Tawara Kuniichi Memorial Exhibit

This exhibit highlights the life and work of Dr. Tawara Kuniichi (1872–1958), a professor of metallurgy at Tokyo Imperial University (now the University of Tokyo). Born in Hamada, Shimane Prefecture, Tawara was a pioneer in the study of both *tatara* ironmaking and Japanese swords.

Research on Tatara Furnaces

When imported Western furnaces became the dominant means of smelting metals in Japan, Tawara became worried that the techniques of *tatara* ironmaking would be lost. For two months in 1898, he conducted fieldwork at various *tatara* sites in Hiroshima, Tottori, and Shimane Prefectures. At each location, he recorded the different buildings, furnaces, and equipment and collected samples of iron sand and charcoal. Tawara published his findings in his magnum opus, *Korai no satetsu seiren-hō* (Ancient iron sand smelting methods), in 1933, after most *tatara* ironworks had permanently closed.

Scientific Analysis of Japanese Swords

Tawara also conducted the first in-depth analysis of Japanese swords. There had been little research on the metallurgical properties of Japanese blades, because such analysis involved breaking the blade into pieces, and many swordsmiths were reluctant to see a sword destroyed. Tawara showed that different parts of the blade, such as the edge and core, have differing chemical compositions and structures. This varied composition is what gives Japanese swords their distinctive sharpness and flexibility.

To aid his research, Tawara imported the first large-scale metallurgic microscope to Japan from Germany in 1905. The optical microscope on display is a more advanced model that he acquired in 1938.