

A PROPOSED RAILROAD
SYSTEM OF CHINA

Thesis for the Degree of B. S.

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A Proposed Railroad System of China.

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Chapter I

IMPORTANCE OF RAILROAD SYSTEM

Railroad system to the national life is just like the circulation system to the human body. It is the main system of communication and transportation through which the major part of national life is done. Its importance was not so felt in the old days when every community could live by itself in a self-sufficing way. As society grows into a larger and more complex organism there are more divisions of labor and hence more inter-relationship and interdependence between the member of this large and complex organism. A man can no longer live by himself. He has to depend upon society for his daily necessities, comfort, encouragement, and etc. Railway system being the chief & main channels through which there various commodities and services are exchanged is receiving ever increasing attention of the nation and the people.

From the economic view point it is of great importance, because it is the chief means for the transportation of all the commodities produced on the farms or in the factories. Without this system the farmer will not be able to market his farm products and the manufacturer will be unable to send the finished goods. It is also the medium for the process of trade or exchange. In fact the whole process of trade of commerce involved the transportation and dis-

tribution of commodities from places that have plenty of them to places that lack them, is wholly depending of the efficiency of communication. It is necessary prerequisite for the development or colonization of unsettled land. Without adequate railway system it is very hard for the colonizers & settlers to get access to their destinations and for the settlers to get their products disposed of. Increase of the utility of the land, and the amount of products can be best accomplished by the presence of railway system.

From the social viewpoint it is important, because it is the chief means to transmit social intelligence,. The distribution of social news is done through the distribution of newspapers and magazines. The popularization of intelligence and scientific knowledge is done through the distribution of books and technical magazines and journals. The railway system in cooperation with other systems of communication and transportation is needed for all these processes of distribution. The mobility of the population depends to a large degree upon the railway system too. Without it, it is very hard for one person to go from one part of the country to other parts not to say to foreign countries. High mobility of population means more social contacts between people and quicker adjustment between the different interests and groups of society.

The system of all the railroads, main trunks and branches, must be planned in advance. Trial and error method would not do in the modern complex society. Conscious and intelligent foresight must be used to guide us for the complete layout of the railway system in a particular country. This conscious planning makes it possible for us to avoid the unnecessary mistakes incurred in the past. It will eliminate the conflict and unnecessary competition between the different railways. The main trunks pass from cities of importance one to each other. To supplement these, certain branch lines must be built to serve smaller cities and to concentrate the current and direction of goods and service to the big cities. In short, the whole system must be made a systematic organization basing on the territorial division of labor for the serving of the people.

Chapter II

THE PROPER MILAGE OF RAILROAD IN CHINA^E

In building the railroad system the total length of the total milage in any place is base upon several conditions:

1. The population and area.
2. The economic possibility.
3. The industries and their products.
4. The condition of natural sources.

According to these reasons the ratio of milage between nations may be different. The following tables showing the ratio of railroad in several nations:

Ratio to the area

Country	Mi. of R.R. per sq.mi.	Total miles	Area
Russia	.00514	42504	8273130
U. S. A.	.0667	250156	3743529
Franch	.00576	33568	5817797
Japan	.0325	8475	260738
Germany	.19	35209	185882
Italy	.0218	12885	590865
Brazil	.00548	17907	3276358
Australia	.00331	26202	2974531
Canada	.0195	39771	3797123
Arabia	.00344	4125	1200000

Ratio to the population

Country	Population	Total miles	Miles per 1000 people
Russia	133442065	42504	.3185
U. S. A.	125624278	250156	1.99
France	99525039	33063	.3365
Japan	8070430	3475	.151
Germany	59353284	35209	.586
Italy	40883384	12835	.315
Brazil	30635505	17907	.585
Arabia	700000	4125	.539
Argentina	10087118	21935	2.13
Australia	6017210	26202	4.33
Canada	8788483	39771	4.52

At present the railroad which has been already constructed in China is only 7554.5 miles. She has an area of 4278352 square miles and a population over 390,000,000. The ratio is only .991765 miles per sq. mile and .0199 mile per thousand people. From the view of there tables, China will need more road for her futher development. Although China has much difficulty in finance to day, she possesses plenty of agieutural products and good natural resources. The utility of the products and the value of the dormant materials will be found after the adequate railroad

system has been developed. At the same time the difficult question of financial handicap will be solved. For the future development of China, the increasing of railroad mileage is of urgent importance to day. In my opinion is that the total mileage should be increased at least four time the present total mileage. It certainly will achieve the aim of making China a rich nation and do her good.

Chapter III

THE PROPOSED RAILROAD SYSTEM

The railroad system will be divided into five main systems which include the eighteen provinces, Manchuria, Mongolia, Singkiang and Tibet; namely,

1. The southeastern system.
2. The northeastern system.
3. The southwestern system.
4. The northwestern system.
5. The central system.

The center of this whole system will be in Hankow where is the commercial center of China.

The Southeastern Railroad System:- This system is built along the coast line from Shanghai to Canton. It comprises the provinces of Chekiang, Fukien, Kiangsi, Hunan, Kwangtung, and also a part of Anhwei, Kiangsu and Hupeh. In this region there are very rich in agricultural products and mineral resources; in the former the silk is the chief agricultare prodect, while in the latter the coal and iron deposits can be found everywhere. The whole area of this part is about 368,400 square miles, and the population is about 112,300,000.

1. The Hangchow-Chungking line. From Hangchow in Chekian passes through Kinkiang, Yochow, Changteh to Chungking in

Szechwan. The whole miles is about 800mi.

2. The Hangchow-Canton line. From Hangchow passes through Kienchang, Lungnan to Canton. 700 miles.

3. The Foochow-Wuchang line. From Foochow the capital of Fukien passes through Yenping, Kienchang, Nanchang, to Wuchang the capital of Hupeh.

4. Foochow-Kweilin line. From Foochow pass through Shukin, Kanchow, Chenchow to Kweilin the capital of Kwangsi. about 600miles.

5. The Nanchang-Yungchow line. From Nanchang the capital Kiangsi passed through Lienhwa to yungchow in Hunan. 300mi.

6. The Chansha-Wenchow line. From Chan-sha capital of Hunan pass through Nanchang, Kwangsinfu, to Wenchow in Chekian. about 450 miles.

7. The Ningpo-Sack-loon line. From Ningpo in Chekian along the coast line passes through Wenchow, Foochow, Changchow, Chaochow to Sack-loon in Kwangtung. 900 miles.

8. The Canton-Haihan line. From Canton passes through Fatshan, Hoiping, Fachow to Haihan. 280 miles.

9. Canton-Yunnanfu line. From Canton passes through Samahui, Wuchow, Sunchlw, Nanning, Loping to Yunnanfu. 900 miles.

10. Wuchow-Chengtu line. From Wuchow in Kwangsi passes through Kweilin, Pingyueh, Luchow to Chengtu of Szechwan. about 890 miles.

11. The Chengtu-Kenghung line. From Chengtu the capital of Szechwan passes through Ningyuan, Yuanmow, Kingtung to Kenghung in the south end of Yunnan. 650 miles.

12. Yunnanfu-Tengyueh line. From Yunnanfu, pass through Talifu to Tengyueh in eastern part of Yunnan. 280 miles.

The Northeastern Railroad System:- This system will cover the whole Manchuria, Chihli province and a part of Mongolia. The area is about 550,000. square miles with a population about 30,000,000. This part is mostly a plain and has a rich productive soil; The main farm products are soy beans and various kinds of grains. This region is surrounded by mountains on three sides, and in the mountains there are forests of good timber-type and minerals. Gold sometimes are found in a great quantity in those places. There are only a few railroads running in this part at present. For the development of this rich region in future, more lines should be built.

1. The Tunghwa-Tsitsihar line. From Tunghwe in Fengtin passes through Kirin, Sincheng to Tsitsihar the capital of Heilungkiang. 415 miles.

2. The Chihfeng-Urga line. From Chihfeng in Jehol pass through Dolon-nor, Sainussu to Urga of Mongolia. 700 miles.

3. Dolin-nor-Albazikha River line. From Dolin-nor the capital of Chahar intersected with Tung Chung Railroad in Hailar to Albazikha River in Heilungkiang. 750 miles.

4. The Sincheng-Kerulen line. From Sincheng in Kirin to Kerulen in eastern Mongolia. 525 miles.

5. The Toanan-Tussaka line. From Toanan in Fingtin pass through Sincheng, Hulan to Tussaka in northern Kirin. Milage about 550 mi.

6. The Kalgan-Kerulen line. From Kalgan in Chihli passes through Sainussu to Kerulen in Mongolia. 530 miles.

7. The Toanan-Khobor line. From Toanan in Fengtin passes through Chakilsunm, Khombukure to Khobor in northeastern Mogolia. 555 miles.

8. The Pulantien-Tusaka line. From Pulantien in Fengtin along the coast line pass through Antung, Tunghwa to Tusaku in northern Kirin. 780 miles.

The Southwestern Railroad System:- This system will cover Szechwan and the provinces of Yunnan, Kwangsi, and Kweichow. All of these proveinces are rich in mineral resources. Their area is about 600,000square miles and a population of 100,000,000. Lands are very cheap, and large part of this land is not cultivated and owened by nobody. The cheif reason is lacking of communication. This part has a high elevation, there are many mountains. Of course, in construction of railroad, in such a region a great number of tunnels will be needed.

1. The Lanchow-Yatung line. From Lanchow the capital of Kansu passes through Sining, Balekun-Gomi, Niani-cho, Kanzo -_omba, Gartin, Lhasa the capital of Tibet to Yatung in southern Tibet. 1150 miles.

2. The Khotan-Tawang line. From Khatan in Singkiang pass through Polu and Lhasa to Tawang in southeastern Tibet. 960m

3. The Chengtu-Lhasa line. From Chengtu the capital of Szechwan passes through Tatsienlu, Litang, Yaragong, Giamda, to Lhasu the capital of Tibet. 755 miles.

4. The Lhasa-Khotan line. From Lhasa the capital of Tibet passes through Shigatse, Tadum, Gratok, Rudok to Khotan in Singkiang. 1050 miles.

5. The Lob-nor-Balekun-Gomi line. From Lob-nor in Singkiang passes through Gansa to Balekun Gomi in Kokonor. about 660 miles.

6. The Yunnanfu-Gansa line. From Yunnanfu passes through Yarayong, Kanzo-gomba to Gansa in Singkiang. 980 miles.

The Northwestern Railroad System:- This system will cover the region of Shinkiang and a part of Mongolia and Kansu province. It has a area as large as the eighteen provinces combined together. In this part it is very rich in raw materials and various kinds of food. The trouble is that the lack of transportation and communication at present, so that this rich region is still in a undevelopped stage. If there are some railways connectiong with the interior part of China and where is overpopulated, millions of unemployed labores in those provinces will have a chance to go there and develop the rich soil for the good of themselves and for the country.

1. The Taiyuan-Kyakhta lind. From Taiyuan the capital of Shansa passes through Kolan, Tugulik, Uрга to Kyakhta northern Mogolia. 900 miles.

2. The Kalgan-Kobdo line. From Kalgan in Chihli passes through Sairussu, Uliassutai to Kobdo in western Mongolia. about 1200 miles.

3. The Kerulen-Urga line. From Kerulen to Urga in Mongolia. about 410 miles. (Kerulen is San Beisa Urgo)

4. The Ningsia-Kimchik line. From Ningsia in Kansu pass through the desert to Uliassutai and Kemchik in northwestern Mongolia. 1100miles.

5. The Urga-Kemchik line. From Urga the capital of Mongolia passes through Khaikhy to Kemchik. 750 miles.

6. The Ulankom-Tihwa line. From Ulankom in northwestern Mongolia passes through Kobdo, Dalama, to Tihwa the capital of Sinkiang. 485 miles.

7. The Kuldja-Tihwa line. From Tihwa passes through Sulai to Kuldja in northwestern Sinkiang. 340 miles.

8. The Kobdo-Tarbagatai line. From Kobdo in western Mongolia passes through St. Bilintai, Ulukai to Tarbagatai in northern Sinkiang. 480 miles.

9. The Ongin-gol-Bukem River line. From Ongin-gol passes through Tussukhalie to Bukem River in far northern Mongolia. about 700miles.

10. The Uliassutai-Kyakhta line. From Uliassutai passes through Sagassutei to Kyakhta in northern Mongolia. about 450 miles. (Kyakhta used Maimatchin in map).

11. The Hami-Khobor line. From Hami in eastern Sinkiang passes through Mingan, Geshunutei, Sairus-su to Khobor in

Mongolia. about 800miles.

12. The Kerulen-Staro line. From Kerulen (San Beisa Urgo) in Mongolia to Staro in western Heilungkiang. about 255 miles.

13. The Saratsi-Dolon-nor line. From Saratsi in Suiyuan passes through Ulankoshu to Dolon-nor of Chahar. about 280 miles.

14. The Ningyuan-Bobnor line. From Ningyuan passes through Yenke, Kuerhlel to Lobnor in Singkiang. 480 miles.

The Central System:- This system will be the most import system of these five. The area will inclosed all the central provinces and a part of Singkiang and Mongolia. In the southeastern part, natural resources are in abundance while in the northwestern part there are rich in agricultural products.

1. Honanfu-Nanking line. From Nanking in Kiangsu passes through Fengyang, Chan, kakow, Suchow to Honanfu in Honan. about 410 miles.

2. The Nanking-Hanchow line. From Nanking along the Yangtze river passes through Anking the capital of Anhwei to Hankow in Hupeh. 350 miles,.

3. The Hankow-Sian line. From Hankow passes through Siangyang, Sichwan to Sian the capital of Shensi. 300 mi.

4. The Pinchow-Ningsia line. From Ningsia in Kansu pass through Hwanhsien, Kingyang to Pinchow in Shensi intersect with The Lanchow-Sian Line. 276 miles.

5. Langchow-Chunking line. From Langchow in Kansu passes through Titao, Choochwa to Chungking in Szechwan. 500 miles.

6. Lanchow-Tihwa line. From Lanchow the capital of Kansu passes through Suchow, Ansi, Hami, Tarfan to Tihwa the capital of Sinkiang about 1040 miles.

7. Ansi-Yarkand line. From Ansi in Kansu passes through Cherchen, Khotan to Yarkand in Sinkiang. 1035 miles.

8. The Turfan-Kashgar line. From Turfan in Sinkiang passes through Yenki, Chilyan to Kashgar in the same province. Total mileage about 750 mi.

9. The Hoangho-port-Hankow line. From Hoangho-port passes through Changtien, Poshan, Yenchow, Kweiteh, Kwangchow to Hankow. 550 miles.

10. The Wenteng-Tungchow line. From Wenteng in Shantung along the coast line passes through Kiaochow, Haiehow, Antung, Tungtai, Jukao to Tungchow in Kiangsu. 450 miles.

11. The Tientsin-Chefoo line. From Tientsin along the coast line to Chefoo in Shantung. 280 miles.

12. The Taiyuan-Ningsia line. From Taiyuan the capital of Shansi passes through Suiteh to Ningsia in Kansu. Total mileage is about 350 miles.

Estimate Cost:- To determine the actual cost of this railroad is very hard, even its preliminary estimates. It depends on the amount and type of bridge, culvert, masonry, tunnel, arch, etc to be constructed, and the condition of the different locality. The only way to estimate the cost is to use the past records of the Chinese railroads. The average cost from the past records is about 45,000 dollars per mile of complete road with a 4'-3.5" gauge. In this proposed system the total mileage is about 38,250 miles of railroad which will cost approximately 1,731,250,000 dollars.

Chapter IV

CONCLUSION

The proposed Chinese railways consist of five main systems. They are the Southeastern System, Northeastern System, Central System, Southwestern System, and Northwestern System. Of these systems the Central System, Southeastern System and Northeastern System should be constructed at first as soon as possible, because those parts of China are rich in natural resources, thick in population and also the best places for the development of industries. All the other systems can be built up gradually as finances are available.

The branches of each system with less importance and shorter distance can be replaced by the public highway. Farm products and manufactured articles can be transported ^{to} the railway stations by motor-vehicles.

Funds for building those five main-lines may be obtained in the following ways:

(a) The central government may issue the domestic railway loan bonds and ask the people to subscribe. In this case the bonds should have reliable securities in order to encourage the people for subscription.

(b) The central government may cooperate with people to under-take the construction of these proposed railroads. That is to say, the government and the people can invest

their capital cooperatively in such kind of interprise.
Both government and people are the capitalists of railways.

(c) The government should appropriate a certain sum of money from taxes and tariff for the construction of these proposed roads.

(d) Foreign loans or investment may be utilized if they are on the basis of mutual interests with out any political purposes.

The end.

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RAILROAD MAP OF CHINA

- RAILROAD COMPLETED
RAILROAD UNDER CONSTR.
RAILROAD PROPOSED

SCALES
Statute Miles, 1:36 = 1 inch

PROPOSED BY W. T. HON MAY, 1927.

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