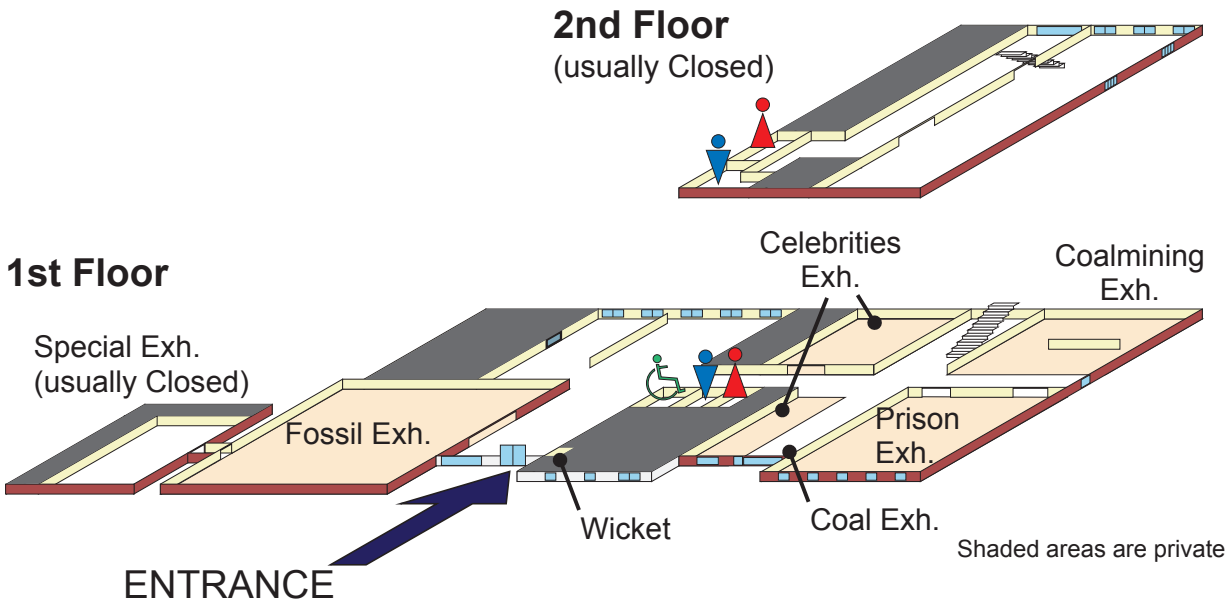
Mikasa City Museum

Map of the exhibition



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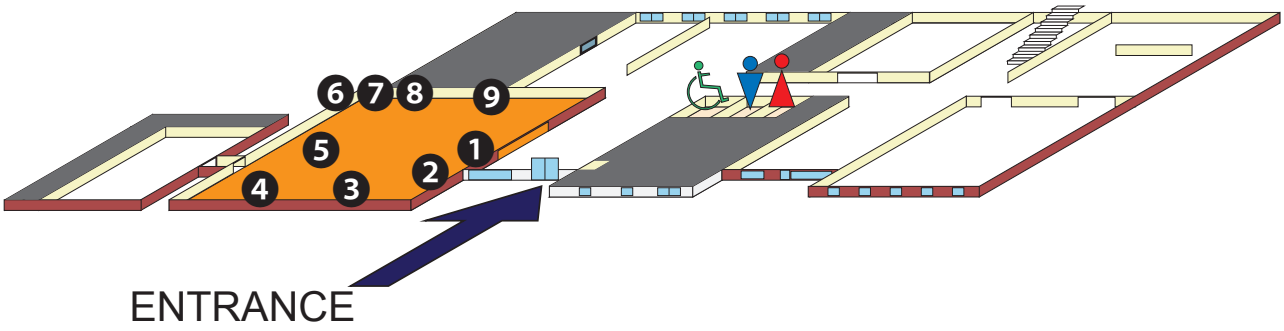
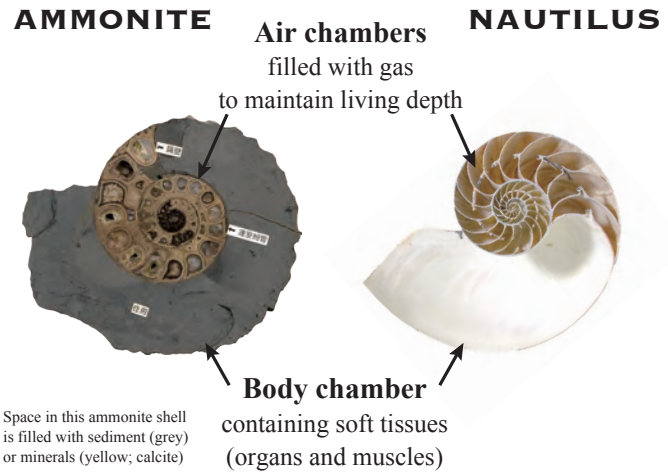
Fossil Exhibition



This room has more than 600 ammonites fossils and about 400 other ones. This is one of the largest fossil collections in Japan. Especially, you can touch these large ammonites! Almost all fossils were found from Hokkaido including to Mikasa, and large parts of those were donations of amateur collectors.

We also have the largest ammonite in Japan. Its diameter is about 1.3 m and weight is 560 kg.

> Ammonites are extinct marine animals and closely related octopus, squid and cuttlefish. We can obtain hard shells of those as fossils, however, there is no remain of soft bodies until now. Those fossils are found from all over the world…North and South America, Europa, Africa, India, Antarctica and, of coarse, Japan.



❶ Structures of ammonite conchs

A shell of ammonites is divided into two parts, a **phragmocone** and a **body chamber**.

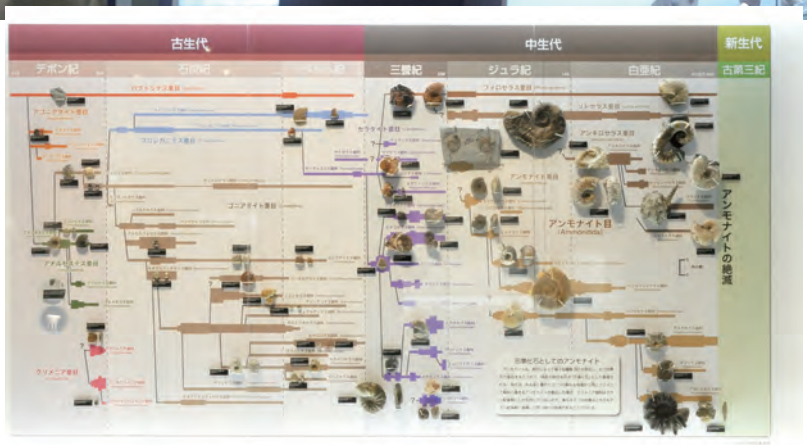
An inside of a **phragmocone** is sectioned by many **septa**. Each divided chamber contains gas when an animal is alive, and its buoyancy maintains depth of a body in a water column. A narrow tube, "**siphuncle**", runs through every chamber.

A **body chamber** is located at the end of a conch and occupied by a soft body.

Nautilus has a shell with same structure. Therefore mode of life and locomotion of ammonites might be similar to *Nautilus*.

❷ Evolution of ammonites

Although we express in one-word "ammonites", this group appeared in the **Devonian** (400 million years ago) and were extinct at the **Cretaceous-Paleocene boundary** (66 million years ago), and is composed by more than **10 thousands species** with large variety. Therefore this group corresponds to relatively higher rank in scientific classification, the Suborder Ammonoidea (this rank is same as a group of recent birds).

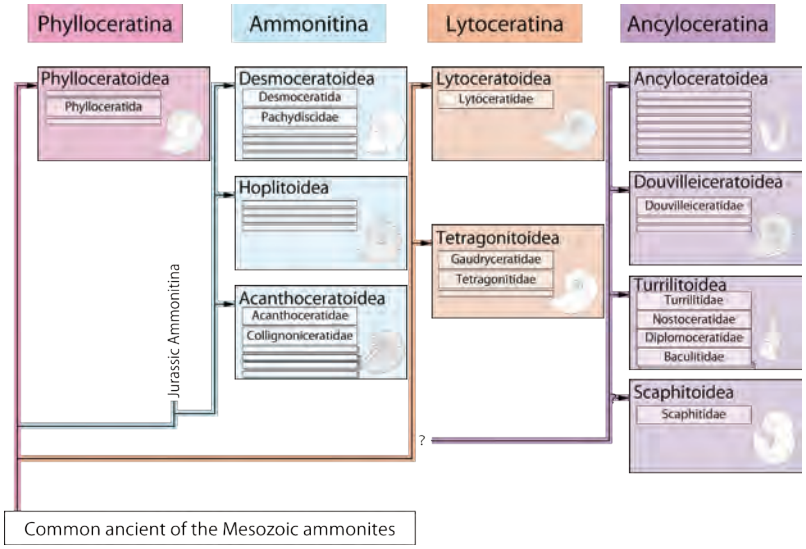


This wall shows the evolutional tree of the Suborder Ammonoidea in about 330 million years.

❸ Classification of ammonites

The Class Ammonitida is the latest and the only group of the Ammonoidea after the Jurassic. All ammonites found from Hokkaido are belonging to this group. It is obvious feature Ammonitida has very complexly fluted suture (attachment between an outer shell and a septum).

Ammonitida is divided into 4 subclasses...most ancient **Phylloceratina**, loosely coiled **Lytoceratina**, varied formed **Ammonitina** and heteromorphic **Ancyloceratina**. In Hokkaido, about 500 species of those are found until now.



Small boxes shows families in each superfamily. Named families are exhibited in this museum. This cladgram of ammonites are on the basis of Wright et al. (1996) and Rought et al. (2004)

❹ Heteromorph ammonite

While a shell of popular ammonite is spiral on a plane, many species have a variable ones, for example, a straight, a g-shape, a trombone-shape, and more geometrically complex ones. These non-planispiral ammonites are called "**heteromorph ammonites**" in generally. Heteromorph ammonites are derived variable phylogenies, but Ancyloceratina is a most famous group of heteromorph ammonites. Hokkaido is known as a locality of abundant Ancyloceratina ammonites.

Nipponites is a genus of Ancyloceratina. However its shell looks like tangled at first sight, in fact, it forms a geometrically regular shell. As its name derived from "Nippon (Japan)" shows, this ammonite is a symbol of fossils found from Japan.

Reptiles in the Mesozoic

In the Mesozoic when ammonites lived, reptiles showed a very high diversity. Many dinosaurs were on land, pterosaurs in the sky, and mosasaurs and plesiosaurs in the ocean in the Mesozoic…but all of those (exception of birds diverged from dinosaur) were extinct at the end of the Cretaceous with ammonites.

❺ Dinosaur

Dinosaurs are belonging to a group of reptiles, but are very closely relate to birds (in correctly, modern birds are one group of dinosaurs).

Allosaurus fragilis, a carnivore dinosaur is displayed in this room. A skeleton is a replica based on the specimen found from America, but a real left femur (thighbone) you can touch is placed too --- This bone shows one of common features of dinosaurs. Dinosaurs stand with hind limbs **vertical** whiles other reptiles with limbs sprawl out to either side.

❻ Pterosaurs

Pterosaurs are extinct flying reptiles lived in the Mesozoic. They have no relationship with dinosaur and recent birds. They had wings formed by a membrane an elongated fourth finger supporting. This reconstruction model is the most famous pterosaur, ***Pteranodon***. A very close one was occurred from Mikasa and it is thought a largest pterosaur found from Asia (estimated wing span is **6.8 m**). But, larger pterosaurs are found from some parts of the world. The hugest one with a ca. 12 m wing span is also the largest flying animals in the history of this planet.

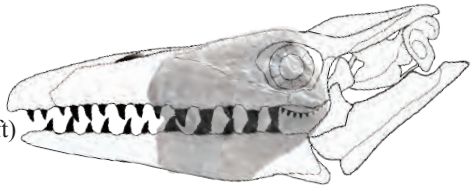
❼ Mosasaur

Mosasaurs are very close to monitor lizards, but lived in the sea. Their four limbs became fins and its tail was looks like crescent to adapt swimming. Very sharp teeth show this animal was carnivore. For example, ammonites fossils with its bite marks, or digested mosasaur bones in another mosasaur's stomach are found.

This skeleton is a ***Platecarpus tympaniticus*** found from Kansus, USA. Aboud 60 % of the skeleton, especiall 95 % of the skull is composed by real bone fossils.

❽ Taniwhasaurus mikasaensis

"**Yezo-Mikasa-Ryu** (means dragon of Mikasa in Hokkaido)" is a kind of mosasaurs. It was found in 1976 and designated as a **natural monument of Japan** in the next year. In 2007, this was given a scientific name as ***Taniwhasaurus mikasaensis***. It is also obvious that "Yezo-Mikasa-Ryu" is of *Taniwhasaurus* an only speces found from the Northern hemisphere. This discovery is very important to estimate evolutional processes of mosasaurs.



Preserved position of this fossil (left) and reconstruction skeleton of *Taniwhasaurus mikasaensis* (right)

Recent studies revealed veritable appearance of mosasaur. So, in 2018, we started exhibiting a reconstruction model of *Taniwhasaurus mikasaensis* (Yezo-Mikasa-Ryu) on the basis of the newest knowledge. Remarkable points are followed;

1) Ridge on a vertex: However it isn't clear in the skull of Yezo-Mikasa-Ryu, a ridge on the top of the head is a character of *Taniwhasaurus*.

2) Shark-like tail fin: In 2010, A well-preserved mosasaur fossil showed a crescent-like fluke similar to a shark.

3) Forked tongue: In 2005, scientists figured mosasaur had a forked tongue similar to snakes and monitor lizards on the basis of paired opening on a skull

4) Pattern of scales: Some skins of mosasaurs are found as fossils and the texture of scales of this model is based those.

5) Lip covering teeth: While many previous reconstructions bared its teeth, this model has lips covering teeth because recent sea snakes or aquatic lizards have those.

6) Color pattern: Aquatic animals tend to have a darker back and a lighter belly. It is a camouflague to merge into a lighter sea surface when animals are looked up and into a darker deep when they are looked down. Coloring of this model is basically followed this role and, in addition, a stripe pattern is based on recent sea snakes.

Members of an ancient ocean

Not only ammonites, very abundant fossils are found from the Cretaceous in Hokkaido...for example, bivalves, gastropods (snail), echinoids (sea urchin), crinoids (sea lily), fish bones, and shark teeth.

⑨ Inoceramids

Inoceramids are extinct marine bivalves looks like mussels or oysters. Many species compose of this group repeated appearance and extinction one by one and therefore inoceramids are good **index fossils**. These were appeared in the Jurassic and flourished throughout the Cretaceous, but disappeared before the end of the Cretaceous.

This group contains the largest bivalve specimen in the history of the Earth (178 cm in long and found from Greenland).

Column: Importance of the Cretaceous in Hokkaido

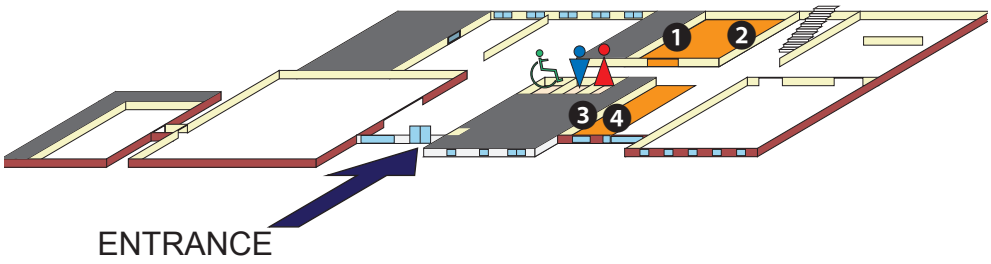
In the Cretaceous, the entire islands of Japanese Archipelago were under the sea. A western half of Hokkaido was located in the eastern edge of the Asia Continent and was gradually deepened sea floor faced to the Panthalassa (the paleo-Pacific). A unit of strata deposited on this floor is called "Yezo Group" and distribute from the central Hokkaido and Sakhalin. Thickness of the Yezo Group reaches about 8,000 m corresponds to about 50 million years of deposit time range.

Ammonites' fossils found from there has much paleontological importance. First, those remain original 3D structures. Therefore we can see fine spines, larval conch, or complex coiling.

Second, long-time deposited sediment recorded the rise and fall of each species of ammonites. Ammonite fauna found from Hokkaido devided into three major groups, hence, the Boreal, the Tethys, and the Pacific-rim. Repetition of influx and disappear of each fauna created the diversity of ammonites in Hokkaido.

Celebrities of Mikasa

From Mikasa, much talent went out into variable fields. In this museum, relics related to two medical giants, an actress, and an athlete are exhibited.



❶ Dr. KUROKAWA Toshio

黒川　利雄 (1897– 1988)

Dr. Kurokawa was a clinician and a well-known diagnostician of stomach cancers.

He graduated Tohoku Imperial University in 1922. He was a pioneer of cancer screening with X-ray and endoscopes in Japan. Especially it is an accomplishment he starts mass radiography for stomach cancers. He was awarded **the First Class Order of the Sacred Treasure** (勲一等瑞宝章, right) in 1967, Order of Culture in 1968 and the First Class Order of the Rising Sun in 1974.

❷ Dr. MORIYAMA Yutaka

森山　豊 (1904 – 1988)

Dr. Morikawa was a gaynaecologist/obstetrician.

He intended to be a doctor when he was a high school student in Sapporo and graduated Tokyo Imperial University in 1931. His great interest was prevending congenital anomalies. The Japan Association for Maternal Welfare set forward nation wide surveys on external malformations among the newborn and undertook metabolic disorder screening under the presidency of Dr. Moriyama. He was award **the Second Class Order of the Sacred Treasure** (勲二等瑞宝章, right) in 1977.

❸ KISHI Teruko

岸　輝子 (1905 – 1990)

Kishi was an actress. She got a nurse after graduation of a high school, but started at the lowest position of a theatrical company to be an actress. Her debut was in 1925. Her company was one of “shingeki”, which was a movement of modern theater in the twentieth century (shingeki means "new drama", against Japanese traditional one of Kabuki). She was famous as a good player of mother and old woman in many stages, movies and TV programs.

❹ Tachihikari Den’emon

太刀光電右衛門 (1897 – 1952)

He was a sumo wrestler born as Hatta Masatsugu. He debuted in 1913 and promoted to ōzeki (the second highest rank below yokozuna in sumo) in 1923. It was a first promotion to ōzeki in wrestlers from Hokkaido. Although he was a relatively short but heavy sumo wrestler (170 cm in height, 113 kg in weight), he had good throwing and foot techiques with a flexible body. He retired in 1927. His record is 67 wins – 26 losses – 6 draws – 2 holds – 69 absents.

Introduction: Before you see the exhibition of humanities

As same as other regions of Hokkaido, at the latest, people settled in Mikasa in Jōmon Period and then the culture of Ainu continued until Meiji.

In the early 19th century, Mikasa was developed as a coalmining town. At that time, many prisoners contributed to that.

Before Modern History of Mikasa

In generally, humankind reached Japanese Archipelago in the glacial period, thirty thousands years ago. Then, about ten thousands years ago, Jōmon Period（縄文時代）characterized by Jōmon (cord marked) potteries started. Although in Honshu (the mainland of Japan), Yayoi Period（弥生時代）took over between the tenth to fourth century B.C. because agriculture started, a similar culture to Jōmon, known as epi-Jōmon period（続縄文時代）continued in Hokkaido. Satsumon culture（擦文文化）followed epi-Jōmon period at about the seventh century and then the culture of Ainu（アイヌ文化）displaced that at the 13th century. Many place-names in Mikasa are derived from Ainu language. For example, "Ikushumbetsu", where the museum locates, means "the far rever".

On the other hand, people in Honshu called themselves "Wajin(和人）" to contrast to Ainu. The first Wajin came over to Mikasa was woodmen in the 16th century.

Potteried and stone tools

In Mikasa, many potteries and stone tools are found in some archaeological sites. These relics might be of Final Jōmon to epi-Jōmon period, but particular research is not carried out until now.

Mikasa as a coalmine town

In 1868, just same time of Meiji Restruction (明治維新 , including Industrial Revolution of Japan), the first coal was found from Mikasa. The Meiji government decided to development of this area and Horonai Coal Mine（幌内炭鉱）started to operation in 1879. It was the first modern coal mine in Hokkaido.

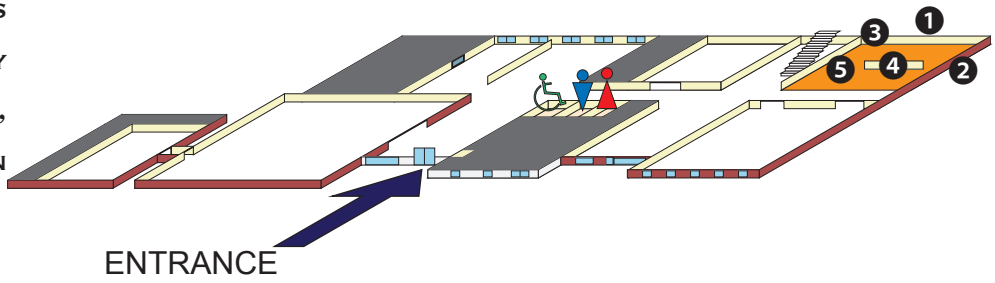
Coal

Coal is a fossil fuel originates from ancient plants. In regard to Mikasa, origin of coal is woods **50 million years ago** (the Eocene to the Oligocene, the Paleogene). First discovery of coal happened in 1868, and then many coalmines started to operate. Numbers of miners assembled in this town and created unique culture.

This locomotive is a **6 t storage battery locomotive**, 508 mm gauge (conversion from original 762 mm = 2 ft. 6 in.), manufactured in 1958, and used in New-Horonai Coalmine due to safe risk of explosion.

Culture and Lifestyles of Miners

Coal mining by prisoners ended in 1897 and then private corporations took over the mines. Horonai Mine (幌内炭鉱, operated in 1879 – 1989), Ikushumbetsu Mine (幾春別炭鉱, 1886 – 1957), and Pombetsu Mine (奔別炭鉱, 1900 – 1971) were major mines in Mikasa. In addition, the Horonai Railway (幌内鉄道) was established in 1882 to bring coal from Mikasa to Otaru Port. That was the first railway in Hokkaido, and the third in Japan.



❶ Tomoko

In Meiji Era, many skilled miners moved from Honshu to Hokkaido. Because these miners were belonging to guild-like organizations, called "**Tomoko** (友子)", same organizations spread to Hokkaido including Mikasa. Miners shared information on mining technology and supported for each private lives such as wedding and funerals through this organizations. However this organization supported miners' business and lives in the late 19th to the early 20th century, this was phased out and finally disappeared by the mid-20th century because changes of miners' working conditions.

This scroll is a list new-coming miners. Masters' name are written in larger letter and those of pupils are in smaller. In Tomoko, relationships between a master and a pupil acted as a parent and a child and helped each other.

See also → Guide Map of the Tomoko Graves
You can get it at the wicket

In this, it is described the outline and history of Tomoko and the locations of Tomoko graves. You will learn more and more about Tomoko system if you read this.

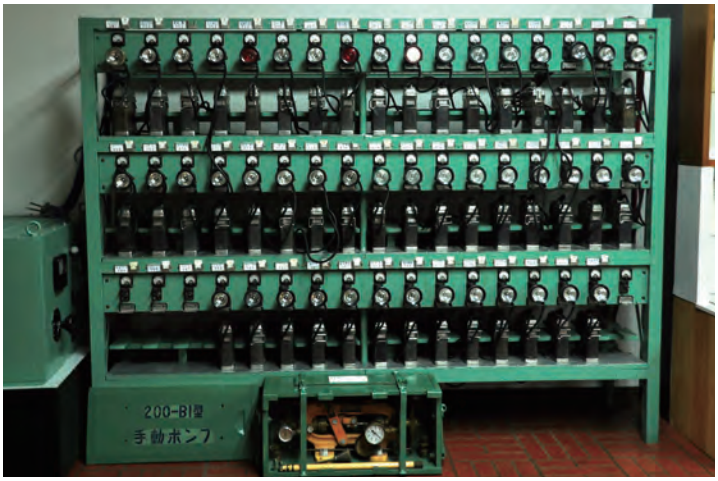
❷ Miner's house

Miner's house (炭鉱住宅, Tanko-Jutaku, called 炭住, Tanju for short) was a terrace house for miners and their families. One Tanju was divided into ten living unites and each unit was made by one-room. This model is reconstructed one unit of a miner's house (but shortened its long).

Because the water and sewage systems weren't fitted up in houses, there was no bathroom in each house. A lavatory room was set up as an annex and a public bath was placed on each housing complex.

After World War II, many coalmines in Japan tended to rationalize and mechanize to efficient mining. In Mikasa, the population of more than sixty thousands was largest in 1959 and the output was peaked in 1960s. But at the same time, major energy source changed from coal to oil. In addition, costs of coal mining became higher and therefore mines were closed one by one in Mikasa.

❸ RACK OF HEADLAMPS



This rack combined with a battery charger of headlamps. A certain lamp was allocated to particular miner. Miners took out their own lamps from a rack when they got down to a tunnel, and put back those when they came back. In other words, this ruck was utilized as an attendance book.

Coalmines were operated with three-shift 24-hour working system. Small tags printed "1", "2", or "3" indicate a shift of a owning miner, first shift (7 a.m. to 3 p. m.), second shift (3 p. m. to 11 p. m.), third shift (11 p. m. to 7 a. m.) respectively.

❹ MINING TOOLS

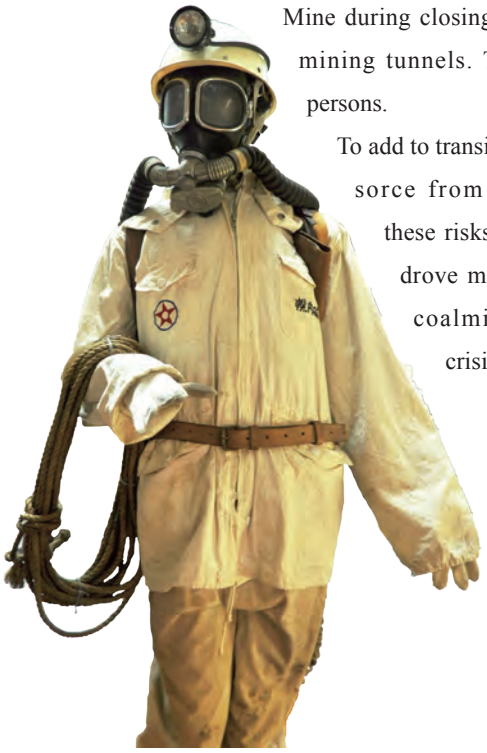
Until 1950s, man-portable machines were main tools in coal mining in Japan. A coal mining team was composed by two men. One was a sakiyama (先山 , means "front of mountain") breaks coal beds with man-portable machines, and another was an atoyama (後　山 , "rear of mountain") loads those coals onto chain conveyors with shovels. 10 to 15 Sakiyama-Atoyama teams were at work in a mining tunnel at once. At that time, an output of coal was 2,000 t per day.

From 1960s downward, automation mining were tended to introduced and an output increased to about 4,000 t per day. In a single tunnel, about 150 persons engaged in digging.

In total, about 1,500 miners worked in a coal mine.

❺ RESCUE IN COALMINES

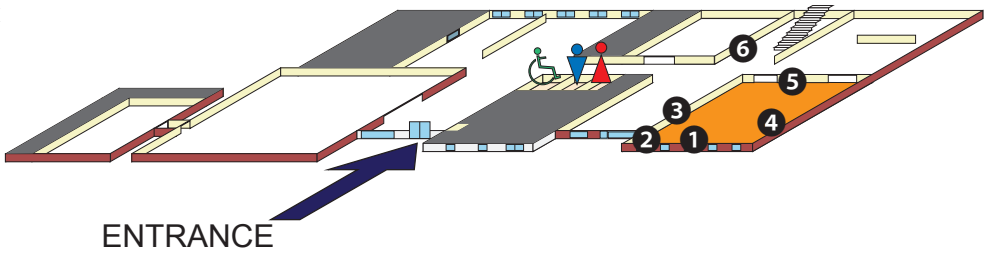
This dummy wears equipments of a coalmine rescue. The risk of accidents couldn't be fogetten in the operation of coalmines. Of coalmines in Mikasa, some serious accidents happened. In 1975, gas blew out and then was exploded in Horonai Mine. 13 miners were killed in this accident. In 1971, huge explosion was happend in Ponbetsu Mine during closing operation of mining tunnels. This killed 5 persons.



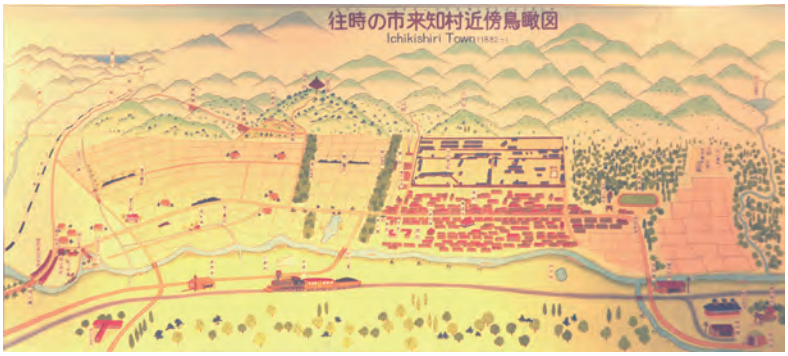
To add to transition of energy sorce from coal to oil, these risks of casualties drove management of coalmines into the crisis in Japan.

Exhibition about the Old-Prison

Establishment of a prison in 1882 is an epoch-making event in Mikasa. This establishment was aimed isolation of prisoner from the mainland, assembling of labors to development of Hokkaido, and settlement of released ex-prisoners. In addition, because warden and their families settled down near the prison, a town began.



❶ The prison



At that time, the prison in Mikasa (空 知 集 治 監 , **Sorachi-shuchikan**) was the largest one in Hokkaido and held about three thousands prisoners in peak. Almost all these prisoners were sentenced to more than 10 years imprisonment and were forced to work at mainly building lords and mining of coal. Between 1883 to 1894, about 800 – 1,200 prisoners per day worked in a mine.

❷ The Prisoners and the Warders

Some equipments of the prison are exhibited in this room.

The **fetter** is 20 kg in weight and was used when prisoners worked outside of the prison.

The **sword** was used by a guard. This sword is called "saber" in general but registered as "wakizashi (脇 差 , a short katana used as a secondary)" with the police. In Meiji Era, Japanese milirary and low enforcements changed there traditional equipments into western ones and as a part of that, traditional katanas were changed its fittings into western swords.

❸ The Warden (Governor) of the Prison

The first warden (governor) of the prison was **Watanabe Koreaki** (渡辺　惟精 , 1845–1900). He concurrently holded the chief of the village, the chief of the police station, the director of the coalmine, and the director of the coalmine railway to administration of primitive this town. Many infrastructures such as loads, waterworks, bridges, schools and hospitals were established under his management.

The chimney of his official residence is an only relic of the prison while other buildings were completely lost. In addition, his diaries held in this exhibition room show the dawn of this town.

❹ Manufacture as penal labor

Furniture exhibited here is made by prisoners as penal industry. At the development time, prisoners were expected as inexpensive labor force. So prisoners pursued not only coal mining but also road laying, cultivation, house building, woodwork, metalwork and so on. As a result, the prison operated almost self-sufficiently.

❺ Waterworks

Water supply was an important problem to establishment of a thousands-accommodations prison in the wilds. There was no well and therefore a waterworks were built from the source 3 km away by prisoners in 1888. This waterworks had filtration systems and cast-iron pipes. This was second modern waterworks in Japan succeeded in Yokohama (1887) and preceded in Hakodate (1889). This supplied much water for not only the prison but also the population in the town. The branch lines for those were made by wood or bamboo and utilized after abolition of the prison (1901) until 1940s.

❻ prisoners' grave

Freezing winter and hard prison industry took a heavy toll of prisoner's lives. For 20 years when the prison existed, total number of the sick and wounded was more than 900 thousands and that of victims was 1,158.

For these victims, a cemetary was open in the northeast of the prison. But later, a site for graves became short. Therefore a tombstone was established to bury all remains of 956 victims all together in 1896. After that, following victims were buried also under this tomb. Finally more than a thousand prisoners have slept in this tomb, and therefore is called "thousands persons' grave (千人塚 , **Sen'nin-Dsuka**)".

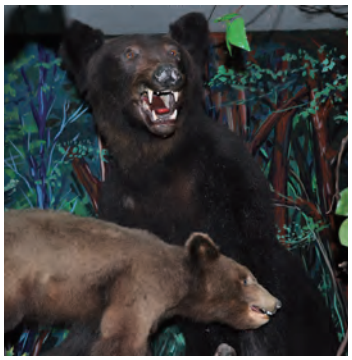
Today, the original tombstone is removed to this museum to prevent elosion, and the renewed one is installed in the cemetary.

Animals, plants, and forestry gallery (The Annex)

Forests occupied 80 % of the area in Mikasa City makes characteristics of nature and culture in this city. The annex (ca. 100 m east to the main building) displays specimens of local animals and plants lived in those forests. Furthermore materials related to forestry are exhibited.

Caution! Closed from November to March.

❶ Brown bear



In Japan, Hokkaido is an only distribution of **higuma** (羆, ヒグマ) or **brown bear** (*Ursus arctus*), a same species as grizzly (Alaska Peninsula brown bear). It is the largest terrestrial mammal in Japan.

❷ Cabin of lumberjack

When lumberjacks worked in winter, they made temporal cabins with pine, bamboo grass and so on. This cabin is called "**soma-goya** (杣小屋)" and reconstructed in the annex.

Open-Air Museum

The Open-Air Museum is located on the south of the main building of Mikasa City Museum. It is a promenade in 1.2 km and you can see not only coalmining remains and geological structures but also more than 350 plants along that.

See also → Open-Air Museum Area Guide Book (600 JPY)

This book explains 15 points of geological or coalmining historical view sights in the open-air museum area. It is also introduced seasonal wild flowers you can see in this area.