

Provincial leaders and infrastructure experts endorse the 'New Silk Road'

In the course of the Beijing conference, over 60 technical papers were presented by Chinese and foreign experts, covering a wide variety of economic, technological and environmental questions related to development along the Eurasian Continental Bridge. To give our readers an idea of the flavor of the discussion, and the range of topics included, we present below, with minor editing, and subheads added, excerpts from draft papers given by Chinese contributors to the conference. The complete proceedings are expected to be published, later, by the organizers of the conference.

Joining with the European Triangle

Gui Lintao contributed a paper on "Cities along the Bridge Join Hands in Building the Modern Silk Road." Gui Lintao is a member of the standing committee of the Shaanxi Provincial Commission of CPC, secretary of the Xi'an Municipal Committee, and president of the Long Hai Lan Xin Economy Promotion Council.

... Both the Asian and European continents were the birthplaces of world ancient civilizations, having made indelible contributions to the spread of human civilization, science, and cultures. During the course of 1,400 years, from 138 B.C., when Qian set out on his trek to the Western Regions, to A.D. 1388, when gunpowder was introduced to Europe, the "Silk Road" had all the while been the link between Oriental civilization and Occidental civilization. It made the economy and culture of Middle Asia, West Asia, and even East Asia and parts of Europe achieve unprecedented prosperity. . . .

The development of economy and society reveals such a fact: the concentration of population, production and exchange, namely the development of cities, without exception depends on natural rivers, lakes, seas and ports, as well as man-made communication corridors like land routes and water routes. For example, the opening of the ancient "Silk Road" once caused one new city after another to be set up in the Western Regions, whereas the opening of the modern Continental Bridge marks the beginning of the era of common development of urban and regional economy. The steel and iron artery greatly reduces the distances between different

cities and between different regions. And through this main axis, one economic network after another, centering on cities and radiating to vast surrounding areas, will be formed. . . .

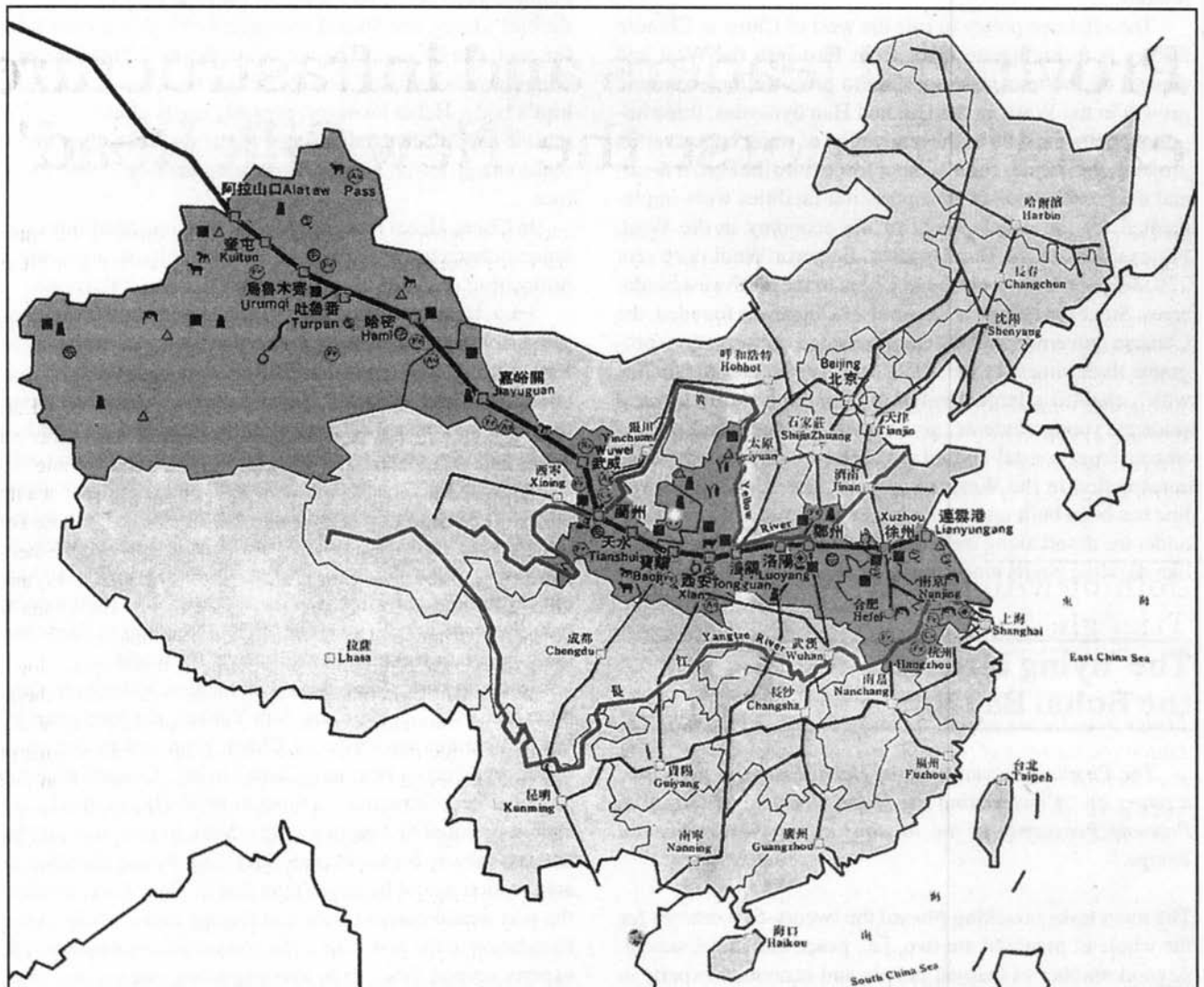
The opening of the North American Continental Bridge played a decisive role in the development of Midwestern North America and the revival of the American and Japanese economies; the construction and operation of the first Eurasian Continental Bridge brought about the emergence of more than 60 industrial and mining cities along the route.

This Continental Bridge of today connects in the East with the Northeastern Asian Economic Rim, which is composed of Japan, Korea and China, passes through Middle and Western Asia, which are endowed with rich mineral resources, and joins in the west to the Central European Region, which is formed by triangle of Paris, Berlin, and Vienna. . . .

A city is the production, circulation, science, technology, finance, and information center in a given region, and is therefore the accumulating place and source of radiation of advanced productivity. The survival and development pace of the urban area have to be sustained by communication and transportation networks. But the easy accessibility of the networks of communication and transportation depend on city development for the furnishing of supplies of energy. At present, the global economy has entered a stage featuring city-centered development. And the urbanization process will be greatly quickened. It is estimated that by the end of the century the urban population globally will surpass that of the rural population, reaching 51.6% (the developing countries will reach 45.8%); and China will have 40% of its population living in cities. . . .

If you take a bird's eye view over the map of Asia and Europe, you will see that the New Continental Bridge looks just like a brilliant and eye-catching necklace, linking up 100-odd cities scattered around the Eurasian continents and the surrounding towns in their thousands, as though they were pearls. The substance of the Continental Bridge economy in question is the construction of a Continental Bridge transportation systems-based industrial chain, to bring about a sound cycle of urban and regional economy and its speedy development. In the end, an economy corridor of powerful cohesive force and radiative force will be formed, which takes the Continental Bridge as the main axis, the large and medium cities along the bridge as props, and the multitude of small cities as net knots. . . . The economy corridor will further

Chinese provinces along the new Eurasian Continental Bridge, with major rail connections



Courtesy of the Organizing Committee for the International Symposium on Economic Development of the Regions Along the Euro-Asia Continental Bridge.

promote the mingling of the economy and culture of the two continents, and in particular accelerate the process of industrialization and urbanization of the Middle Asia and Midwestern region of the Chinese section, and form new city rims or city belts, thereby speeding up the economic takeoff of the underdeveloped regions and realizing a coordinated development of the regional economy.

Judging from the development in different areas along the Eurasia Continental Bridge, the cities in the western part of the bridge, such as Rotterdam, Paris, Bonn, Minsk, Moscow, and Kiev, have marched into the advanced industrial society, whereas the areas in West Asia, Middle Asia, and East Asia are still in the process of industrialization and urbanization. Even in the Chinese section of the New Continental Bridge,

distinctive differences in social and economic development still exist between the Eastern, Middle, and Western areas. For example, among 66 million poverty-stricken people in China, 80% live in the Western area and about 80% of the rural labor in Western China is engaged in agriculture. . . . The only way to narrow the difference between inland areas and developed areas is to develop in-depth processing and high-tech industry in the inland areas with their abundant resources, to promote continuous industrial growth, instead of sticking to the traditional model of supplying natural resources and primary products. The important way to solve the unbalanced development between different areas is to rely on the railway line and bring the role of the central city into full play by amassing technology and manpower, which is

significant for the development of small towns as well as the creation of a sound environment for the development in poor regions. . . .

The effective policy to rule the west of China in Chinese history is to immigrate labor from East into the West and depend on the transportation line to promote the economic growth in the West. In the Qin and Han dynasties, three important policies, such as the renovation of water conservation projects, the immigration of labor forces into the border areas, and the construction of transportation facilities were implemented for the development of the economy in the West. For example, in the Han Dynasty, Emperor Wudi once sent 720,000 people from northeast China to the northwest border areas. Since the People's Republic of China was founded, the Chinese government has also launched immigration programs three times, in the 1950s, the 1960s, and the 1970s, which enabled a large number of demobilized officials and soldiers, young students, government officials, and professionals from coastal and inland areas, to join the economic construction in the West. As a result, the Xinjiang railway line has been built up and a number of outposts, buried deep under the desert along the ancient Silk Road, are now shining like dazzling pearls along the Continental Bridge.

The 'flying bird' of the Bohai Bay Rim

The People's Government of Hebei Province presented a paper on "Constructing the Hebei Bridgehead Group to Promote Prosperity in the Regions along the Continental Bridge."

The main tasks marching toward the twenty-first century for the whole of mankind are two, i.e., peace and development. A good number of learned people and economic experts in the world predict that the focus of economic growth in the world is shifting towards the Asia-Pacific Region, and this prediction has been verified by the economic development tendency of recent years. While the Northeast Asia Region which surrounds Bohai Bay is the most brisk region in economic development, the upsurging region of economic development in the near future in China will be centralized in the Bohai Bay Rim Region. . . .

At the end of the nineteenth century and the beginning of the twentieth century, the Bohai Bay Rim Region had been one of the regions which initially received advanced Western productive forces. Entering into the twenty-first century, on the basis of the past combination and cooperation, the Bohai Bay Rim Region is showing its new position to all people in the world. . . .

From its geographic position and its functions in the Bohai Bay Rim Region, if the whole region is taken as a flying bird,

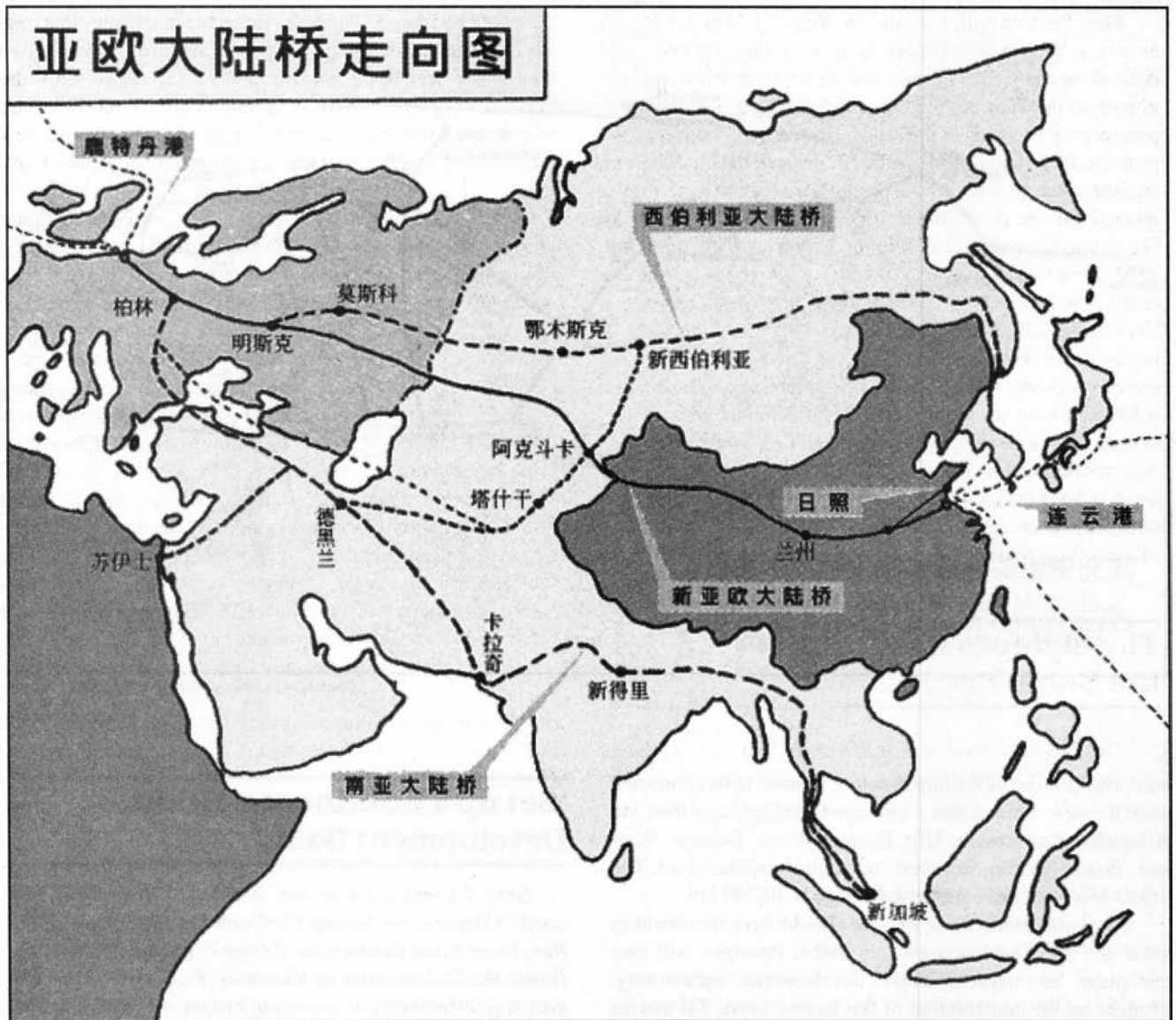
Beijing and Tianjin, the two municipalities, can be the brain of the Bohai Bay Rim Region; and Liaoning and Shandong Peninsula can be the two wings of the bird; Hebei Province is the bird's body, and Shanxi Province, the most important base for coal, can be said to be the tail of the bird. Now, the two wings have been flying, and the tail has been raised, while the bird's body, Hebei Province, urgently needs to have a strong muscle and full-fledged impressive stature. This raises a new requirement to the economic development of Hebei Province. . . .

In China, Hebei Province has the excellent conditions and unique character as well as rare opportunity to construct a bridgehead group of the Asia-Europe Continental Bridge.

First, Hebei Province has an excellent port condition. Located in the northeast part of Hebei Province, Qinhuangdao Port, since it was opened as a trade port in 1898, has been operating nearly 100 years. Now the port has 53 berths, among them one has the capacity of 100,000 tons, and the port has cargo-handling capacity near 0.1 billion tons yearly, next only to Shanghai Port. . . . For the port there are three main channels with water depths more than 13.5 meters, through which 50,000-ton cargo ships can go smoothly; another main channel with a water depth of 16.5 m, through which 100,000-ton cargo ships can pass, is under construction. Therefore its handling capacity can meet the full requirements of third- and forth-generation container transport in the world. . . .

Jingtang Port, which is only 65 nautical miles from Qinhuangdao Port. . . . Here, Dr. Sun Yat-sen, the forerunner of the democratic revolution of China, proposed to construct the "Large Port in Northern China" in his "General Plan for National Reconstruction" written in 1919. He said this [port] should be equal to America's New York in size; it would be the passageway for world trade, and a supply and distribution area, which would be larger than that of New York. Finally, the port would connect Asia and Europe into a whole. After foundation of the new China, the concerned departments sent experts several times to do investigations, and experts from Germany, Britain, France, Austria, Japan, and so on also have come on inspection early. . . . All deemed that here is an ideal site for constructing a deepwater port. On Aug. 10, 1989, the port began to be built formally; in July 1993, Tangshan City signed an agreement formally for jointly constructing the port with Beijing Municipality, and the port was named "Jingtang Port." The port will be the biggest one in scale of the construction in China; the first phase of the project, including eight berths with a capacity of 15,000 tons each, was essentially finished at the end of 1995. . . . According to the plan, by the end of this century, [the port's] handling capacity surpass 12 million tons yearly; in 2010 it will reach 22.1 million tons, and by 2020, 36 million tons per year. Meanwhile, Jingtang Port is planning to build a large deepwater berth in Caofeidian Port. Caofeidian is located 30 nautical miles southwest of Jingtang Port. . . .

Huanghua Port, which is located in the eastern part of



Courtesy of the Organizing Committee for the International Symposium on Economic Development of the Regions Along the Euro-Asia Continental Bridge.

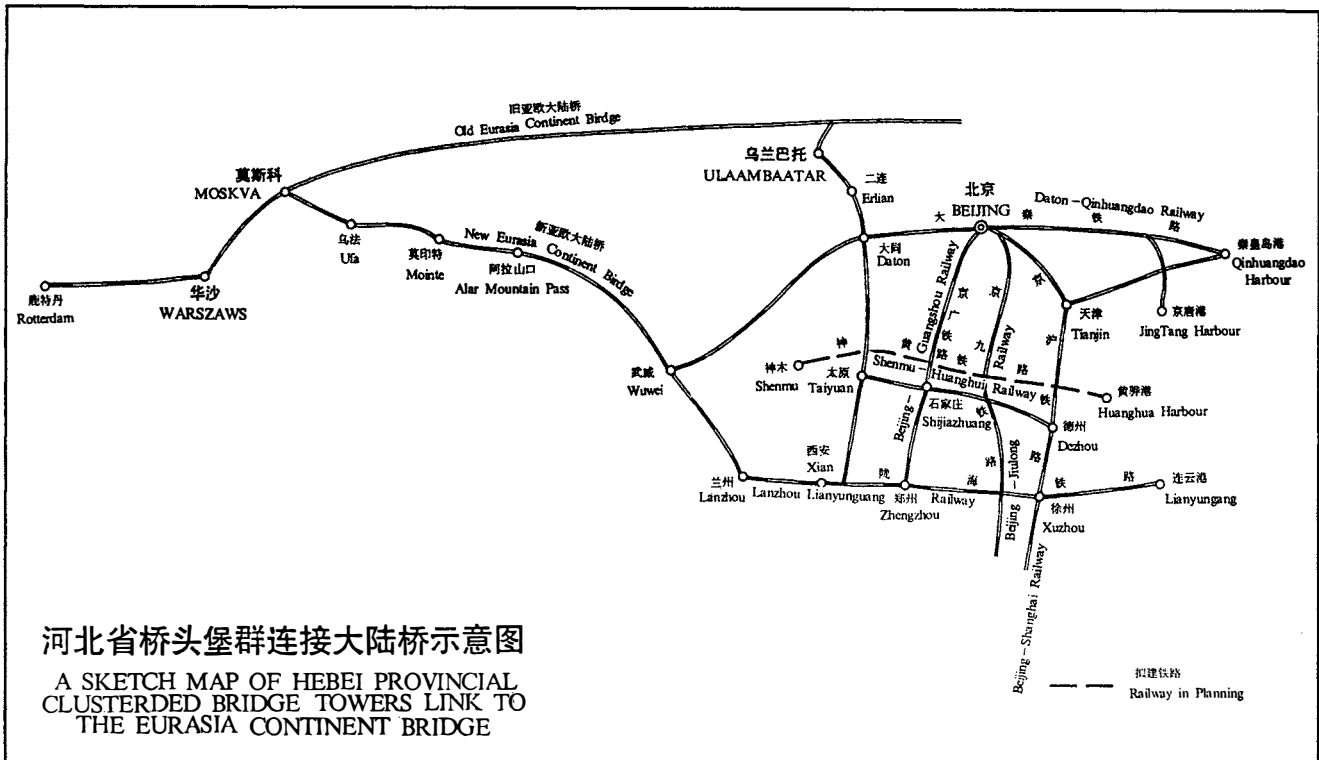
Hebei Province, was certified officially in 1993 to be the special port site for Shenmu coal. At the moment, the port area is under construction. The Shenmu-Huanghua Railway has been already listed in the Ninth Five-Year Plan and the long-range program of 2010 of the national economy and social development; it goes via Dongsheng to reach Baotou, connecting there with the railways of Beijing-Baotou and Baotou-Lanzhou. Along with the construction of the port and routes and the need for economic development, Huanghua Port already has the condition to become one part of the Oriental Hebei Bridgehead Group of the New Asia-Europe Continental Bridge.

The three ports mentioned above, together with Tianjin Port, compose the oriental bridgehead group of the Euro-Asian Continental Bridge. . . .

Taking Qinhuangdao Port and its neighbor, Jingtang Port, as a starting point, one route is to go along the Da-Qin Railway to Ulan Bator, in the People's Republic of Mongolia, via the cities of Beijing, Datong, and Erlianhaote, and then further enter into Russia to be connected with the Siberian Asia-Europe Continental Bridge. The whole length of this continental bridge is 11,200 km from Qinhuangdao Port of Hebei Province, China, to Rotterdam Port, Holland.

Another one is to go to Alashankou along Da-Qin Rail-

Schematic of Eurasian Continental Bridge connections to Chinese harbors via Hebei province



Courtesy of the People's Government of Hebei Province.

way, via the cities of Beijing, Baotou, Wuwei, to be connected with the new Euro-Asian Continental Bridge, and then via Alkdouka, Kazakhstan; Ufa, Russia; Minsk, Belarus; Warsaw, Poland; Berlin, Germany; to reach Rotterdam Port. The whole length of this continental bridge is 10,700 km. . . .

It is worth mentioning that we should have the world in view and the future in view. . . . Hebei Province will also encounter an unprecedented development opportunity, brought by the construction of the Bering Strait Submarine Tunnel. The narrowest location of the Bering Strait between Chukchi, Russia and the North American Alaska Peninsula, is only 85 km wide. Already in 1905, the "Cross Alaska-Siberia Railway Company" was set up by Russia and America. In 1986, a tentative plan for establishing a Bering Strait Undersea Tunnel was put forward. After that, in 1992, 1993, and 1996 three successive international meetings have been held especially to discuss this issue. As soon as the Bering Strait Tunnel is finished, the U.S.A., Russia, China, and some Asian countries will be connected together. So, the Qinhuangdao Port, Jingtang Port, and Huanghua Port of Hebei Province will be one of the nearest ports of China from west exit of the tunnel, and it, also, will become one of bridge-heads connected with the Asian and North American Continental Bridge.

'Set up a Continental Bridge Development Bank'

Song Fa-tang's paper was entitled, "Strengthen Economic Cooperation Among the Countries and Areas of the New Euro-Asian Continental Bridge Zone and Promote the Economic Development of Shandong Province." Song Fa-tang is vice-secretary of Shandong Provincial Party Committee and managing vice-governor of Shandong Province.

The New Euro-Asian Continental Bridge Zone (NEACBZ) lays a very good foundation for establishing a new type of companion relations and for developing regional cooperation. The Chinese government has already appointed the Rizhao Port of Shandong Province as the eastern bridgehead of the NEACB. . . .

Shandong is in the eastern part of China, bordering on the sea. It is a big economic province of China, located at the east point of the new Euro-Asian Continental Bridge and facing the Korean Peninsula and the Japanese Islands across the sea. Shandong's resources are abundant, and railways and highways radiate in all directions. There are many seaports in Shandong. Rizhao Port, the continental bridgehead, is very

wide and the water is deep enough. One kilometer away from the coastline, the natural water depth is 13 meters. . . . The opening of the new Euro-Asian Continental Bridge makes the nature of Rizhao City change greatly: changing from an ordinary port city into the pivot city of land and sea, which connects Europe in the west and Asia and the Pacific Ocean area in the east. . . . Rizhao has favorable conditions (that are rarely found elsewhere in the world) to build a large deepwater port and maritime industry. We can build an international container transshipment center here. . . . Seize the opportunity to build an ore wharf of the scale of 150,000-200,000 tons, and open as quickly as possible sea lines from Rizhao to South Korea and to Japan. At the same time, we shall set up a bridgehead opening-and-developing experimental district in Rizhao City, delineating a certain area which will include the seaport, and giving it favorable policies similar to those of the special economic districts. We shall also select certain regional central cities in the Continental Bridge area to set up "Special Continental Bridge Districts" for the sake of giving impetus to the growth of the bridgehead economy area and the Continental Bridge Economic Belt. . . .

[Our proposals are:]

- Complete as quickly as possible the construction of the necessary infrastructure networks that tally with the needs of the NEACBZ. The main line skeleton of the new Continental Bridge railway has already been completed; the immediate thing for us to do now is speed up the necessary adjuncts for the skeleton. We should have the spirit of "joint construction, joint ownership, and joint responsibility," complete the necessary constructions in railway, highway, communication, and pipelines. . . .

- Set up a continental bridge development bank to strengthen the ability of circulating capital for the economic cooperation of the NEACBZ. The Chinese part of the new Euro-Asian Continental Bridge is mostly located in those areas of our country still awaiting development. Both the construction of infrastructure and the economic construction along the continental bridge line need to be speeded up and need a great amount of investment. In order to make Europe, Asia, and the Pacific area join in the economic operation of the NEACBZ more effectively, we may consider setting up a continental bridge development bank, whose special function is to be responsible for the economic development of the NEACBZ and establish bank branches in the important cities along the continental bridge, using a new financial system to promote the opening, development, and joint cooperation of the NEACBZ.

- Found a continental bridge international center for the training of qualified personnel to promote the exploitation of labor resources. The labor resources along the continental bridge line are abundant. . . . We should help the people in these areas to master the skills of developing production and strengthen cooperation in such respects as education exchange and vocational training. Currently, Shandong Prov-

ince has made investment in this field and set up a training organization in Rizhao to train qualified personnel for the sake of serving for the exploitation of labor resources along the continental bridge line. We imagine that through the joint efforts of all sides, we shall develop this organization into an international personnel training base, which will keep its foothold in China, but will be geared to the needs of Asia and Europe, in order to better serve the regional cooperation of the NEACBZ.

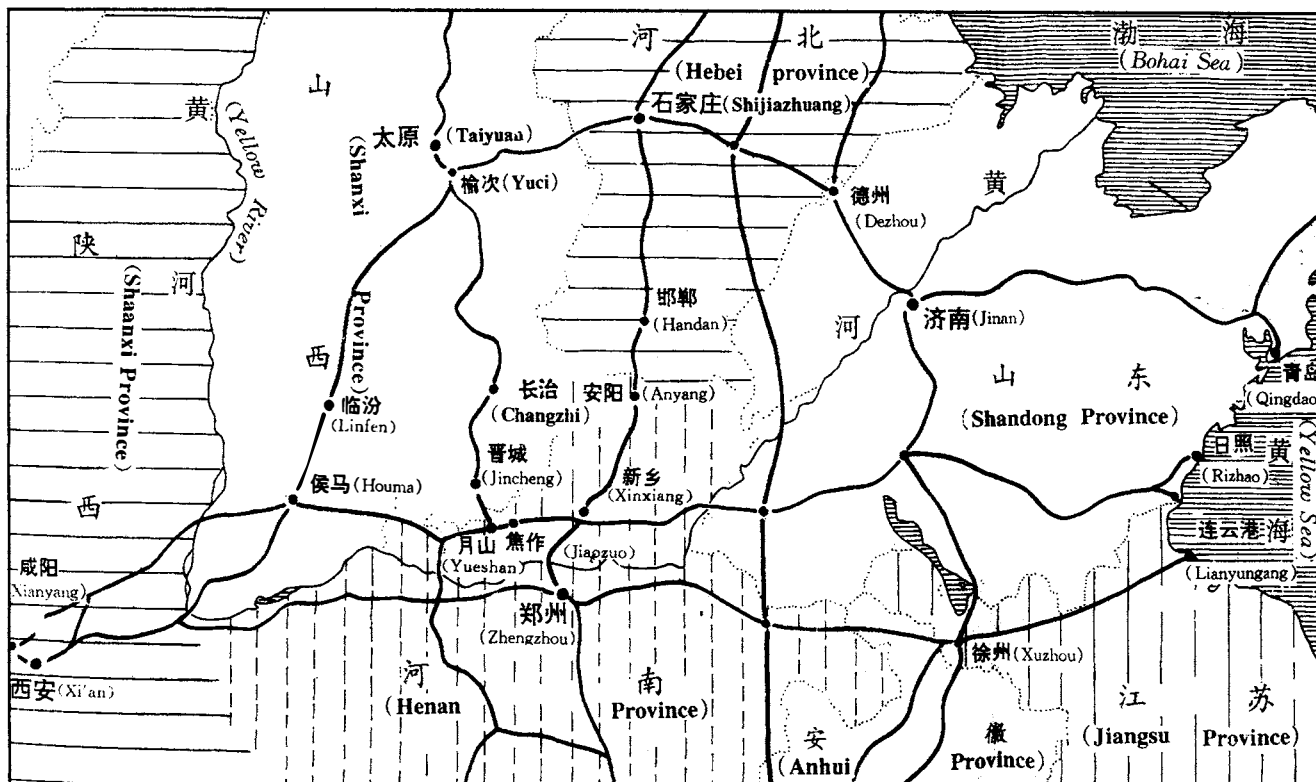
Eurasia needs 'development poles'

The paper by Hou Chen Yi, vice-mayor of the People's Municipal Government of Jiaozuo, was entitled, "A Primary Analysis of the Role of Jiaozuo in the Economic Development of the Regions along the Euro-Asia Continental Bridge."

With the construction emphasis of China advancing from the east to west, a new development pattern of the national economy has formed. The "four modernizations" drive of the country started with the prosperity of Eastern parts brought about by the "open to the outside world" policy, and will only be fully fulfilled with the opening up, developing, and soaring of the Western parts. But from the prosperity of the East to the economic soaring of the West, the transitional zone in the center takes an important part. That is to say, the development and soaring of the West will rely on a highly developed central, transitional zone. And the key step for the central part of China to develop quickly is to concentrate development emphasis on a few cities of relatively sound foundation, i.e., to foster several "developing poles" or to break through at a few points. . . . By having a bird's view of the map of China, you will find that Jiaozuo is right at the juncture of the East and the West, the South and the North, right at the center of the Longhai and Lanxin new economic zone along the new Euro-Asia Continental Bridge. The superior geographic position provides Jiaozuo with the practical possibility of acting as a linkage between the South and the North, and between the East and the West. But to turn the possibility into a reality, Jiaozuo should have a sound economic basis for introducing, digesting, absorbing, and spreading advanced technology and management skills. . . .

From the viewpoint of its communicational conditions, Jiaozuo is located at the juncture of the two large economic zones to the East and West, at the boundary of Henan with Shanxi. Five railways extend across the region. They are the Beijing to Guangzhou Railway, the Jiaozuo to Liuzhi Railway, the Jiaozuo to Xinkiang Railway, the Jiaozuo to Taiyuan Railway, and the Houma to Yueshan Railway. The National No. 207 and No. 107 highways and seven interprovincial highways connect Jiaozuo with the surrounding regions. From the viewpoint of its development potential, Jiaozuo is one the three important members of the "Middle Golden Tri-

Eastern end of the new Eurasian Continental Bridge



Courtesy of Gao Zhengang, Editor, "A Study on the Strategic Significance of the New Euro-Asia Continental Bridge," Jinan, 1996.

angle" mapped by the provincial government of Henan. Numerous experts have come to a common understanding since the proposal of Prof. Fei Xiaotong was put forward, that the Middle Golden Triangle shall be the Dragon Head of Henan's economy, the central pivot of the economic corridor along the New Euro-Asia Continental Bridge and the relay station of the hot economic spot on its way shifting to the West. At present, key national projects like the Key Water Control Project of Xiaolangdi, Qinbei Power Plant, and the Water Transferring Project from the South to the North are under construction in or near the region, with an enormous amount of investment pouring in a very short period.

... Basic industries like energy and raw materials have long been known as the "bottleneck" industries and will remain one of the major factors that restrain a quick development of the national economy in the Ninth Five Year Period and an even longer period after that. The immense area of Central and Western China is rich in natural resources and has a great potential in exploiting and utilizing these natural resources. To transform the resource advantage into an economic advantage, is the only practical way of vitalizing the economy of the Central and Western parts of China. ... Jiaozuo is also rich in natural resources. ... Jiaozuo is one of the earlier developed bases of anthracite in China. ... Output of

raw coal in 1995 hit more than 10 million tons and the yearly export volume of its anthracite accounts for one-fourth of that of the whole country. ... The region is rich in both superficial and groundwater resources. The Yellow River, Danhe River, and Qinhe River run across the region. The total available water reserves amount to 2.83 billion cubic meters, 884 cubic meters per capita. ... The verified reserves of limestone hit 0.3 billion tons, those of bauxite amount to 50 million tons. Both of them are essential raw materials for the aluminum industry. ... The reserves of bauxite in nearby Luoyang and Sanmenxia reach 0.3 billion tons. ...

Since the beginning of economic reform and implementation of the opening-up policy in China, Jiaozuo has focused its efforts on the development of power, coal, chemical, and aluminum industries to make its resource advantages yield well. By attracting investments through various channels, Jiaozuo has launched a batch of large enterprises influential both at home and abroad. And a base for energy and heavy chemical industries is taking shape. ...

The vast region of Central and Western China is rich in arable land resources. But the land resources remain insufficiently developed and of poor productivity. ... So it is of prime importance to accelerate agricultural development and help the rural economy thrive. In this respect, the Jiaozuo

region has successful experiences and practices for other regions in Central and Western China to learn from. . . . It has a long history of agricultural development and a tradition of intensive and meticulous farming. . . . In 1995, the average output per *mu* [1 hectare=15 *mu*] reached 476 kilograms . . . among the four counties north of the Yellow River, where one *mu* of land can produce one ton of grain, three are under Jiaozuo jurisdiction. . . . A new strategic plan, however, has been worked out recently for the further development of agriculture and the rural economy, based on a new and high starting point. Jiaozuo will accelerate the speed of industrializing the rural economy and integration of urban and rural areas. . . . It is targeted to establish a comprehensive exemplary area of agriculture for the nation, integrating high technology and bio-ecology with high efficiency, and to set up a base for processing and export of farm products and by-products, a base for earning foreign currency, so as to provide Henan and other regions along the Continental Bridge more and better experiences.

Organizing railway transportation

"On the Organization of the New Eurasian Continental Bridge Railway Transportation," was submitted by the Eurasian Continental Bridge International Transportation and Trade Co. Ltd. Research and Development Center.

Since the connection was completed in 1990, the New Eurasian Continental Bridge (the NECB) has become the most popular topic concerned with Eurasian cooperation. In January 1996 seven nations, including China, Kazakhstan, Japan, and South Korea, signed an agreement to increase the volume of the goods transported through Druzhba-Alataw Pass on the basis of cooperation and mutual benefit. At the Asia-Europe Summit Meeting, at the beginning of March, this topic was again widely mentioned by the conference participants.

We think, that in order to take advantage of the Continental Bridge's convenience and safety for railway transportation, and to make it a significant breakthrough for Eurasian cooperation and a Eurasian economic corridor in reality worthy of its name, we must quickly build an organization of the New Eurasian Continental Bridge Railway Transportation (abbreviated as NECBRT). . . . Led by an international organization with participation by the railway transportation departments and/or major Eurasian enterprises, especially those from along the line, this organization should be a transnational coordinating institution which accords with international practice. Only on this basis, can a series of organized measures be adopted.

(Proposed measures:)

1. To standardize the gauge. For historical reasons, there exist different gauges in each section of the NECB. For

instance, in the section of the countries of CIS, there is a 1,520 mm-wide gauge, but in China and European nations, there is a 1,435 mm standard gauge. The gauge difference makes the trains on either end of the bridge unable to pass through it directly. Two transshipments are needed, thus wasting time, raising the loading and unloading expenses, and increasing the risk of damage to or loss of goods. In this sense, the gauge difference can be regarded as the key element in slowing down the high-speed transportation ability of the NECB. For this reason, it is the main task of the organization of the NECBRT to construct a new main line in the countries of the CIS to standardize the gauge and finally to realize direct passage from one end of the bridge to the other.

2. To unify customs inspection. The NECB passes through many countries, and every country has its own rules for customs inspection. . . . After unification, no matter where the goods are transported, they will not be re-inspected by other nations once they have been inspected by one of the member nations of the NECB organization. In this way, time can be saved, and transportation expenses reduced.

3. To unify transportation expenses. . . .

4. To unify settlement of payments. As the NECB runs through many different countries, it would be very difficult for the goods' owners to pay freight [charges] separately to individual countries—more expenses may be charged and unnecessary disputes may occur. It would be preferable if the goods' owners could pay the whole transportation charge through a unified settlement center, which would assign the deserved part of the charge to each nation. . . .

5. To coordinate the different aspects of the transportation system.

The NECB is a system in which railway transportation is only one significant part. To develop a whole system, other fields are needed, such as modernized storehouses, linkups between sea and railroad transportation, statistical information about the transported goods, retrieval of empty containers, and modernized tracking services, etc. Just as a conductor is needed in an orchestra, without a powerful, highly efficient coordinating institution, it would be hard to coordinate each subsystem's operation. . . .

6. To unify arbitration. In the process of carrying goods through the NECB, it is inevitable that economic disputes will occur between the goods' owners and carriers, typically when goods are damaged or lost. . . . If an arbitration institution is set up, all lawsuits and claims can be presented to it for settlement, and proper rights can be safeguarded.

7. To arrange and utilize funding. The differences in speed and gauge are the main factors limiting the rapid development and standardization of the NECBRT. The different facilities and conditions in each section cause the speed differences. For example, in the sections of China and Central Asian nations there exist substandard sections, which require technical transformation. As for the unification of

gauge, a new main line is needed to go through the countries of the CIS. It can have two routes: one is northward from Kazakhstan, via Russia and Belarus, linking up with European railways in Warsaw, Poland; the other is southward from Kazakhstan, via Uzbekistan and Turkmenistan, ending in Iran. The construction of the new main line needs a large investment. . . . For this reason, a transnational development bank should be established by the international community and nations along the bridge. On the basic principle that whoever invests benefits, the bank would raise funds from the international community for the construction of the NECB and technical transformation of the basic facilities, and finally, under a properly formulated plan, construct a high-speed railway in the Asian section, to achieve the rapid development of Eurasian railway transportation.

Network planning along the continental bridge

A paper on "Multimodal Transport Network Planning in the Regions along the Euro-Asia Continental Bridge," was submitted by Mao Bao Hua, Yuan Zheng Zhou, and Shen Fei, Department of Transportation and Management Engineering, Northern Jiaotong University, Beijing, and by Zhu Jun Feng, Institute of Comprehensive Transportation, National Planning Committee of the P.R.C. The excerpts below are mainly from the section on railroad construction.

After the successful linkage between the Beijiang Railway of China and the Tuxi Railway of Kazakhstan, a new Euro-Asia Continental Bridge has been formed. The regions related with the Continental Bridge include 4,100 km of railway lines in China, and include 11 provinces, 411 cities and counties, 220 million population. . . .

As an East-West corridor, the Longhai-Lanxin Railway from Lianyungang of Jiangsu Province to Alashankou of Xinjiang Autonomous Region, links many other railways. Eight railways South and seven railways North of the corridor are available. These 15 railway lines connect most of China. However, there still exist problems in the corridor, such as the following:

1.1.1. Baoji-Tianshui section is a single line of lower standards. Maximum speed in parts of the section is only 45 km/hour, which limits the capacity of the whole line.

1.1.2. The utilization on some of the line and related marshalling stations have exceeded 90%. The Yanzhou-Shijiu line, a single line, is near saturation in capacity.

1.1.3. The Ciyao-Bengbtu line has touched its saturation point, which would affect the absorption of the bridge in Southeastern areas.

1.1.4. Western lines have greater unit operational cost. . . [which] has affected the operational profits. . . .

According to the national railway network plan, total rail kilometers in China will be 65-70,000 by the year 2000. The rail line technical improvements related to the [Eurasian Bridge] corridor are as follows:

- Double-tracking of the Xuzhou-Lianyungang Railway. Part of the line, 254.4 km long, has been double-tracked, and the entire length will be completed soon.

- Technical improvement of the Baoji-Lanzhou Line. This 503 km-long line has very bad geographic conditions. The present loading rate at Tianshui station is very high, which forms a bottleneck for the Northwestern areas. As a main artery between the West and the East, it is necessary to extend its capacity to 45 million tons by 2000; the Baoji-Zhongwei Railway has been constructed as a channel to share part of the volume.

- Doubling the Houma-Yueshan-Xinxing-Heze-Shijiu Railway

- Electrification of the Baotou-Lanzhou Railway
- Electrification of the Gantang-Wuwei Railway
- Reconstruction of the Lanzhou-Xining Railway
- Reconstruction of the Nanjiang Railway

On the south-north axis lines, the main improvements are as follows.

- Electrification of the existing Beijing-Shanghai (Jinghu) Railway and construction of a high-speed line. The present loading rate on the existing Jinghu Railway has been saturated, especially in the section between Xuzhou and Bengbu. Simultaneously with its electrification, it is necessary to build a high-speed passenger railway, to increase the carrying capacity of the Jinghu corridor as well as the absorption of the bridge.

- Electrification of the Beijing-Guangzhou Railway
- Double-tracking the Jiaozhi Railway

- Construction of the Beijing-Jiulong Railway: This railway greatly improves the transport between south and north, directly to Hongkong.

- Construction of the Xian-Nanjing Railway

- Construction of the Baotou-Xian Railway. This railway, 914 km long, provides connection with Inner Mongolia, North Xianxi and Middle-China.

- Xian-Ankan Railway. . . .

- Xingyi-Changxing Railway. As a regional rail line, it plays an important role in the economic promotion of North Jiangsu. After 2000, it is also necessary to perfect the rail corridor. For example, it may take various seaports as nodes to construct a coastal railway such as the Longkou-Weifang-Linyi line, the Suide-Liulin-Xuzhou line, the Lanzhou-Yangpingguan line, the Xining-Chengdu line, the Alashankou-Jinghe-Buole-Yining line, the Wusu-Aletai line, the Xining-Zhangye line, etc. From a long-term point of view, it is necessary to build the Zhongwei-Taiyuan line, the Shang-Lanzhou line, the Geermu-Kuerle line, the Ledun-Beidun line, etc. The total length will amount to 100,000-140,000 km. . . .

On pipelines, it is necessary to construct the Wuwei-Lan-

zhou-Baoji-Chengdu-Zhongqing pipeline and the Baoji-Luoyang pipeline for end-product oil. After 2000, we should build the Akesu-Kuerle-Tulufan line, the Wulumuqi-Yumen-Lanzhou-Baoji-Xian-Luoyang line and Luoyang-Nanyang line for crude oil transport; and the Jining-Luoyang-Xiangfan line, Luoyang-Pingdingshan line and Zibuo-Jinan-Xuzhou line for end-product oil transport. The coal pipelines technique must also be emphasized.

Container transport

The Science Research Center of the COSCO Group contributed a paper, "On Container Transportation of the COSCO Group and the New Euro-Asia Continental Bridge."

... Along with the development of the national economy and the increase of foreign trade, container transportation has become an important part of China's national traffic. ... In the five years of the end of this century, on the basis of containerized traffic in China, we are going to do the following: The international container shipping industry will be the focal point of development. The containership fleet will be optimized and enlarged. The infrastructure construction of central seaports and the ports along the main shipping routes will be sped up. The container distribution systems of railroad, waterway and highway are going to be established and improved. ...

... The COSCO Group, the largest shipping enterprise in China, has applied the world's most advanced technologies in shipping, international logistics, and information processing, to keep in step with world advanced science and technology, in developing the ocean shipping industry of China. ... The amount of container ships owned by COSCO Group is in the second place in the world. The COSCO containership fleet operates 156 ships of total capacity 174,000 TEUs [trailer equivalent units, the equivalent of a 20-foot trailer—ed.]. ... As a transnational shipping corporation, COSCO fully utilizes the continental bridge in its business. ...

A continental bridge is a bridge of transcontinental intermodal traffic, usually from coast to coast to form international intermodal transportation.

The main continental bridges in the world are the following:

1. The continental bridge of North America transcrosses from the East Coast to the West Coast. In the United States and Canada there are several railways which transcross from the Pacific Coast to the Atlantic Coast. The distance between the two coasts is 4,500 km. Every day the Burlington Northern Railroad Co. of America sends out eight double-stack container trains from the Port of Seattle. The number of containers transported by train each year is about 300,000 TEUs. ... [The continental bridge] can speed up the traffic: 100 hours from Seattle to New York, 62 hours from Seattle

to Chicago. Canadian Pacific Rail System, another railway company of North America, also engages in transport through the continental bridge of North America. The railway mileage of the CP Rail System runs is about 11,850 km. The service railways are as follows: Port of Vancouver to Toronto and Montreal, running time 70 hours and 110 hours respectively. ... Each year about 200,000 TEUs are transported.

The COSCO Group has opened the shipping route from China to the East Coast of America, once a week. We have also opened up sea routes from China to Long Beach and Oakland [California]. China to Seattle and Vancouver [operates with] one voyage each week, using large container liners. ... The world's largest containership, of 5,250 TEUs, will be operated on this sea route this year. ... The cargo transported is mainly, consumer goods used in the continent of North America. Those goods are transferred by the continental bridge door-to-door through an international, intermodal container system.

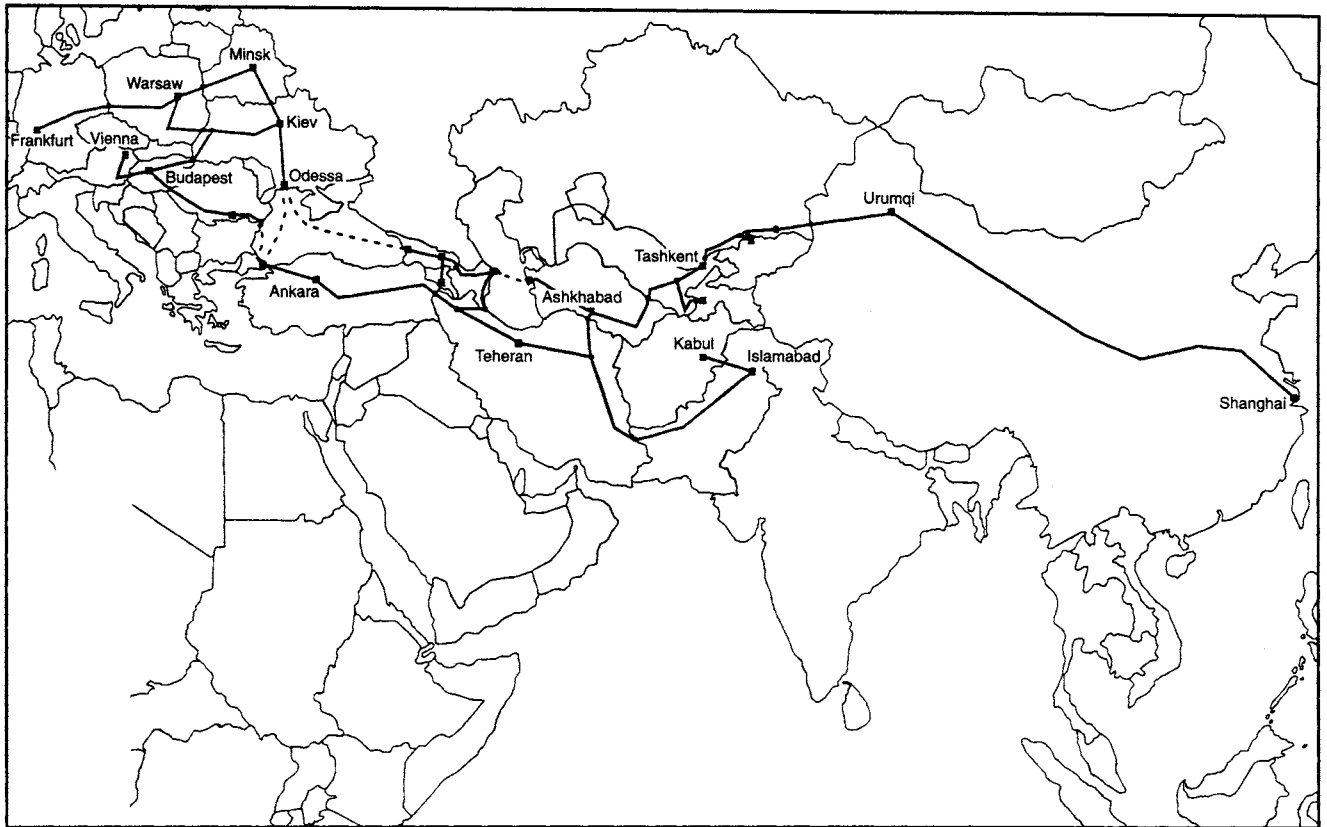
2. The Trans-Siberia Euro-Asia Continental Bridge links up the Far East region of Russia and Europe. ... This continental bridge makes favorable geographical conditions, speeds up the turnover of ships and trains, and greatly increases the traffic efficiency. The container transport by this continental bridge developed steadily and is highly praised by transfer companies and customers of other countries. The traffic of this continental bridge started in 1967. For the reasons of management, only 511 TEUs were transported during the years 1967 to 1970. In September 1970, Japan and the U.S.S.R. held negotiations and reached an agreement on developing transport between Japan and West Europe by the Trans-Siberia Euro-Asia Continental Bridge. ... Although the traffic on the Trans-Siberia Continental Bridge fluctuated, enormous profits were gained by the bridge transport. ... According to relevant documents, income is US \$130 million from transports of 70,000 TEUs each year from Japanese ports to the city of Brest (at the Polish-Russia border) via the Port of Vladivostok and the Trans-Siberia continental bridge. ... According to estimations, as many as 300,000 TEUs will be transported each year by 2000.

The container traffic on the Trans-Siberia Continental Bridge is mainly transport between Japan and Europe, or Japan and Near East Asia (Iran, Afghanistan). ... The time period of transportation is about 35 days. ...

3. The New Euro-Asia Continental Bridge. ... It has been a key problem for world transport industry and customers to find out and open up a new continental bridge between Asia and Europe. The realistic New Euro-Asia Continental Bridge is as following: The bridgeheads at one end are the Port of Rizhao, Port of Lianyungang, Port of Shanghai in East China, and Port of Guangzhou and Port of Shenzhen in South China; the bridgeheads on the other end, are ports along East coast of the Atlantic Ocean, Black Sea, and the Mediterranean Sea. ...

The characteristics of the new Euro-Asia continental bridge are as follows:

Sketch of the 'Trans-Asia-Europe Optical Cable Trunk System'



From paper of Wang Hongjian, Ministry of Post and Telecommunications of China.

a) There are a lot of bridgeheads at the two ends of the continental bridge. . . .

b) . . . Because the New Euro-Asia Continental Bridge attracts cargo sources from a large area and has a broad hinterland, so, in the future, there will be plenty of containers. . . .

c) The regions along the continental bridge are rich in resources. . . .

d) . . . The New Euro-Asia Continental Bridge is 3,000 km shorter than the Trans-Siberia Continental Bridge. . . .

e) A favorable natural condition and mild climate. The East and West bridgeheads are all ice-free ports, so that cargo handling can operate all the year round. . . .

f) According to the forecasts, the traffic volume may be 70,000-80,000 TEUs every year under normal conditions. So it is possible to launch a through train each day from both the East and West terminals. . . .

tions of the Ministry of Posts and Telecommunications of China, presented a paper on "The Trans-Asia-Europe Optical Cable Trunk System."

The proposal to construct a Trans-Asia-Europe overland optical cable trunk system was first made by the Ministry of Posts and Telecommunications of China. The system starts from Shanghai, China in the East and terminates in Frankfurt (Main), Germany in the West. It shall go through Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan, Iran, Turkey, Ukraine, Poland, Azerbaijan, Georgia, Armenia, Belarus, Romania, Hungary, Austria, Pakistan, and Afghanistan. It serves 20 countries in all, measuring some 27,000 km in total length.

When it comes into being, it will be the world's longest terrestrial cable system.

Proposal of the project: With the rapid growth in international economic relations since China's reform and opening policy, a serious shortage of facilities for international communications has long been felt, as the overseas telephone traffic in China has been increasing at a rate of over 30% annually at the beginning of the 1990s. . . .

Fiber optics communications

Wang Hongjian, director of the International Engineering Division at the Directorate General of Telecommunica-

Communications with European countries have greatly grown in volume, but, hitherto, transmission has had to use satellite. Compared with satellite transmission, optic fiber cables have the advantages of much larger capacity, less time delay, and better quality in transmission; especially in view of the prospective development of various information services in the twenty-first century. . . .

Therefore, the Ministry of P&T of China made the proposal for the project of the Trans-Asia-Europe Optical Fiber Cable (TAE) System. Many telecommunications carriers in Asia and Europe expressed their great interest in such a project and responded to the proposal.

At a TAE project seminar held in September 1992 in Beijing, the representatives from five Central Asia countries at first expressed their interest to join the project and believed that this is the best way for them to communicate directly with other countries.

Germany, Poland, and Ukraine also expressed their interest in such a project, with a view that the rapid economic development occurred in Asia, especially in China. . . .

In April 1993, the Agreement on the Construction and Organization of the Trans-Asia-Europe Optical Fiber Cable System was signed by representatives of the eight countries taking part in the construction of the cable system, at a meeting held in Urumqi in China, and the project was formally started.

In January 1994, Turkey and Iran joined TAE as parties. They called this project a "Silk Road," since the cable line in West Asia follows generally a route of the ancient silk road. . . .

The technology and service of the circuit: All of the cables are buried or ducted at least 1 meter deep. Restoration has been established at each segment for the safety of the whole system.

The number of fibers in a cable is 18, 24, 30, or 48, as the volumes of capacity are different in each segment. Most of the transmission stations will install the advanced SDH 622 megabits per second or SDH 2.5 gigabit per second transmission equipment. It means that 7,500 to 30,000 circuits can be passed through one pair of fibers.

The TAE system can provide high-quality digital circuits for the transmission of voice, data, fax, graphics, and other kinds of information. . . .

Progress in construction: The construction of the cable system may be divided into three stages, as follows:

1. The preparatory stage (September 1992-June 1994). . . .
2. The construction stage (June 1994-January 1997): during which the signatory countries are to construct their respective cable segments, to complete the installation of equipment, and, as necessary, to conclude agreements regarding maintenance, border division, etc.
3. Check and acceptance stage (January 1997-March 1997): Tests will be conducted on every segment of the

system as well as the system as a whole; any outstanding problems are to be solved.

Some countries, such as China, Turkey, and Germany, etc., have almost finished the construction of their segments. It is expected that the cable system of main route will be completed and ready to start operation by April 1997.

Oil and gas pipelines

A paper on "Strategic Thoughts on Constructing an Asian Oil and Gas Continental Bridge (AOGCB)" was submitted by Li Dai of the Commission for Integrated Survey of Natural Resources, Chinese Academy of Sciences, Beijing.

The Asia Oil and Gas Continental Bridge (AOGCB), linking up the Middle East oil-gas resources and the Far East market, will become an important route of international oil and gas trade, which to some extent will replace the shipping route between the Middle East and Far East. . . .

The AOGCB would join the most plentiful oil and gas resources and the main oil-gas import area in the world. . . .

The Caspian Sea, surrounded by Russia, Kazakhstan, Turkmenistan, Azerbaijan, Iran, probably ranks third, following the Persian Gulf and Siberia, in richness in petroleum and natural gas. . . . The international cooperation of the AOGCB will be very helpful for these countries to exploit their resources and participate in the oil and gas international trade. . . .

The Chinese petroleum shortage is an increasingly big problem in the future. Most of the main oil fields in eastern China are exhausted. . . . The AOGCB would promote the import of . . . oil and gas and exploitation of the western China oil fields. . . . The petroleum reserve along the AOGCB is about 40% of China's reserves, especially in Northwest China. . . .

The AOGCB would realize the plan of building a pipeline from Xinjiang to Eastern China. . . . If the AOGCB is set up, the freight volume to Japan and Korea would reach at least 30 million tons, which is one-sixth of their petroleum import.

The AOGCB would be a multifunctional economic system. [As an] international petroleum and gas conveyance system, this oil and gas pipeline of about 4,000 km in length would be an important thoroughfare for Middle Asian countries, providing connection to the sea once the pipelines are connected to those of Eastern China, Xinjiang Province and the Middle Asian countries. Next, we would connect to the Middle East pipeline and link up the Middle East resources with the Far East market. Once the Asia Petroleum Continental Bridge is built, the distance between petroleum resources and Japan and Korea would be shortened by some thousands of kilometers. Chinese ports would become the starting-point of international petroleum trade in the Asia-Pacific area.