yunnan-Szechwan Railway: Line projected by Chinese authorities to connect Yunnan and French system with the Yangtze Valley system at Chungking, about 500 miles; surveys now being made under the direction of an American engineer.

FOREIGN RAILWAY MATERIALS.

At present there is an impression among foreigners in and about China that the opportunities for the sale of foreign goods in China are vastly overestimated. It is undoubtedly the experience of foreigners interested in many lines that the amount of money expended in seeking trade is out of proportion to the business obtained. The possibilities of an immense country like China are, of course, almost beyond limit, and this is especially true of railways in a country having an area of 4,250,000 square miles and only about 5,500 miles of railway track. While realization of business among such possibilities is slow and uncertain, and the expense of representation and canvassing is fast and certain, it is doubtful, in view of the great possibilities, if anyone who has embarked upon the enterprise of sharing in China's import business is justified in changing front and abandoning the field; and it is certainly unreasonable and practically impossible for one not actively in the field to secure a reasonable and proper share of the business.

So far as official returns show, the imports of railway materials into China proper are decreasing. The returns of the Chinese imperial maritime customs shows that the imports of railway material were valued at \$5,264,032 in 1905, \$9,151,874 in 1906, and \$10,139,678 in 1907. That seems to have been the high record, for in 1908 the imports were valued at \$8,447,103, in 1909 at \$8,328,533, and in 1910 it is estimated that the record of 1909 was exceeded by about 6 per cent.

While there is some uncertainty as to whether or not materials imported on Government account have been uniformly recorded by the customs, it is evident that the business, although at all times worth care and attention, has not been phenomenal or in any way indicative of the extravagant claims as to its magnitude and importance.

PROSPECTS FOR TRADE.

The figures demonstrate that while the railways under operation in China offer some opportunity for American and other foreign trade, the promise of imports from abroad in this line is vastly overestimated. The most important imports of railway materials into China in 1910 were largely for railways already established and in operation, old roads that are being reconstructed. This is particularly true of the work being done in the Manchurian system in the widening of the gauge and preparing the roads for heavier traffic. Other railways in the country have deteriorated and are now about to import new materials. Nevertheless, the amount of business actually in sight is a very doubtful quantity.

As to the railways projected, they will doubtless in time be constructed and probably must be constructed with foreign capital.

The foreigners furnishing the capital will doubtless follow the example of other foreigners and insist upon the use of materials from their own country; in other words, trade follows the bonds. Where roads are to be built by Chinese capital, and materials are imported from abroad, the business invariably goes to the country with men on the spot looking for business. There are now few Chinese engineers in a position to plan, construct, and equip a railway without foreign advice and help. That advice and help is given by foreign experts who are on the ground, and this practically means that the rolling stock and general equipment of these lines will be from the country of the engineer consulted. In practical operation, this business is generally placed on specifications furnished by interested experts, and the selection of an expert is generally equivalent to the placing of the business.

FINANCING BY COMBINATIONS.

The chief feature of the railway situation in China from the standpoint of builders and suppliers of material is the need of financing the various undertakings. As above indicated, the prevailing sentiment among Chinese is for construction by Chinese capital, but the more enlightened officials and countrymen are commencing to understand that this is impossible, directly, at least. It seems probable that the solution lies in a combination of Chinese interests and foreign railway material suppliers, whereby the Chinese will retain control of their railway and the foreigners will furnish capital and materials and take their pay in the railway's securities. This sort of a combination is being employed successfully by several foreign interests, notably Germans and Japanese, in the construction of many industrial and power plants and in various enterprises.

GAUGE AND CONDITION.

The railways of China have been constructed very largely without regard to a national system. Each road is more or less local, not only in its interests and support, but in its physical characteristics. Where interests other than Chinese have impressed themselves upon the railways, they have insisted upon following their own ideas and plans, their own gauge, their own rails and materials, and their own railway methods. The result is that, from a physical standpoint, China has not what in any sense may be called a homogeneous and national railway system. The welding of the many lines now constructed, or being constructed, into one homogeneous system, or even into several homogeneous systems, will be exceedingly difficult because of differences in gauge. As a rule, China has adopted the British gauge (4 feet 8½ inches), but several important lines are of a different gauge. For example, the new line in Yunnan has used the meter gauge, and the Kwangsi authorities appear to have determined to break away from what is supposed to be the standard, and have either the meter or a narrower gauge. What the conversion of these lines to a standard Chinese gauge will cost may be appreciated from the expenditures Japan is finding necessary in widening the gauge of its Tokyo-Shimonoseki line. This will mean business in

the future, but prevents business on a standardized scale for the present.

Some of the more recently constructed roads are in fine physical condition. In fact, most of them have been constructed upon too costly a scale for the traffic they are likely to get.

CHINESE RAILWAY MATERIALS.

Chinese manufacture of railway equipment and material has advanced to an extent not appreciated in most parts of the world. The American industrial world has been somewhat startled by reports showing that Chinese pig iron has gone into some of the greatest steel undertakings in the United States, not only on the Pacific coast, but also in the Eastern States. The iron ore and iron and steel products shipped abroad and those used in China come from the Hanyang Steel & Iron Works at Hankow. An outline of the annual report of the institution furnished the writer shows that the output of pig iron in 1910 was 130,000 tons. Exports to Shanghai and other Chinese ports amounted to 14,034 tons, to Japan 29,167 tons, and to America 15,100 tons, a total of 58,301 tons. The total shipments of rails and fastenings during the year were 33,248 tons, about 5,000 tons more than in the preceding year. A new blast furnace was opened in May, 1910. The output of iron ore at the Tayeh mines was 303,076 tons.

These manufactured railway materials have gone directly into Chinese railways and at a price based upon a low manufacturing cost, for the output of the Hanyang concern is based upon a cost of pig iron of about \$7 gold per ton, as compared with about \$12 in Birmingham, Ala., or about \$15 in Pittsburg. It is evident that the extension of this plant, now the subject of negotiation with the Government at Peking, means that China can take care of itself in the more ordinary varieties of railway materials.

Nevertheless there is now a great field for railway materials of many sorts in China, and there will be an immense market in the near future when present conditions in railway construction in China are overcome. The equipment of the new railways with actual railway materials, with bridges, shops, machine plants, stations, and station appliances, and all the modern patented railway equipment, will offer an immense field for foreign enterprise and foreign industry.

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