

# Sites of Japan's Meiji Industrial Revolution and **Nagasaki's** Industrial Heritage

Under the growing sense of crisis over a foreign menace, Nagasaki supported the introduction of Western technology, which started in the late Edo period.

With "Dejima" as the only window to the outside world during the period of national isolation, Nagasaki has contributed to Japan's modernization by serving as a place to acquire knowledge from overseas.

**The origin of Japan's modernization is here.**



Nagasaki Port (Nagasaki Museum of History and Culture)





A gun battery displayed at Glover House overlooking Nagasaki Port (from the 1860s, owned by Nagasaki University Library)

# Why did Japan need to be modernized?


In the era from the late Edo period to the Meiji period, Japan absorbed a wide range of Western technology and knowledge, and underwent the industrialization process in about 50 years, which is an exceptional rate.

The arrival of the Far East Fleet of 4 ships led by Commodore Perry was the beginning of such success.

The samurai warriors, who saw those steamships that moved without wind, worked hard for the modernization of heavy industry such as iron and steel making, shipbuilding and coal mining. Nagasaki produced brilliant figures that helped protect Japan, and adopted the latest technology from overseas before the other cities in Japan did. It played a major role in Japan's modernization.

In Nagasaki, we can see the industry that has developed since that time.

Let us visit the legacies that the samurai warriors left for us and imagine the days in the era of significant change.

Let's use AR (Augmented Reality) | After downloading the AR app COCOAR from Google Play, or the App Store, start the app and read the pictures with  Only the pictures with this mark can be read.

## Thoughts of protecting Japan from a foreign menace were a driving force to promote modernization.

The news of China's defeat in the First Opium War, which broke out in 1840, came as a great shock to the Japanese in the late Edo period.

It also brought the Japanese a huge sense of crisis. They thought, "we will not have a chance against the country that the great China could not defeat, because it owns steamships which travel over the seas freely and cannons which can be fired at enemies in the distance."

Moreover, when "Hai-guo Tu-zhi" (the writing that recorded the maps and history of China and Western countries as well as Western technology) written after the Opium War by Wei Yuan was introduced to Japan, the sense of crisis and momentum toward revolution grew even more intense among the feudal domains in Japan.

This incident is said to have affected such feudal retainers as Shoin Yoshida, Shozan Sakuma, Kaishu Katsu, and Ryoma Sakamoto who played an active role in the late Edo period. The pace of Japan's modernization was accelerated rapidly starting at this period.



## In the midst of the turbulent late Edo Period, feudal retainers introduced new technology with untiring zeal.



View of the Nagasaki Ironworks (Owned by Nagasaki Museum of History and Culture)

Deeply alarmed, feudal retainers of the domains started to try Western science. In order to make iron, which was essential for industry, reverberatory furnaces were constructed in such places as Kagoshima and Hagi through trial and error. After the arrival of the black ships in 1853, the Edo government decided to import Western-style warships to strengthen coastal defense. In 1855, the Nagasaki Naval Training Institute was established to train commissioned officers, and produced many feudal retainers that later played an important role.

In 1861, the Edo government completed the Nagasaki Ironworks, Japan's first full-scale Western-style factory. The workers, who filed off screw thread with sandpaper up until a few years before, learned Western science and turned themselves into mechanics of screw cutters and machine tools imported from Holland. They built the foundation of Japan's heavy industry.



The Site of the Nagasaki Naval Training Institute

## Thomas Blake Glover brought Britain's technology to Japan.

The samurai warriors, who worked tirelessly for industrialization by solely relying on Western studies literature, finally had a supporter: a Scottish trading merchant named Thomas Blake Glover, who came to Nagasaki at the opening of Nagasaki Port in 1859. He was only 21 years old at the time but talented as a merchant; he founded his own firm, Glover and Co., at the age of 23. He had his house constructed in 1863; this Western-style wooden building known as the Glover House still remains in Glover Garden today. Overlooking the ship traffic and Nagasaki Ironworks, this place attracted many foreigners, and it became an important place for the samurai warriors who aspired for industrialization to gain information about the latest technology.



Young Thomas Glover Bauduin Collection (Owned by the Nagasaki University Library)

## Sending feudal retainers to London. Human resources development was a key factor in the acceleration of modernization.

Glover initially engaged in exporting raw silk and tea. After arranging the trade of ships for the Satsuma Domain, he started illicit trade of arms and warships for the southwest major domains, including the Choshu Domain. By doing so, he gradually built a strong connection with feudal retainers. He also helped the feudal retainers, desperate to learn industrial technologies from all over the world, to travel to his homeland, Britain.

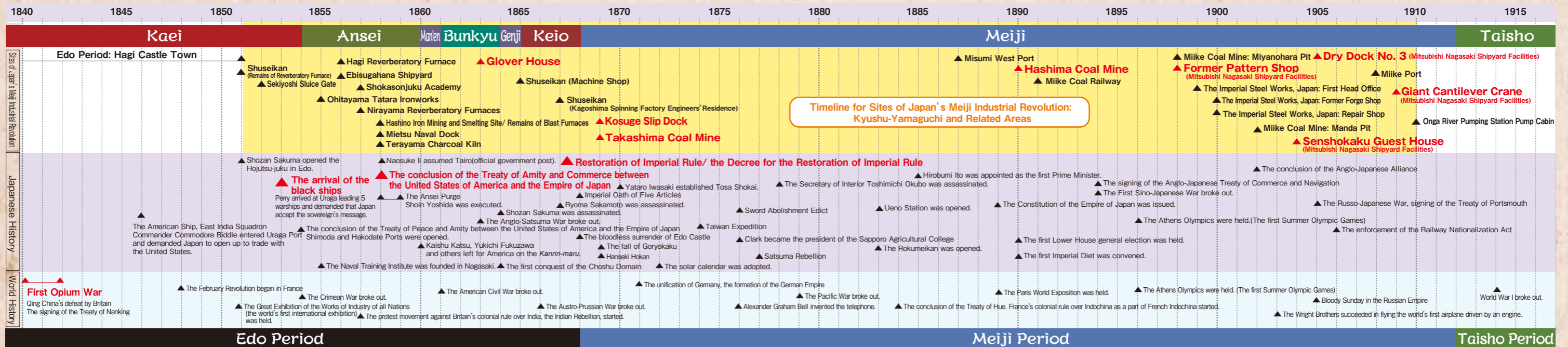
In 1863, Glover helped the Choshu Domain retainers Hirobumi Ito, Kaoru Inoue, Yozo Yamao, Kinsuke Endo, and Masaru Inoue (Choshu Five) travel from Yokohama to London. He also helped send the 19 Satsuma Domain retainers, including Tomoatsu Godai, Munenori Terashima and Arinori Mori (Satsuma Students), in 1865. They learned firsthand about Britain's industry, which was leading the world at the time, and brought its superior technology back to Japan. They later became important figures that took the lead in modernizing Meiji Japan.



[Choshu Five] From left in the back row: Kinsuke Endo, Masaru Inoue, Hirobumi Ito From left in the front row: Kaoru Inoue, Yozo Yamao

# From a country of samurai warriors to an industrial country: Milestones of the miraculous transition

In only a half century, the nature of the country was innovatively changed and the foundation of an industrial country was built. Considering the geography and the era, this is a rare, special event in the world's history. Let us trace the unique path that remains today.



## Direct introduction of Britain's science and technology and foreign engineers.

Glover set up a joint venture with the Satsuma Domain retainers who came back to Japan after studying abroad, and constructed the Kosuge Slip Dock for repairing ships. He invested heavily in this business, directly importing machinery from Britain. He also directly introduced Western technology by inviting engineers from Britain for the construction of modern spinning factories, which the Satsuma Domain aimed to own. In addition, he hired a British engineer named Morris to develop the Takashima Coal Mine where Japan's first steam-propelled winding machine was used; it enabled efficient and large-scale coal mining. In short, Glover's actions, introducing full-scale technology from Britain after much trial and error, were the major factor in accelerating Japan's modernization.

## Those who studied in London played a major role.

The Choshu Five who studied in London played an important role in the Meiji Government. Hirobumi Ito



became the first Prime Minister at the age of 44 and was committed to achieving industrial progress and building a new Japan. Kaoru Inoue was appointed as the first Foreign Minister. Yozo Yamao became the Industry Minister in the Meiji Government, and Masaru Inoue developed the railway business as the Railways Minister. Kinsuke Endo worked at the Japan Mint which Glover helped establish, and later became the Master of the Mint. It was Glover that produced these talented

individuals who protected Japan and built a new Japan. Without Glover, Japan's rapid modernization may not have been realized.

## In only a half century, Japan's industry reached a world-class level.

With an increasing demand for coal due to the growing use of steamships, the Takashima Coal Mine, a modern coal mine utilizing Japan's first steam engine, was established with help from Glover. Its superior technology was adopted at the Hashima Coal Mine (Gunkanjima) in Nagasaki and then at the Miike Coal Mine in Kumamoto; modern coal pits were established one after another.

In the iron and steel industry, the Imperial Yawata Steel Works started operating its blast furnace in 1901, whose scale was comparable to the Western standard.

In the shipbuilding industry, the Nagasaki Ironworks was taken over by Mitsubishi and its name was changed to the Nagasaki Shipyard, which continued to develop. Shipbuilding was a comprehensive industry where a wide variety of machinery was used, and its technology was diverted to coal mining machines and agricultural machinery.

In 1898, the Mitsubishi Goshi Kaisha Mitsubishi Shipyard built the *Hitachi-maru*, Japan's first cargo-passenger ship to exceed 6,000 gross tons. It was the first classified ship by British Lloyd's Register of Shipping, which inspected the ships covered by their insurance.

Only 50 years after the construction of Japan's first steamship, Japan became a shipbuilding superpower that ranked with the Western powers.




# Sites of Japan's Meiji

# Industrial Revolution At A Glance! Kyushu - Yamaguchi And Related Areas

The facilities that show proof of Japan's Meiji industrial revolution remain in 8 different prefectures, mainly in Yamaguchi Prefecture and those in Kyushu. Nagasaki City has 8 heritage sites, including the Hashima Coal Mine and Glover House.

### Yawata Area



- Imperial Steel Works (First Head Office, Repair Shop, Former Forge Shop)
- Onga River Pumping Station

As the industrial modernization continued after the Meiji Restoration, the demand for iron and steel increased. In order to accommodate such demand, the Imperial Steel Works was established as Japan's first integrated plant for iron and steel making. After much trial and error, in 1910 it accounted for more than 90% of the national production of steel. The Imperial Steel Works contributed greatly to the development of Japan.

Imperial Steel Works: First Head Office (not open to public)  
Photo: Nippon Steel & Sumitomo Metal Corporation Yawata Steel Works

### Saga Area



- Mietsu Naval Dock

In an attempt to facilitate the foundation and development of a Western-style navy, the Saga Domain had its retainers train in the Nagasaki Naval Training Institute as students of naval warfare, and established the Onfuno Teikeikoshō (a predecessor of Mietsu Naval Dock) in 1858. The Saga Domain also constructed such facilities as a dry dock for ship repair, and in 1865, it built the *Ryofu-maru*, Japan's first practical steamship.

Remains of Mietsu Naval Dock  
※Reburied and preserved underground after the excavation.

### Nagasaki Area (8 heritage sites)

- 1 Glover House (P7)
- 2 Kosuge Slip Dock (P9)
- 3 Takashima Coal Mine (P10)
- 4 Hashima Coal Mine (P11) (Mitsubishi Nagasaki Shipyard facility)
- 5 Former Pattern Shop (P13)
- 6 Dry Dock No. 3 (P14)
- 7 Giant Cantilever Crane (P14)
- 8 Senshokaku Guest House (P14)



**Industrial Revolution Heritage sites in Nagasaki, which promoted Japan's modernization.**  
See pages 7-16 for details.



- Shipbuilding
- Iron and Steel Making
- Coal Industry

### Yamaguchi Prefecture

### Hagi Area

- Hagi Reverberatory Furnace
- Ebisugahana Shipyard
- Ohitayama Tataro Iron Works
- Hagi Castle Town
- Shokasonjuku Academy


The Hagi (Choshu) Domain actively introduced Western technology. Many of its valuable heritage items, such as a reverberatory furnace to cast cannons and a shipyard to build a warship, remain in this area.

### Kagoshima Area

- Shuseikan
- Terayama Charcoal Kiln
- Sekiyoshi Sluice Gate of Yoshino Leat

Nariakira Shimazu created various businesses including cannon casting and shipbuilding, which were called the Shuseikan business. Many factories such as a reverberatory furnace to cast cannons and Western-style machine factories were constructed.

### Miike Area



- Miike Coal Mine and Miike Port
- Misumi West Port

The modernization of coal-mining techniques progressed at the Miike Coal Mine. The social-infrastructure was improved too: the Miike Coal Mine Railway and Miike Port for coal shipping were constructed.

Miike Coal Mine: Manda Pit

### Kamaishi Area




- Hashino Iron Mining and Smelting Site

Kamaishi produced high quality iron ore. The Morioka Domain embarked on iron manufacturing, thinking that pig iron made from high quality iron ore was necessary for casting cannons. Under the leadership of Takato Oshima and others, the construction of three blast furnaces started in 1858. It is Japan's oldest existing remains of Western-style blast furnaces.

Hashino Blast Furnace

### Nirayama Area



- Nirayama Reverberatory Furnace

After the arrival of Perry in 1853, it was decided that the Nirayama Reverberatory Furnaces would be constructed as government-run reverberatory furnaces. With technical assistance from the Saga Domain and others, it was completed in 1857, and it operated and casted cannons. 15.7 meters tall, it is the only existing legitimate reverberatory furnace in Japan.

Nirayama Reverberatory Furnaces

# Glover House



※Glover House is open to the public.

## Japan's oldest Western-style wooden building Glover House:

When the Treaty of Peace and Amity between the United States of America and the Empire of Japan was concluded in 1854, putting an end to the long-lasting Japanese isolation policy, three ports, namely Nagasaki, Yokohama, and Hakodate, were opened to the world. Then, in Nagasaki, entrepreneurs from foreign countries started to set up house around Oura and engage in trade.

One of these trading merchants was Glover, who was from Scotland. After often changing his place of residence, he had a Western-style wooden house constructed in a scenic, vast area of land on top of the hill at 3 Minamiyamate. This house later became his main residence, and it reached its present style in the mid-Meiji period after extension and remodeling. It is said that Hidenoshin Koyama of Amakusa, who built buildings such as the Oura Catholic Church, was involved with the construction of this house.

The Glover House was constructed in 1863, and it is Japan's oldest existing Western-style wooden building. Its main building and auxiliary building have been designated as an Important Cultural Property of Japan.

## Interactions between Glover and the feudal retainers in the late Edo period:

Glover came to Japan by way of Shanghai in 1859 at only 21 years of age. Among experienced foreign merchants, he initially engaged in exporting raw silk and tea, but later started to deal in arms and warships, focusing on Japan's political turmoil.

At the time, the town of Nagasaki was brimming with the enthusiasm of those dreaming of a new dawn for Japan. Glover soon started to show a remarkable performance beyond his position as a foreign entrepreneur.

Glover interacted with the anti-Shogunate retainers from such domains as Satsuma, Choshu and Tosa, and helped Japanese young retainers, who aimed to obtain the information of the West, study abroad and travel overseas. He helped many young men, including Hirobumi Ito from the Choshu Domain and Tomoatsu Godai from the Satsuma Domain, study abroad. Because he also traded with the Kameyama-shachu led by Ryoma Sakamoto, he is called a shadow hero of the Meiji Restoration.

## Glover contributed to Japan's modernization through trade for shipbuilding, coal mining, and tea making.

Glover had achievements in various fields such as shipbuilding, coal mining, railroad, fishery, minting, and beer industries.

He participated enthusiastically in Japan's modernization; he had a steam locomotive run on Oura Beach in 1865, seven years before Japan's first railway opened, and developed the Takashima Coal Mine and constructed a modern ship repair dock in Kosuge in 1868.

The Takashima Coal Mine Hokkei Pit was jointly established by the Saga Domain and Glover, and the latest machines from Britain were introduced there. It was a modern coal pit utilizing Japan's first steam engine.

In the shipbuilding industry, Glover constructed the Kosuge Slip Dock (commonly known as the Abacus Dock) in



Nagasaki City Minamiyamate-cho Sanjumatsu and Ipponmatsu (Owned by Nagasaki Museum of History and Culture)

The greenhouse of the Glover House. There was a pine tree standing, which is the origin of the residence's nickname "Ipponmatsu" (Single Pine Tree). The stately pine tree became diseased and was cut down in 1905.

Thomas Glover and his family in the front garden of the Glover House (around 1902).



Photo of the Kuraba family 2 (Owned by Nagasaki Museum of History and Culture)

cooperation with the Satsuma Domain, accommodating the needs of the times when ships often had mechanical failures. He introduced a winch powered by a steam engine and built a winch house, which is Japan's oldest existing brick building.

In the tea making industry, he constructed a large factory. Another foreign entrepreneur, Ringer, took over this business.

After the Meiji Restoration, Glover maintained ties with the Meiji Government, importing machinery for the Japan Mint at the Ministry of Finance. However, in 1870, Glover and Co.

went bankrupt, because of sluggish sales of arms and uncollected funds from the domains.

He remained in Japan even after that, and kept contributing to Japan's modernization by, for example, participating in the management of Mitsubishi.

The ownership of Glover House was transferred to the Nagasaki Shipyard of Mitsubishi Heavy Industries Ltd. during the war. The residence was donated to Nagasaki City in 1957 to mark the 100<sup>th</sup> anniversary of the foundation of the Nagasaki Shipyard, and is open to the public in Glover Garden, one of Nagasaki City's tourist facilities.

## Glover spent the rest of his days in Japan

### ■Glover after the Meiji Restoration

Even after Yataro Iwasaki of Mitsubishi took over the Takashima Coal Mine in 1881, Glover still managed it as a director. He also played an active role as a senior adviser for Mitsubishi Zaibatsu after 1885. He recommended Iwasaki participate in the reconstruction of Spring Valley Brewery (a beer manufacturing and sales company) which had faced financial difficulty; this built the foundation of the Kirin Brewery (current Kirin Holdings). Glover greatly contributed to Japan's modernization, and the Japanese government awarded the Order of the Rising Sun, Gold and Silver Star to him to honor his achievements; he was the first foreigner to receive it. He died at the age of 73 at his home in Tokyo in 1911. He now rests in the Sakamoto International Cemetery with his family.

Glover's grave is in the Sakamoto International Cemetery in Nagasaki City. He rests with his wife Tsuru, next to his son Tomisaburo Kuraba and his wife.



Glover wearing the Order of the Rising Sun, Gold and Silver Star  
Photo of Thomas Glover (Owned by Nagasaki Museum of History and Culture)

(DATA) ©8-1 Minamiyamate-cho, Nagasaki City TEL: 095-822-8223 (Glover Garden) ©Entry fee: adults ¥610, high school students ¥300, elementary/junior high school students ¥180.  
(Access) From JR Nagasaki Station, take the tram Shokakuji-shita (Line 1) and get off at Tsukimachi-dentei. Transfer to Ishibashi-dentei (Line 5) and get off at either Oura Tenshudo-shita-dentei or Ishibashi-dentei, then walk for about 8 minutes.

# Kosuge Slip Dock (Abacus Dock) [Mitsubishi Nagasaki Shipyard facility]



Mitsubishi Heavy Industries Ltd.

Completed by Glover and the Satsuma Domain retainers, with the aim of repairing foreign ships.

Western ships were purchased through foreign trading companies in Nagasaki in the late Edo period. But most of them were secondhand and often had mechanical problems.

However, there were no facilities for repairing/fitting out ships in Nagasaki at the time, and the demand for a ship repair dock increased among domestic and overseas ship owners and sailors. In 1866, a plan to build a repair dock in Kosuge was created by Thomas Blake Glover and the Satsuma Domain retainers, including Tomoatsu Godai and Tatewaki Komatsu. Kosuge-ura is close to the entrance to the current port of Nagasaki, and because of the narrow cove stretching sharply into the shore, it was the perfect site to pull ships in and hoist them up for repair.

They invited engineers from Britain and construction started. They constructed a slipway (on which a ship was placed) by laying out 174 meter-long rails from the land into the sea. They also built a Slip Dock which used the slipway to hoist ships up out of the sea.

“Abacus Dock,” historical remnants of value as the origin of Japan’s shipbuilding industry.

The Kosuge Slip Dock, completed in 1869, was a Western-style modern dock, and its winch house is Japan’s oldest existing brick building. A ship was placed on the slipway at full tide and hauled up with a hoisting machine and a boiler-style steam engine. While it was out of the water, its bottom was repaired and fit out. After the repair work was done, the procedure was reversed and the ship was let back down into the sea.



Tokai-maru hoisted in 1877 [Mitsubishi Heavy Industries Ltd.]

The Kosuge Slip Dock and its winch house are important remnants in the history of Japan’s modern shipbuilding industry. They are also valuable as factory buildings used during the late Edo and early Meiji periods, thus representing the earliest days of Japan’s modern industry.

**The winch house is Japan’s oldest brick building, with its exterior wall made of “Konnyaku” bricks.**

Japan’s oldest existing brick building, the Kosuge Slip Dock. It was constructed with bricks thinner than ordinary bricks, commonly called “Konnyaku” bricks. There are various theories as to why those bricks were used; one of them is that the temperature of the burning kiln could not become high enough to make normal-sized, thicker bricks.



# Takashima Coal Mine (Takashima Hokkei Pit)



The modern coal pit utilizing Japan’s first steam engine.

The Takashima Coal Mine and Hokkei Pit were the first coal pits in Japan constructed with the aid of foreign capital and technology. Because of the remains of the steam engine such as a vertical pit remaining in the ground in good shape, they are major examples that show the early days of Japan’s modern coal mining technologies.

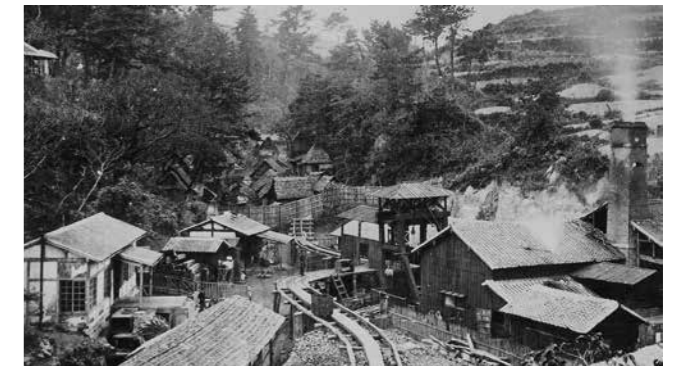
In Takashima, located offshore in the west of the Nagasaki Peninsula, coal mining started around the 18th century. After Japan opened its ports, Nagasaki was a base for transporting coal and supplying coal for steamships from Western countries.

With an increasing demand for coal as fuel for steamships from Western countries, the Saga Domain and Glover and Co. started to jointly manage the development of the Takashima Coal Mine in 1868. They invited a British engineer named Morris and built a vertical pit utilizing Japan’s first steam engine in Takashima. In 1869, they reached coal seams at 43 meters in depth, and this pit was named the Hokkei Pit. At the Hokkei Pit, a steam engine was installed outside the pit, and a coal box was moved up and down with a winding machine to deliver coal to the surface. A steam pump was also installed to drain water off, and a windmill was placed outside the pit for ventilation.

The Hokkei Pit was the first modern coal pit where an ocean floor coal field was mined using Japan’s first steam engine, utilizing the latest Western technology and machinery.

The Takashima Coal Mine built the foundation of Japan’s coal industry.

It is said that the amount of coal mined at the Takashima Coal Mine reached 300 tons a day, but in 1876, it was



Hokkei Pit in operation (Nagasaki City Takashima Coal Mine Museum)

abandoned because of sea water flooding. However, its coal production techniques, completely different from conventional techniques, were later introduced at Chikuho and Miike Coal Mines, leading to the development of coal mines in Japan.

Some vertical pit mouths remain in Takashima today. The remains of the Hokkei Pit became a Nationally Designated Historic Site in 2014. Glover, who was involved in the development of the coal mine, had a villa on Takashima.

**Takashima transforming itself from a coal-mining town into a resort.**

The Takashima Coal Mine was at its peak in the early 1960 -1970s. There is a record indicating that the population of Takashima exceeded 18,000 in 1968, but the population today is around 1,000. Takashima is promoting local tourism featuring its rich nature. Tourist facilities such as the Takashima Tobishima Iso Fishing Park, the seawater warm bathing facility “Iyashi-no-yu”, and Takashima Beach were established, drawing 40,000 tourists to Takashima in 1998.



Takashima Beach

# Hashima Coal Mine (Gunkanjima or Battleship Island)

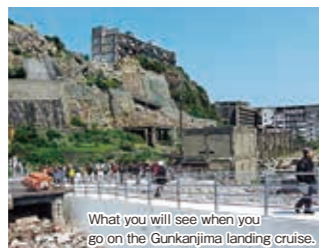


※You can see Gunkanjima as if you have just come ashore.

Gunkanjima is popular because it is an architectural heritage site that symbolizes Japan's modernization (industrialization).

Hashima Coal Mine is an undersea coal mine developed by Mitsubishi as a fully-operational modern coal mine.

Surrounded by the high rising sea wall and chimneys that once endlessly spewed out smoke, it did not take long before people started calling the island Battleship Island, or Gunkanjima in Japanese. Its distinct appearance and atmosphere are now drawing people's attention more than ever as an architectural heritage site symbolizing Japan's modernization (industrialization).



What you will see when you go on the Gunkanjima landing cruise.

A modern coal mine that once produced quality coal and led the age of modernization in Japan.

Hashima Island is located about 18km southwest of Nagasaki Port. It is a small island with an area of 6.5ha. Until the end of the Edo Period, fishermen would dig out the coal appearing on the rock surface and called it "sea mining." It was a kind of side-job to make extra money.

It was in 1875 that full-fledged coal mining operations were started by the warriors of the old Fukahori family, who as the mine owners, consigned Hiide Koyama of Amakusa to operate the business. Then in 1890, mine operation was handed over to Mitsubishi, which also operated the

Takashima Coal Mine.

At this point, development of Hashima (Gunkanjima) started. After Shafts No.2 and No.3 were completed, the amount of coal produced in 1897 surpassed the amount produced at the Takashima Coal Mine.

Since Hashima-mined coal was high in quality, it was mainly supplied to the Imperial Steel Works as raw material for producing steel. It was around this time that Mitsubishi's company-owned ship the *Yugao-maru* started operating, a distilled water machine was set up for supplying fresh drinking water, and an elementary school was built as part of the project to enhance the residential environment on the island. And along with the development of the mines, a series of land reclamation projects around the island were carried out.

Hashima was originally an island that measured approximately 320m north to south and 120m east to west. But after six reclamation projects, the island became triple the original size, to 480m north to south and 160m east to west by 1931.

Historical residential ruins consisting of Japan's first concrete apartment buildings.

At the Hashima Coal Mine, mine development was underway along with a rush in building housing for accommodating the burgeoning worker numbers. In 1916, Japan's first high-rise reinforced concrete apartment building was completed. During the peak, the island's population reached more than 5,000, which was at that time nine times the population density of Tokyo.



A tunnel spewing smoke. 1901 ("Hashima (Gunkanjima)," Takashima Board of Education)

Clean coal from the warehouse was placed on a belt conveyer to be loaded on to a coal cart. Until it was shut down in 1974, the coal mine supported Japan's energy demand.



"Nagasaki Yugaku 4" (Nagasaki Bunken-sha)

More than half the island was used for mining and the rest was covered with residential buildings, schools, and a hospital for workers. And because these buildings were so close to each other, people on the island all lived like one big family. There were schools, a hospital, stores and everything needed to live a normal life on the island. They even had a cinema, pachinko parlor, and other leisure facilities.

However, after establishing an era as the island of coal, the energy revolution in the 1960s began to affect the industry where rationalization eventually forced the mine to close down in 1974. In April of the same year, Hashima became a deserted island.

In Hashima, huge and complex shafts, some of which went down as deep as 1,000m, were dug underground to mine coal from the seabed.

The Hashima Coal Mine helped Japan's modern industry by extracting quality coal from the seabed which was used for manufacturing steel.

From 2008 to 2009, a visitor walkway through the island and some sightseeing spots were built for welcoming tourists. Tourists have been allowed to come ashore on one part of the island since April 2009. Hashima became a Nationally Designated Historic Site in 2014.

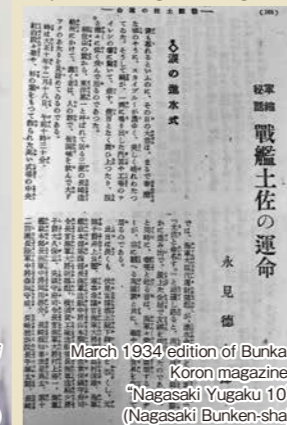
## The story of the battleship Tosa and Aihachi, a geisha from Nagasaki.



The novel *Nagasaki Bura-bura Bushi* (Song for strolling through Nagasaki), whose main character is Aihachi. "Nagasaki Yugaku 10" (Nagasaki Bunken-sha)

The battleship Tosa, after which Gunkanjima was nicknamed, was built and launched in 1921, but was scrapped due to the Washington Naval Treaty established the following year. Aihachi, a geisha from Nagasaki, who was known for her love of sumo and the navy, one night discovered that the *Tosa* was to be towed to Kure and sunk in to the sea. Upon this discovery, she expressed her grief through an improvised song that she sang during a farewell party among

sailors and workers from the Nagasaki shipbuilding company the night before the battleship left the port. "Tosa is a gentle child. Leading this child to the port of crane goes Mt. Satsuma Osumi Fuji. The morning sun shines, yet I am full of tears...." This episode became famous after Nagasaki-born playwright Tokutaro Nagami presented a contributing article about the fate of the battleship *Tosa* in the March 1934 edition of Bunka Koron.



March 1934 edition of Bunka Koron magazine. "Nagasaki Yugaku 10" (Nagasaki Bunken-sha)



Battleship Tosa

# Former Pattern Shop

## (Mitsubishi Nagasaki Shipyard)



Mitsubishi Heavy Industries Ltd.

※ You can view a part of the museum.

### Mitsubishi, founded by Yataro Iwasaki, made some great contributions to Japan's modernization.

Yataro Iwasaki was born as the first son of a poor masterless samurai from the Tosa clan of the chika rank, but eventually became the leader of one of Japan's largest companies.

When Yataro was 21 years old, he went to Edo (now Tokyo) to build his life through education. However, when he heard his father had been assaulted by the village headman, he decided to return home, appeal, and got sent to prison. While in prison, his inmate taught him business and how to use an abacus. This was the first step for him to become the top businessman in Japan.

In 1867, he was asked by the Tosa clan to work as head of its commercial organization as well as the caretaker of Nagasaki. Eventually, he decided to take over operation of the Kaiseikan, which was scheduled to close for the clan's administration reform, and in 1869, he launched a new company named the Tsukumo Trading Company and started a shipping business. Following the Meiji Restoration, the company changed its name to Mitsubishi, which became Yataro's privately owned company.

While running his shipping business, Yataro invested hugely in shipbuilding and introduced Western technology before anybody else. With the new technology, he not only built ships but also manufactured various large machines, such as main engines, reciprocating steam engines, steam turbines, and boilers for ships.

### Former Pattern Shop: The oldest extant building in the Nagasaki Shipyard.

The Former Pattern Shop was a place for making wooden molds that served as models of iron casts used for casting

Rail used for transporting materials to the foundry next door still remain.  
"Nagasaki Yugaku 8" (Nagasaki Bunken-sha)

production. The factory was built in 1898 next to the iron cast factory and is the oldest existing building in the Nagasaki Shipyard. Here, iron cast production was a merger between Western technology and Japan's traditional woodcraft technique.

The factory is a two-story brick building featuring a roof truss that supports the roof. It is one of the largest pattern shops built in Japan in the 30s of the Meiji Era (1897-1906).

### The building of the Former Pattern shop is now used as a museum.

The Former Pattern Shop was renovated in 1985 in order to pass on the knowledge of the role played by the Nagasaki Shipyard in modernizing Japan for future generations. The museum exhibits about 900 historical materials that tell the story of the Nagasaki Shipyard, from the launch of Nagasaki Yotetsusho as the predecessor of the Nagasaki Shipyard in 1857 to the present. These are rare materials that include Japan's oldest machine tools, a diving bell used for seabed investigation, and the first Japan-made steam turbine that tells the story of the development of steam turbine technology in Japan.



Mitsubishi Heavy Industries Ltd.

〔DATA〕Advance reservations are required to visit the facility. 〇1-1 Akunoura-machi, Nagasaki City, Nagasaki Prefecture Tel: 095-828-4134 (Mitsubishi Heavy Industries, Ltd., Nagasaki Shipyard Museum)

④Admission fees: adults (high school age and over) ¥800, elementary/ junior high school students ¥400.

④Access 〇Independent visits: Ride the Museum shuttle bus which departs JR Nagasaki Station (5 buses per weekday, 6 buses on Saturday/ Sundays).

④Group visits: Please inquire for details.

# Industrial revolution heritage sites which are not open to the public <Nagasaki Shipyard Facilities>

## 6 No. 3 Dry Dock

This dock, built in 1905, was the largest in Asia.

After five years of hard construction work including shaving the cliff behind it and reclaiming the sea, the No. 3 Dry Dock was completed in 1905. It was the largest dock in Asia. It was during the time when the company was named Mitsubishi Goshi Kaisha.

During the formation of Japanese industry, the Nagasaki Shipyard changed ownership from the Shogunate Government to the Meiji Government and then to Mitsubishi, as it worked on shaving the cliff behind and reclaiming the sea in front to expand the factory area. As main facilities of the shipyard, the No. 1 Dry Dock was completed in 1879, No. 2 in 1896, and No. 3 in 1905. For years, these dry docks had been used for repairing and building many ships, but the No. 1 Dry Dock and No. 2 were closed in 1963 and 1972

respectively. Dry Dock No. 3 is now the only remaining dock still in operation since opening in the Meiji Era.

The drain pump, powered by an electric motor from UK-based Siemens, which was installed when the dock opened, is still in operation after a century, thus maintaining the function of the dry dock.



Mitsubishi Heavy Industries Ltd.

## 7 Giant Cantilever Crane

Precious industrial heritage from the time when Japan's shipbuilding technology reached world-class standards.

The Giant Cantilever Crane that stands high at the center of Nagasaki Port is the first hammer head electric crane installed in Japan.

The crane that survived the air raid and atomic bombs during the war is still used for delivering large products. The giant cantilever crane was produced by UK-based Appleby, and installed in the Akunoura Pier of Nagasaki Shipyard by another UK-based



Mitsubishi Heavy Industries Ltd.

company, Motherwell, in 1909.

It has a lifting capacity of 150 tons and operates with an electric motor. The UK-based company Motherwell transported the crane after dismantlement and sent a British engineer, Gardner Roger, to supervise the crane's installation and provide technical guidance. By the time the crane was installed, the Nagasaki Shipyard had become the largest private shipyard in Asia. In 1908, one of world's finest luxury liners, the *Tenyo-maru*, was completed. In the same year, the first Japan-made land and marine steam turbines were completed.

In 1961, the crane was relocated to Mizunoura Pier, as the surrounding sea was reclaimed due to expansion of the machine factory. The crane is still in use today for loading steam turbines and large ship propellers manufactured in the machine factory.

## 8 Senshokaku Guest House

A modern Western-style building designed by a Japanese architect.

Senshokaku Guest House is a wooden Western-style building built on a hill on the ocean side of the main building on the premises of Mitsubishi Heavy Industries' Nagasaki Shipyard overlooking the No. 3 Dry Dock. Construction started in 1903 as the house of Heigoro Shoda, the director of the Nagasaki Shipyard, and was completed in 1904. It was the following year when Prince Higashifushimi Yorihito, captain of the warship *Chiyoda*, stayed overnight at the house, and he named the building Senshokaku in appreciation of the magnificent view. Tatsuzo Sone, who designed the building, studied western-style architecture as a member of the inaugural class of the Imperial College of Engineering (now the Department of Architecture at the University of Tokyo) from British architect Josiah Conder, and became a pioneering Japanese architect. Conder was then teaching design as an adviser for Mitsubishi after being introduced to the company by Thomas Glover. At the request of the

shipyard director, Heigoro Shoda, Conder introduced Tatsuzo Sone to the company. Sone joined the company in 1890 and started working for the Mitsubishi Marunouchi Architectural Office where he designed Senshokaku. The two-story Western-style wooden building (with a brick-made basement) has bedrooms and a hall on the second floor, a dining room, reception room, and a study on the first floor, and a kitchen on the basement floor. The lawn, garden and trees are maintained by Mitsubishi to preserve the conditions present when the house was built.



Mitsubishi Heavy Industries Ltd.





A view of Nagasaki's Industrial Heritage from the sea.

# Look at the industrial heritage, then...

## Off we go to Gunkanjima!

Nagasaki started developing in the 16th century, gradually expanding its land through reclamation of the sea.

Dejima was completed in the 17th century, and trade with the Netherlands began.

Soon after, Japan opened up after the Tokugawa Shogunate's rule came to an end, Americans, British, and other westerners started to visit Nagasaki.

Around the Meiji period, Western-style houses were built along the sea coast and many factories were built during the country's industrialization.

Nagasaki is genuinely a port town that started its development from the sea.

See evidence of Nagasaki's multi-layered history from a tour boat, as you head for the industrial heritage site, Hashima (Gunkanjima).

### You can see some of Glover's magnificent work along the coast.

Let's get ready to sail out for the tour! You will see much exciting scenery on the way, but there is one industrial heritage site that can be seen before we leave port. It is the Giant Cantilever Crane that stands high at the center of the Mitsubishi Nagasaki Shipyard. You can see it straight ahead from the bay area, including the port the tour ship is about to leave and Nagasaki Seaside Park. The crane is still in operation after 100 years. It is truly one of the most important heritage sites Nagasaki is proud to present.



Giant Cantilever Crane

As soon as the ship leaves port, you will see on the hill to your left the Glover House, which is a Western-style house built by Thomas Glover, a Scottish merchant. A view of this elegant Western house through the greenery is very exotic. On the other side of the ocean from the Glover Garden

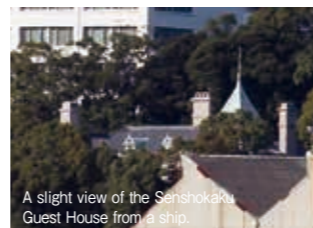


The Glover House viewed from a ship.

where the house is built, you can see rows of factories built by Mitsubishi Heavy Industries, Ltd. In 1863 when Glover built his house, Nagasaki Ironworks, which was the forerunner of Mitsubishi, was already built and Glover had already begun working as an adviser during the Meiji era. The Giant Cantilever Crane was also introduced from the U.K. and there is no way one can speak of Nagasaki without mentioning the crane.

Go a little farther and you will also see on the left side the ruins of Kosuge Slip Dock.

This was another facility built after Glover and the Satsuma Domain together established a company. Japan's oldest slip dock built on a naturally-formed deep inlet still remains as it was back in the old days. The



A slight view of the Senshokaku Guest House from a ship.

green winch house is one of Japan's oldest existing brick-made buildings, and its quaint façade lends to the overall atmosphere. Many shipbuilding firms still surround the area and houses are built on the surface of the mountain above the factories. You can see and enjoy the distinct geographical scenery of Nagasaki where people live their lives on slopes.



Kosuge Slip Dock

### Going under the Megami Ohashi Bridge.



Megami Ohashi

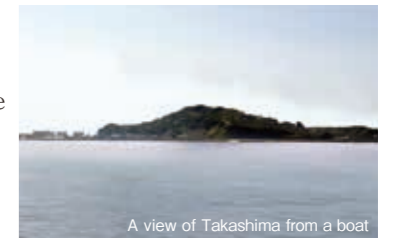
Go under Megami Ohashi, which stands at 65 meters above sea level, and you will see to your right the white Kaminoshima Church and statue of the Virgin Mary, and also Saint Michael's Church of Iojima Island. These are places where the people of Nagasaki, who had their eyes opened through resurrection and obtained freedom of religion, still gather to give prayers. Churches that can be spotted from the sea are all built on the steep cliff and welcome us with their beautiful appearances.

If you look to the right from Iojima, you will find the Koyagi Plant of the Nagasaki Shipyard. If the time is right, you will be able to see tankers and luxury passenger boats, which will make you realize once again that shipbuilding is Nagasaki's main industry. In Takashima, an island next to Iojima, you can find ruins of another coal mine that was developed by Glover, who introduced excavation using



Kaminoshima Church

the steam engine. The Takashima Coal Mine Museum, which is full of historical items, is a place highly recommended. Once you pass Takashima, you will finally start to see the silhouette of Hashima, also known as Gunkanjima. So far, the cruise has taken about 40 minutes. And just during this time, we have been able to journey through the 100-year-old heritage and the development of an industry, which remains to this day.



A view of Takashima from a boat

### We can now see Hashima (Gunkanjima), an island that prospered through its coal mines.

Once you come ashore on Gunkanjima, you will be able to learn the history of Nagasaki's coal mining, starting from the revetments built during the Meiji era and Japan's oldest apartment buildings built in the Taisho era, which both lead to the Showa era. You will also see how the mined coal is used as an energy source to develop the iron manufacturing and ship building industries that have also developed and spread along the coast of Nagasaki.

The history of Nagasaki started from the sea and Japan's industrialization started from Nagasaki. When you look at the now popular industrial heritage sites from off shore, you can see how they blend so well with the scenery of Nagasaki, making us realize that they are something very familiar to us.



Nagasaki Port from a distance



Gunkanjima sits peacefully in the sea

Places to see along with the industrial heritage sites

# Places to see in Nagasaki

## Dejima

One of the reasons why Nagasaki had a strong influence on Japan's modernization is because Dejima was the window to overseas.



Painting of Dejima (Collection of Nagasaki University)



Dejima, under restoration

Trade between Japan and the Netherlands began in 1600 after the Dutch ship *De Liefde* was stranded in a place which is now in Oita Prefecture (the navigator was William Adams, who later became known as Anjin Miura). The Netherlands was given a trade license by the Tokugawa government in 1609 and opened a trading post in Hirado. In 1641, the Dutch trading post was moved from Hirado to Dejima. Since then, for 218 years until the opening of the country during the Ansei Era, trade with the Netherlands played an important role in Japan's modernization.



Toran-kan Scroll (Collection of Nagasaki Museum of History and Culture)

Dejima once disappeared during the Meiji era due to a number of construction works on the port, however it is now gradually being restored by Nagasaki City. In 2002, five buildings - the Deputy Factor's Quarters, Kitchen, First Ship Captain's Quarters, No. 1 Warehouse, and No. 2 Warehouse - were completed. In 2008, five more - the Sea Gate, the Chief Factor's Residence, Town Elders' Room, No. 3 Warehouse, and the Head Clerk's Quarters - were completed and are open to the public. Six more are currently under construction, scheduled for completion in 2016.

- 6-1 Dejima-machi, Nagasaki City Tel: 095-821-7200
- Admission fees: Adults ¥510, High school students ¥200, Elementary and junior high school students ¥100.

## Nagasaki Kameyama Shachu Memorial Museum

The museum is built on the original site of Japan's first trading company established by Ryoma Sakamoto and his supporters during the last days of the Tokugawa Shogunate. Inside the building, which has been restored very close to its original structure, you will find documents about people related to Sakamoto and the Kameyama Shachu, as well as other historical materials about Nagasaki during the last days of the Tokugawa Shogunate. These materials tell how Nagasaki, where Sakamoto was very active, played an important role in Japan's modernization.



A photographic portrait of Ryoma Sakamoto Collection of Nagasaki Museum of History and Culture

- 2-7-24 Irabayashi, Nagasaki City Tel: 095-823-3400
- Admission fees: Adults ¥300, High school students ¥200, Elementary and junior high school students ¥150.

## Nagasaki Museum of History and Culture

Known to be one of Japan's few museums with a theme of "The history of overseas exchange," the Nagasaki Museum of History and Culture has approximately 48,000 valuable historical materials. Visitors can see a wide range of historical materials that tell how Nagasaki's relationship with the West started and how trade began. It also has restored a part of the Magistrate's Office as an exhibition room where detailed explanations of the function and role of the office are provided.



- 1-1-1 Tateyama, Nagasaki City, Nagasaki Tel: 095-818-8366
- Admission fees for the permanent exhibition: Adults ¥600, Elementary to high school students ¥300.

## Siebold Memorial Museum

Philipp Franz von Siebold was a German physician and botanist, who came to Japan in 1823 as resident physician at the Dutch Trading Post on Nagasaki's Dejima. With permission from the local government office he opened a medical school, *Narutaki-juku*, to teach modern Western medicine. He is well known for his work of introducing Japan's nature and culture to Europe after conducting scientific and comprehensive research, and for introducing modern Western medicine to Japan. The Memorial Museum exhibits materials that introduce Siebold's background, his activities and accomplishments in Japan, as well as his family and rewards he received.



- 2-7-40 Narutaki-machi, Nagasaki City Tel: 095-823-0707
- Admission fees: Adults ¥100, Elementary and junior high school students ¥50.

## Oura Catholic Church

This is said to be Japan's oldest existing wooden church in the Gothic style. It was completed in 1864 for foreigners to practice Christianity, since foreign residents were assured of their freedom of faith after the black ships arrived and opened up the port. In March 1865, 15 Christians, including Yuri Sugimoto, descendants of early Japanese Christians who went into hiding, came to the church to confess their belief in Christianity to the Father. This event became known as the discovery of Christians in Japan and impressed and moved people's hearts around the world.



- 5-3 Minamiyamate, Nagasaki City Tel: 095-823-2628
- Admission fees: Adults ¥300, Junior and high school students ¥250, Elementary school students ¥200.

# Access to industrial heritage candidate sites

Access to remains of industrial heritage candidate sites ※No. 3 Dry Dock ⑦Giant Cantilever Crane ⑧Senshokaku Guest House are not open to public

- Glover House** From JR Nagasaki Station, take the streetcar, line 1 bound for Shokakuji-shita and get off at Tsuki-machi. Transfer on to line 5 bound for Ishibashi, and get off at either Oura Tenshudo-shita or Ishibashi. Walk for about 8 minutes to Glover Garden.
- Kosuge Slip Dock** From JR Nagasaki Station, take the Nagasaki Bus bound for Nomo-hanto (via Tomachi), and get off at Kosuge-machi. Walk for about 5 minutes.
- Takashima Coal Mine** Walk for about 25 minutes from Takashima Port Terminal, or take the bus from Takashima Port Terminal to Honmachi bus stop then walk for about 1 minute.
- Hashima Coal Mine (Gunkanjima)** You can visit Hashima Coal Mine as part of the Gunkanjima landing cruise. For more information, please contact the following organizations.
 

●Yamasa Shipping Co., Ltd.	○http://www.gunkanjima.net/	○Tel:095-822-5002
●Gunkanjima Cruise	○http://www.gunkanjima-cruise.jp/	○Tel:095-827-2470
●Gunkanjima Concierge Company	○http://www.gunkanjima-concierge.com/	○Tel:095-895-9300
●Seaman Company	○http://www.gunkanjima-tour.jp/	○Tel:095-818-1105
●Hirotoke Baba	○http://gunkanjima65.yu-yake.com/	○Tel:090-8225-8107
- Former Pattern Shop**
  - Independent visits: Ride the Museum shuttle bus which departs JR Nagasaki Station (5 buses per weekday, 6 buses on Saturday/ Sundays).
  - Group visits: Please inquire for details. Tel: 095-828-4134 (Mitsubishi Heavy Industries, Ltd., Nagasaki Shipyard Museum)

Streetcar route Streets of Nagasaki Ryoma  
 ♿ Toilets (No toilet for the disabled) ♿ Toilets (Toilet for the disabled available)  
 ♿ Toilets (Toilet for the disabled and sink for "ostomate" available)  
 ※Toilet signs are put up with cooperation from Nagasaki Women's Walk Rally Executive Committee.

**P** Parking spaces for taking public transportation from here.  
**Parking spaces for the Park And Ride**  
 These parking spaces available around the Peace Park are for parking your car and taking the bus or train to the central part of Nagasaki.  
 This allows you to avoid traffic and enjoy sightseeing stress-free.  
 ♿♿♿ Standard-size cars: **¥610/one time**  
 (For less than two hours, parking fees will be charged in blocks of time)  
 ♿ City-operated Peace Park Parking (7:00-20:00) 8-13 Okamachi, Nagasaki City Tel:095-848-2210  
 ♿ City-operated Matsuyama-machi Parking (7:30-22:00) 2-3 Matsuyama-machi, Nagasaki City Tel:095-842-1444  
 ♿ Prefectural Baseball Stadium Parking (7:30-22:00) Contact: same as Matsuyama-machi Parking

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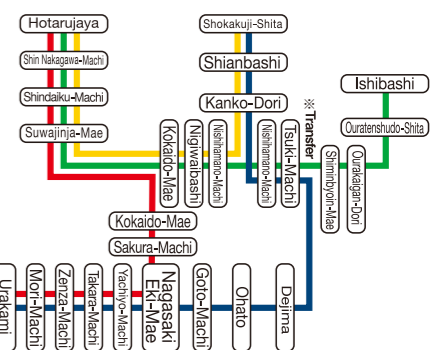
## Streetcar Route Map

The Nagasaki streetcar fare is ¥120/adults no matter where you get off.

For a one-day pass, please go to the Tourist Information Center in the JR Nagasaki Station building, or major hotels and accommodation facilities in the city.  
 ※One-day passes are not sold on the streetcar.

Streetcar fare: Adults ¥120, Children ¥60 (flat rate)  
 ●One-day pass: Adults ¥500, Children ¥250

Line	Color	Route (via)
1	Blue	Akasako-(Ohato)-Shokakuji-shita
3	Red	Akasako-(Sakuramachi)-Hotarujaya
4	Yellow	Shokakuji-shita-(Nishihama-machi)-Hotarujaya
5	Green	Ishibashi-(Nishihama-machi)-Hotarujaya



[For more information]  
 Nagasaki Electric Tramway Co. Ltd.  
 Tel: 095-845-4111

※Transfer tickets will be issued to passengers who are transferring at Tsuki-machi.  
 ※Only the train bound for Akasako stops at Showamachi-dori.

Website for mobile devices:  
 http://www.naga-den.com/navinet/





**Tourism Promotion Division,  
Nagasaki City Hall**

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TEL: 095-829-1314