Insights

On Monte Generoso, by Mario Botta

Reaching the summit of a mountain is a natural desire of mankind; it is a way to gain access to a privileged condition with respect to the orography of the surroundings, embrace the geographic boundaries and feel part of the reality that has been given to us to live in. Over the centuries, writers and artists have expressed their will to take possession of the earth to imagine the immensity of the sky.

This suddenly became clear to me when I was offered the chance to build at the summit of Monte Generoso. This mountain reminds me of my youth: during summer nights my friends and I took part in adventurous expeditions on Monte Generoso; we would reach the summit at sunset and from there we would enjoy the spectacle of the “rising sun”. In those days it was a kind of a must-do for the teenagers of the Mendrisiotto region.

The new tourist structure on Monte Generoso stands where before a long-standing hotel, built in the early 20th century, used to be. The orographic situation is extraordinary: a small strip of flatland stands on the edge of a cliff that precipitates for about 3/400 metres on the northern side of the mountain. This particular condition suggested the construction of an octagonal building formed by eight “petals” that enclose a central space. To the east, this circular crown opens out to create a long terrace that follows the ridge of the mountain.

The arrangement of the “petals” defines a group of five-storey towers that seem to open out slightly and then close again on the upper floors (hence the name “flower of stone”). At the level of the railway (ground floor), a wide portico creates a transition space between the outside and the inside: a compass entrance leads to an exhibition area that displays panels describing the history of Monte Generoso alongside a model of the new building with the drawings and study sketches by architect Mario Botta. The technical rooms are located on the first floor; on the second floor there is a conference room for about 100 people, whereas the two upper floors house a self-service catering area and a restaurant respectively. The bearing structure is in reinforced concrete clad in grey stone with alternate smooth and split bands. The towers are connected to each other by glass joints and feature large glass windows, offering a 360-degree view over the Milano Valley to the south and over Lake Lugano and the Alps to

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the north. The result is a powerful, geometrical building that communicates, by contrast, with the organic outline of the surrounding landscape.

Fiore di pietra – the building

The Fiore di pietra (“flower of stone”), the new landmark of Monte Generoso, is an impressive work that bears the unmistakable imprint of architect Mario Botta. It is an octagonal building formed by eight “petals” that enclose a central space. On the east front, this circular crown opens out to create a long terrace that follows the ridge of the mountain. The arrangement of the “petals” defines a group of five-storey towers that seem to open out slightly and then close again on the upper floors (hence the name “flower of stone”). The bearing structure is in reinforced concrete clad in grey stone with alternate smooth and split bands. The stone, extracted from the quarries in Lodrino, was chosen to look as similar as possible to the colour of the limestone rocks in the surroundings of Monte Generoso. The towers are linked by full-length windows that offer a 360-degree panoramic view, which extends from the Po Valley in the south to Lake Lugano and the Alps in the north. Mario Botta designed not only the impressive building but also the interior spaces, for which he mainly chose oakwood.

The shell of the building has been designed to insulate the interior from the exterior, both from heat and noise. Insulation is particularly important in a high-mountain building since it is exposed to highly variable and at times extreme weather conditions, such as sudden changes in temperature and very strong winds. The glass facades of the building not only offer a magnificent view; in winter they can also take advantage of the passive solar heat, which is typical for this area and this altitude. Inside the building, an extremely efficient ventilation system guarantees a high level of air quality and an important heat recovery, thus reducing to a minimum the energy requirement for heating. The heating is based on solid fuel pellet, which is produced with chipboard from the valley and stored in special containers. In the summer the temperature in the areas open to the public is kept constant by a ventilation system that combines the intake of fresh air from outside with a mechanical cooling system. For the supply of electricity, optical fibre, drinking water and the disposal of wastewater, the Fiore di pietra is directly connected with the hamlet of Roncapiano, in the town of Breggia, by means of n underground piping that stretches over a length of more than 2 km.

Both the demolition of the old hotel-restaurant and the construction of the Fiore di Pietra represented a major challenge from a logistic point of view, due mainly to the lack of an access road and the weather conditions, which can be extreme at times on the summit of Monte Generoso at 1,700 metres. A cableway that connected the summit with the town of Muggio was built and used to evacuate the demolition material and carry the building material and equipment to the building site. The cableway had a payload of 6 tons and a total length of 2.5 km. An energy-efficient and environmental-friendly cableway installation was chosen, which produces electricity when it carries material downhill, and the energy produced is directly fed into the electricity grid. During the two years of the building site, the cableway ran over 3000 times in both directions, carrying over 20,000 tons of material, including construction machinery. The alternative to the cablecar would have been rail transport on wagons driven by a diesel engine. This option would have caused a great waste of fuel and would have required the same number of runs, at a much higher cost. Moreover, the cableway haulage took just over 10 minutes, whereas the same transport by rail would have required almost an hour. Before building work started, the rock had to be reinforced with roughly thirty minipiles for a total length of 600 metres. The building, with a total volume of 10,000 m^3 and an inner surface of 1,750 m^2, required the use of 1,500 m^3 of concrete, 170 tons of reinforcing rod, over 400 m^2 of windows and almost 1,000 m^2 for the internal cladding of floors and walls with oakwood. Costs totalled approximately 20 million Swiss Francs, including connections to the mains water supply, the sewage system, the electricity grid, optical fibre network and the temporary cableway. 80 to 90 workers were employed on the building site, including the workers in charge of the connections. As many as 65 firms contributed to the realization of the Fiore di pietra. Work for the construction of the Fiore di pietra began on 14 April 2015 and the structure, erected at an elevation of 1,620 metres above sea level, not far from the summit of Monte Generoso, was completed in less than two years.

Attractions on Monte Generoso

Monte Generoso is interesting not only for the extraordinary view it offers. In 1988 two speleologists from Ticino discovered a cave on the eastern front, not far from the summit. It was called Caverna Generosa, but is now generally known as the Grotta dell'Orso (“Bear’s Cave”) since the remains of hundreds of cave bears (Ursus spelaeus) have been found in the cave. These animals, which could weigh up to a ton,

became extinct about 10,000 years ago. The remains of many other species were also discovered in this cave, including cave lions, wolves, brown bears, ibexes, elks and many others. Recently palaeontologists have also discovered some remains that are ascribed to the Neanderthal Man and date back to 50,000 - 60,000 years ago. In fact, the whole mountain is full of caves; to date 92 caves have been counted, for a total length of 13 kilometres. The Bear's Cave, with its over 40,000 finds, is considered one of the most important sites in Europe and was made accessible to the public in 1999. Another attraction on Monte Generoso is the astronomical observatory, which has a telescope of 61 cm in diameter and was inaugurated on 26 August 1996 by the famous astrophysicist Margherita Hack. It is one of the most avant-garde public observatories in Europe. Last but not least, Monte Generoso boasts over 51 km of scenic trails, which include the nature trail, the water ponds trail, the icepits trail, the peony and charcoal pile trails, and the pathway of the planets. This mountain is also very rich from a botanical point of view; the very rare peonia officinalis, the only wild peony in the Alpine region, grows on its slopes,

The history of the Monte Generoso railway

Until the late 18th century, mankind tended to avoid the summits of the Alps. At the time there was a common superstition that mountains were home to evil spirits, and they instilled fear in the local population. British pioneers and intellectuals paved the way for the conquest of the alpine world. Switzerland owes them the beginning and the first boom of alpine tourism, which in the following decades made the fortune of our country. Hotel facilities were built in the Alps, and on Monte Generoso the first grand Hotel Monte Generoso Bellavista was inaugurated in 1867. In those days, the hotel, conceived and promoted by Dr. Carlo Pasta, a doctor from Mendrisio, could only be reached on foot, but a few years later technological progress made the construction of mountain railways possible. The very first mountain railway to be built in Switzerland was the Rigi railway, which was inaugurated in 1871. Only three years later the Federal Council issued a concession for a mountain railway line between Mendrisio and Monte Generoso. The first project for a standard-gauge line proved to be too costly (over 4,5 million Swiss Francs, an enormous amount for those times) and had to be given up. However, Dr. Carlo Pasta did not give up on his project and a few years later he set up a railway company managed by Dr. Giacomo Blankart, director of the Banca della Svizzera Italiana. Engineer Roman Abt developed a new project,

which opted for a narrow-gauge cog system. Roman Abt was later also appointed to direct the works. The Federal Council issued a new concession in 1886; work began on 19 January 1889 and the track was ready after only 16 months! The railway was inaugurated on 4 June 1890. The first steam locomotives, built in Winterthur at the cost of 38,500 Swiss Francs each, consumed 450 kg of coal and 1,800 litres of water for every ascent.

The most important dates in the history of Monte Generoso

1867	Dr. Carlo Pasta, a doctor from Mendrisio, builds the first grand Hotel Monte Generoso Bellavista. Until 1890 the hotel could be reached only on foot.
1874, 19 March	Dr. Carlo Pasta submits a first request to the Federal Council for a concession to build a railway track from Mendrisio – Cragno – Baldovana – Cascina d'Armirone – Hotel Bellavista – summit. The project turns out to be too costly and is given up.
1886, 2 July	Dr. Pasta sets up the railway company Ferrovia Monte Generoso.
1886, 2 July	The Federal Council issues a new concession.
1889, 19 January	Work for the construction of a narrow-gauge cog railway line begins under the direction of engineer Roman Abt. The new line, which stretches over a total length of 9 kilometres, departs in Capolago.
1889	SLM Winterthur builds and delivers the first steam engine at a price of 38,500 Swiss Francs.
1889	SIG Neuhausen delivers 2 closed carriages and 5 open carriages.

1890, 4 June	Inauguration in grand style of the Monte Generoso railway after only 16 months' work.
1893, 7 September	Queen Margherita of Savoy and Crown Prince and future King of Italy Vittorio Emanuele III visit Monte Generoso
1900, 7 September	Beginning of reforestation with a pine forest in the Tiralocchio area, just below the summit.
1914–1918	Suspension of operations during World War One.
1939, September	The Monte Generoso railway, in financial difficulties, ceases operation. The dismantlement of the railway is taken into consideration to sell the tracks for iron, which was a precious raw material during the war.
1940, May	The company management is taken over by Messrs. Hermann and Casoni.
1941, 17 April	Thanks to the initiative of Charles Hochstrasser and Gottlieb Duttweiler Migros purchases the railway company Ferrovia del Monte Generoso and turns it into a cooperative.
1952	The construction of the diesel locomotives no. 1 and no. 2 marks the beginning of the diesel traction era.
1958	Inauguration of the radio-television bridge of the Swiss Radio and Television Service at the summit.

1959	Construction of a tank carriage (with a volume of 5000 litres) to supply water to the hotel at the summit. Today this carriage is still used as safety fire support for trips with the steam engine.
1967	Connection of the summit with the municipal waterworks of Mendrisio.
1967–1969	Two diesel railcars, named “carrozzelle”, are designed and built in the Capolago workshop.
1969	End of steam operations.
1970	Construction of the new hotel-restaurant at the summit.
1973	Construction of a third diesel locomotive, named no. 7 (still in operation).
1979–1982	Construction of the electrical line (including the works of consolidation of the whole track and tunnel enlargement).
1982, 14 June	Inauguration of electrical traction with four Bhe 4/8 trains, numbers 11, 12, 13 and 14, built by SLM and Siemens.
1985, 14 June	Steam engine no. 2, built in 1890 and displayed on a pedestal in Capolago, is completely restored and brought back into service. It is the oldest steam engine still circulating in Switzerland and it is used for special trips that take passengers back in time to the Belle Époque era.
1988	Francesco Bianchi-Demicheli and Sergio Vorpe, two speleologists from Ticino discover the Bear’s Cave on the Italian side of Monte Generoso, at about 30 minutes’ walk from the restaurant-hotel Vetta. Over 40,000 finds have been

	made in the cave, including the remains of over 500 cave bears (Ursus spelaeus), a bear species that became extinct 14,000 years ago. The cave bear could weigh up to 1,000 kg. Recently scientists have also discovered some remains that are ascribed to the Neanderthal Man. Thanks to these findings, the Bear's Cave is one of the most interesting and important sites in Europe.
1991, 17 June	Two carriages for the transport of wheelchairs come into service.
1996	At the summit of Monte Generoso the renowned astrophysicist Margherita Hack inaugurates the 61mm telescope, which is accessible to the public.
1999	The Bear's Cave is opened to the public.
2010, October	Due to a rockslide under the building, the Hotel Vetta, built in 1970 in place of the very old Hotel Kulm, has to be closed immediately.
2014	Demolition of the Hotel Vetta. The task to build a new panoramic restaurant at the summit of Monte Generoso is entrusted to the world-famous architect Mario Botta.
2015, April	Work begins on the Fiore di pietra
2017, 29 March	Inauguration of the Fiore di pietra