

Sites of Japan's Meiji Industrial Revolution

Meiji Restoration ⊕ World Heritage

Why was Japan able to modernize in such a short period of time?

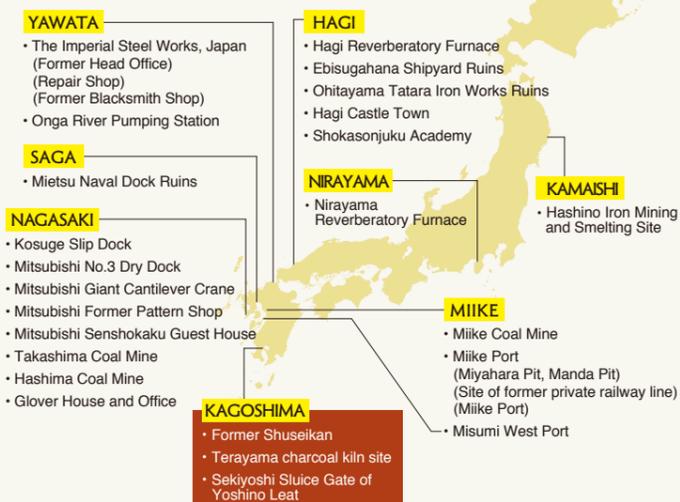
Kagoshima City: A City with a World Cultural Heritage Site
Kagoshima Modern Industrial Heritage Partnership Conference

World Cultural Heritage

Sites of Japan's Meiji Industrial Revolution

Since the introduction of Western technology at the end of the Edo period (1603-1868), Japan has become the first country outside the West to achieve dramatic development in an extremely short period of time. In 2015, the components of this site, which contributed to Japan's industrialization, were registered as a World Heritage Site.

8 prefectures, 11 cities, 23 component assets



The "Sites of Japan's Meiji Industrial Revolution" are made up of 23 component assets, and as a whole have the value of being a single World Heritage Site.

Innovation from the Satsuma Domain



Pioneering Modernization Projects

Shuseikan Project

Translating Western technical books and combining them with Japanese technology

Shimadzu Nariakira, who envisioned the modernization of Japan during the isolationist policy at the end of the Edo period(1603-1868), built facilities such as a reverberatory furnace, a blast furnace, a glass factory, and a steam engine research laboratory, naming this group of factories "Shuseikan."

Shuseikan operations were temporarily scaled back following Shimadzu Nariakira's sudden death, but the Satsuma domain, sensing the need for further modernization following the Anglo-Satsuma War of 1863, actively promoted the introduction of technology by sending students to Britain and inviting engineers to study abroad. These facilities also contributed greatly to Japan's modernization in a variety of fields, including operating Japan's first Western-style spinning mill.

Former Shuseikan

The Birthplace of Modern Japanese Industry
Reverberatory Furnace Ruins

The reverberatory furnaces were used to melt iron to make cannons. Currently, only the lower structure of Furnace No. 2, which was built in 1857 and was precisely constructed using Satsuma's traditional stonework techniques, remains.

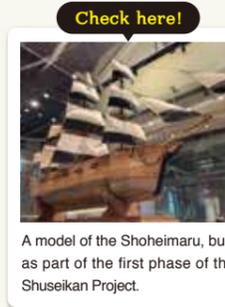


The oldest existing Western-style stone factory building in Japan

Former Shuseikan Machinery Factory

(Currently the Main Building of Shimadzu Family History Museum Shoko Shuseikan)

Completed in 1865, this is the oldest Western-style stone factory building still standing in Japan. Western-style machinery and steam engines were used to manufacture parts for ships' equipment.



Shimadzu Family History Museum Shoko ShuseikanCollection

A Rare Example of Western-style Architecture from the End of the Edo Period

Former Kagoshima Spinning Mill Engineer's Residence (Ijinkan)

It was built as accommodation for the British engineers who provided technical guidance at the Kagoshima Spinning Mill, Japan's first Western-style spinning factory, which was established in 1867. It is the earliest surviving two-story Western-style building in Japan.



Famous Person PICK UP

A Driving Force Behind Technological Innovation

11th Lord of Satsuma Domain
Shimadzu Nariakira (1809-1858)

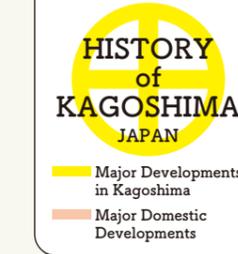
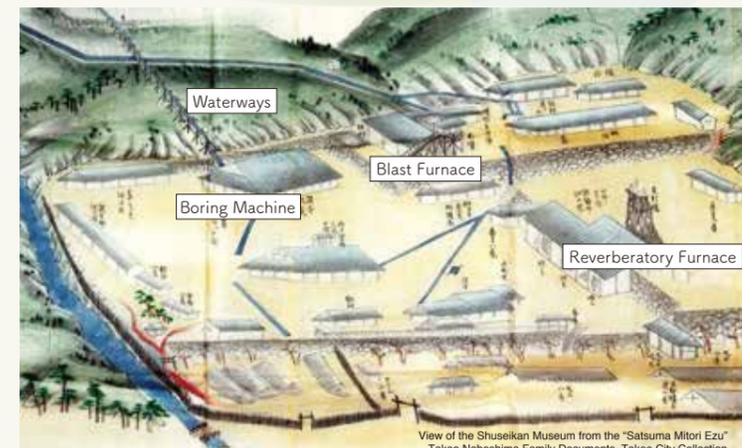
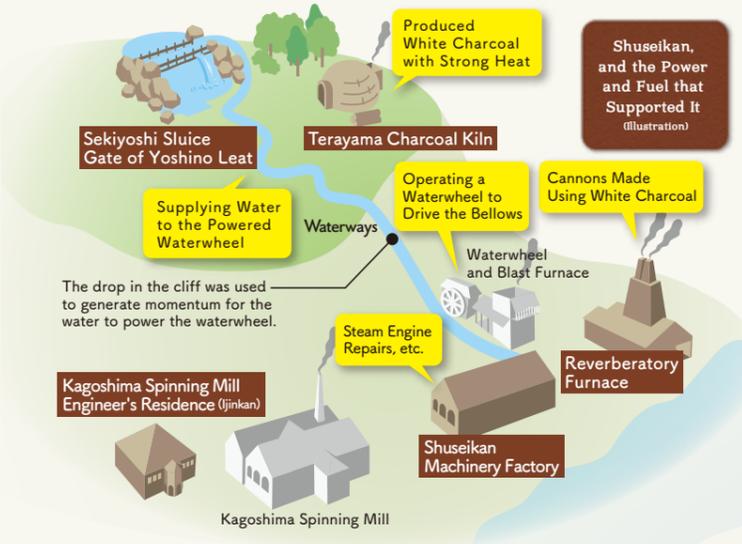
Nariakira became the lord of the Satsuma domain in 1851 and took the lead in a variety of businesses, including ironmaking, shipbuilding, ceramics and spinning, and had a major impact on Japan's modernization.



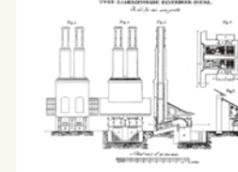
Shimadzu Family History Museum Shoko ShuseikanCollection

Development stages of three industrial sectors (1850s-1910)

| Stages | 1850s | 1910 |
|---------------|--|--|
| | Trial and Error Experimentation | Full-blown Industrialization |
| | Direct Importation of Western Technology | |
| Iron & steel | KAGOSHIMA Former Shuseikan Terayama Charcoal Kiln Site Sekiyoshi Sluice Gate of Yoshino Leat NIRAYAMA Nirayama Reverberatory Furnace KAMAISHI Hashino Iron Mining and Smelting Site | YAWATA Imperial Steel Works, Japan Onga River Pumping Station |
| Ship-building | HAGI Hagi Reverberatory Furnace Ebisugahana Shipyard Ruins Ohitayama Tataro Iron works Ruins Hagi Castle Town Shokasonjuku Academy KAGOSHIMA Former Shuseikan, Sekiyoshi Sluice Gate of Yoshino Leat | NAGASAKI Mitsubishi Nagasaki Shipyard No. 3 Dry Dock (Nagasaki City) Giant Cantilever Crane Former Pattern Shop Senshokaku Guest House NAGASAKI Kosuge Slip Dock NAGASAKI Glover House and Office NAGASAKI Takashima Coal Mine |
| Coal Mining | SAGA Mitsui Naval Dock Ruins KAGOSHIMA Former Shuseikan Terayama charcoal kiln site Sekiyoshi Sluice Gate of Yoshino Leat | NAGASAKI Hashima Coal Mine NAGASAKI Miike Coal Mine and Miike Port |



1st Phase Shuseikan Project



2nd Phase Shuseikan Project

Diagram of the Reverberatory Furnace

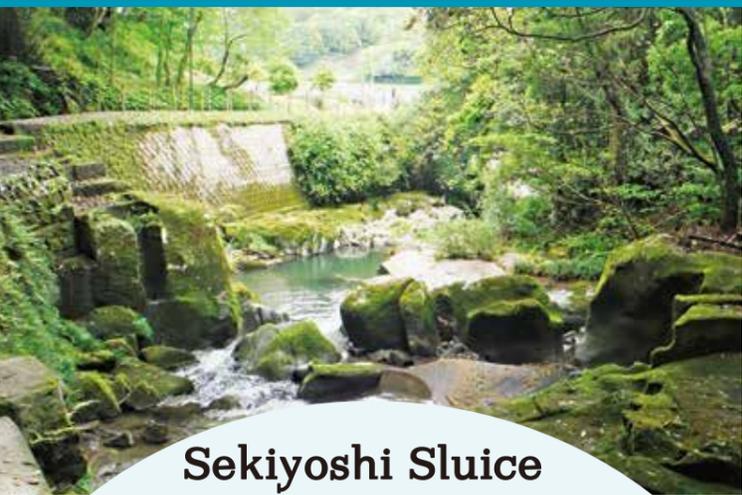
The construction of the reverberatory furnace was carried out with reference to a translated version of a Dutch technical book.



Satsuma Domain Students Studying in Britain

By order of the domain, 15 students were sent to Britain to learn technical skills directly.

- 1851** Launch of the Shuseikan Project / Construction of the reverberatory furnace
- 1852** Start of water supply from Sekiyoshi to Shuseikan
- 1853** Arrival of Perry's fleet in Uruga
- 1857** Completion of Reverberatory furnace (No. 2 furnace)
- 1858** Completion of Terayama Charcoal Kiln
- 1862** Namamugi Incident
- 1863** Anglo-Satsuma War
- 1865** Dispatch of students to the UK/ Completion of Shuseikan Machinery Factory
- 1867** Completion of Kagoshima Spinning Mill and Kagoshima Spinning Mill Engineers' Residence
- 1868** Birth of the Meiji government
- 1872** Completion of Tomioka Silk Mill
- 1877** Satsuma Rebellion



Sekiyoshi Sluice Gate of Yoshino Leat

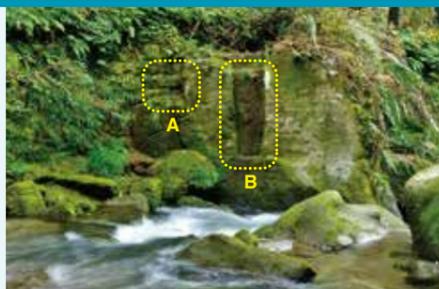
The power source for Japan's first modern factories



This drainage ditch was originally constructed in 1691 as a waterway for rice paddies. Around 1722, the fourth feudal lord, Shimadzu Yoshitaka, extended it to the Shimadzu family's villa (Sengan-en).

Later, Shimadzu Nariakira built Japan's first modern factory complex, the Shuseikan, on land adjacent to Sengan-en. To power its waterwheels, he renovated the drainage ditch in 1852 and began

supplying water to the Shuseikan. The supplied water served as a power source for various purposes: driving waterwheel bellows to increase the heat in blast furnaces for iron production, and powering waterwheels that rotated drilling machines used to bore holes into cannon cores. Today, remnants such as the intake structure and weir can still be seen.



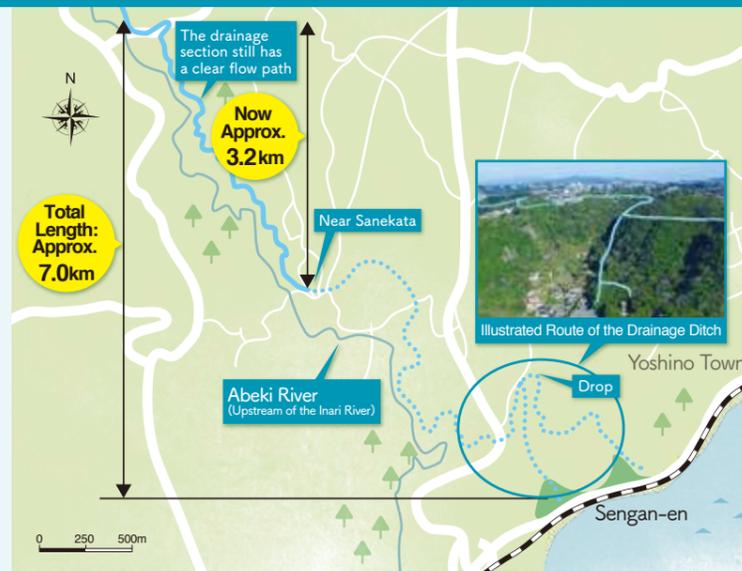
Former Intake on the Left Bank
Remains of the intake used to channel water to Shuseikan (A), along with the ruins of the weir built to dam the river (B).



Former Intake on the Right Bank.
The remains of the intake for the Yoshino Leat, which channeled water to the rice fields (now blocked by a stone wall).



The Appearance of the Time Is Recreated Using CG!



Water Conveyance Utilizing the Topography of the Yoshino Plateau

From the intake to the "drop" is about 6 km, with an elevation difference of only 8 m. Making good use of the gentle slope of the terrain, the water was conveyed by gradually decreasing the gradient.



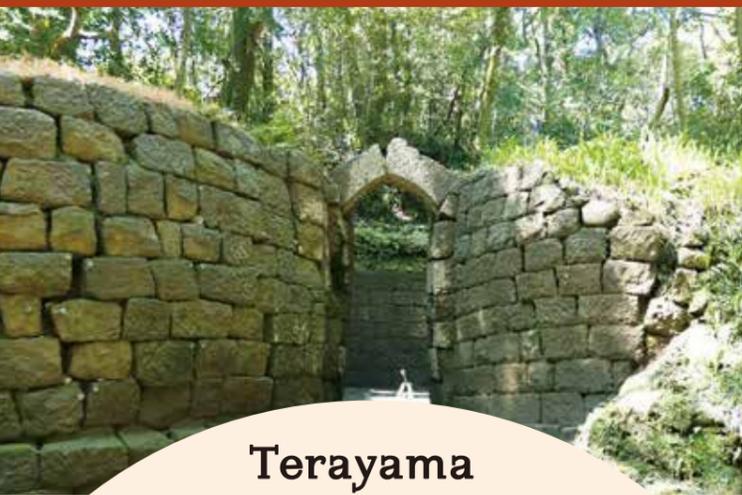
ATTENTION
There is no parking lot at Sekiyoshi Sluice Gate of Yoshino Leat. When visiting, please use the parking lot at the following facilities.



Sekiyoshi Product Center
Tel. 099-208-0510
Address: 1874 Shimotacho
Business hours: 8:30-17:00
Regular holidays: None



Nissei Gallery TO-ON-KAN
Tel. 099-243-6277
Address: 1879 Shimotacho
Business hours: 10:00-17:00
Closed: Mondays and Sundays



Terayama Charcoal Kiln Site

Fuel Source for Japan's First Modern Factories



The Shuseikan Project required large quantities of charcoal to make cannons and other items, so three new kilns were built here on the Terayama site to produce charcoal (white charcoal) with high heat and a long burning time.

The white charcoal sent to Shuseikan was used as fuel for blast furnaces and reverberatory furnaces, which led to the creation of many products such as cannons and glass.

The Terayama charcoal kiln site are a valuable relic that demonstrates that alternative thermal energy sources to coal were researched and produced, supplying the fuel needed for the Shuseikan factories, which were the starting point of Japan's modernization. Today, one charcoal kiln stands quietly on the Terayama Nature Trail in Yoshino-cho, Kagoshima City.

Terayama Charcoal Kiln was built in 1858 by Shimadzu Nariakira to produce fuel for the Shuseikan, Japan's first modern factory complex, which he constructed on land adjacent to Sengan-en Garden.

The Appearance of the Time Is Recreated Using CG!



Illustration of the Charcoal Kiln

How White Charcoal (Shirozumi) is Made

It is believed that trees harvested from the Terayama forest were turned into white charcoal using the following procedure.



Packing the wood raw material into the kiln.



The logs are placed horizontally on top in a dome shape.



The top is then covered with clay to form a ceiling, and the fire is lit.



They are slowly braised, then the finished charcoal is removed.



Ashes are added to cool, and finish.

Transported to Shuseikan

White Charcoal with High Temperature and Long Burning Time

White charcoal (*shirozumi*) is made by firing hard wood at a high temperature of about 1000 degrees, then covering it with ash and rapidly cooling it. It is called "white charcoal" because the surface turns white during the ash-covering process. Compared to regular charcoal (black charcoal), it is much harder and has a longer burning time at high temperatures, making it suitable as fuel for blast furnaces and reverberatory furnaces used to melt iron.



ACCESS MAP



Former Shuseikan Machinery Factory / Former Shuseikan (Reverberatory Furnace Ruins "Inside Sengan-en")

- Address**
9698-1 Yoshinocho, Kagoshima City / 9700-1 Yoshinocho, Kagoshima City
- Getting Here**
-About 50 minutes by Kagoshima City View from JR Kagoshima-Chuo Station, or about 30 minutes by Machi Meguri Bus, and get off at "Sengan-en-mae" stop.
-About 4 minutes on foot from JR Sengan-en Station.
- Contact Information**
Shimadzu Family History Museum Shoko Shuseikan 099-247-1511 Sengan-en 099-247-1551

Former Kagoshima Spinning Mill Engineer's Residence (Ijinkan)

- Address**
9685-15 Yoshinocho, Kagoshima City
- Getting Here**
About 5 minutes walk from JR Sengan-en Station
- Contact Information**
Ijinkan 099-247-3401

Terayama Charcoal Kiln Site

- *Entry is prohibited due to disaster recovery efforts, but the promenade is open
- Address**
10710-68 Yoshinocho, Kagoshima City
- Getting Here**
From JR Kagoshima Chuo Station, take the Nangoku Kotsu Bus (Miyanoura Danchi Line) for about 35 minutes, get off at Sanshubara Gakuen-mae, and walk for about 20 minutes.
- Contact Information**
Kagoshima City Board of Education Cultural Assets Division 099-227-1940

Sekiyoshi Sluice Gate of Yoshino Leat

- Address**
1263-saki, Shimotacho, Kagoshima City
- Getting Here**
From JR Kagoshima-Chuo Station, take the Nangoku Kotsu bus (Ishiki Danchi Line, Midorigaoka Danchi Line, Honjo Line) for about 30 minutes, get off at "Sekiyoshi no Sosuiko Iriguchi" bus stop, and then walk for about 8 minutes
- Contact Information**
Kagoshima City Board of Education Cultural Assets Division 099-227-1940
- *For details on access and admission fees, please contact the relevant facility.

Kagoshima Modern Industrial Heritage Partnership Conference

(Secretariat) Kagoshima City World Heritage · Geopark · Green tourism Promotion Division
11-1 Yamashitacho, Kagoshima City, 892-8677
TEL: 099-216-1504

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Kagoshima City Homepage World Heritage Homepage

Gives an overview of the World Heritage sites in Kagoshima City, and provides information.



Former Shuseikan VR/AR App "Street Museum"

If you download the app and go to the sites, you can enjoy a VR experience of what it was like back then, recreated using CG.



"Sites of Japan's Meiji Industrial Revolution" World Heritage Guide App

Introduces the component assets from all over Japan that contributed to the modernization of Japan.

