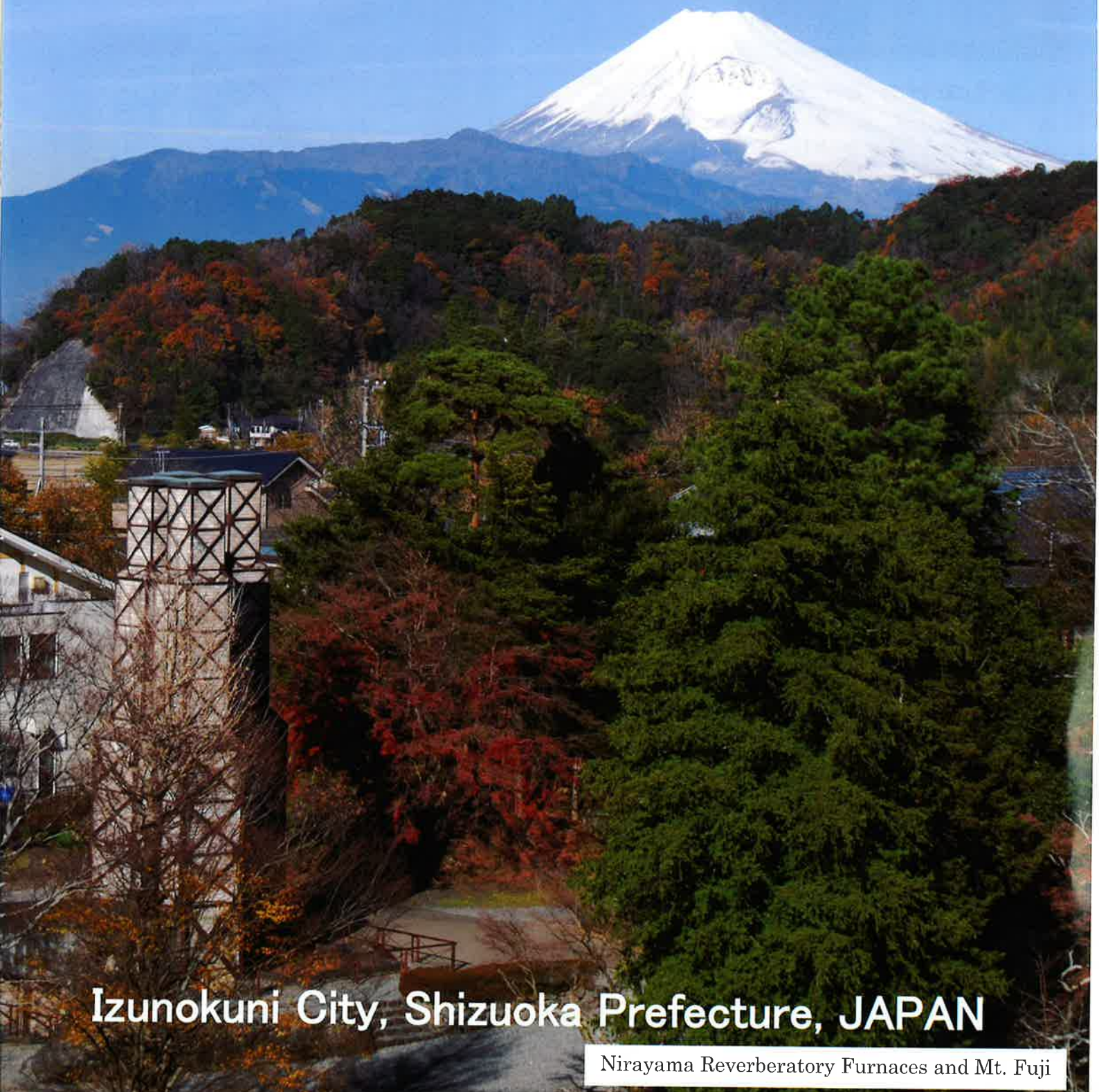


World Heritage

Nirayama Reverberatory Furnaces



Izunokuni City, Shizuoka Prefecture, JAPAN

Nirayama Reverberatory Furnaces and Mt. Fuji

Nirayama Reverberatory Furnaces

Located in Izunokuni City, Shizuoka prefecture, approximately 100 km southwest of Tokyo, at the Izu peninsula, the Nirayama Reverberatory Furnaces is the remain of a cannon factory built by the Tokugawa Shogunate in an attempt to increase the production of cannon for national defense.

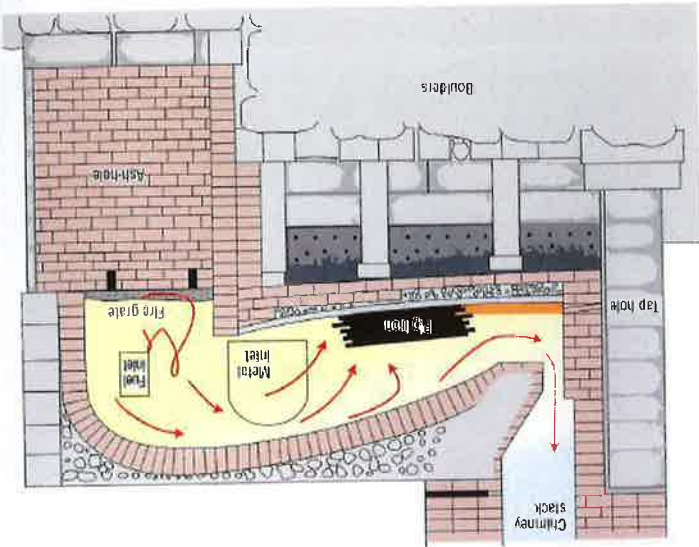
Although this furnace was under operation for a short period between 1857 and 1864, the construction of this furnace, and other reverberatory furnaces in Japan, is regarded as a major turning point in the Japan's industrial history as the first introduction of the modern iron manufacturing technology in Japan.

The Nirayama Reverberatory Furnaces is one component part of Sites of Japan's Meiji Industrial Revolution, consisting of 23 component parts in 8 areas, which heralded the rapid modernization of the country during the closing days of the Tokugawa government and then the Meiji period (1868 - 1912).



Structure of a reverberatory furnace

A reverberatory furnace was a smelting furnace developed in Europe from the 17th to 18th centuries for casting cannon and the like by melting down metals. It consisted of a furnace body with a domed ceiling and a high chimney made of firebricks. By reverberating heat off the furnace ceiling, generated using a fuel such as coal, and concentrating this heat at one point, a temperature of a thousand and several hundred degrees could be achieved that was capable of melting iron. Since the mechanism involved the reverberation of heat, it was called a reverberatory furnace.



Cross-sectional view of furnace body

SITES OF JAPAN'S MEIJI INDUSTRIAL REVOLUTION Iron and Steel, Shipbuilding and Coal Mining

"Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining" comprise a singular ensemble of industrial heritage sites that represent the first successful transfer of industrialization from the West to a non-Western nation. In 2014 the series of sites was nominated for inscription on the World Heritage List, and in

July 8, 2015 it was put on the World Heritage List.

Area	Component Part
A1 Hagi	Hagi Reverberatory Furnace, Ebisu-gahana Shipyard, Ohtayama Tataro Iron Works, Hagi Castle Town, Shokasonjuku Academy
A2 Kagoshima	Shuseikan, Terayama Charcoal Kiln, Sakiyoshi Sluice Gate of Yoshino Leat
A3 Nirayama	Nirayama Reverberatory Furnaces
A4 Kamaiishi	Hashino Iron Mining and Smelting Site
A5 Saga	Mitsui Naval Dock
A6 Nagasaki	Kosuge Slip Dock, Mitsubishi No.3 Dry Dock, Mitsubishi Giant Cantilever Crane, Mitsubishi Former Pattern Shop, Mitsubishi Senshokaku Guest House, Takashima Coal Mine, Hashima Coal Mine, Glover House and Office
A7 Miike	Miike Coal Mine and Miike Port, Misumi West Port
A8 Yawata	The Imperial Steel Works, Japan, Onga River Pumping Station

From the middle of the nineteenth century to the early twentieth century, Japan achieved rapid industrialization that was founded on the key industrial sectors of shipbuilding, iron and steel, and coal mining. The initial phase was one of trial and error experimentation in iron making and shipbuilding, based mostly on Western textbooks, and by copying examples of Western ships. This was followed by the more successful importation of Western technology and the expertise to operate it and, by the late Meiji period, full-blown industrialization through newly acquired domestic expertise and the active adaptation of Western technology to best suit Japanese needs and social traditions. This successful industrialization was achieved in just a little over 50 years without colonization, and on Japan's own terms. The property is testimony to this unique phase in world history.