

The Construction and Development of the Ruifang Mine in the Japanese Colonial Period

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Abstract

As one of the three major mines in the Japanese Colonial Period, the Ruifang Mine, which is situated in the famous tourism attraction Jiufen, has become a potential world heritage site. Despite the Japanese enterprise Fujita Group's monopoly of mining rights in the initial Japanese Colonial Period, the Yunnian Yan family and many other Taiwanese people subsequently played an important role in the implementation and management of mining operations. Through researching into the progression of construction and development of mines, the authors of this paper learned that the government of Japan, out of great concern for the mining industry, dispatched technicians to conduct investigations and to offer professional guidance, which in turn expanded scope of mining activities and improved mining techniques when coupled with advanced machines and facilities introduced by the Fujita Group. Meanwhile, taking advantage of his knowledge of what Taiwanese and Japanese people needed, Yunnian Yan on one hand integrated capital and human resources

from Taiwanese people, established companies, built up competitive advantages, and eventually procured the entire region's mining rights. On the other hand, Yunnian Yan adopted the practice of subcontract to share profits from gold mining with subcontractors, which not only received support from local people who subsequently erected monuments to commemorate Yunnian Yan's virtue and conduct, but also repeatedly enabled gold production to break through its restrictions. Due to the vigorous participation of Taiwanese people in the mining business, class segmentation was not obvious in the Ruifang Mine Village. The organic development and the configuration of various architectures that were being juxtaposed gave birth to prosperous and bustling shopping streets in the village.

Keywords: Ruifang Mine, Jiufen, mine, mining facility, Taiyang Mining Corporation Ltd.

1. Introduction

Jiufen, a renowned tourist attraction, is located in the Shuinandong-Jinguashi-Jiufen area, which is regarded as a potential world heritage site. The Ruifang Mine in Jiufen is one of the three major mines during the Japanese Colonial Period. During the Japanese rule, rights to perform mining operations in the three mines were issued by the Japanese government to the three companies: the Fujita Group, the Tanaka Group, and the Kimura Group. However, in light of rampant activities of gold mining in the geological cracks of fields where precious minerals existed in Ruifang, and activities of gold panning in rivers near Keelung since the late Qing Dynasty, as well as management difficulty due to the divergent areas where precious minerals were, the Fujita Group employed Yunnian Yan, a worker at a police station, to assist with mining activities, which ushered the Yan family's undertaking in the mining industry. Utilizing his knowledge of Taiwanese people, Yunnian Yan introduced the method of subcontract to the Ruifang Mine, which enabled many Taiwanese people to become subcontractors instead of laborers in the mining activities. This particular approach of development gave rise to many people who became rich through gold panning, and made Jiufen a once-upon-a time prosperous and densely- populated village from the Japanese Colonial Period. In addition to mining facility and residential housing, commercial and recreational buildings were built in close proximity to each other, which indirectly brought about factors that subsequently turned Jiufen into a tourist attraction nowadays.

The uniqueness of Jiufen and the Yan family have attracted many relevant investigations and studies,

which include "The Gold of Taiwan", a publication composed by the Office of Financial Research at the Bank of Taiwan, the 40th, 50th, 60th, and 80th Anniversary Press Release of Taiyang Mining Corporation Ltd., the "Records of Taiyang Mining Corporation Ltd." among records of Taipei County institutions, "A study of the First Family in Taiwan's Mining History – the Yan Family in Keelung" by Ciyu Chen, "700 Years of Gold Mining in Taiwan" by Yu Tang, the "Compilation of the Oral History and Explanatory Information of Jiufen", and the "Narrated Memories of the Jiufen Resident and Taiyang Mining Corporation Ltd. Retiree Jiang liangwang", etc. All of these publications gave a certain degree of elaboration on the developmental processes of Jiufen, the Ruifang Mine, and Taiyang Mining Corporation Ltd. In addition, historical relics of mining activities and related architectures, which include the 8th Tunnel, Memorial Stone for Road Construction(修路碑), Memorial Stone for Good Virtue (頌德碑), Memorial Stone for the Deceased (招魂碑), and Ruifang Branch Office, were all listed as historical monuments by the Cultural Affairs Department, New Taipei City Government, implying that other than appreciating the Jiufen scenery and experiencing the traditional Jiufen Old Street, tourists can also visit these historical sites to learn Jiufen's history and culture in the past.

However, mining facility is usually hard to conserve once an industrial need has changed or disappeared. Once the topography and landforms have altered accordingly, it becomes even harder to have a clear picture of the specific details of mining facility in the past. Taking this predicament into consideration, this paper proposes to apply literature and historical data pertaining to the Japanese Colonial Period, interviews

with local seniors, and on-site investigations to explore and analyze the development and construction processes in the Ruifang Mine as well as various influential factors such as the mode of operation in the Ruifang Mine, the political situation, and government policies. Further, the results of the probe would be compared with the actual developmental processes to clarify the characteristics of mining facility in the Ruifang Mine. With information gathered from this exploration, this study aspires to contribute to conserving the authenticity and integrity of industrial heritage in the Shuinandong, Jinguashi, and Jiufen areas. Meanwhile, this paper would present current-stage results of studying literature and historical data which address the historical relics in the Ruifang Mine.

2. The Fujita Group's mining facility and the participation of Yunnian Yan

When the Japanese government carried out comprehensive investigations on different varieties of resources in the beginning of its reign, mine was inevitably a very significant resource in the investigations. In the meanwhile, the Japanese government also exercised necessary governance on mining fields. In 1895, the Japanese government adopted the management of the “Bureau of Golden Sand” from the Qing Dynasty to establish the “Office of Golden Sand” and charged management fees through promulgating a regulation that gold miners were required to obtain mining rights before performing any mining activities. From official documents of the Taiwan Governor-General Office, it was revealed that very few miners applied mining rights

initially as only 30 mining permits were issued. However, after penalties were imposed on miners without mining permits, the number of miners with the permits increased to 347 in the period from September 26 to October 6, which included 138 permits issued to miners excavating the Jiufen Mine, 36 permits to miners working in the Jinguashi Mine, 20 permits to miners in Dacukeng (大粗坑) and Xiaocukeng (小粗坑), and 152 permits to panners at riversides, showing that the Jiufen Mine had the highest number of gold miners whereas riversides had the highest number of gold panners.¹ However, in June 1896, the Office of Golden Sand was officially closed and mining activities were prohibited due to the unsettled local public order.²

In the meanwhile, the Taiwan Governor-General Office repeatedly dispatched personnel to examine the Jiufen Mine and the Jinguashi Mine. In the 1896 official documents alone, there were entries of the “Industry Survey Records” submitted by Technician Yokoyama at the Department of Colony Industry, the “Survey Report of Mines in Ruifang and Jinshan” submitted by Technician Tatsuo Oki at the “Sector of Mining”, and the “Survey Report of Ruifang and Jinshan” submitted by Technician Hachimanjirō Ishii and included in the “Press Release of the Department of Colony Industry, Bureau of Civil Affairs, Taiwan Governor-General Office”.

In Technician Hachimanjirō Ishii's survey report, investigations were conducted on the topography, geology, causes for the formation of mineral deposits, as well as conditions, content of minerals, and distribution of ore veins in the Jiufen Mine and the Jinguashi Mine. In addition to suggesting the order of mining activities

and locations for refineries and other plants, the survey report further addressed the phenomenon that gold seekers flooded to Jiufen to manually excavate mines as many ore veins in Jiufen sat above faults within the Earth's crust, and a good number of open pit quarries (“outcrops”) were therefore formed when rocks adjacent to the faults cracked naturally. Meanwhile, Hachimanjirō Ishii divided mines into two different areas based on the topography and the distribution of ore veins. The two areas are namely: the “Jiufen Mountain Area”, which included Jiufen, Dacukeng, Xiaocukeng, Daganlin (大竿林), and the “Jinguashi Mountain Area”, which included the Jinguashi Mountain and adjoining ore veins.

According to the survey results, the Japanese government formulated the “Taiwan Mining Rules”, which were promulgated in September 1896 to permit mining operations, yet only people of Japanese nationality were eligible to make an application for mining. With regard to ranges of mining, i.e. mining fields, local authorities must submit an application to the Taiwan Governor-General Office for approval. To perform large-scale and efficient mining activities, directions of ore veins had to remain unchanged to avoid the risk of subdividing a mining site into a few small segments, which was particularly important in gold mining. Therefore, the zoning method of the Technician Hachimanjirō Ishii was employed prior to mining operations: with the Jilong Mountain (Chicken Cage Mountain; 雞籠山) as the borderline, the Jiufen Mountain Area, which was located western of the Jilong Mountain, was zoned as the 1st Mining Field whereas the Jinguashi Mountain Area, which was on the eastern side, was zoned as the 2nd Mining Field.

Back then, as most Taiwanese people's nationality was unsettled, applications for mining rights were restricted. In October, the Fujita General Partnership Corporation (the Fujita Group) which was led by Denzaburō Fujita, was granted mining rights for the 1st Mining Field whereas Chōbei Tanaka (the Tanaka Group) was granted mining rights for the 2nd Mining Field.³ The Fujita Group started investigations and mining operations in the next year. The Japanese government continued to assign technicians to inspect mining activities, the currently available records including: the “Manual of Taiwan Island Geology and Minerals Atlas” summited in March 1898 by Technician Hachimanjirō Ishii at the Department of Colony Industry at the Bureau of Civil Affairs, the “Ruifang Mine Surveillance Report” submitted by Mikinosuke Kumada in November 1898, and the “Ruifang and Jinguashi Mines Inspection Report” submitted in 1900 by Technician Yuzuru Saito at the Taiwan Governor-General's Office.

In the inspection report of Yuzuru Saito⁴, the above-mentioned 1st Mining Field was referred to Ruifang Mine, and the 2nd Mining Field was referred to as Jinguashi Mine. The two names were subsequently used in all documents in the Japanese Colonial Period. In the document, there were also accounts of the initial conditions of infrastructure built by the Fujita Group. The land size of the mining field was approximately 1,903,723 pings (1 ping = 3.305785 m²), and the Office of Mining Affairs was situated on the Tudigongping near the center of the mining field. Along with the Jiufen River, the 2nd Tunnel (290 feet in length) was excavated in February 1898, the Waterway Tunnel (250 feet in length) was excavated in April, the 1st Tunnel was excavated

¹ Taiwan Governor-General Office Official Documents Vol. 125-14, Min No. 485, Taiwan Historical Manuscripts, October 7, 1895.

² Taiwan Governor-General Office Official Documents Volume 13 -2, Min Zhi No. 61, Taiwan Historical Manuscripts, June 25, 1896.

³ The mining permit in the Mudan Gold Mine, one of the three principal gold mines, was granted to Kyutaro Kimura in 1889. The mining permit was subsequently transferred to the Jinguashi Mine in 1913 as ore veins in in the Mudan Gold Mine entered areas of the Jinguashi Mine.

⁴ Yuzuru Saito, “Survey Report of the Ruifang Mine and the Jinguashi Mine”, p. 40-46, March 29, 1900.

in May, and both the 4th Tunnel (330 feet in length) and the New 1st Tunnel were excavated in July. Tunnels Rongsheng (Glory and Prosperity; 榮盛), Jiusheng (Eternal Prosperity; 久盛), and Fasheng (Development and Prosperity; 發盛) were tunnels that were previously excavated by Taiwanese people. The only two tunnels in Daganlin were already inactive. Dacukeng, which was chartered by Taiwanese people, had been excavated yet operations were halted due to collapse of the tunnel. Xiaocukeng was also chartered by Taiwanese people.

Meanwhile, light-weight two tracks were laid inside two or three main tunnels to transport ores and waste stones. In a refinery field between the 3rd Tunnel and the Tudigongping (土地公坪), lands that were intended to be laid with portable tracks were ready, yet the tracks had not been installed. Moving was performed by Taiwanese laborers carrying ores on their shoulders, and waste stones were piled up along river sides.

All miners were Japanese back then. 54 miners took an eight-hour shift each time to rotate and carry out incessant excavation day and night. Some Taiwanese people chartered small tunnels to perform mining operations independently. Other Taiwanese people applied for permits and pay fees to do alluvial gold mining. In addition, there was an average of 200 Taiwanese people working as movers or handymen each day.

The refinery field was built in front of the Office of Mining Affairs on the Tudigongping. In June 1899, machines started to be used in ore refining processes. As waterwheels were used to move wheels to crush ores, ore crushing fields were commonly referred to as waterwheel

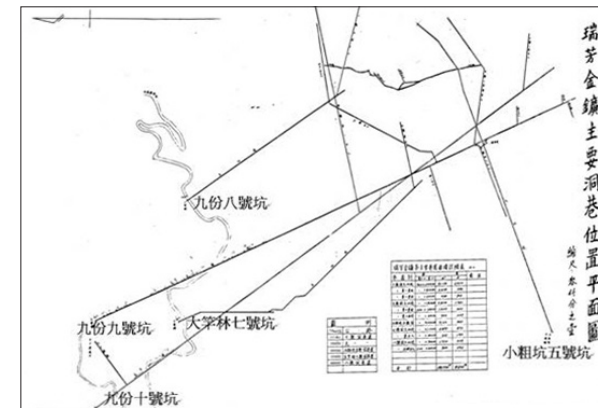
fields. Ore stones that were pre-washed with water were crumpled by crushers and subsequently pulverized to become ore powder. Further, higher-grade ores were picked out through elimination, and ore tailings were turned into ores with lower gold concentration through amalgamation⁵.

Yuzuru Saito also gave advices on future mining operations. In order to facilitate drainage, ventilation, and handling, connections with all tunnels could be built with Big Through Tunnel (大切坑) as the main body. In this way, ore stones could be transported down to the Big Through Tunnel before being further transported to Gengziliao (煨子寮).

With regard to the refinery field, Yuzuru Saito advised that the coastal regions in Gengziliao, with a vast plain of tens of thousands pings and harbours that were easy for boats to come in and go out, was an ideal location for a large-scale refinery field. This advice was identical to the advice of Technician Ishii in 1896.

Afterward, the Fujita Group started to excavate the Jiufen 6th Tunnel and the Daganlin 4th Tunnel. Prior to the excavation of the two tunnels, the “Big Through Tunnel” – the Jiufen 8th Tunnel⁶ (Figure 1), which has become the historical monument – the 8th Tunnel in modern days, played a pivotal role until 1900, revealing the significance of the Jiufen 8th Tunnel, which was different from other tunnels.

Meanwhile, as the refinery field on the Tudigongping became not enough for use, a 13-level ore crushing and gold cyanidation plant was built in Gengziliao to process



【Figure 1】 Plan diagram of the main hole lanes in the gold mines of Ruifang

all ore stones from the Ruifang Mine.⁷ Since then, ore stones from the New Jiufen 1st Mining Site to the Jiufen 8th Mining Site could go out from the Jiufen 8th Mining Site before being transported by aerial ropeways to the refinery field in Gengziliao, inferring that the Fujita Group had taken Yuzuru Saito’s suggestion to carry out step-by-step construction and implementation.

In 1910, the Fujita Group built a hydroelectric plant to power ore crushing machines and supply domestic use.⁸ From the Taiwan Governor-General Office’s mining industry statistics, it could be observed that in 1913, mechanical facilities such as waterwheels and electricity generators (to power lights inside tunnels during mining operations) had been utilized in activities such as mining, transportation, ore selection, and ore refining. In addition to tracks, there were single-rope and 15-horsepower ropeways to transport ore stones. In terms of ore processing methods, extraction of gold through cyanidation and amalgamation were applied in addition to gold panning. The ore refining facilities were largely made of steel⁹.

On the other hand, it was mentioned in Yunnian Yan’s 1914 “My limited Views of the Ruifang Mine Management” that after the Fujita Group obtained mining rights, parts of the Xiaocukeng were open for excavation in 1898 and holders of mining permits only profited from leasing out mining permits. In the same year, Yunnian Yan also embarked on mining operations on his chartered small mining fields¹⁰.

Before long, in the autumn of 1899, some anti-Japanese activists showed up near Xiaocukeng and caused a panic among the locals. The Fujita Group’s Acting Director Tokigorō Omi requested Tanaka, the then Police Commissioner of the Ruifang Police Station, to recommend a Japanese-speaking Taiwanese person to manage sites of alluvial gold in the mining field. The police commissioner recommended Yunnian Yan, who was an entry-level policeman and an interpreter for the garrison. While remaining his official positions, Yunnian Yan teamed up with local influential people to jointly found “Jinyufeng Trade Name (金裕豐號)” to start chartering the alluvial gold areas in Xiaocukeng. On the other hand, a division of supply (調進所) was established in the same year to provide materials needed by the locals and manpower required by the Fujita Group. Frequent contacts with the locals made Yunnian Yan’s abilities and earnestness gradually become recognized by both Japanese and Taiwanese people¹¹.

In 1900, Yunnian Yan chartered Dacukeng and alluvial gold areas in Daganlin in January and June sequentially, and established “Jinyingfeng Trade Name (金盈豐號)” to specialize in gold mining in the two areas. On the other hand, “Jinyingli Trade Name (金盈

⁵ Yuzuru Saito, “Survey Report of the Ruifang Mine and the Jinguashi Mine”, p. 40-46, March 29, 1900; Lin Chaoqi, “The Gold Mining Industry in Taiwan” *The Gold of Taiwan*, p. 33, October 1950.

⁶ C.C. Lin, “The Gold Mining Industry in Taiwan” *The Gold of Taiwan*, p. 33, October 1950.

⁷ H.C. Chen et al., “An Overview of Taiyang Mining Corporation Ltd.’s Operations in the Ruifang Mine” *The Gold of Taiwan*, p. 102-103, October 1950.

⁸ C.C. Lin, “The Gold Mining Industry in Taiwan” *The Gold of Taiwan*, p. 33, October 1950.

⁹ Taiwan Governor-General Office, Department of Colony Industry, Sector of Mining, 1913 Taiwan Mining Statistics, September 13, 1914, p. 61-63.

¹⁰ *The Journal of the Taiwan Mining Society* No.10, p. 45-50, October 1914.

¹¹ Compiled by the Society of Friends’ Sound, *The Mini Biography of Yunnian Yan*, p. 26-28, April 13, 1924.

利號)” was established to procure tiny pieces of alluvial gold and to prevent loss of mining profits. In 1902, Yunnian Yan made an application to charter the Jiufen 4th Tunnel and all other tunnels with a higher altitude than that as major ore veins in those tunnels had been depleted and the residual sporadic small ore veins, which were full of small holes, were not easy to manage. Therefore, these small ore veins were not worthwhile investments for the Fujita Group in terms of expenditure. By dividing these mines into many small sites and subleasing these sites to third parties, the rent Yunnian Yan collected had exceeded the rent he paid to the Fujita Group. Through painstaking efforts of Taiwanese people, the ample amount of gold extracted from the abandoned mines was acclaimed by Japanese technicians as a miracle¹². In the period between 1903 and 1904, the gold production had a sudden increase and reached a climax in the Meiji Period.

At that time, after the division of supply was founded by Yunnian Yan, gold seekers travelled to Jiufen from all places, and there were frequent contacts between Ruifang and Jiufen in terms of personnel and materials. However, the twisting Baojia Road (保甲路), which had been the connecting road between Ruifang and Jiufen since the Qing Dynasty and was constructed collaboratively by civilians as a public infrastructure, had stayed unrepaired for many years and was inundated with mud in rainy days. In light of this, Yunnian Yan and Yuanquan Su reached a mutual agreement in 1901 that expenditure for repairing approximately half of the road on the eastern side of Ruifang was borne by Yunnian Yan whereas expenditure for repairing approximately the other half of the road on the western side of Jiufen was borne by Yuanquan Su. Both parties were obligated to make fund contribution and

oversee road construction in the respective regions they were responsible for. The road repair was completed on May 1, 1902. In the same year, the “Road Construction Memorial Stone”¹³ were erected next to the Baojia Road in Daganlin, and near the borderline of “GanZiLai Village (柑仔瀨莊)” (eastern of Ruifang) and “Gengziliao Village (煥子藁莊)” (western of Jiufen) by local people on the 8th month of the Chinese lunar calendar in the same year.¹⁴ Being noticeably closely associated with the locals in Jiufen, Yunnian Yan quickly gained considerable economic capacity due to his participation in mining operations.

In addition to the division of supply, Yunnian Yan further incorporated “Yunquan Chamber of Commerce” with Yuanquan Su and others in January 1903. Yunquan Chamber of Commerce specialized in supplying laborers for mining activities. In addition to providing services to the RuiFang Mine, it also provided services to the Mudan Tunnel Mine and the Jinguashi Mine in 1907 and 1910 respectively.¹⁵ Thereafter, Yunquan Chamber of Commerce started to function as an important coordinator which orchestrated and managed Taiwanese capital and mining laborers.

Due to the abovementioned consideration of management and operation, the Fujita Group gradually allowed Taiwanese to charter various small ore veins in addition to the big ones in Jiufen and Daganlin. The boundaries between each ore vein were specified and mining was performed site by site. In 1906, Yunnian Yan established Jinxingli Trade Name (金興利號) to incorporate Jinyufeng Trade Name (金裕豐號) and Jinyingfeng Trade Name (金盈豐號) to carry out mining activities in chartered mining fields near Dacukeng and

Caidaolun (菜刀崙). In the meanwhile, Jinyingli Trade Name (金盈利號) was renamed as Jinyuli Trade Name (金裕利號) to be in charge of procuring alluvial gold. By 1909, having contracted all mining fields in Dacukeng, Xiaocukeng, and Daganlin, as well as some previously-contracted mining fields in Jiufen, Yunnian Yan had chartered 90% of mining fields in the Ruifang Mine¹⁶.

Yunnian Yan also purchased more refinery facilities such as ore-crushing “overshoot waterwheels”, wooden filter tanks, lead tanks for sedimentation, and liquid storage tanks, to perform small-scale ore selection and refining operations¹⁷.

3. Subcontract in the Taisho Period

In September 1914, a gradually lowered gold content in ore excavated from pits which were directly-managed by the Fujita Group resulted in the company’s failure to balance income and expenditure. The Fujita Group decided to forgo direct management as both Japanese technicians and scholars also determined that it was not worthwhile to continue mining operations. From October 1914 onwards, Yunnian Yan contracted a seven-year mining permit in all mining fields for \$300,000 yen.¹⁸ Subsequently to obtaining all mining permits, Yunnian Yan started to manage the ore body outcrop in Daganlin under the trade name “Jinxingli (金興利)”, carried out mining and refining activities on discarded stones which were left in tunnels during the Fujita Group’s direct-management period, and subcontracted other mining fields to seven companies, including: Jinheli(金和利) as the subcontractor of some areas in Daganlin,

Jinmaoli(金茂利) as the subcontractor of some areas in Dacukeng, Jinruili (金瑞利) as the subcontractor of some areas in Xiaocukeng, Jinrongli (金榮利) as the subcontractor of the Jiufen 4th Tunnel, Jintongli (金同利) as the subcontractor of the Jiufen 1st, 2nd, and 3rd Tunnels, Jiancheng Gold Mining Section (建成金鑛部) as the subcontractor of the Jiufen 5th, 6th, and 7th Tunnels, and Linjinlai (林金來) as the subcontractor of the Jiufen 8th Tunnel.¹⁹ The practice of subcontract, which originated from the business mode of Jinxingli and was subsequently adopted by Taiyang Mining Corporation Ltd., allowed subcontractors the ultimate authority in all mining activities in prescribed regions and for a specific duration of time. After expropriating a certain percentage of gold unearthed and extracted by the subcontractors, the company purchased all remaining gold from the subcontractors. Agreements of subcontract varied according to the condition of each ore vein and efforts involved in the mining activities. Having no need have to pay any fee in advance and being able to reap profits in proportion to the amount of gold production through personal abilities and techniques, subcontractors all exerted their heart and strength to the utmost to yield the maximum gold production. As a result, the gold production far exceeded the gold production in previous periods and reached an unprecedented peak in 1915-1917 (Table 1).

With regard to ore refining processes, Yunnian Yan used tracks and aerial ropeways to transported ore stones to the Gengziliao Refinery Field and extracted gold through amalgamation and cyanidation. Some subcontractors transported middle-grade ore stones to the Gengziliao Refinery Field while other subcontractors

¹² Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 26-28, April 13, 1924.

¹³ The Baojia Road, which became obsolete after the Light-Weight Road and the Automobile Road were open to the public in 1931 and 1934 respectively, was relocated to the garden at the Ruifang Branch office of Taiyang Mining Corporation Ltd.

¹⁴ Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 23, April 13, 1924.

¹⁵ Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 30, April 13, 1924.

¹⁶ Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 28, April 13, 1924.

¹⁷ Taiwan Governor-General Office, Department of Colony Industry, Sector of Mining 1913 Taiwan Mining Statistics, September 13, 1914, p. 61-63.

¹⁸ Yoshinaga, An Overview of the Ruifang Mine, Taipei Keelung: Taiyang Mining Corporation in the Ruifang Mine, p. 2, March 15, 1933.

¹⁹ Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 30, April 13, 1924.

used unsophisticated ore processing facilities or extracted gold through amalgamation and cyanidation in various areas. Ore processing methods such as adding chemical materials, manual grinding, and separating impurities such as iron sulphide by adding mercury were also adopted. Meanwhile, more than a few people gathered alluvial gold from rivers or procured discarded stones to extract gold at home.²⁰

After chartering the mining rights of all mines, Yunnian Yan made subcontract available to the public and subcontractors were entitled to share gold production profits, which attracted subcontractors from different regions to collaboratively work for higher amounts of gold production and to contribute to the locals and the nation. In 1917, subcontractors initiated to erect a memorial stone to pay homage to Yunnian Yan, as well as the auxiliaries Weiren Su, Shanying Weng, and the late Yuanchuan Su. When the overall construction of the memorial stone’s body, base, staircases, and fences was finished, a ceremony was held on October 13, 1918. The grand ceremony attracted the attendance of several officials, civilians, and gentries from Keelung and Taipei. Lunch at a club and entertainment activities after the ceremony were also arranged.²¹ Judging from the Memorial Stone of Good Virtue (頌 德 碑), which has been listed as a historical monument nowadays, one can speculate the significance of Yunnian Yan and subcontracting practice to the local development.

On the other hand, Yunnian Yan further expanded Yunquan Chamber of Commerce and its hardware store²² to establish “Yunquan Chamber of Commerce Corporation”, and elected his own brother Guonian Yan as the president. Subsequently, “Yilong Company (義隆公司)”, “Jinxingli (金興利)”, “Jinyuli (金裕利)”, “New Yicheng Company (新義成公司)”, “Old Yicheng

20 “The Recent Status of the Ruifang Mine” The Journal of the Taiwan Mining Society, p. 17, December 1915.
21 “Report— Styles of Memorial Stones for the Yan Family’s Virtue” The Journal of the Taiwan Mining Society, p. 56, October 1918.

【Table 1】Comparison of the number of minders and gold output in Ruifang Mine and Jinguashi Mine				
Year	Number of miners		Gold output (cm)	
	Jiufen	Jinguashi	Jiufen	Jinguashi
1898	—	—	9184	41329
1899	—	—	38777	122288
1900	—	—	40500	346579
1901	—	—	42236	582836
1902	—	—	85762	861293
1903	—	—	150693	809756
1904	—	—	539126	1209771
1905	—	—	506208	974651
1906	—	—	363053	997180
1907	—	—	330812	866370
1908	—	—	280061	1329592
1909	—	—	250447	1329138
1910	—	—	347846	1242134
1911	—	—	337064	1298535
1912	—	—	355419	1209576
1913	182	890	230550	865213
1914	—	—	352446	1574828
1915	69	2641	650637	994428
1916	74	2623	693773	745023
1917	65	1949	789135	754042
1918	82	865	273493	514481
1919	166	407	237493	332112
1920	395	422	199295	354871
1921	622	363	381547	494715
1922	513	347	252437	423116
1923	442	202	91817	378210
1924	—	—	59429	206396
1925	189	185	40021	199057
1926	287	179	68620	228060
1927	485	174	248959	200290
1928	542	169	129912	143132
1929	533	207	248075	209400
1930	789	3774	248361	233681
1931	1114	4071	315517	226533
1932	1735	4071	578660	208845
1933	2400	2728	580720	1564000
1934	3852	3225	1012197	1757000
1935	3344	5966	1131902	2030000
1936	—	—	1240937	2485000
1937	—	—	1359302	2561000
1938	—	—	1700313	2604000
1939	—	—	1294862	2479000
1940	4496	4557	872383	2262000

Source: Compiled by this study:
Number of miners: Mining Section, Department of Colony Industry, Bureau of Civil Affairs, Taiwan Governor-General Office, Statistics of Mining in Taiwan (past years). Gold ouput: Tzu-yu Chen, The First Family in the Mining History of Taiwan- The Study of Yan Familyin Keelung, 1999.6, Keelung: Keelung City Cultural Affairs Bureau.

Company (舊義成公司)”, “Yiyi Company (義益公司)”, “Yihe Commercial Firm (義和商行)”, “Shengxing Company (勝 興 公 司)”, and undertakings such as common lands and portable tracks in Gengziliao were all merged into the “Yunquan Chamber of Commerce Corporation”.²³

Meanwhile, in an attempt to reshuffle its business in Taiwan, “Fujita Mining Corporation”²⁴ transferred all mining permits in the Ruifang Mine to Yunnian Yan for \$300,000 yen. Therefore, Yunquan Chamber of Commerce Corporation became the direct-operating corporation of the Ruifang Mine.²⁵

In the same year, Yunnian Yan and the Fujita Group jointly founded “Taipei Coal Mining Corporation” to exploit coal ore from Shidi in Pingxi and installed the Pingxi Railway. However, the investment of the Fujita Group was discontinued due to the economic downturn in Japan as a result of World War I. Yunnian Yan in turn bought all shares of the Fujita Group, increased capital investment to the Taipei Coal Mining Corporation to 5 million Yen, acquired and merged Yunquan Chamber of Commerce Corporation’s undertakings “in the Ruifang Mine, integrated undertakings of coal mining and gold mining, and renamed Taipei Coal Mining Corporation as “Taiyang Mining Corporation” in September 1920 after discussion with directors including Kinsaburou Kata, Hisatarō Kimura, and Xiongzheng Lin. Further,²⁶ Taiyang Mining Corporation established a Ruifang

Mining Office next to Jiufen 8th Tunnel²⁷ and continued to entrust Yunquan Chamber of Commerce Corporation with gold mining undertakings until the dissolution of Yunquan Chamber of Commerce Corporation in October 1936 when Taiyang Mining Corporation began to directly manage the Ruifang Mine, Shidi Coal Mine, and Haishan Coal Mine.²⁸

However, in the last six months of 1918, laborers for gold mining were affected by the development of coal mining. There were hundreds of miners less in the Jinguashi Mine alone (Table 1), and gold production came to a significant drop.²⁹ At then, mining operations were restricted to Yunnian Yan’s small-scale subcontracting, manual mining, and a restricted area in the shape of a polygonal cone adjacent to the 8th Tunnel (i.e. 243 meters above the sea level). Proceeding along major ore veins, miners entered divergent minor ore veins to perform mining operations. Miners primarily mined for high-grade ore, extracted gold through amalgamation, and sold the “eliminated ore”. Such small-capital investment operations enabled the Ruigang Mine to circumvent risks and weather through difficulties when most other gold mining entrepreneurs were challenged with operation predicament as a result of price hike and imbalance of gold prices after the outbreak of World War I.³⁰

In terms of ore processing, expenditure on handling ore was reduced by abolishing the old centralized ore processing practice and building ore crushing fields in

22 The Yunquan Metal (Hardware) Sector, which was founded in addition to Yunquan Chamber of Commerce by staff at the two stores Yihe (義和) and Yunquan (雲泉), specialized in supplying various metal apparatus for coal and gold mining operations. The metal (hardware) sector was trading under the name Yunquan, the chamber of commerce’s name, for considerations of trading and commercial-exchange relationships. Data Source: Compiled by the Society of Friends’ Sound The Mini Biography of Yunnian Yan, p. 53, April 13, 1924.
23 Compiled by the Society of Friends’ Sound, Mini Biography of Yunnian Yan, p. 53, April 13, 1924.
24 In 1917, “Fujita General Partnership Corporation” was reshuffled to become “Fujita Mining Corporation”.
25 Taiwan Governor-General Office, Department of Colony Industry, Sector of Mining, 1918 Taiwan Mining Statistics, October 8, 1919, p. 51.
26 Compiled by the Society of Friends’ Sound, The Mini Biography of Yunnian Yan, p. 57-59, April 13, 1924.
27 Taiwan Governor-General Office, Department of Colony Industry, Sector of Mining, 1921 Taiwan Mining Statistics, December 21, 1922, p. 45.
28 Takaba, Mini Biography of Guonian Yan, p. 42, November 20, 1939.
29 “The Current Status of Ruifang and Jinshan” The Journal of the Taiwan Mining Society, p. 51, February 20, 1919.
30 Tokitsu, “The Current Status of Mining Industry in Ruifang and Jinshan ”, The Journal of the Taiwan Mining Society No. 182, p. 62-71, Issue January 1936.

【Table 2】Composition of miners and staffs in Ruifang Mine					
Year	Miners			Staffs	
	Japanese	Taiwanese	Chinese	Japanese	Taiwanese
1913	45	137	0	16	1
1914	—	—	—	—	—
1915	8	61	0	6	3
1916	11	63	0	4	7
1917	5	60	0	12	12
1918	8	74	0	10	15
1919	4	162	0	14	17
1920	6	389	0	11	19
1921	6	616	0	4	38
1922	0	513	0	4	64
1923	0	442	0	4	67
1924	—	—	—	—	—
1925	0	189	0	3	28
1926	0	287	0	2	25
1927	0	485	0	2	24
1928	0	542	0	2	26
1929	0	533	0	1	21
1930	0	789	0	1	31
1931	0	1114	0	1	43
1932	0	1735	0	3	77
1933	0	2400	0	3	77
1934	5	3847	0	6	89
1935	1	3343	0	15	146
1936	—	—	—	—	—
1937	—	—	—	—	—
1938	—	—	—	—	—
1939	—	—	—	—	—
1940	2	4365	129	41	241

Source: Compiled by this study
Mining Section, Department of Colony Industry, Bureau of Civil Affairs, Taiwan Governor-General Office, Statistics of Mining in Taiwan (past years)

the valleys near each tunnel exit to extract middle-grade ore. High-grade ore was transported to the high-grade ore refinery field inside the Office. The previously adopted crushing and eliminating methods were employed to obtain ore concentrate, which was further refined through amalgamation.³¹ The Gengziliao Costal Refinery Field (煥子藺灣頭製煉場) ceased operation accordingly.³²

4. Taiyang Mining Corporation’s Major Construction in the Showa Period

On June 1, 1925, the successor Guonian Yan became President of Taiyang Mining Corporation. From the next year onwards, direct-management and subcontract each took half of the operation modes of gold mining in the Ruifang Mine.³³ In the meanwhile, construction on mining fields were accelerated due to the introduction of new technologies and new facilities in the Showa Period, which was a time of the highest amount of gold production since mining operations started in the Ruifang Mine.³⁴

As stated in the foregoing paragraphs, production had come to its limits as mining operations had been restricted to initial mining fields since the Taisho Period. In a 1936 entry, Tokitsu, the Director of Ruifang Mining Corp., wrote that upcoming mining operations inevitably must be conducted in an unexploited region between the altitude of the 8th Tunnel and 243 meters above the sea level. In addition, there was even distribution of gold in a region between the previously-exploited outcrops and 273 meters down from the outcrop, and there were no less amounts of gold in regions deeper than the 273 meters threshold. However, in consideration of mineral deposits and other factors, further investigations had to be done while waiting for the right timing for excavation. Later on, in response to the Japanese government’s policy to reward gold production, the first phase of the project commenced. In line with the distribution of mineral deposits and terrain configuration, mining operations started from the main vein cluster of bedrocks underneath and further proceeded southwards to the Xiaocukeng

Creek. Eventually, excavation of the Xiaocukeng 5th Tunnel commenced in a place 186.7 meters above the sea level. In the northern part, at a place 105 meters above the sea level on the Daganlin Creek, excavation of the Jiufen 9th Tunnel commenced. In addition, excavation of the 7th Tunnel also commenced at a place 191.9 meters above the sea level and above the Jiufen 9th Tunnel. Excavation of these three tunnels was performed entirely with drilling machines. At that time, each tunnel seemed promising. Unceasing and deepening excavations as well as preparatory work for mining were performed at the same time. Transportation facilities inside and outside the tunnels as well as construction of ore selection fields were in gradual progress.³⁵

In addition, Tokitsu also recorded that the excavation of the Jiufen 9th Tunnel achieved the anticipated outcome, which led to the second phase of the project, in which a large through cavity was opened along the Gengziliao coastal line in the northern side of the initial mining field. When coupled with the realization of the first phase of the project, the future of the Ruifang Mine would be promising should the region beneath the 9th Tunnel be exploited.³⁶

As indicated by the records of Taiyang Mining Corporation, the Dacukeng 6th Tunnel and the Daganlin 5th Tunnel were excavated in 1927, the Xiaocukeng 5thTunnel was excavated in 1930, the Daganlin 7th Tunnel was excavated in June 1932, the Jiufen 9th Tunnel was excavated in 1933, and the 10th Tunnel was excavated in 1936.³⁷ Also, all tunnels excavated in in period between 1932 and 1936 were buttressed with steel and laid with tram tracks. In addition to being appraised as modern large-

scale tunnels³⁸, these tunnels were also the implementation of ideas previously mentioned by Tokitsu (Figure 1).

As indicated by a 1935 survey conducted by the Taiwan Governor-General Office, the high-grade ore smelting plant was situated near the Office. Next to each tunnel exit, a total of 20 ore crushing fields³⁹ were built to process middle-grade ore, which was basically a continuation of previous practice. In terms of ore processing, the general crushing method and grinding with chemical materials were already in existence. On top of that, froth flotation fields (fields where froth flotation was used to separate mineral ores) was set up outside the 9th Tunnel to process what were previously considered waste stones or ore tailings from ore crushing fields in response to the Japanese government’s policy to reward processing of low grade ores. The first phase of the project was completed in 1935 while the second-phase and third-phase froth flotation fields were completed in 1937 and 1939 respectively. Meanwhile, preliminary crushing fields were built next to the Jiufen 6th Tunnel and Daganlin to team up with the froth floatation fields. In addition, the regions between the preliminary crushing fields and froth floatation fields were installed with aerial tramways to transport ores. Cyanidation plants and sulfuric acid manufacturing plants were built along the Gengziliao coastal line, where refinery fields of the Fujita Group used to be, to process ore concentrate extracted in the process of froth flotation and utilize pyrite ore extracted from the ore concentrate. Construction of the cyanidation plants and sulfuric acid manufacturing plants was completed in the end of 1937 approximately.⁴⁰

35 Tokitsu, “The Current Status of Mining Industry in Ruifang and Jinshan”, The Journal of the Taiwan Mining Society No.182, p. 62-71, January 30, 1936.
36 Tokitsu, “The Current Status of Mining Industry in Ruifang and Jinshan”, The Journal of the Taiwan Mining Society No.182, p. 62-71, January 30, 1936.
37 The 40th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 175-178, June 18, 1958.
38 C.C. Lin, “The Gold Mining Industry in Taiwan” The Gold of Taiwan, p. 39, October 1950.
39 The Survey of Taiwan Governor-General Office, “Taiwan’s Mining Trends in 1935 (Volume II) “, The Journal of the Taiwan Mining SocietyNo.187, p. 187, May 1937.
40 C.C. Lin, “The Gold Mining Industry in Taiwan” The Gold of Taiwan, p. 39-40, October 1950.

31 Tokitsu, “The Current Status of Mining Industry in Ruifang and Jinshan”, The Journal of the Taiwan Mining Society No.182, p. 62-71, January 1936.
32 About the Stopped Time, authors led by Xinzhi Chen, “An Overview of Taiyang Mining Corporation Ltd.’s Operations in the Ruifang and Jinshan Mines” The Gold of Taiwan, p. 102-103, October 1950, recorded as 1919; Tokitsu,“The Current Status of Mining Industry in Ruifang and Jinshan”, The Journal of the Taiwan Mining Society No. 182, p. 62-71, January 30, 1936, recorded as 1920.
33 The 40th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 92, June 1958.
34 The 40th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 174, June 1958. The 60th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 38, July 1978.

According to statistics, there had been a dramatic increase in gold production in the Ruifang Mine since 1937, and the production in 1938 reached a climax since the beginning of mining operations in this area (Table 1). However, the gold production started to drop since 1940 as there was production of numerous other minerals during the six years between 1934 and 1939. The gold production then came to a temporary halt as both the froth floatation fields and the cyanidation plants, where low-grade ore was processed, failed to live up to their expected functions.⁴¹

The abovementioned Ruifang Mine major construction in the Showa Period was related to a gold policy which was implemented as a result of a continuously rising gold price since 1932 and an increased demand of gold as the Japanese government was at war with other countries in 1937 and 1938.

After the promulgation and implementation of the “Act of Gold Production” by the Japanese government on August 25, 1937, the Taiwan General-Governor Office announced on September 25 that the “Implementation Rules of Act of Gold Production” took effect,⁴² the provisions of which governed processing and procurement of gold that was to be sent to the Japanese Mint for refining and unification of classes (Articles 4-5)⁴³, the exemption of import duties for apparatuses, machines, or other materials that were required for alchemy upon the approval of the Governor (Article 26), etc. Further, a 1938 announcement “Reward Rules of Prospecting for Ore Bodies” specified that the government, subject

to its budget, proposed to reward any undertakings of tunnel excavation or geological drillings for the purpose of prospecting for gold, silver, or copper. The amount of government grant would be up to 70% of the required funds for the undertakings.⁴⁴

In addition, new engineering facilities such as crushing and refining facilities were entitled to grants. These incentives made contemporary gold mining entrepreneurs all actively participate in gold production. Taiyang Mining Corporation’s new infrastructure also received grants from the government.⁴⁵ During the period from 1937 to 1940, the amount of gold that the Japanese government acquired from Taiwan was up to 70 tons, and the Taiwan Governor was rewarded by the Japanese Emperor for that reason.⁴⁶

At the same time, in addition to investment in facilities that had the apparent manufacturing function, Taiyang Mining Corporation also undertook other relevant construction. In particular, Taiyang Mining Corporation President Guonian Yan and Ruifang Mining Department President Shanying Weng collaborated to build the “Memorial Stone of the Deceased” in December 1934, which is listed as a historical monument in modern days.

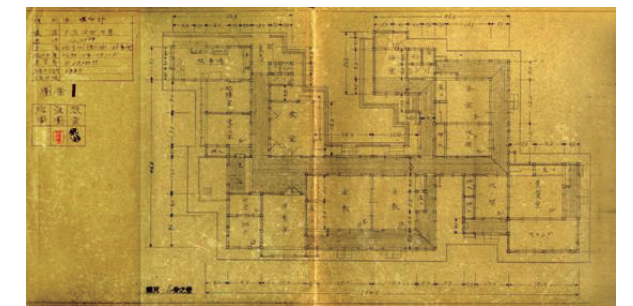
As subcontractors and miners here were largely from Yilan County, Shuangxi District, Dasi Township, or former coal miners in Pingxi District and Shifenliao (十分寮). Wandering Ghosts Temple (有應公廟) or Wanshan Shrine (萬善祠), which were set up to pray for gold miners who were away from home and died of

accidents, were situated among closely-arrayed village houses and on mountain slopes behind the village, where corpses of the deceased were buried chaotically and where there is a cemetery now.⁴⁷

In addition, from the existing data, it can be observed that since 1934, Taiyang Mining Corporation had been actively building quarters for company staff, clubs, and the “Ruifang Branch Office of Taiyang Mining Corporation”, which is currently in use and has been listed as a historical architecture.

In Japanese mining experts’ travel logs dated November 7, 1935, there were descriptions of the Ruifang Mine “...back then, construction of roads for automobiles was completed the year before, and the place where the crowd got off was right above the Ruifang Branch Office of Taiyang Mining Corporation. Tokitsu was the director of the Office. Parts of another office, which was on a plaza outside the exit of the 8th Tunnel and cost \$60,000 yen to build, were also completed and an embryo model could be seen. After seeing the ore refinery through adding chemical materials near the tunnel exit, the crowd entered the clubs, changed to attires inside the tunnel, and took a car to the 9th Tunnel, which was 500 feet downwards, and further took a battery locomotive to a tunnel which was more than 5,000 feet deep into the earth to examine the formation of ore veins. Later on, the crowd travelled to visit the newly-built refinery and ore selection field near the tunnel exit before returning at 1pm to the freshly-completed clubs, where the scent of cypress was still in the air. The view observed from the clubs was an absolutely marvelous view that bore a resemblance to the view at the Seto Inland Sea. After taking a bath, everyone started to enjoy the feast of cabarets....”⁴⁸

It is known that in 1935, construction of the wooden 1st Club, which consisted of dining halls, a large kitchen, seated areas for greeting guests, a library, VIP rooms, guest rooms, bathrooms, etc., was recently completed (Figure 2), and the building structure of the Ruifang Branch Office of Taiyang Mining Corporation was also completed. In fact, Taiyang Mining Corporation had been self-managing the Ruifang Mine after Yunchuan Chamber of Commerce ceased its management of the Ruifang Mine in 1936. Thus, upon its completion, the new office (Picture 1) timely served as the Ruifang Mine Management Center of Taiyang Mining Corporation.



【Figure 2】Plane of the First Club
Source: Print Images of Residential Buildings of Ruifang Mine (Taiyang Co.)



【Picture 1】Ruifang Mining Department

⁴¹ C.C. Lin, “The Gold Mining Industry in Taiwan” *The Gold of Taiwan*, p. 39-40, October 1950.

⁴² The Taiwan Mining Society, *Regulations of Taiwan Mining Relations*, p. 51-61, August 8, 1941.

⁴³ This provision governs products with a lower gold concentration which were either manufactured in Taiwan or refined in mints in Japan through the Bank of Taiwan. Unless otherwise specified, products manufactured through the Bank of Taiwan must be sold to the government and the manufacturers must pay relevant fees to the Bank of Taiwan.

⁴⁴ The Taiwan Mining Society, *Regulations of Taiwan Mining Relations*, p. 68-72, August 8, 19

⁴⁵ H.C. Chen et al., “An Overview of Taiyang Mining Corporation Ltd. in the Ruifang and Jinshan Mines” *The Gold of Taiwan*, p. 90, October 1950.

⁴⁶ The 60th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 39, July 1978.

⁴⁷ L.W. Chang, *Compilation of the Oral History and Explanatory Information of Jiufen*, p. 25, October 1994.

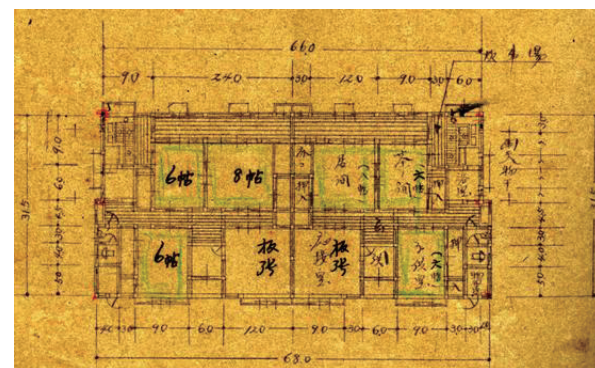
⁴⁸ “Traveller Yiban’s Diary to the East” (November 7, 1935- November 11, 1935), *The Journal of the Taiwan Mining Society* No.182, p. 91, January 30, 1936.

To the public's grief, Guonian Yan died of illness on April 30, 1937. In the same year, Yunnian Yan's oldest son Qinxian Yan took the position as President of Taiyang Mining Corporation on May 29 to carry on construction of relevant facilities. In 1937, the 2nd Club with "Ohiroma" (Japanese-Style Large and Open Space; 大廣間) and stages was completed. In 1939, the two-story 3rd Club with "Japanese-Style Large and Open Spaces", pool rooms, arenas, entertainment rooms, and dining halls, was completed. In 1940, a two-story medical building with treatment rooms, operation rooms, and wards, was completed.

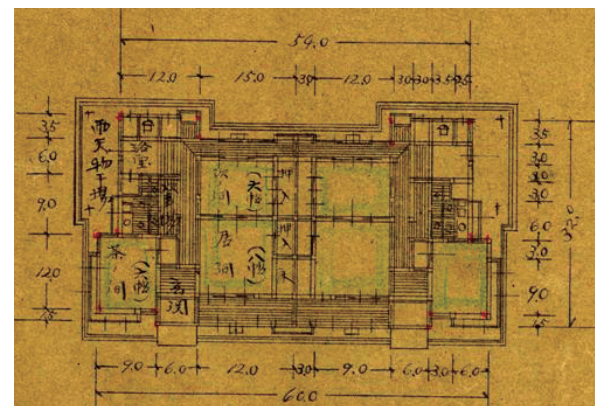
With regard to these clubs, there were already records of functions which were held in the clubs prior to the completion of the aforesaid Memorial Stone of Good Virtue. Thus, the clubs were speculated to be used for entertain important guests. Among construction in relation to the mining business, clubs, which had come to existence in an earlier time, were among the very important establishments. From floor plans of the clubs, it can be inferred that the 1st Club was for entertaining important guests and holding bouquets, the 2nd Club was for hosting big events, and the 3rd Club could provide entertainment and host small-scale banquets.

Staff quarters were classified into the five categories: Type A, Type B, Type C, Type D, and "co-residence", which were constructed one after another in the period between 1934 and 1941. Type A quarters, which were duplexes with an internal space of approximately 28.7 pings (Figure 3) for each residence, were residences of officials at a level equivalent to the president of Taiyang Mining Corporation. There were four residences of Type A quarters in total. Type B quarters, which were also duplexes with an internal space of approximately 23.3 pings (Figure 4) for

each residence, were residences for general staff members. There were 26 residences of Type B quarters in total. Type C quarters, which were duplexes with an internal space of approximately 18 pings for each residence, were residences for assistant-level staff members. There were 18 Type C quarters residences in total. Type D quarters, which were multi-residence townhouses with six, eight, or 10 families attached to each other, were approximately 6.25 pings for each residence. Type D quarters were for entry-level staff members and there were a total of 40 Type D quarters. In addition, there were also three co-residence buildings for communal living.⁴⁹



【Figure 3】Plane of Type A living quarter (unit:foot)
Source: Taiyang Co., Print Images of Residential Buildings of Ruifang Mine, drawn in 1951



【Figure 4】Plane of Type B living quarter (unit:foot)
Source: Taiyang Co., Print Images of Residential Buildings of Ruifang Mine, drawn in 1951

⁴⁹ Taiyang Mining Corporation Ltd., Floor Plans of Employee Quarters in the Ruifang Mine, painted as a set in 1951.

As Taiyang Mining Corporation allowed people who participated in mining activities to apply for land usage, people could pay rents and build their own dwellings. As a result, there was already a wide distribution of fairly closely-juxtaposed residences back then. These quarters were largely located near exits of the 8th Tunnel or areas for discarded stones at a valley further down, and discarded stones were possibly piled up to form foundations for these dwellings. In addition, as there was no distinct segmentation between quarters of contractors and dwellings of the general public, it resulted in a scene of juxtaposed general dwellings, stores, staff quarters, and public facilities (Figure 5).

Compared with the Japanese government's official residences, Type A quarters were residences of staff in the management level. Being duplexes instead of separate houses, Type A quarters were, however, more spacious than Type A of a basic-level official residences. Similarly, Type B quarters were more spacious than Type B of official residences. Both Type C and Type D quarters were similar to Type C of official residences and Type D of official residences in terms of sizes. From floor plans of quarters, it could be observed that Taiyang Mining Corporation, despite having a considerable number of Taiwanese employees (Table 2), had been susceptible to the Japanese influence as a result of working with Japanese people for a long time. In addition to assigning different types of quarters to different staff based on their position levels, which was similar to the norm of Japanese government's official residences, the spatial configuration in these quarters were also similar to that of the Japanese government's official residences. There were tatamis inside rooms of the quarters, and there were Japanese architectural features such as "alcoves in a traditional

Japanese room where art or flowers are displayed", "built-in shelves", eaves, and corridors.

However, as World War II broke before long, international trades were suspended, resulting in a drop in transactions and demands of gold. In April 1943, the Japanese government commanded parts of the Ruifang Mine to cease operation, as well as sold selected mines, cyanidation plants, and aerial cableways to the Taiwan Power Company and Taiwan's navy. Some employees in the Ruifang Mine were transferred to the Jinguashi Mine. Before long, gold mining operations in the Jinguashi Mine were also forced to halt. All operations were subsequently commanded to cease in February 1945 and all resources were requisitioned by Japanese soldiers.⁵⁰

After the war, Japanese cadres in Taiyang Mining Corporation were dismissed. As the company still had Japanese shareholders, in November 1945, the Special Commissioner's Office in Taiwan under the Ministry of Economic Affairs and the Office of Taiwan Executive Officers jointed appointed five supervisory committee members to take over the position of supervisors. After over a year's reshuffle and accounting work, Taiyang Mining Corporation Co. Ltd. Preparatory Office was established with Qinxian Yan as Head of the Office, Suxing Lin as Deputy Head of the Office, and Bi Zhou as their assistant, to commence the preparation for production restoration. The entire production was finally resumed in 1947⁵¹, and Taiyang Mining Corporation Co. Ltd. was officially established in July 1948 after the preparation was completed and all shares which were held by Japanese shareholders were paid to the government.⁵²

⁵⁰ C.C. Lin, "The Gold Mining Industry in Taiwan" The Gold of Taiwan, p. 43, October 1950.

⁵¹ The 60th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 27, July 1978.

⁵² The 40th Anniversary Press Release of Taiyang Mining Corporation Ltd., p. 6, June 18, 1958.



【Figure 5】 Layout of the facilities of Ruifang Mine
Base diagram: Measurement Plan for House Constructions in Jiufen Area, drawn in October 1963 (Taiyang Co.)

5. Conclusion

In the beginning of the Japanese reign, the Japanese government firstly dispatched technicians to inspect each mine in order to consider the topography and distribution of ore veins, differentiate mining fields justly, and contract mining operations to civilian-run enterprises. These technicians offered professional advices on mining and refining techniques. Mining techniques, which differed from the manual-mining in the Qing Dynasty and were named as civilized large-scale mining techniques

back then” were adopted when techniques such as drill, blast, excavation from ore veins, and erecting buttresses inside tunnels, were introduced by the Fujita Group, which was the first company to be granted mining rights in the Ruifang Mine. In addition, the Fujita Group took technicians’ suggestions to construct the mining facility step-by-step. The historical monument the 8th Tunnel (picture 2), excavation of which was scheduled to take place in 1900, was the principal tunnel that connected other pits to the main refinery.

However, as there were already sporadic gold mining activities of Taiwanese people and scattered small pits in Jiufen, where the Ruifang Mine was located, management was uneasy. This gave Yunnian Yan, who could speak Japanese language, an opportunity to participate in mining activities. Starting from areas where management was uneasy, Yunnian Yan progressively made applications to sublet mining fields to expand mining areas when the Fujita Group’s large-scale mining activities were stricken by a bottleneck. Forming business partnership, which was already practiced by Taiwanese people, to raise funds from Taiwanese people as business setup capital, Yunnian Yan also created organizations which resembled to modern-day logistics and human resources companies to supply Japanese mining enterprises what they needed most - human resources and materials, and gradually expanded his business territory. Judging from the “Memorial Stone of Road Construction” (picture 3), which was built in 1902 by the locals, Yunnian Yan’s perceptiveness in discerning what the locals needed and taking corresponding actions can be observed. All these efforts gradually accumulated the strength of the Yan family, which in turn grew strong enough to compete with Japanese enterprises in later years.

With the trust of Japanese people and profound understanding of Taiwanese people, Yunnian Yan firstly chartered all mining permits in the Ruifang Mine in the 1910s and 1920s, and further let out work under a subcontract, which was already practiced in Taiwan, to bear risks and share benefits with his subcontractors. Adopting a manual mining method, which was coined by Japanese people as the “raccoon dog excavation style”, Yunnian Yan proceeded with gold mining activities in tunnels that were considered as exploited and depleted. Discarded stones that were rejected by Japanese miners were also processed to yield amounts of gold production that astounded Japanese people. The establishment of “Memorial Stone for Good Virtue” (picture 4) was a manifestation of Yunnian Yan’s contribution to the local area. In a later stage, Yunnian Yan’s further acquired all mining permits and turned the Ruifang Mine into a mine solely dominated by Taiwanese people. The flexibility of Yunnian Yan’s business management approach also enabled Taiwanese gold miners to withstand a critical period immediately following World War I.

However, the manual mining method had its limitations after all. In the Shōwa Period and primarily in the 1930s, the successor Guonian Yan, in an period of rising gold prices and the government’s rigorous advocacy, invested in mechanized equipment to perform large-scale excavation on new tunnels and built giant new refineries to bring gold production in the Ruifang Mine to the climax. During that time, Taiwanese people personally engaged themselves in mining activities to gradually become familiar with Japanese techniques and to help nurture Taiwanese technicians. Meanwhile, architectures such as offices, clubs, quarters, and the soul-comforting “Memorial Stone for the Deceased” (picture 5) in addition



【Picture 2】 Bafankeng



【Picture 3】 Memorial Stone of Road Construction



【Picture 4】 Memorial Stone for Good Virtue

to manufacturing infrastructure were expression of Taiyang Mining Corporation's determination to actively participate in the gold mining industry. In the meanwhile, observing Japanese-style architecture such as clubs and quarters, one can see that Taiyang Mining Corporation, which consisted of many Taiwanese employees in management and technical levels, had incorporated Japanese enterprises' approaches in its mining business operations during the course of learning Japanese mining techniques.

In addition, the win-win strategies of Yunnian Yan, who had been an active participant in mining operations since the early Japanese Colonial Period, made the Ruefang Mine a place where many Taiwanese people gathered to live and work. These Taiwanese migrants developed a nuanced symbiotic relationship with managers in the mines. Other than the rights to contract mining work, subcontractors were allowed to build their own houses upon application, which in turn brought about many densely-populated villages in Dacukeng, Xiaocukeng⁵³, and Jiufen, and a spatial arrangement without segregation of classes. The organic development processes of these villages and the architecture configuration of juxtaposed mining facility, offices, dwellings, staff quarters, stores, public facilities, all together made the Ruefang Mine a complete different scene from the Jinguashi Mine, which was largely managed by Japanese companies. Moreover, as the practice of subcontract enabled communal possession of profits from gold mining and subsequently bettered the economic capacity of residents in the Ruefang Mine village, shopping streets in Jiufen enjoyed far more prosperity than streets in Jinguashi and attracted



【Picture 5】 Memorial Stone for the Deceased

consumers from the Jinguashi village although the Ruefang Mine was secondary to the Jinguashi Mine in terms of gold production.

At present, architectures and landscape which were formerly constructed because of Ruifang Mine have been taken beneath the wing of Jiufen to become famous tourist sites and have restored their former glory and prosperity through the development of tourism. Although Jiufen may have received the criticism for being over-commercialized and having lost the ethos of a simple and unadorned mining village, the aforesaid unique historical background and development process of Jiufen can be considered as the important reasons why Jiufen can be assessed as a potential World Heritage site, be famous home and abroad, and keep attracting tourists from everywhere.

⁵³ Being detached from the main mining fields and with less public infrastructure, the Dacukeng and Xiaocukeng areas have become ruins in modern days along with the decline of the mining industry despite the once-upon-a-time prosperous and lively shopping streets, which now present an entirely different picture from shopping streets in Jiufen.