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## EAST ASIAN HISTORY AND CULTURE REVIEW

### **The South Manchurian Railway Company and the Mining Industry: The Case of the Fushun Coal Mine**

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#### **Abstract**

Following the Japanese victory over Czarist Russia in the Russo-Japanese War and the signing of the Treaty of Portsmouth in 1905, the southernmost section of the southern branch of the China Far East Railway (Changchun–Port Arthur) was transferred to Japanese control. A new, semi-privately held company, the South Manchuria Railway Company (SMR, Mantetsu, was established with 85.6 percent capitalization by the Japanese government and foreign bonds to operate the railroad and to develop settlements (including highways, public health facilities, educational institutions,) and industries (coal mines, harbor facilities, electrical power plants, shale oil plants, chemical plants, and restaurants) along its route. SMR nonetheless emphasized railway and mining investment. The centerpiece of its mining interests was the Fushun Coal Mine. Starting in 1917, SMR began to prosper, with most profits coming from its coal mines, and it soon spun off subsidiary companies. In this sense, although the factors that influenced development of the Fushun Coal Mine in each period were different, this development still shows continuity of the business management.

Keywords: South Manchuria Railway Company (SMR, Mantetsu), Fushun Coal Mine, mining industry, Japan, Manchuria

#### **Introduction**

Victory in the Russo-Japanese War in 1905 enabled Japan to assert economic suzerainty over Northeast China. Japan thereupon organized the South Manchurian Railway Company (hereafter, SMR) as a means of developing the Northeast's rich resources and establishing a basis for Manchurian-Mongolian operations. The funding for the SMR's foundational period (1907–1914) came primarily from the Japanese government and foreign-issued corporate bonds, which together accounted for approximately 85.6 percent of its total funding. The company worked to develop railroads, shipping, harbor development, mining, electricity, natural gas, hotels, and

local construction initiatives (such as the building of municipal streets, sanitation facilities, educational institutions, and garrisons). At the same time, the SMR also conducted surveys. Railways and coal mining were two major branches of investment, and the Fushun Coal Mine (figures 1 and 2) was considered to be central to the mining industry. The SMR's first director-general was Goto Shinpei (the former Governor-General of Taiwan); the vice chairman was Nakamura Yoshikoto (previously departmental head of the Governor-General's Finance Department and General Affairs Department). Two additional trustees came from Mitsui Bussan. The make-up of the board of trustees was symbolic not only of the SMR's corporate, for-profit nature but also of the intimate connections between the SMR and Mitsui Bussan. The majority of the SMR's employees also came from Japanese officialdom, while the majority of "servants" (lower-level employees) and laborers were recruited from the low-paid local population of Northeast China (SMR 1919, 1–101; Kaneko 1991, 82–93). It was against this backdrop that the Fushun Coal Mine developed.

Fushun Coal was the SMR's central mining division. Before liquid or gas fuels had appeared or gained wide acceptance, coal was the main industrial fuel and the primary energy source for railway and shipping, as well an indicator of industrialization. For these reasons, it could be regarded as one of the sources of civilized life (Bain 1933, 37). By the end of the 1920s, coal accounted for 75.1 percent of the world's energy supply, with petroleum supplying 17.3 percent, and hydraulic power making up the remaining 7.6 percent (Usher 1947; Chuan 1972, 748). Conditions in Japan largely reflected this breakdown, except that exploitation of water power was more advanced. The most significant energy resources of the period were coal and water power, at 74 percent and 25 percent, respectively (Tōa Keizai Chōsakyoku (1933, 13–14).<sup>1</sup> Japan's natural resources were not abundant, but coal was relatively plentiful, and so, from the Meiji Restoration in the 1860s onward, the government vigorously promoted a variety of policies to encourage the coal industry, and both state-run and private enterprises in the cotton-weaving, railroad, and mining industries began to flourish. There was a marked growth in steel fabrication, with the result that demand for coal increased, and the scale of production in the coal extraction industry accordingly enlarged. The coal market was segmented according to the grades of coal required for motive power applications and coal used as a raw material. The coal that Japan produced domestically for use as a raw material was not sufficient to meet industrial demand (Sumiya 1968, 432–437), but coal used for motive power was still sufficient to export to China



Figure 1. Fushun Coal Mine, 1911. *Source:* Lushun Museum.

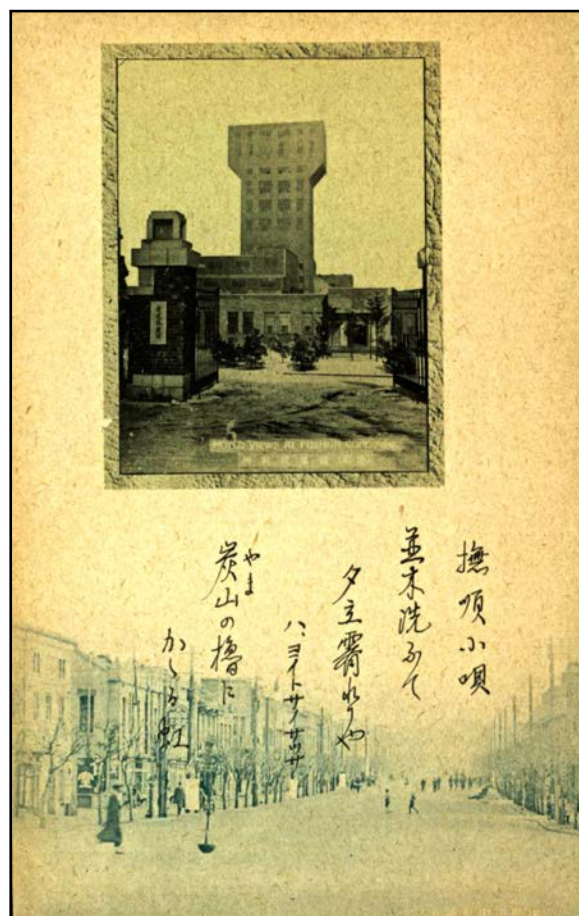


Figure 2. “Noted Views at Fushun Coal Mine.” Postcard printed by Kaigakenkyukai. *Source:* The collection of Mr. Jingye Xiao.

and Southeast Asia, and in large measure could resupply the international shipping vessels that were starting to appear with increasing frequency. In 1877, exports of coal used for motive power accounted for about one-third of national production, but by 1887 such exports would reach one-half. Thus, it could be said that, after the 1870s, Japan's coal industry had become the central player in the East Asian market (including fuel used by shipping as well as for conventional motive power applications).<sup>2</sup>

At the turn of the twentieth century, Japan's dominance in the East Asian market was beginning to be challenged by Chinese coal, in particular Kaiping Coal, which had British investment, and Fushun Coal, in which Russia had invested. The superior caking properties of Chinese coal meant that it was suitable for refining into coke used in ironworking, and imports into Japan gradually increased (Sumiya 1968, 369–370). Accordingly, an issue of great concern to the development of Japanese industry was how to control Chinese coal and make its production and distribution conform to Japanese demand. At the same time, Japan began to invest in China's mining industry in an indirect way via loans (Tōa Kenkyūjo 1942, 2–4, 163–164; Du 1986, 145).

By contrast, the Fushun Coal Mine can be considered a direct investment by Japan (Remer 1933, 68–69, 426–428). This mining area had been occupied by Japanese troops in 1905 and, as of April 1, 1907, had been expropriated by the SMR. SMR director-general Goto Shinpei regarded this mine as a significant source of revenue for the company early on, when preparations were under way to take it over, and thus he gave careful consideration to the mine's operations-level staffing. In January 1907 he hired an engineering graduate named Matsuda Takeichiro as head of mining in the company's coal division Goto Shinpei's intention was for Fushun to become a coal metropolis.”

Matsuda Takeichiro died in 1911 and was succeeded as head of mining by Yonekura Seiji. On existing foundations Yonekura introduced new technologies, improved facilities, and operated on a policy of achieving increased output and reducing costs, so that by 1916 the average daily coal extraction had reached 6,000 tons, a ninefold increase over the rates in 1907, when the mine was taken over (Yu 1926, 229–230).

This article analyzes the SMR's development trajectory over three periods, then investigates the profits from the SMR's mining operations and contributes to a better understanding of the role that the mine played within the SMR's investment network. The

mining division, of which the Fushun Coal Mine was the centerpiece, was second only to the railway division in terms of profitability. These became the two main pillars of the SMR's profits. The Fushun Coal Mine also made a great contribution to the operations of the SMR in the Northeast.

### **1. 1917–1920: Orientation to the Manchurian Market**

In the period before the First World War, Japan's industry was flourishing, and the new industries used coal as their main source of fuel. Both political authorities and capitalists thus not only expanded domestic coal production (increasing output from 1915 levels of approximately 20 million tons to more than 29 million tons by 1920) (Tōa Keizai Chōsakyoku 1933, 72) but also imported coal from Japan's colonies and foreign countries. Demand in Northeast China for Fushun coal also increased rapidly during this period. Figure 3 shows that the amount of coal consumed, both locally and by the SMR, increased from approximately 1.06 million metric tons in 1914 to 1.94 million in 1920. The share of total sales represented by local and SMR sales rose from 46.3 percent in 1914 to 73.9 percent in 1920. This was primarily due to the impact of the First World War on Northeast Chinese industry. Russia's relative weakness led to a complete stagnation of Russian investment in the Northeast, while Chinese investment continued to rise. In the areas along the rail line, there was significant growth in small-scale industries such as silk production and weaving, while in the southern portion of the Northeast there was a wartime boom in business, which peaked around 1919. Although there was considerable Chinese investment in this rising commercial activity, the majority of it came from Japan (Hori 1935; Kong 1986, 151–178). The main investment from Japan still came from the SMR, but private Japanese firms were active participants as well. Between 1915 and 1919, 605 local companies were established, with a total capitalization of 14,636 yen, a nearly eightfold increase over the 1914 levels. Industrial branches were the most notable here (Kaneko 1991, 912–913, table 4-10), constituting approximately 32.8 percent of the total.

Coal was used primarily in the industries of oil production, brickmaking, alcohol distillation, foundry work, and the production of cloth, machinery, matches, and sugar. By 1920 it began to play the role of both raw material and fuel source for the steel industry. Industrial steel production accounted for 25 percent of coal used in Northeast China, surpassing the proportion used for traditional oil production (14 percent) (Hori 1935; Okura 1950, 267).

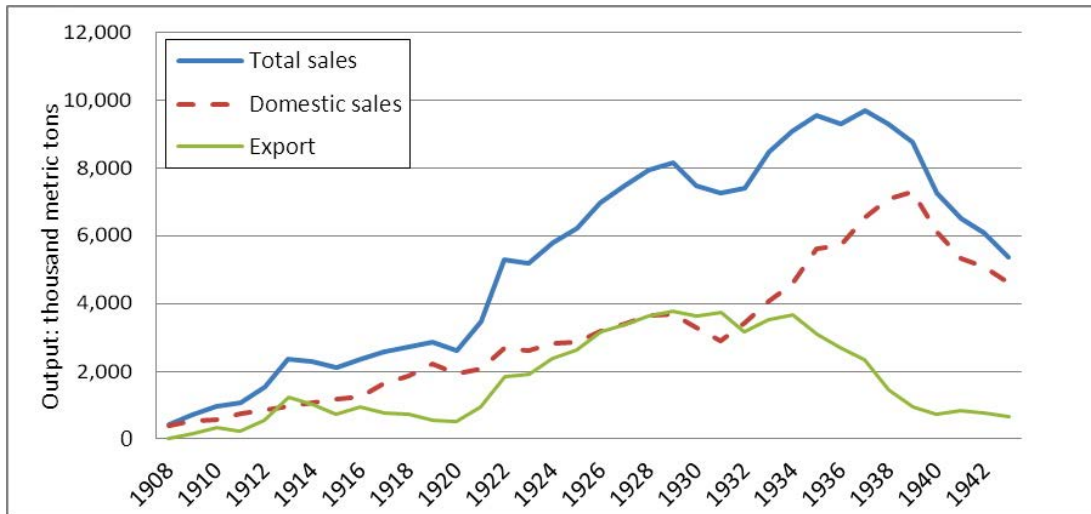


Figure 3. Fushun Coal Mine sales volumes (1908–1943). *Sources*: Xie (1987, 238–246, 437–439). Originally appeared in *Fushun Mine Statistical Yearbook* (1942, 132–133; 1943, 14–15).

Moreover, development of the SMR increased the demand for coal. Consumption of Fushun coal increased from 484,000 tons in 1915 to 990,000 tons in 1920, and accounted for 51.06 percent of domestic sales (“Fushun meikuang” 1935, 221–222). Between 1915 and 1919, the SMR focused investment in its railway, iron production, and coal mining divisions, allocating 13,812 yen to investment in railways. This amounted to 37.4 percent of the total (369.36 million yen) (Kaneko 1991, 222, table 5-4).

The SMR also provided investment in the form of loans to non-SMR railways, such as the Jilin-Changchun line (a Chinese government-run railway). SMR loans made up as much as half of the funding that the Jilin-Changchun Railway needed to operate (2.15 million yen), but the Chinese government continued to hold operating rights to the railway.<sup>3</sup> There was naturally an increase in the demand for coal in the development of the railway industry, amounting to about 96,000 tons in 1907, with a large increase by 1917, to 437,832 tons. By 1920, demand had reached 736,290 tons, 7.7 times the 1907 amount and 1.7 times the 1917 level (Hori 1935).

## 2. 1921–1931: Orientation toward Exports from Manchuria

Figure 4 clearly shows Fushun Coal’s leap in output in the 1920s. The output for 1922 was 2.62 times that of ten years before, and in 1927 a new record was set at 6.96 million tons, about 4.7 times the 1912 output, and constituting the leading share of national output at 28.79

percent. This was its highest point before the Mukden Incident of September 18, 1931. With regard to consumption, figures 3 and 5 reveal that:

- (1) Sales volumes showed a substantial increasing trend. By 1929, this had reached pre-Mukden Incident heights (approximately 8.16 million metric tons), an increase over 1921 levels of 2.35 times.
- (2) There was a marked increase in export volumes from Manchuria in this period, with a dramatic increase from 500,000 metric tons in 1920 to 3.78 million metric tons in 1929, its highest level ever, at 3.95 times 1921 levels.
- (3) Sales within Manchuria also increased, but not as quickly as export sales. Initially for this period, domestic sales volumes were greater than exports, but from 1923 onward they were exceeded by exports as well as by supply provided to the shipping industry. Before 1931, both of these accounted for up to 60.24 percent of total sales volumes.
- (4) Moreover, sales abroad and imports to Japan also showed rapid growth. As of 1921 they fell just short of 300,000 metric tons, but they increased dramatically by 1929 to 1.887 million metric tons, or 49.88 percent of total sales abroad. The SMR management's objectives of making the Fushun Coal Mine supply Japan's domestic needs had obviously succeeded.
- (5) In addition, shipments to various locations in China and Southeast Asia gradually increased. After 1925 there were increases between 1.14 and 1.54 million metric tons annually, accounting for upward of 31 percent of total exports. However, the increase in exports to Korea was quite limited.

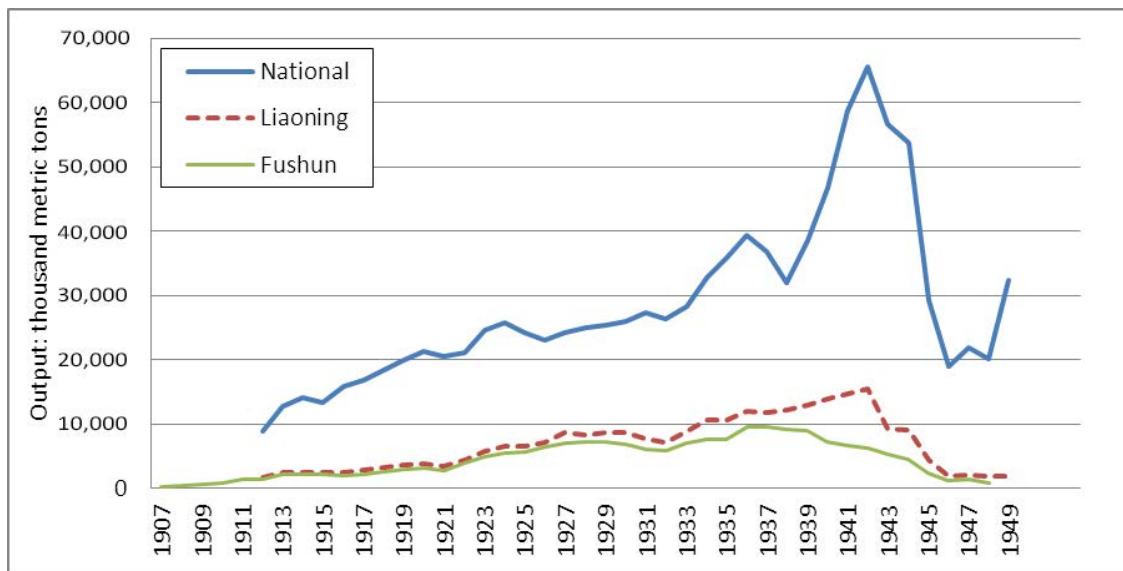


Figure 4. Fushun Coal Mine output (1907–1949). *Sources:* Ding and Weng (1921, 26–27); Xie (1924, 14–15); Hou (1929, 228; 1932, 31–39; 1935, 41, 43–47, 54–55, 64–65); Bai (1945, 49–50), *History of Coal Mining in Modern China* Editorial Board (1990, table appendices 1, 2); Yu (1926, 229–230); “Fushun meikuang” (1935), SMR (1927, 185–186; 1981, 368–369); SMR Foundation (1986, 372).



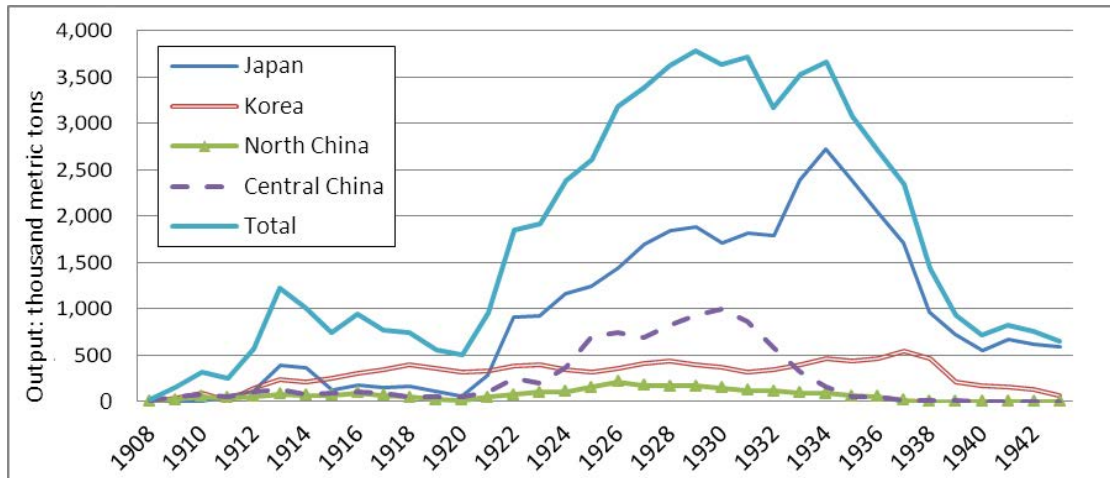


Figure 5. The export market for Fushun coal (1908–1943). *Source*: Xie (1987, 246, 438).

Development of the Fushun Coal Mine was obviously stimulated by the rise in exports, and the major recipient of these exports was Japan. After the First World War, the structure of Japan's economy was facing the challenges of transformation. The end of the war meant the end of the economic development brought by linkages of trade to maritime transport, shipbuilding, and the steel industry. In March of 1920 there was a steep fall in share and commodity prices, and the maritime shipping and shipbuilding industries experienced a slump that lasted through the 1920s. Although there was a decrease in steel demand, owing to the limited production capacity of Japanese steel, supply did not meet demand, with the result that there was still a partial reliance on imports. A consortium, led by Japan Pipe Co. Ltd. (founded in 1912), of private steel companies and the state-run Yawata Steel Works, sought a way to improve equipment and lower the cost of raw materials. One of the consortium's strategies was to import the pig iron produced in Northeast China by the Anshan Steel Co. (Hashimoto and Takeda 1992, 111–117; Nakamura and Odaka 1989, 107–112). This was one of the industries operated by the SMR, and the raw materials needed for fuel and smelting in the form of coke were supplied by the Fushun Coal Mine.

The most important public utility in the first half of the 1920s was electrical power, which had its origins in the rise of urbanization and heavy industry that took place during the First World War. Within industrialized zones, rising demand led to electricity shortages and rising electricity costs. Japan, like Europe and the United States, invested in developing large-

scale hydroelectric projects and high-capacity, long-distance, high-voltage lines. It imported power-generating material and equipment, but it also substantially expanded its fired power plants, with the result that the demand for coal substantially increased. By the latter half of the 1920s, the advanced production technology introduced by foreign investment had already shown its effectiveness. Manufacturers of electric machines were then able to produce cheaper electric motors and generators that replaced those that were imported, indirectly reducing the cost of electricity (Nakamura and Odaka 1989, 37–41, 101–105).<sup>4</sup>

The large demand for coal from the coal-fired electrical generation powering industrial development led to a significant increase in extraction, but production had decreased in all of Japan's coal fields, with most of the major ones (in Kyūshū and Hokkaidō) past their prime. Coal production was an industry of diminishing returns. Individual mines had a limited productive capacity, as the costs of production gradually rose. Coal prices were also subjected to limitations after the 1921 establishment of the Coal Mining Federation and could not be reduced, which caused Japanese coal to become more costly than imported coal. The result was that by 1923, coal imports began to exceed exports. The main imports came from Fushun, making up approximately 60–70 percent, a voluntary limit negotiated between the SMR and the Coal Mining Federation to protect the Japanese coal industry (Tōa Keizai Chōsakyoku 1933, 79–81, 91–95, 289–291).

Another major consumer market for Fushun coal was China proper. China continued to be Japan's largest consumer market for coal. Before 1921, it accounted for about 35 percent of Japan's average total annual coal exports. After that point, although exports decreased, the 1917–1921 average total export volume to China was approximately 850,000 metric tons, increasing to an average of about 1.23 million metric tons between 1922 and 1931. Thus, China's share of total export volume leaped from 36 percent to 61 percent (Tōa Keizai Chōsakyoku 1933, 90–92). On closer examination, a marked decline in exports to China can be discerned in the period after 1926 (Tōa Keizai Chōsakyoku 1933, 90–91, table 34). Within the Chinese market, the period from 1912 to 1920 saw imports of Japanese coal (including from Taiwan) making up more than 72 percent of China's total import volume, which thereafter began to decrease, so that between 1928 and 1931 Japanese coal imports averaged only 54 percent of total import volume (Cai 1933).<sup>5</sup>

By contrast, as shown in figure 5, shipments of Fushun coal within China and to Southeast Asia greatly increased. In 1921, 170,000 metric tons of Fushun coal flowed into China, which by 1931 had increased to approximately 1.37 million metric tons, an eightfold increase (Hou 1932, 437–438). Japan's increased demand for coal in the 1920s to serve its coal-fired electrical generators and its industrial development faced increasing limits on domestic output. As it actively imported from overseas, import volumes exceeded exports, but to protect the vested interests of domestic industry, it continued to set up hurdles limiting import volumes of Fushun coal. Thus, Fushun coal replaced Japanese coal as it expanded into other overseas markets, taking up the slack of Japanese supply. From this perspective, Fushun coal supplied not only the Japanese domestic market and local Northeast Chinese demand, but also expanded into overseas markets, becoming a major link in the empire of Japanese coal.

Moreover, in the 1920s, from a commercial point of view, the export products of the Fushun Coal Mine were second only to soybean exports; coal and coke export volumes made up approximately 9 percent of total Northeast China exports, and 95 percent of exported coal came from Fushun. To control this export market the SMR collaborated with various corporate conglomerates, such as Mitsui, which had originally commissioned Fushun's coal exports, and Mitsubishi, the Nozawa Group, and the Nansho Yanghang Co. (SMR 1919, 625). The SMR was the direct dealer for a large number of local coal consumers as well as shipping operators (SMR 1981, 445). In 1912, the SMR and the Mitsui Co. reached an agreement by which Mitsui would retain exclusive control over the domestic Japanese and overseas market for Fushun coal.<sup>6</sup> By April 1923, the Fushun Coal Dealers Association was established, dedicated to transporting Manchurian coal to the Japanese market, as well as handling commerce in the local Korean domestic market. Exports to other regions were to be handled by Mitsui Co., Nanchang, Taishun, and Mitsubishi (SMR 1981, 445–446). Additionally, Mitsui reached an agreement in 1914 with the Kailuan Mine, giving Mitsui a monopoly on Kailuan traffic.<sup>7</sup> The following year it bought a large amount of stock in the Kailuan Mining Administration.<sup>8</sup> This established the tripartite alliance of Fushun, Kailuan, and Japanese coal. An agreement was also made with competitors Mitsubishi and Furukawa Co. that offered compromises to them.<sup>9</sup> In 1918 Mitsui began a joint venture with businessman Yan Yunnian of Taiwan and established the Jilong Mining Co. in Taiwan (Chen 1993). The following year, an agreement was reached regarding coal from Taiwan and Kailuan on the Shanghai market.<sup>10</sup> In October 1925 the Mitsui Co. again purchased shares in

the Fushun Coal Dealers Association via the Nanchang Co.<sup>11</sup> Thus, the SMR and Mitsui, by means of international agreements and investments, fulfilled their goals of controlling the Asian coal market, and no longer had to lower prices due to their mutual competition. This not only promoted foreign sales of Fushun coal; it also established Mitsui's position at home and abroad as a stable and highly profitable company. Cooperation between the Fushun, Mitsui, Mitsubishi, and Kailuan companies persisted until the Mukden Incident of September 18, 1931, and the Shanghai Incident of January 28, 1932. There was a fast-growing movement within China to reject Japanese goods, and when Kailuan announced that it was going to withdraw from the agreement, the cooperative relationship finally came to an end (SMR 1981, 453). Within Japan, the Fushun Coal Dealers Association in 1926 began to make agreements with the Coal Mining Federation to limit imports of Fushun coal (Tōa Keizai Chōsakyoku 1933, 291). This was a voluntary setting of limits to prevent Fushun coal from threatening the survival of domestic coal producers in Japan. After the Mukden Incident, due to the abrupt change in Chinese diplomacy, the agreement had an impact on the issue of market allocations between Japanese coal and Fushun coal, and this was a critical challenge.

### 3. 1932–1945: Preponderance of Domestic Demand

After the Mukden Incident in 1931, the state of Manchukuo was set up, and Japan intensified its control over the economy of Northeast China. After the Marco Polo Bridge Incident of July 17, 1937, two “Five-Year Manchuria Industrial Development Plans” (for 1937–1941 and 1942–1946, respectively) were drawn up, intended to develop the resources and industries of the Northeast. Since coal was the primary source of fuel, the Fushun Coal Mine's operations had to adapt to the policies of the Japanese authorities (chiefly the Kantō Army).

But, as figure 4 clearly shows, although the Fushun Coal Mine was one of the central players in the Five-Year Plan, and though its output increased from 1933 to 1936, by 1937 its output began to decline. In 1944 it produced only 4.51 million metric tons, just 47 percent of 1936 levels, and 74 percent of the volume for 1931. The Fushun Coal Mine was not able to increase production as expected during the war years, and even showed a decline, which had an impact on China's ability to achieve the Manchukuo Five-Year Plan. In an analysis of the mining authority in 1940, the mining district was facing the following bottlenecks (Xie 1987, 401–406).

*(1) Difficulties in technology improvement*

In the course of its extraction operations the Fushun Coal Mine gradually began to penetrate to deeper layers, with an attendant increase in the amount of natural gas that was released. Sometimes this led to accidental explosions, and new ventilators were needed on a large scale to improve existing ventilation equipment. Moreover, belowground extraction methods were extremely limited due to the lack of progress in mechanization of coal mining. The inability to make progress in extraction machinery made further breakthroughs very difficult. Additionally, after 1936 the average efficiency rate per miner gradually began to decline. In that year average daily production was 1.96 metric tons per mine; by 1938 this had decreased to 1.39 metric tons; and in 1939 it declined even further, to 0.90 metric tons, only 4.6 percent of 1936 levels.

*(2) Insufficient labor supply*

The decline in productivity was intimately related to the lack of skilled labor. The period saw a marked increase in the demand for labor owing to the development of various Manchurian industries, the extension of production operations in the Fushun Coal Mine itself, and the expansion of the Manchurian coal industry. The labor market could not meet demand. As conditions underground in the Fushun mineshafts worsened, skilled labor was transferring to other companies. The skill level of the “high-grade workers” began to fall as other workers began to circulate more freely within the company, including “low-grade workers” deficient in skills and relatively mobile “servants” able to work for long periods. This decline in the skill level of the top echelon of workers led to a reduction in coal output.

*(3) Inability to acquire equipment and materials*

The inability to procure equipment and materials after 1939 delayed the laying of track necessary for the exploitation of deeper seams, and commodities such as nails and wire could not be delivered to the market in a timely manner. Not even Manchuria’s own coal trains could be sufficiently provisioned, which affected work productivity.

The insurmountable problem of labor shortages and inadequate equipment meant that the depth of underground extraction had reached a limit. Fushun’s open-pit mining sites (Guchengzi,

Yangbopu, Nanchang) were always regarded as natural stockpiles to be exploited whenever needed, and this was the reason for Fushun Coal's rapid rise in output after the Mukden Incident, to which the open-pit sites contributed in no small measure (figure 6). But this changed after the 1937 Marco Polo Bridge Incident. In general, in the period leading up to that point, from 1933 to 1937, among the mines operated by the Fushun Coal Mine—including Fushun, Yantai, Jiaohe, Laotougou, and Wafangdian—about 96 percent of total production came from the Fushun mine, with only 4 percent coming from outside. Open-pit mining contributed 53 percent of this total. After the Marco Polo Bridge Incident, Fushun's production showed a clear decrease, and 1942 output was a mere 73 percent of what it had been before hostilities broke out, constituting 76 percent of total output. On the other hand, outside production of coal dramatically increased. In 1942, output there was 5.18 times what it was before the incident, and the share of outside production had thus risen to 24 percent of total coal output. The open-pit mines in the Fushun area suffered the most severe production decreases. Before July 7, 1937, they were producing 4.86 million metric tons, decreasing to 4.08 million metric tons by 1938. The subsequent year, although there was a slight increase, dramatic declines followed: 3.01 million metric tons in 1942, about 62 percent of the prewar average, just 36 percent of total output (Xie 1987, 420, tables 3 and 4).<sup>12</sup>

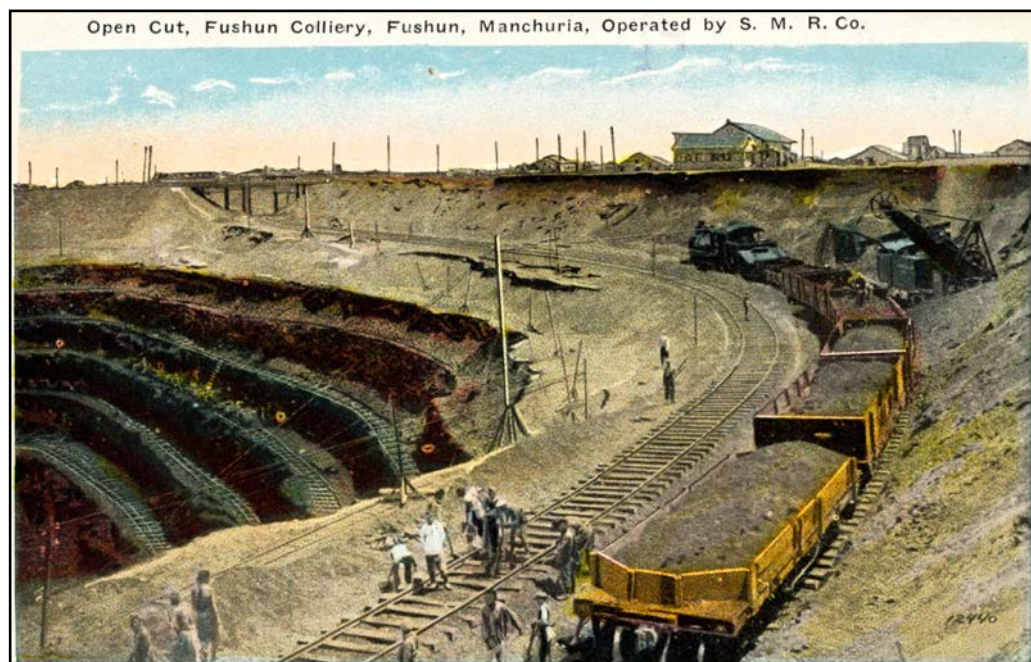


Figure 6. “Open Cut, Fushun Colliery, Fushun, Manchuria, Operated by S. M. R. Co.” The Eagle Postcard Co., New York. *Source*: The collection of Mr. Jingye Xiao.

The decline in productivity of open-pit mining was due to excessive excavation prior to the opening of hostilities with the 1937 Marco Polo Bridge Incident. Contemporary reports state that, in the reasonable operation of an open-pit mine, a fixed ratio should be maintained between topsoil and rock that is stripped and coal that is extracted. In balanced development there should be a ratio of 1 metric ton of extracted coal to 5–7 cubic meters of stripped soil and shale. This ratio would increase year by year, owing to the coal seam's situation at an incline. After the July 7 incident and the spread of war, there were difficulties procuring equipment and maintenance material; manpower resources were insufficient, and the time needed for rail transport to haul rock and sand from the gravel pits kept growing, often delaying the work of stripping. Capacity for coal production declined in this context of imbalance between stripping and extraction (Xie 1987, 421). For example, in 1941, 12 million cubic meters were stripped, reaching only 73 percent of the planned amount, but the volume of coal produced was 3.05 million metric tons, or 105 percent of the amount planned (Xie 1987, 408), at 3.93 cubic meters stripped per metric ton of coal, as compared with the 5.69 cubic meters specified in the plan. A distinct imbalance thus emerged between surface extraction and operations and extraction preparations.

As expected, the problems of an insufficient workforce and difficulty procuring machinery proved insoluble when the second Five-Year Manchurian Industrial Development Plan (1942–1946) was embarked upon. It was accordingly revised. The original planned volume for the Fushun Coal Mine in the first year (1941), including Fushun and other areas, was 8.87 million metric tons, but given that Fushun was then in the process of extraction at deeper levels, among other limitations, a plan was formulated for producing an actual 8.5 million metric tons (Xie 1987, 417). As a result, the mining authority only achieved 94 percent of the goal outlined in the Five-Year Plan, and 97 percent of the plan was actually executed. The Fushun mining area only completed 89 percent of the Five-Year Plan's quota, with Yantai and Jiaohe at 104 percent and 131 percent, respectively (Xie 1987, 423).<sup>13</sup> This substantiates the abovementioned divergence in production trends between Fushun and other areas.

By 1943, with labor and supply problems continuing to be intractable, the Fushun mining district was facing the spread of infectious disease (cholera). The Yantai mining area was also plagued by natural gas explosions. Both areas had no choice but to reduce production, but both sites still reached 77 percent and 99 percent, respectively, of their targets as laid out in the plan. By contrast, the Jiaohe mining area was able to exceed the production quotas set by the plan, by

134 percent. But owing to the severe reduction in Fushun coal and the unrealistic planned increase to 9.2 million metric tons (Xie 1987, 413, 419),<sup>14</sup> the total production volume (7.5 million metric tons) only reached 81.5 percent of the projected target.

After that point there was a steady deterioration, despite the fact that the SMR's managing director, Kohiyama Naoto, after inspecting the Fushun Coal plant, convened a conference to discuss coal operations. He recommended that, given the critical wartime shortages, stronger concepts of time management must be imparted at all organizational levels. To increase efficiency, strict time management must be implemented. He also stipulated that Japanese employees set an example, take initiative in going down into the mines, and intensify indoctrination of Manchu workers in the concept of "service for the public good" (Xie 1987, 422).<sup>15</sup> In the end, however, there was a limit to the workload that could be assumed by the workforce, and given the deterioration of existing objective conditions (insufficient material, poor ventilation, increase in natural gas emissions, etc.), the actual output for 1944 (6.34 million metric tons) was only 65.7 percent of the planned amount (9.65 million metric tons). Fushun's contribution was a mere 60 percent, and Yantai and Jiaohe showed 77 percent and 90 percent, respectively (Xie 1987, 423).<sup>16</sup> From this it is clear that the second Five-Year Manchurian Industrial Development Plan was overly optimistic. The targets for the first year were not met, and yet there was still a plan for increased growth at an annual rate of 4–5 percent. The mining industry by its very nature involves a diminishing return on initial investment, and even as early as 1938 a report appeared stating that shortages of mining personnel, difficulties in equipment procurement, and a decrease in the number of qualified foremen would be factors to be dealt with in the political situation of the time. It was only at the closing of that year of the first Five-Year Plan that Fushun took responsibility for 93 percent of coal output (Xie 1987, 399–400).<sup>17</sup> But in formulating the second Five-Year Plan, the harsh conditions of the time, unfavorable to production, were ignored, as before. At 8.87 million metric tons, the projected output of the first plan year, 1942, exceeded by 2.16 million metric tons the actual output of the fifth year of the first plan (1941), which was 6.71 million metric tons, an increase by a wide margin of 32 percent. Moreover, even though 1942's actual output (8.33 million metric tons) reached 94 percent of the plan's target, and increased outputs were then predicted, actual performance declined afterward. Fushun's production line ultimately fell off at the end of the war.



Figure 3 shows that development of heavy industry in Northeast China led to heavy demand for coal as a fuel source, with a consequent dramatic increase in Fushun's domestic sales. Fushun's domestic sales consistently exceeded foreign sales as a proportion of total sales, and the gap between the two continued to grow. Figure 5, however, clearly shows the changes in the foreign market—that is, Fushun coal was being exported to Japan, with increasing flows to Korea, but exports to China showed a marked decline. This implies that the Fushun Coal Mine's operations had the character of serving wartime aims under this system of tight economic control.

#### 4. Profitability of the Fushun Mine to the SMR

In the end, as a “Japanese company in China,” what proportion did the Fushun Coal Mine contribute to the SMR's total operational profits? Generally speaking, the SMR's business activities included railroads, mining, harbor development, electricity, natural gas, shipping, hotels, and local construction. From 1907 through 1916, total profits were 5.51 million yen, of which the railroad division's receipts reached upward of 116.38 million yen (SMR 1919, 936–938). Mining profits amounted to 16.68 million yen (the metalworking industry is not included, as these profits were subsumed under the coal industry). But due to losses in the divisions of shipping, hotels, and local construction, and interest payments on corporate bonds (SMR (1919, 936–943), their total profits did not approach even half of those of the railway divisions.<sup>18</sup>

By the period from 1917 to 1920, the railway division had unsurprisingly become the SMR's greatest source of profit, as can be seen in figure 7. Annual profits continued to rise, from 23.6 million yen in 1917, to 48.56 million in 1920. Growth of the mining division accelerated as well: in 1920 it drew 11.37 million yen, a more than twofold increase over 1917 figures. Deficits in the Anshan steelworks as well as in the hotel and local construction businesses meant that their total share of SMR profits continued to be lower than those of the railway and mining divisions. But 1920 had shown an increase over 1917 levels by 83.5 percent, and the four years of profitability between 1917 and 1920 were 1.6 times the total profit of the formative period of 1907–1916. In this period the mining division's profits were more than 2.2 times that of the formative period. But the railway division was 1.2 times less profitable. In other words, the mining division grew faster than every other industrial division operated by the SMR, including its rail division. And at the center of the mining division was the Fushun Coal Mine.

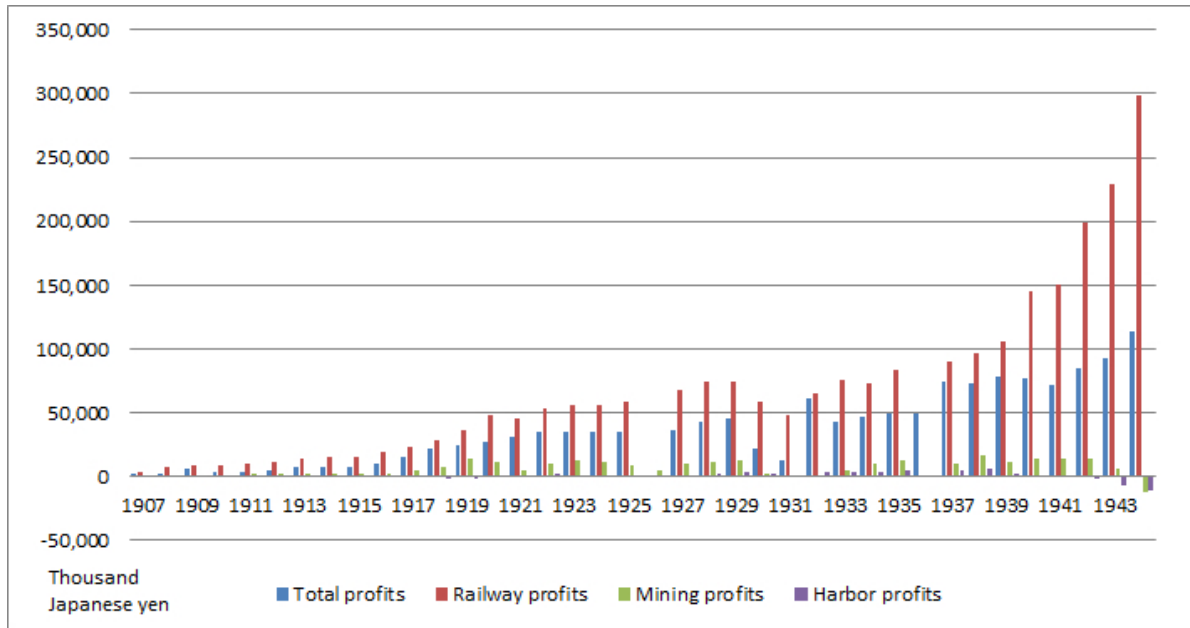


Figure 7. Evolution of SMR operational profits (1907–1944). *Sources*: SMR (1927, 102–104, 150–151, 362–363; 1981, 714–720); SMR Foundation (1986, 567–568).

In the export-oriented period, a diversity of markets meant that profits for the mining companies run by the SMR could grow quite rapidly. Figure 7 shows mining industry profits reaching 89.91 million yen. If, despite the worldwide economic depression and the “Showa Panic” that arose in 1930 and 1931,<sup>19</sup> the year-average profit was approximately 9.79 million yen in the 1920s. As before, the two mainstays of business profits in that period were the railroad division and mining. By 1930 the mining division’s profits were only 14.8 percent of the prior year, but the railroad division was up by 72.8 percent. The situation in 1931 was largely similar, and so with regard to profits, the railroad division became more important. As for profitability, not only did the railroad division take in more receipts, but its outlays decreased as well, maintaining a rate of around 27 percent (Kaneko 1991, 395, table 8-11).

Because transport of the mining industry’s coal products relied on railways, investment by the mining industry in the railroad division contributed to the latter’s profitability. In the 1920s both revenue and expenses continually rose for the mining division, though profits were only approximately 13.7 percent of those in the railway division; by 1930 they were only 3 percent. Profitability was about 5 percent, half that of the years 1927–1929, and much lower than the railway division’s (Kaneko 1991, 232).<sup>20</sup>

It is useful to analyze the proportion of total investment by the SMR in mining during this period. From 1920 to 1930, total investment reached 372.71 million yen, with mining occupying a mere 8 percent of that figure (29.74 million yen), which was much lower than the 1910 level of 23.9 percent. The railroad division was still in the top-ranking position, with a share of 35.4 percent (132.11 million yen), and harbor work took second place at 14.2 percent. The decrease for the mining division was mainly due to the SMR's greatly expanded investment in the areas under its control, a proportion that jumped from 7 percent in the 1910s to 40.3 percent in the 1920s (150.31 million yen), almost outmatching the railroad division (Kaneko 1991, 381, table 8-5). These investments were mainly for the purposes of acquiring municipal land, planning, coordinating water sources, and building hospitals and schools (Kaneko 1991, 390).<sup>21</sup> This may emblemize the many roles played by the SMR's business operations, and it may reflect the development of Japanese imperialism in Northeast China. These investments by the SMR were made to fulfill its obligations as a "company following national colonial policy." Based on this "divine" mission, the SMR used its export orientation strategies in its operation of the Fushun Coal Mine (figure 8) and used it to stop the gaps in the edifice of the "Japanese coal empire."

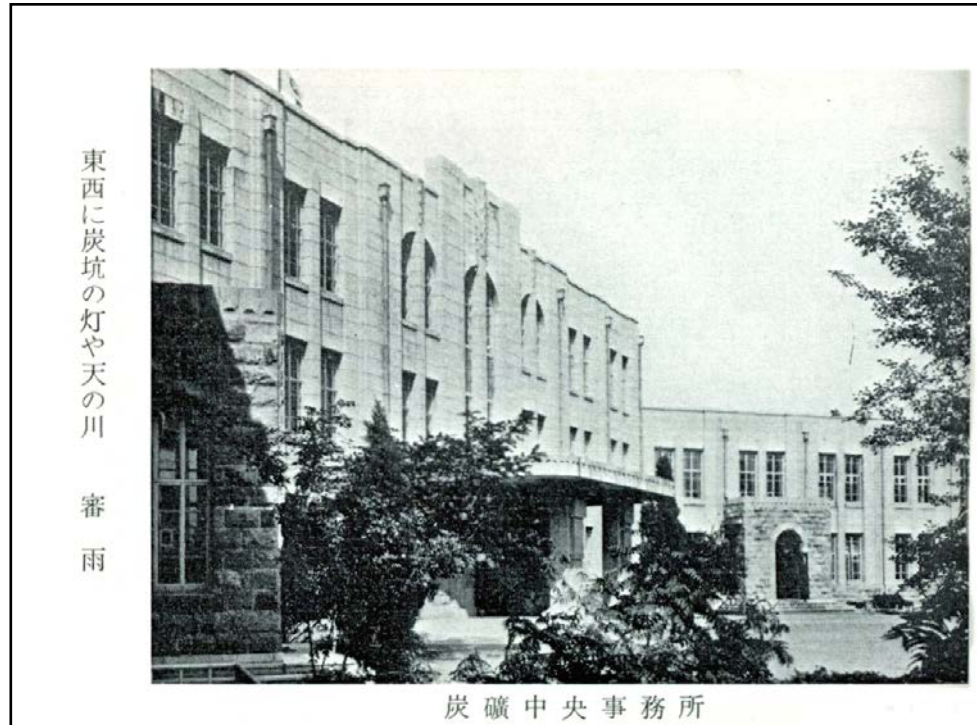


Figure 8. Central Office of Fushun Coal Mine, 1943. *Source*: SMR Tokyo Fushun Association.

After the Mukden Incident of September 18, 1931, changes occurred in the SMR's business profits. In 1931 the railway division's revenue constituted 50 percent of the SMR's total revenue. Income from coal was 32.8 percent. Although the ratio of railroad income to mining income showed a gradual declining trend, there was no decline in absolute terms. This was because, for the other business divisions (such as harbor development), the Mukden Incident was a turning point: business performance started to take a turn for the better. This was why the railway and mining divisions showed a relative decline. By 1937 railroad revenue made up 42.5 percent of gross revenue, its expenses constituting only 21.8 percent of the SMR's gross expenses. Pure profit thus rose to 89.71 million yen (Xie 1987, 453–455), an increase over 1931 of 1.86 times. The mining division's pure profit was 10.51 million yen in this same period, 618 times what it was in 1931 (the low profits of that year, however, should be treated as an exceptional case). But it was still lower than 1929's 12.28 million yen. In 1938 the ratio between the profits of the railway division and those of the mining division was 83:17. After that year, the railroad division's profits increased rapidly. The mining division did show an increase in revenue, but the expansion in facilities for oil production, coal liquefaction, steel production, and related vertical industries led to annual increases in expenditure. Thus, taken as a whole, mining division profits showed a marked decline relative to those of the railroad division; for example, in 1941, mining profits were only 10 percent of railroad profits, and the profit ratio between the two divisions was 94:6 by 1944 (SMR Foundation 1986, 406–407). This is admittedly owing to the critical state of the political situation, but it can also be regarded as reflecting the “national policy” of providing an ample supply of fuel resources, for which the mining division paid an extremely high price.

Indeed, transport of the mining industry's coal products relied primarily on railways, and consequently the Fushun Coal Mine did contribute to the profits of the SMR's railroad division. Of the quantity of freight transported by railroad, a large amount included agricultural commodities (such as soybeans) and coal. When industrialization in the Northeast was proceeding by leaps and bounds, coal demand soared, and rail transport became indispensable. Thus, coal transport volumes gradually increased from 1933, and of the total freight volume for 1936, coal accounted for 37 percent, with agricultural commodities at 17 percent and lumber at 6 percent. Steel and equipment accounted for about 10 percent (SMR Foundation 1986, 208). War made the sale of soybeans impossible, and transport from the point of origin to the ports was

greatly reduced. Furthermore, allocation of agricultural products and cereals was controlled, and distribution to markets decreased.

On the other hand, because Manchurian industry continued to grow, the demand for fuel increased, to the point that a “coal famine” broke out. Increasing production and distribution seemed like an order sent from on high. The SMR in March of 1941 convened the affiliated railway offices in Jilin, Mudanjiang, and Jinzhou into a general Railway Administration, and together with the Fushun Coal Mine and the Japan-Manchukuo Commercial Association (a company formed in 1936 exclusively to manage the domestic sales of Fushun coal), held roundtable discussions on coal shipping, and exerted great efforts to promote increasing shipments of coal (SMR Foundation 1986, 206–207). The increase in shipping volume of commodities for military use is also striking. In 1937, this comprised 13.9 percent of total shipping, a figure that increased to 34.5 percent in 1941 (SMR Foundation 1986, 208).

With regard to the shipping fee structure, owing to the increase in the production and sales of coal, on May 1, 1937, the shipping fees for coal and other mining products were greatly reduced (a pricing strategy with graduated reductions for long distances) (SMR Foundation 1986, 218–219). Thus, the proportion of coal shipment revenue to total revenue collected from rail transport fees stood at 25 percent (Xie 1987, 459), but in the following year the proportion of revenue from mining products (including coal) was only 20 percent, declining to 19.1 percent in 1941. The proportion of commodities intended for military use, however, went from 2.1 percent in 1937 to 14.2 percent in 1941 (SMR Foundation 1986, 208).

Of the coal referred to in this article, there were other producers outside of the SMR system, such as the Manchurian Coal Corp. (founded in 1934) and the Benxihu Colliery. But Fushun coal was always central to the SMR’s coal shipment revenue system, accounting for approximately 80 percent of total freight revenue (Xie 1987, 459). The contribution of the Fushun Coal Mine to the operations of the rail division can be seen in the profits earned by the Fushun Co. itself, and in the importance of the fuel it provided.

## **Conclusion**

The development of the Fushun Coal Mine followed a pattern typical of Japanese direct investment in China (Remer 1933, 426–428). Internal factors were, of course, important in this development. But the economic environment of Manchuria and Japanese economic policy were

also important, as was the impact of the geopolitical situation on the coal industry. By the 1920s the Fushun Coal Mine was rapidly becoming the primary source of coal imports, as Japanese industrialization spurred coal demand. But Japan limited coal imports from Fushun to protect its own domestic industry. Fushun instead turned to expanding its Chinese and Southeast Asian markets. But from the 1930s onward, due to the political situation, it began to play a decisive role in the tightly controlled Manchurian economy, providing the fuel needed by heavy industry.

The Fushun Coal Mine provided fuel and coke to the SMR-run Anshan Iron Mine, which produced the pig iron and iron ore that became indispensable to the Japanese steel industry. In other words, as the SMR expanded its network of investments in Northeast China in the early part of the twentieth century, the local economic relationship with Japan began to transform. What for Japan had originally been a source of grain and fertilizer gradually became a supplier of resources (coal) and industrial raw materials (pig iron). It also became key to the area's "self-reliance." The major factor in the transformation of these economic relationships was the Fushun Mine's coal production and its increased export shipments to Japan.

To enact these transformations, the SMR authorities expended no small amount of effort on attracting new technologies and equipment, and on trying to turn traditional Chinese coal mining into an enterprise that constantly grew, through trial and error. The SMR's investment in municipal streets, housing, and hospitals attracted large numbers of people to the area.<sup>22</sup> This industry turned Fushun into a large-scale "coal metropolis," providing a major impetus to the industrialization of the Northeast. The Fushun Coal Mine also contributed greatly to the operations of the SMR in the Northeast. Since the start of the twentieth century, the SMR's business operations have included the divisions of railways, mining, harbor development, electricity, natural gas, shipping, hotels, and local construction. Shipping, hotels, and local construction divisions were, for the most part, not profitable. But the mining division, of which the Fushun Coal Mine was the centerpiece, was second only to the railway division in terms of profitability. These became the two main pillars of the SMR's profits. In this respect, although there were different factors in various periods that influenced the Fushun Coal Mine's development, its operating philosophy was in no small measure controlled by the political authorities. This gave the appearance of developmental continuity within a single coherent enterprise.

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### Notes

- 1 Petroleum and lignite, which is relatively less calorific and contains much ash, constituted approximately 1 percent.
- 2 Sumiya (1968, 185–187). Coal produced at Kyūshū was also a major export.
- 3 See “Zai-Chūgoku Yamaza Kōshi yori Makino Gaimu Daijin ate (Chōshun, Tōnan, Nekka Tetsudō Fusetsu Keikaku ni kanshi iken jōshin no ken) Kimitsu dai 290 gō, Taishō 2 nen (1913) 8 gatsu 13 nichi, Tōan-hengō 585” [A written statement regarding the project of the Changchun, Taonan, Rehe railway construction by Minister-Counselor to China Enjiro Yamaza addressed to Foreign Minister Nobuaki Makino, Confidential Document No. 290, dated August 13, 1913, File No. 585], in *Gaimushō* (1964, 678).
- 4 I discuss the development of the many electricity-consuming industries brought about by the spread of electric power and electric motors (such as the fertilizer industry and the rayon industry) elsewhere. In this period, too, the automobile industry and oil refining were not yet objects of foreign investment.
- 5 The Japanese coal referred to here includes coal from Taiwan—thus, the inconsistency with note 21 regarding the records for domestic Japanese coal.
- 6 See Mitsui Co. Board of Directors (1910). In the 1910 meeting, Mitsui Products, which had a durable monopoly on the overseas coal market, reached a compromise with the SMR and planned to take control of the Kaiping Coal Mine, a British property.
- 7 See Mitsui Co. Board of Directors (1914); *Daigokai Shitenchūkaigi Gijiroku* No. 198-5 (1917, 286); Mitsui Foundation Historical Documents (1980, 74).
- 8 See Mitsui Co. Board of Directors (1915; 1917; 1919); Mitsui Foundation Historical Documents (1980, 74).
- 9 See Mitsui Co. Board of Directors (1917, 286); Mitsui Foundation Historical Documents (1980, 74).
- 10 See Mitsui Co. Board of Directors (1919, 29); Kasuga (1978).
- 11 See Mitsui Co. Board of Directors (1925). In addition, Mitsui also had exclusive rights to sell to Vietnam Hongji Coal.
- 12 For detailed data on the output of each mine, see SMR (1981, 368–369) and SMR Foundation (1986, 370–371).
- 13 The Laotougou mining area had 76 percent and the Wafangdian area had 85 percent, however.
- 14 There were production increases in the Laotougou mining area, where 80 percent of the projected target was attained.
- 15 The original file is in the possession of the Fushun Mining Bureau Archives, series 8-386, Coal-General, no. 52.
- 16 The Laotougou mining area reached only 58 percent of the plan target.
- 17 Original file held by the Fushun Mining Bureau Archives, series 8-5, no. 55.
- 18 A separate paper will address the issue of profitability of the SMR’s other divisions.
- 19 The Showa Panic began in the autumn of 1929, when the Japanese government announced, on the eve of implementing the gold standard, a ban on taking gold out of the

- country. It also advocated loyalty to Japanese products and reducing consumption to reduce domestic demand and imports. This resulted in a dramatic jump in commodity prices. See Nakamura and Odaka (1989, 50–55).
- 20 Average profitability between 1907 and 1919 for the rail division was 16.2 percent; for the mining division it was 4.8 percent. See table 5-9 in Kaneko (1991, 232).
- 21 Municipal street construction (including land acquisition) accounted for 76.4 percent, hospitals 8.1 percent, and schools 7.3 percent.
- 22 In March 1909, the Fushun Coal Mine had 2,674 workers of various kinds; in January 1921 it had 12,584, mainly coming from Zhili, Shandong, and the three northern provinces of Liaoning, Jilin, and Heilongjiang. A smaller number came from Rehe, Jiangsu, Shanxi, and Henan Provinces. See Yu (1926, 146–148).

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