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ECONOMIC DEVELOPMENTS IN CHINA AIDED BY SOVIET ADVISERS, 1949 - 1952

[Comment: This report presents information on economic developments in China, 1949 - 1952, and shows how this development was aided by Soviet advisers. The Chinese documents from which the information was taken are propaganda pamphlets designed to promote Sino-Soviet friendship. Since this report is focused on economic and biographic information, most of the propaganda has been omitted.

As a result, the information is fragmentary. However, names of Soviet advisers and all information on them and all specific economic data and data on general economic developments are given.

The activities of Soviet specialists are described under the following headings: railway construction; railway workshops; industries (steel, zinc, basic construction, mining, machine, electric power, and paper); agriculture and forestry; water conservation; and medicine and health.

The type of information ranges from statistics suggesting the amount of steel production in 1952 in the Northeast to the hoarding of metal cuttings by lathe workers; from Soviet estimates of the potential increase of China's wheat and rice production to discovery of a new method of manufacturing alcohol as a by-product of the paper industry; from the establishment of six Sino-Soviet hospitals in China to the price of lumber in the Northeast.

In comparison with the information [ ] ("Economic and Sociological Developments in China Aided by Soviet Advisers, 1945 - 1949"), the information in this report is noticeably less specific. This may be explained by the institution of censorship at the outbreak of the Korean war.

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Names of the Soviet advisers have been approximated from the Chinese characters. The Russian approximation is followed by the Wade-Giles transliteration in parentheses.

Numbers in parentheses refer to appended sources.7

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A. Railway Construction

Because of the importance of railway communications to large-scale economic construction, the first Soviet specialists to come to China were railway technicians. In the 3-year period ending in October 1952, these Soviet technical experts helped to repair more than 10,000 kilometers of railways, to construct 1,255 kilometers of new railways, and to extend the total length of operating railways to 23,785 kilometers.

Many examples might be cited of Soviet assistance in the repair of railway bridges. Chinese engineers had estimated that repairs on the Tientsin -- P'u-k'ou railway bridge over the Huai Ho would require 6 months. Fortunately, Soviet specialists arrived on the scene, and as a result the project was completed in 60 days.(2)

In building bridge No 8 on the western section of the Lung-hai Railway, the highest in China, it was planned to strengthen the bridge with 800 cubic meters of reinforced concrete. However, the necessary sand and steel rods were unavailable. Soviet experts, who arrived in September 1949, recommended that pure cement 30 centimeters in thickness be added to the first pier, and pointed out that the remaining piers required no further strengthening. In this way, the railway started operating in the first 10 days of October, more than a month earlier than originally expected.

Soviet specialists who assisted in the repair of bridges No 8, No 795, No 796, and No 803 on the Lung-hai Railway were Comrades Nelnikov (Nieh-li-ni-k'o-fu), Zhilin (Hsi-lin), Shatalin (Sha-ta-lin), and Sharmatov (Shih-me-erh-to-fu).(1)

Other Soviet advisers who have made a great contribution to China's railway construction program are: Bachurin (Pa-shih-ning), Peiping-Hankow Railway; Bagalov (Pa-ke-'o-fu) and Yadolenko (Ya-to-lien-k'o), Hankow-Canton Railway; Zaytsev (Cha-ssu-ta-yeh-fu), Ch'eng-tu-Chungking Railway; Zingerenko (Chin-ko-lien-ku) and Tikhonov (Chi-ho-no-fu), Huang Ho Bridge on the Peiping-Hankow Railway; and Gumalov (Ku-ma-lo-fu), a railway bridge [not named].(1,2)

B. Railway Workshops1. Feng-t'ai Car Inspection Division

Soviet specialist Milishukhin (Mi-li-shih-chin), accompanied by the head of the General Operations Bureau of the Chinese Ministry of Railways, came to the Feng-t'ai Car Inspection Division [Peiping] on 20 May [1950?] for a 10-day visit. The purpose of his visit was to help the Feng-t'ai Division become the model for all of China, excluding Manchuria. Milishukhin is a famous railway specialist of 30 years' experience and a former chief of the Bureau of Rolling Stock in the Soviet Union.

He was solicitous for the workers' safety. Among other recommendations, he suggested that workmen in the machine shop wear goggles and masks to protect them from antimony-tin particles thrown off during the repair of axle bushings.

To increase the division's efficiency, he proposed several improvements in the oil purifying equipment. After the installation of a wooden grid in the oil circulating trough and the addition of a heat radiation pipe, the purification process was shortened from 48 to 18 hours. Not only was the efficiency of the process increased  $1\frac{1}{2}$  times, but also the quality of the purified oil was raised.

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Milishukhin was concerned about correcting the workers' carelessness in handling machinery and tools and the leading cadres' indifference toward this problem. The most frequent instance of carelessness was the depositing of tools and heavy objects on lathe beds, seriously damaging the specifications and dimensions of the sliding surface. Milishukhin also proposed organizing teams to undertake the important task of wheel work and to overcome the grave deficiencies of careless alignment and slipshod repair methods of the past.(1)

## 2. Chinese Ch'ang-ch'un Railway

The Chinese Ch'ang-ch'un Railway, by virtue of large-scale assistance given by Soviet technicians, has become the most advanced railway in China. After applying advanced Soviet experience, in 1951 workers on this railway increased their efficiency 27.8 percent over that of 1950 and reduced actual expenditures in 1951 by a sum of 72.3 billion yuan less than that originally budgeted.

More than 1,000 Soviet specialists on the Ch'ang-ch'un Railway have trained over 45,900 managerial cadres and technical workers. Buloshin (Pu-lo-hsin) helped workers at the Harbin Railway Shop make great strides in their technical proficiency.

Many illustrations might be cited of self-sacrifice and proletarian internationalism on the part of the Soviet experts. While lecturing on production to Chinese cadres in the winter of 1951, Soviet specialist Synkov (Hsin-k'uo-fu), chief engineer of the Ch'ang-ch'un Railway Control Bureau, became ill from overwork and fainted. He later insisted on finishing his lecture. Soviet specialist Bakhvaleyev (Pao-hua-lueh-yeh-fu), chief of the Ch'ang-ch'un Railway Station at Lu-pin, received serious injuries in August 1951 while rescuing several Chinese workmen from the path of a runaway box-car.(2)

## 3. Railway Workshop [Not named]

Soviet specialist Matalikhin (Ma-te-li-chin) inspected a railway shop on 10 April [1950?]. Although he was there only 8 hours, he discovered a number of deficiencies in the work.

For example, he noticed that certain locomotive fittings were made of copper, while others serving the same purpose were made of metal alloy. After he pointed out that the coefficient of the two was different and that the metal alloy was preferable for this purpose, the personnel realized that insufficient attention had been paid to this type of problem in the past.

On discovering excessive play in a lathe tool-post turning mechanism, he quizzed shop personnel on the upkeep and repair of the lathe assembly. They admitted that there was no plan for periodic inspection and repair of the lathes. Moreover, he uncovered the unhealthy phenomenon of lathe workers hoarding [their own stocks of] metal cuttings, thus impeding over-all production. The responsibility for this was attributed to the shop administration because of its failure to supply an adequate amount of metal cuttings.(1)

## C. Industries

### 1. Steel Production

The Soviet technique of "rapid steel smelting" has already enabled Chinese steel production to increase rapidly. Assuming the time required to smelt each batch of steel is reduced by 30 minutes, the Northeast Administrative Area could, with its 1952 furnace capacity, increase its annual steel

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production 35,000 tons by employing this method. Another widely disseminated Soviet process resulting in increased steel production is the "hot repair" method of fixing the smelting furnace fore wall. Whereas the "cold repair" method required 200 hours, the new method takes only 30 hours.

Improvements brought to the An-shan Iron and Steel Works by Soviet specialists have been of many kinds. For example, a special control room has been established for each iron-smelting plant, in which a single supervisor can check on the operations of the refrigeration, water, gas, and steam systems. Moreover, the mechanism for removing coke from two coke ovens at An-shan has been improved, thus reducing both the number of coke-removing operations and the daily consumption of electricity.(2)

In the past, the great majority of technical workers at the An-shan Iron and Steel Works were Japanese. The total number of Japanese workmen there was 20,000; of these, more than 40 percent were engaged in technical operations. Consequently, Soviet specialists have concentrated on training Chinese cadres at An-shan to fill the vacancies left by the Japanese.(1)

## 2. Zinc Production

Soviet specialist Alenchenko (A-liang-ch'in-k'o) formerly was the manager of a smelting plant in the Urals. In January 1950 he arrived at one of China's zinc plants. At the time he came, this plant consisted of several ruined buildings and some broken-down equipment. There were about 100 workers experienced in producing sulfuric acid, but none experienced in producing zinc.

The Japanese sought to produce zinc at this plant, but gave up after 3 or 4 years. Three American engineers subsequently tried and failed. But Alenchenko guaranteed that the plant would produce zinc by 1 July 1950.

After a month spent in cleaning, repair work was begun. In dismantling the eight circular furnaces, it was found that a number of the bricks could not be reused. Because silicon carbide bricks were not locally available, the Soviet specialist proposed making the new furnaces square-shaped. Not only would this save on raw material, but it would also save the labor time needed to make smooth bricks for a circular furnace.

The furnaces and equipment had been repaired by early June. But before operations were actually begun, Alenchenko spent several weeks in teaching the workmen the technical skills necessary for zinc production.(1)

## 3. Basic Construction

In the field of basic construction, the vacuum process of concrete placing introduced by Soviet experts has been a very important contribution. For example, the Northeast 21st Construction Company has been able, by using this process, to raise quality, reduce costs, and shorten construction time by three fourths.

The Soviet method of employing "continuous brick-laying" teams, combined with the "two-handed mortar laying method," has speeded up the rate of brick-laying 400 percent. Worker teams, organized on the basis of a scientific division of labor, are to be used in all phases of basic construction work.(2)

## 4. Mining Industry

A process which has greatly cut down on construction time in the mining industry is the "parallel operation" method. For example, the Northeast Hsi-an Mining Bureau undertook the sinking of a vertical shaft in 1950

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employing the "single operation" method; that is, first digging a section of the shaft and then laying a section of the mine wall. It was estimated that 20 years would be required to finish the project. In 1951, the Soviet-introduced "parallel operation" method was adopted, that is, simultaneously digging the well and laying the mine wall. With this method, only 5 years will be required to complete the project.

Soviet mining specialists Steklov (Ssu-t'u-ko-liao-fu), Marchenko (Ma-erh-ch'en-k'l), and others have helped solve many difficult technical problems in restoring and reconstructing coal mines. The new Soviet mining method, which has raised the extraction rate to 75-80 percent of the coal deposit, has been applied to 90 percent of the coal production and has greatly reduced wastage of natural resources.

Soviet experts have taught the use of various kinds of mechanical equipment in coal mining. For example, most miners at the Hwai-nan and Feng-feng Coal Mines can now mine coal using pneumatic drills. The process of recovering pit timbers has also been mechanized.

Some Chinese technical personnel thought that many of the country's coal mines had become obsolete and that by 1957 some 120 shafts would have to be abandoned. They therefore recommended sinking new shafts. But Soviet experts made an investigation and decided that only about half this number of shafts would have to be abandoned. They also decided that the productive life of most of the restored mines could be extended from 20 to 40 years. In this way, the productive capacity of coal mines can be increased to 170 percent of that existing in 1951.(2)

#### 5. Machine Industry

Soviet specialists are as zealous in working for China as in working for their own country. One specialist, after being engaged, took it upon himself to examine carefully in Moscow one of the Chinese invoice orders. When he noticed that many of the required precision gauges (these items are very scarce even in the Soviet Union) were lacking, he proposed adding them one by one. Moreover, he was on hand to supervise the unloading of this equipment when it arrived in China. After assembling and installing the machinery, he then organized classes to train cadres in the use of the machinery.

The Soviet "high-speed cutting method" has already been applied in machine manufacturing plants throughout the entire country. After Soviet experts introduced it at the Fu-shun Machine and Electric Works, the productive capacity of the old-style lathes was increased by an amount equivalent to an increase of 500 technicians. After the workers in six new machine works in the Northeast had mastered the multiple-blade cutting method, the rapid cutting method, and the high-speed cutting method, they increased their rate of efficiency in finishing work by ten times.

The Soviet method of "production according to chart" has greatly accelerated national construction. Three machine factories in the Northeast in 1951 produced not quite 100 lathes. But after adopting this advanced technique, they were able, with the same means of production, to manufacture more than 100 lathes in the first quarter 1952.

Everywhere in China one encounters the statement by administrative and labor union cadres: "We need more technical workers, more experienced workers." This was the case when Soviet adviser Gul'banov (Ku-li-pan-no-fu) inspected Machine Factory No 1 at Mukden.(1)

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## 6. Electric Power Industry

With the enthusiastic assistance of Soviet specialists, Chinese electric power production in October 1952 had increased 15 percent over the highest prewar figure. At the same time, commercially sold electric power had increased to 2.8 times the peak prewar amount.

The Soviet "rapid overhaul method" has cut in half the time required for the old method of repairing electrical equipment. Soviet experts have been instrumental in restoring existing electrical installations to maximum efficiency. The resulting increase in electric power in Tientsin is equivalent to a new electric power plant costing 155 billion yuan; in Shanghai, to an increase in generator facilities producing 10,000 kilowatts.

Soviet specialists have helped reduce the rate of factory consumption of electric power and wastage in the transmission lines. The amount of electric power thus saved by state-owned electric power plants in the past 3 years would exceed by 11 percent the total power generated by all state-owned power plants in the North China Administrative Area in 1949.

By following the Soviet practice of burning low-grade coal, the Chi-hsi Power Plant can save 20 billion yuan annually in fuel costs. The increased efficiency of the Shin-ching Shan Power Plant, resulting from the aid of Soviet specialists, has ensured that there will be no need to increase the power installations servicing Peiping for at least 2 years. To mention but two of the more than 200 suggestions advanced by Soviet specialists at Shih-ching Shan, the hard-water disposal process has increased both the efficiency and life of the boilers and the utilization of waste steam has already saved 2,700 tons of coal.(2)

## 7. Paper Industry

Soviet specialist Velichkin (Wei-lieh-chi-chin), on the basis of rigorous tests conducted at the Peiping Paper Factory, has invented a pulp-making process which uses rice straw as 50 percent of the raw material. The principal advantages of this process are as follows: the yield from the crude pulp is high; the amount of soda used is low; the tensile strength of the paper is great; the pulp processing time is short; the manufacturing process is simple; the investment cost is low; the raw material's plentiful; and the wood ordinarily used can be devoted to basic construction.

Another Soviet specialist, conducting research at Paper Factory No. 1 of the Administration Bureau of the Northeast Administrative Area has successfully utilized the waste fluids from paper manufacture to make alcohol. It has been estimated that a factory producing 25,000 tons of paper pulp annually could, by means of this method of manufacturing alcohol, save an amount equal to the value of between 6,000 and 10,000 tons of grain.(2)

## 8. Modern Factories

Soviet specialists have also helped build ultramodern industrial plants. For example, a coal-burning electric power plant which began operation in mid-September 1952 is outfitted with the newest equipment and its production processes are automatic. Another example of a completely automatic factory is the Asia Hemp Spinning Mill in Harbin.(2)

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D. Agriculture and Forestry1. Agriculture in General

Following the introduction by Soviet specialists of the techniques of deep plowing, close planting, crop rotation, and proper irrigation and fertilization, crop yields per mou have greatly increased. At the Shuang-ch'iao Experimental Farm of the School of Mechanized Agriculture of the Ministry of Agriculture, the 1949 production of seed cotton per mou was only 50 catties. But after the close planting method was followed, the yield increased to 162 catties in 1950 and to 296 catties in 1951 (with fertile areas producing up to 537 catties).

Soviet specialist Lushchenko (Lu-shen-k'o) believes that, providing China thoroughly assimilates the whole body of Soviet advanced agricultural techniques, it can increase its present wheat production by 100 percent. Moreover, if the present method of planting paddy rice seeds at intervals of from 21 to 26 centimeters can be changed to planting at intervals of 18 centimeters, he believes that rice production can also be increased by 100 percent.(2)

2. Mechanized Agriculture

Soviet specialists Belov (Pi-lo-fu), Oborenkov (A-pu-liang-cho-fu), and Chernikov (Ch'iu-erh-ni-k'e-fu), among others, have introduced techniques of management and mechanized farming employed on Soviet sovkhozes. With their assistance, 52 state farms on which production levels from mechanized farming exceed those on farms of individuals by 100 to 200 percent have already been established in China.

The Soviet government has sent large numbers of the newest-type tractors, harvester combines, and other types of agricultural machinery. More than 700 new-type horse-drawn farm implements have been supplied by the Soviet Union, and already have proved their utility in the Northeast.

Moreover, Soviet specialists have helped in the manufacture of farm machinery. For example, Soviet adviser Kucherov (K'u-tzu-lieh-cho-fu) helped devise and manufacture a single-animal, four-row seeding machine at the main plant of the North China Farm Machinery Factory.(2)

3. Animal Husbandry

Soviet specialists have been especially helpful in improving livestock. Teloydzuzhiy (T'e-lo-i-tz'u-chi) aided in the establishment of several tens of state-owned stock-breeding farms and in the training of 1,000 cadres to carry on this type of work. The Soviet technique of artificial insemination was applied at a state-owned stock farm in Ku-shan Hsien, Heilungkiang Province, in 1952 with outstanding results.

Soviet specialists Bondarenko (Pan-ta-lin-k'o) and Ivanov (I-wan-no-fu) have helped manufacture improved veterinary medicines, establishing nationwide regulations for producing and testing veterinary supplies. Through the use of various antiepidemic techniques, including the "K'o-lo-feng" vaccine for hoof-and-mouth disease, they have been instrumental in stamping out both rinderpest and hoof-and-mouth disease, which have been prevalent in wide areas in the past 2 years.

Soviet advisers Lushchenko (Lu-shen-k'o) and Malakhotonov (Ma-la-hot'a-no-fu) helped devise and install equipment for airplane dusting operations against locusts and have participated many times in insect control work at Huang-hua in H'peh Province and other localities. They have also undertaken applied research in cutworm control at the Shuang-ch'iao Experimental Farm.(2)

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## 4. Forestry

Advanced Soviet experience has been applied in the work of foresting some 1,350,000 hectares of land during the past 3 years. It is also being utilized in the newly initiated program of transforming nature, that is, the wind and sand shelter belts extending from several hundred to more than 1,000 kilometers in length in such areas as the Northeast, the Northwest, and along the coast of North Kiangsu Province.

The "sector inspection method" introduced by Soviet specialist Nenarokov (Nien-na-lo-k'uo-fu) has solved many difficult problems in the survey of China's forests. The amount saved by this method in inspecting 330,000 hectares of forest in the Northeast in 1951 was 6.9 billion yuan.

In the selection and cutting of timber, a number of Soviet techniques have proved of great value. In the Northeast Administrative Area alone, the resulting increase of lumber production in the past 3 years (October 1949 - October 1952) has been 700,000 cubic meters, an amount worth roughly 1,323,000,000,000 yuan. This lumber could build some 202,890 workers' residences.(2)

E. Water Conservation

Soviet specialist Bykov (Pu-k'o-fu) has made an outstanding contribution to China's water conservation program. He took the lead in planning and supervising the Ching-chiang water dispersal project. He has demonstrated a method of constructing locks which does not require the driving of piles; he has also shown how to construct sluice gates out of corrugated plate, in order to save steel. With his help, two locks measuring 330 and 1,000 meters were completed ahead of schedule on the Ching-chiang. The entire project required only 75 days.

The same Bykov, accompanied by Soviet adviser Chapayev (Sha-pa-yeh-fu), made a tour of inspection in 1952 of the reservoir project on the upper reaches of the Hwai Ho.(2)

F. Medicine and Health

At China's request, the Soviet government has sent a good many medical scientists to assist in disease prevention and in medical work.

In June 1952, the Soviet Red Cross Association founded the "Peiping Soviet Red Cross Hospital," with more than 30 Soviet doctors and nurses. Among the distinguished Soviet specialists at this hospital are its director Furakhov (Fu-lo-ha-lo-fu), its deputy director Yegorov (Yeh-kuo-lo-fu), its chief surgeon Voskresenskiy (Wa-szu-ku-lai-hsin-szu-chi), and a nurse, Mariya (Ma-li-ya). In addition to their hospital duties, they are training Chinese personnel for medical and public health work.

The Soviet Union has established five other Sino-Soviet hospitals at Port Arthur, Dairen, and other places.

Soviet advisers have provided expert guidance to the pharmaceutical supply industry. With the help of Vasil'yev (Wa-hsi-lieh-fu), China now has learned how to manufacture penicillin.

Various Soviet advanced therapeutic methods have been applied to good advantage at the First Military Medical College in Tientsin.(2)

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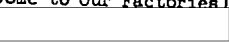



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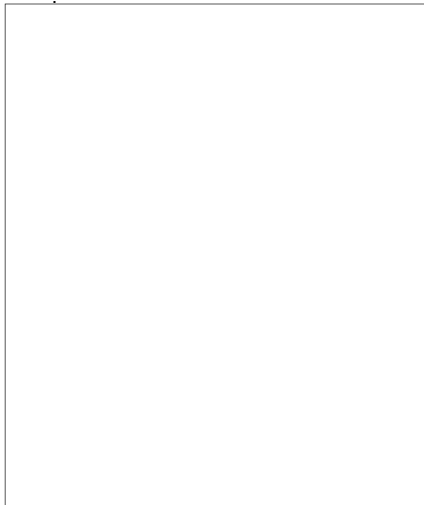
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1. Su-lien Chuan-chia Tao-liao Wo-men Kung-ch'ang (Soviet Specialists Have Come to Our Factories), Kung-jen Ch'u-pan She, Peiping, May 1951, 
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