Silk-Reeling Industry and Water Mills in Suwagun at the Turn of the Century

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The industrial revolution in Japan progressed mainly in the 1890s. It is thought that the progress depended not only on the introduction of the Western technology but also on the traditional technology in Japan. This paper discusses the silk-reeling industry in Suwa-gun, Nagano Prefecture that was the leading industry for export and examines the roles the traditional water mills played as a basic production factor.

The trend in the number of large-sized silk-reeling factories (number of employees: more than 100) in Suwa-gun is classified by the driving forces: the number of factories that used steam engines sharply increased; 5, 25 and 39 in 1893, 1905 and 1911, respectively, and the number of factories that used water mills also increased; 10, 18 and 31, respectively. There was no difference in the productivity. The above facts show that if the hydraulic power was available in abundance, the water mills could rival the steam engines.

In 1880s, the increasing number of the water mills that were conventionally used for irrigation of paddy fields were remodelled into the water mills suited for silk-reeling industry and placed along the River Tenryū that was the only river originated from the Suwa Lake and offered the hydraulic power in abundance. Farmers who lived along the shore of Suwa Lake protested saying that these water mills could impede the water flow from Suwa Lake and the flood could occur. But, the number of the water mills for silk-reeling continued to increase and, in the early 20th century, water mills made of iron came into use.

Katakura-gumi, a famous silk manufacturer, started the silk-reeling industry along the River Tenryū, and expanded its business all over Japan. Even as of 1911, the driving forces used in the nine factories in Nagano Prefecture were all water mills.

In 1913, the silk-reeling factories including Katakura-gumi located along the
River Tenryū removed all the water mills and shifted to electricity. However, it was not for the economical reasons, but it was because those factories compromised with farmers who lived along the coast of Suwa Lake suffering from the floods and protested intensely against the use of water mills.