

***Tatara* Ironmaking as a Commercial Enterprise**

Beginning in the eighteenth century, *tatara* ironworks adopted a more highly integrated production process. Most of the smelted metal made in the furnace needed to be refined before it could be sold. To facilitate this, many ironworks opened forges where low-grade iron could be turned into sellable iron ingots.

The two main facilities in this new arrangement were the *takadono* workshop and the *ōkajiba* forge. At the large *takadono* workshop, crews led by a foreman (*murage*) smelted raw materials into iron and steel. When this process was finished, pig iron and other low-grade metals were separated for refinement at the *ōkajiba* forge.

The blacksmiths remelted and hammered the iron to reduce the carbon content, forging it into flat bars. In Japanese, these bars were referred to as *waritetsu* (“breakable iron”) or *hōchōtetsu* (“kitchen knife iron”). This refined iron was shipped throughout the country and made into a wide range of objects, including agricultural tools, cooking utensils, and matchlock firearms. The dual industries of both smelting and refining helped elevate the Okuizumo region to prominence in the iron trade.