

UNTOLD

Development of an *architettura alpina* :
Carlo Mollino's tracks on the ski resort of Cervinia

STORIES



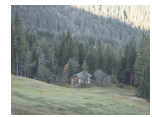
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Vertigo

The genesis of this research is rooted in a feeling of vertigo: the emptiness left by the successive disappearance of the ski lifts of my childhood. I was born in the Swiss Jura, a region where skiing has its place rooted deep in the heart of the different villages that make up its low-altitude territory. I started doing some research on this topic and found the work of a Swiss non-governmental organization, Mountain Wilderness, which was working on obsolete ski infrastructures. Their research brought to light fifty-five different objects spread through swiss territory from the Jura to the alps. The scale of this number raises a number of questions: Why so many? In which specific location? Why are they left abandoned?





Untold stories

Development of an *architettura alpina* : Carlo Mollino's tracks on the ski resort of Cervinia

Énoncé théorique de projet de master, SAR, EPFL
Janvier 2024

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The mountains have always fascinated and inspired mankind. Alpine tourism has greatly changed the mountain landscape, creating the infrastructure necessary for its development. In its early days, tourism was reserved for an elite, but it was skiing that brought the masses to the mountain slopes. Skiing radically changed the way people looked at the mountains, and mountain resorts transformed the land. This fascination did not spare architects like Carlo Mollino, who rethought alpine architecture and its relationship with the landscape. Industrial construction raised many existential questions, between vernacular architecture and modern rationalism. Today, ski resorts face many challenges, including environmental issues, strong competition between resorts and ageing infrastructure. In this paper, the focus is on what was to be the culmination of Carlo Mollino's architecture: **Furggen cable car station**. This construction is used in this research as an illustration of territorial articulation. A symbol of a time when humans were building on mountains without fear, it is now in a state of decay, battered by the harshness of the mountains. Perched on its ridge, leaning against the sacred cervin, it was a symbol of rebirth for these valleys, but has it become a symbol of the fragility of the ski resort?

The various issues raised by its construction, as well as those raised by its forced obsolescence, mean that this research is part of a wider approach to modern construction in the Alps. So we will start by looking briefly at the relationship between man and mountain, to understand the attraction it holds over man and more particularly over architects. We will then try to understand why and how skiing has drastically changed the mountain landscape. After which we will try to understand the relationship between the architect and the mountain during the modern period, focusing on the case of Carlo Mollino. As he played a key role in Italian modernism, devoting a great deal of effort to the theorisation and realisation of alpine architecture, particularly in the context of ski resorts. Thus one of his most emblematic works will be deciphered: the now-abandoned Furggen cable car station. In a discussion, the issues raised by this modern construction in the mountains will be identified and, in the light of the Furggen, understand the risks at stake.

In the final section, with the help of several research studies on this issue, some ideas will be proposed for the future of these constructions, a complex legacy of the mountain's conquest that has lasted for more than two centuries.

THE

ALPS



THE UNKNOWN

It's important to remember that the relationship between man and mountain has evolved greatly over the last three centuries. Long before that, religious writings reminded us of its sacred nature, a sanctuary that fascinates and impresses. Mount Olympus is known as the land of the gods. Mount Ararat is the legendary site where Noah's ark is said to have landed. Additionally, Mount Sinai holds significance as the place where Moses, in direct conversation with God, wrote the Ten Commandments. These mountains collectively represent enigmatic and spiritual locations, serving as points of connection between humanity and the divine. In these classical times, mountains were still not considered in an aesthetic way. They were most of the time related to death and seen as *horrendous mountains*.¹ But until the 17th century, man actually knew very little about the mountain. Jakob Scheuzer, a naturalist from Zurich, described a frightening mountain. His Swiss dracopedia demonstrates a widespread belief in the 18th century that the mountains were inhabited by dragons. His writings and engravings based on his research contributed to a mystical vision of the mountain. As an illustration, legend has it that the residents of Uri (swiss canton) once confronted the Devil at the «Teufelsbrücke» (Devil's Bridge), the sole crossing over a narrow valley en route to the St. Gotthard Pass. The Devil demanded an innocent soul in exchange for safe passage. The people of Uri tried to outsmart him by sending a goat across the bridge. Enraged, the Devil hurled a massive rock at the bridge, narrowly missing it. Today, this boulder remains visible in the lower Göschenen area. This mysticism was not just fear, but also an inexplicable attraction and fascination that inspired many Romantic poets and writers.

¹ De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3.: 9.

✓ The *Teufelsbrücke* (devil bridge) on the road to the St. Gotthard, ca. 1787-1788.



✓ *Dragon du Wangerberg, Pays de Sargans, Grisons*



At the beginning of the 18th century, the poet of light and mountaineer Albrecht von Haller contributed to a new enthusiasm to the mountains with his poems describing them as never before. In his poems, he describes the mountains as an inspiring and rejuvenating place. In 1732, in his poem *Die Alpen*, he wrote:

THE INVENTION

*Ein angenehmes Gemisch von Bergen, Fels und Seen
Fällt nach und nach erleichtert, doch deutlich, ins Gesicht,
Die blaue Ferne schließt ein Kranz beglänzter Höhen,
Worauf ein schwarzer Wald die letzten Strahlen bricht;
Bald zeigt ein nah Gebürg die sanft erhobnen Hügel,
Wovon ein laut Gebüchse im Thale widerhallt;
Bald scheint ein breiter See ein Meilen langer Spiegel,
Auf dessen glatter Flut ein zitternd Feuer wallt;
Bald aber öffnet sich ein Strich von grünen Thälern,
Die, hin und her gekrümmt, sich im entfernten schmälern.*

*Dort senket ein kahler Berg die glatten Wände nieder,
Den ein verjährtes Eis dem Himmel gleich gethürmt,
Sein frostiger Krystall schickt alle Strahlen wieder,
Den die gestiegne Hitze im Krebs umsonst bestürmt.
Nicht fern vom Eise strecket, voll Futter-reicher Weide,
Ein fruchtbares Gebürg den breiten Rücken her;
Sein sanfter Abhang glänzt von reifendem Getreide,
Und seine Hügel sind von hundert Heerden schwer.
Den nahen Gegenstand von unterschiednen Zonen
Trennt nur ein enges Thal, wo kühle Schatten wohnen.²*

*A pleasant mix of mountains, rocks and lakes
gradually fall on the face, pale but clear,
The blue distance is closed by a crown of heights,
Then a black forest breaks the last rays;
Soon the hills rise gently,
Whose bleating resounds in the valley;
Soon a wide lake appears like a mirror several miles long,
On its smooth waves a trembling fire spreads;
Soon, however, a line of green valleys opens up,
Which, curving to and fro, narrow in the distance.*

*There a bare mountain lowers its smooth walls,
Which a timeworn ice like the sky has towered,
Its frosty crystals send back all the rays,
Which the increased heat in cancer assaults in vain.
Not far from the ice stretches, full of forage-rich pasture,
A fertile range stretches its broad back;
Its gentle slope glistens with ripening grain,
And its hills are heavy with a hundred herds.
The near object of different zones
Separated only by a narrow valley, where cool shadows dwell.*

At that time, this «discovery» of the Alps sounded more like an «invention». Indeed, it was during this period that the Alps as we know them were conceptualised. At the time, very little was known about these territories, but with the impetus of scientists and writers such as Von Haller, the mountains were seen in a drastically different light. This romantic vision of the alps is crucial as it helps us understand the slow transformation of the Alps into a landscape. This landscape is made up of a contrast between the *beauty* of a village or farm building in the foreground and the *sublime* of the mountains in the background. It is precisely this contrast between the unchanging mountains and the beauty of the Alpine villages that forges this romanticised Alpine landscape. This contrast between beauty and the sublime is a concept that is still very much alive today; an era in which the myth of the «chalet up on the mountain» is still a dream for many

city dwellers. This sublimated perception of the mountains does not disappear with the modernization and construction of mountain infrastructures. On the contrary, the development of infrastructures that provide much easier access to remote mountainous regions, such as the rail transport system in Switzerland, reinforces this concept. Bernard Crettaz, a swiss ethnologist, said that the city created the myth of the mountain. Modernity is always contrasted with unchanging mountains like the apparition of the “modern” train in Zermatt which contrasted with the “good old” swiss chalet.³

² Haller, *Die Alpen*.

³ De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3:8-10.

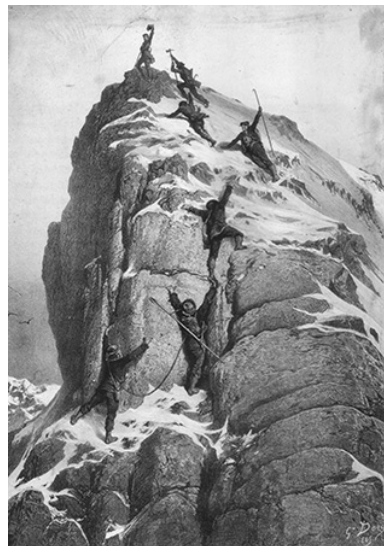
✓ *Vue de la Mer de Glace et de l'Hôpital de Blair du Sommet Montan Vert*, Carl Ludwig Hackert, 1781



This romantic vision attracts many tourists, particularly from the United Kingdom, and Swiss entrepreneurs realised the growing market potential, took advantage of it (and continue to do so today). The mountains were no longer just a place to rest and admire, but a playground and a challenge. Laurent Chappis, a renowned architect and town planner in the development of French ski resorts, describes this era in a lecture given in Courchevel:

*"They put on skis, thinking they are conquering the mountain. But it's the mountain that, under its white cloak, conquers them. For them, the farmer learns to offer his services, his animals and his produce. Barn by barn, the hay gave way to the tourists. It was a happy time, a time of harmony between the farmer, the city dweller and nature. Everyone benefited from what this high place generously provided. It was a time when man and the mountains were in complete harmony, albeit a fleeting one."*⁴

At the end of the 18th century, these two practices were still reserved for an elite, but would develop in the 19th century with the advent of rail transport. It was



THE ATTRACTION

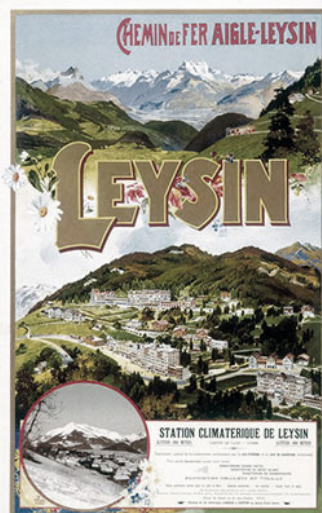
during this period that the famous Alpine hotels were built, such as the Monte Rosa in Zermatt in 1852 and the Grand Hotel Victoria in Interlaken in 1853. From this base sprang a whole network of tourists who were passionate about a new sport: mountaineering. Symbolically, Edward Whymper's famous ascent of the Matterhorn in 1865 marked a turning point in the relationship with the mountains, which were now within the reach of human achievement. Another activity that developed alongside mountaineering was spa tourism. This mountain's fascination quickly developed into a general craze in Europe. The emergence of thermalism and the trend for «good air» brought a new dimension to the mountains. Furthermore, the combination of pure air and sunny exposure of the Alps was an obvious solution to the fight against tuberculosis in Switzerland, which led to the creation of Alpine sanatoria. Many of these appeared at the beginning of the 20th century, initially concentrated in the Montreux and Grisons regions. The Swiss model of tourism, considered a model of excellence in the 19th century, has influenced many development projects in the Alps.⁵

⁴ Chappis, *Ma montagne... du rêve à la réalité. Tome 1, 50 ans d'études d'urbanisme en montagne*, 1:318.

⁵ Tissot, *Le tourisme en Suisse ou l'avènement d'un modèle d'excellence (19e-20e siècles)*

^ The first ascent of the Matterhorn, Gustave Doré, 1865

✓ Chemin de Fer Aigle - Leysin, service été 1905 Maurice Zimmermann, 1901



Laurent Chappis, the architect of Flaine resort, Courchel or San Sicario says the mountains entered a turning point with modernity:

« And then, oneday, in the middle of the twentieth century, the harmony collapsed. A step was taken. The era of the mountain as Europe's playground began. Driven by different motivations politicians, financiers, engineers, town planners and architects all took the mountains as their own. urban planners and architects. Thus began the era of the «domesticated mountain». »⁶

The various sporting conquests of the Alpine peaks gave way to other conquests, no longer sporting but technical. These were known as the «Great Works», because of their size and technical prowess, never seen before such as the railway connection reaching the Jungfrau at an altitude of 3,500 metres in 1912. These major works were put on hold by the Great War, and were not restarted until the 1930s. A Piedmontese engineer by the name of Dino Lora Totino made history with the construction of a number of spectacular cable cars across the Alps. Technological advances in the creation of cables and special steel enabled cableways to develop. Mussolini wanted to equip the Alps with a network of cable cars capable of transporting troops. With a degree in civil engineering from Turin's Politecnico, he built the cable cars linking Cervinia to Plan Maison and Plan Maison to Plateau Rosa in the Matterhorn massif until 1932. These cable cars, the fastest and highest in the world, played a major role in the development of the resort's tourism and economy. He was passionate about these constructions, but also, as a convinced European, about

⁶ Chappis, *Ma montagne... du rêve à la réalité. Tome 1, 50 ans d'études d'urbanisme en montagne*, 1:318.

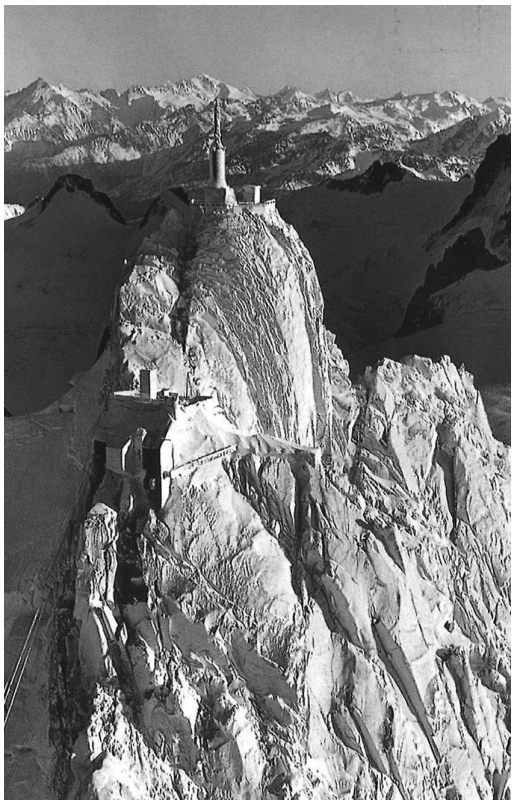
✓ *Le grand manège vertical du Mont-Blanc, 1965*

THE EXPLOITATION

intra-European links such as a tunnel under Mont Blanc. Dino Lora Totino, a great lover of Mont Blanc, cherished the dream of creating «the world's largest carousel», enabling the general public to cross Mont Blanc, Europe's highest mountain, from above and below. In 1945, he initiated the project by drilling a 500 metres test gallery, which would earn him the honour of being at the root of the project. However, this project was continued later, under the direction of another engineer. Instead, he built the upper part and the cable cars for the Aiguille du Midi and the Vallée Blanche, taking advantage of the convincing success of his projects in Cervinia. His major project was to make the «roof of Europe» accessible to the general public, and in 1967 he proposed his Project 4087, which envisioned a tramway running to



the summit of Mont Blanc. In the age of emerging ecology, the project was rejected by the municipality of Chamonix.⁷



⁷ Culot et De Francisco, *Objectif Mont-Blanc*, 7-9.

◀ L'aiguille du Midi cable car, ca. 1960

The Alps evoke feelings of awe and wonder in many modern architects. Unlike urban landscapes, mountains offer architects and artists a sense of freedom from the constraints of urban rules, thanks to the absence of context. As we shall see later in the case of the Aosta Valley, the mountains became a veritable laboratory for modern creation and alpine architecture. Alpine architecture is a term first coined by Bruno Taut in his book *Alpine architektur* (1919):

*“Mighty is nature, eternally beautiful-eternally creative, in the atom like in the gigantic mountain. (...) To admire it blissfully, without taking action, is a sentimental attitude. Let’s create with the mountain, and make her even more beautiful.”*⁸

Through sketches, Bruno Taut sketched a utopian vision of architecture in the Alps, presenting an invitation to peace and harmonious community. His proposal was rooted in pacifist ideas and a desire to free mountain dwellers from the rigours of their daily lives through active participation in the construction of their environment. The Alps, seen as the crown of Europe, inspired the design of crystalline architectural forms. Inspired by Viollet-le-Duc’s theories on the formation of mountain peaks, Taut envisioned the mountain as a model for crystalline forms of glass architecture, merging with the surrounding landscape. The slender structures he projected atop iconic mountains were organic works in glass, reminiscent of cathedrals, an ode to the mountains they sought to magnify. Taut insisted on an internal relationship between buildings and alpine space, defining «alpine architecture» by this intimate connection. Taut’s 1919 declaration of the eternal, creative power of nature reinforced his commitment to creating in collaboration with the mountains to accentuate their beauty. His book also looks at the evolution of modern architecture in the Alps, highlighting the fusion between global trends and local traditions.

⁸ Taut, *Alpine Architektur*, part 3, folio 12.

THE ARCHITECT’S DREAM



✓ Mont Rose, Bruno Taut, 1919



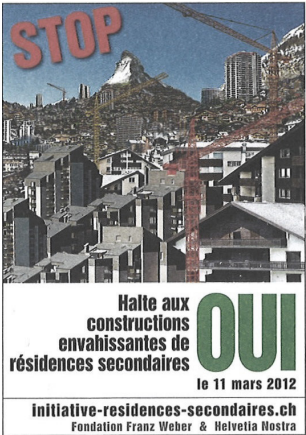
It is important to understand there is not a specific definition of what the mountain could be. Depending on the approach the definition may vary more or less. A mountain specificity could be linked to all the definitions we could have, but the way we interpret them are also different. Many changes have taken place in the way we approach the mountains, but many myths remain. The sublimation of small Alpine villages, sharp peaks and mountains still contribute to a romantic vision of mountains' building. Most of this chapter seeks to explain the evolution of the relationship between man and the mountains in a general way. The aim is not to retrace a complete and precise history, but to identify certain key points in order to understand them, in particular man's fascination and perpetual attraction for the mountains through his mountaineering conquests. In particular, this paper will show how this romantic vision has influenced the architecture of the Alps in modern times, and continues to do so to this day. A cliché of Switzerland, close to nature and its agricultural world, is strongly challenged by André Corboz in his article «La Suisse comme hyperville». He denounces this founding myth of the Swiss nation, without asserting that urban development in the confederation is out of control. The political campaign for the popular initiative «to put an end to the invasive construction of second homes» (2012), put forward by the ecologist Franz Weber, clearly demonstrates that the debate surrounding the urbanisation of the Alps is more emotional than rational. Although the substance of the initiative is commendable, the famous campaign posters, depicting a mountain pass beset by buildings and cranes, highlight the shortcuts made by the Weber's political campaign. They betray the confusion made between the sprawl of the countryside and urbanisation, or even that urban density is harmful to nature.

⁹ Cuennet et al., « *Changements climatiques en Suisse. Indicateurs des causes, des effets et des mesures* », 32,33.

¹⁰ Corboz, « La Suisse comme hyperville », 6.

¹¹ Pia, *Urbaniser les alpes, stratégies de densification des villes en altitude*. 14-15

✓ Affiche campagne politique “*stop résidence secondaire*”, 12



SKIING AS A

FOR TRANS

VECTOR

SFORMATION

DEVELOPMENT OF SKI RESORTS

It has to be said that skiing existed long before its recreational properties were discovered, whether for work or for travelling in mountain regions. But recreational skiing originated in Norway with Sondre Norheim at the end of the 19th century, using a slightly curved wooden slat with a leather strap as its only attachment. The sport was thus born in Norway and the first competitions were organised. Skiing was brought to the Alps by soldiers who, with the help of carpenters, built their own skis. In 1903, the first military ski school was set up in Briançon, France.¹² The practice of ski tourism, and therefore the birth of the first «ski resorts», appeared in Switzerland at the beginning of the 20th century. English tourists stayed at a hotel in St Moritz, in the Grisons region, adding a new activity to spa tourism and mountaineering: skiing. In the early days, like these first two activities, it represented a relatively small proportion of the population. Later, however, it was skiing that would attract the masses to the steep mountain slopes. While the spa remained comfortably installed in the low-lying valleys, it was mountaineering that launched a real dynamic in the use of the mountains for recreation and sport. Thanks to their infrastructure, these spa towns created the first mountain hubs in Europe, allowing the creation and development of the first ski resort.¹³ In his paper «Du village-station à la station-village. Un siècle d'urbanisme en montagne», Franck Delorme describes four generations of ski resorts. In this paper, we are mainly interested in the second generation of resorts, but it is worth giving a brief description of the other three generations.



First generation

The genesis of the first mountain resorts, as we explained earlier, began at the turn of the 19th and 20th centuries. These resorts emerged from existing villages, many of which had developed around spa destinations, without any real development strategy, with private investors building chalets to take advantage of the surrounding nature in summer and winter. Initially focused on summer tourism, these resorts are experiencing economic development and are building winter infrastructure such as ski lifts. They did not limit themselves to skiing, becoming multi-purpose resorts. Local involvement and year-round appeal gave the first generation of resorts a degree of resilience. However, the acquisition of rural land without a development plan posed social and environmental problems. Megève is a telling example of a first-generation resort. The small village taken in by the Rothschild family underwent a radical change of perspective when it became one of the very first ski resorts. The initiator of the project, Baroness Noémie de Rothschild, patron of the arts, intended to make the village «the French Saint-Moritz», referring to the Swiss tourist excellence of the time.¹⁴

¹² Desmurs, *Une histoire des stations de sports d'hiver*, 20.

¹³ Delorme, «Du village-station à la station-village. Un siècle d'urbanisme en montagne», 2.

¹⁴ Ibid, 5-6

△ English skier ca. 1900

▽ The Megève site (Haute-Savoie) in the early 1920s



The generation we are interested in, which includes Breuil-Cervinia and which we will discuss later, is indeed the second generation. These mountain resorts were the result of a government initiative to plan the development of winter sports in a coherent way (we'll look at the *Aosta Valley Regulatory Plan* later). This approach combined social objectives, such as introducing skiing to young people after the war, with economic considerations, in particular the desire to remove mountain construction from private initiative. These resorts were built on virgin sites, not only to be closer to the snow, but also to facilitate the acquisition of land, which was often classified as communal pasture at the time. The revolutionary feature of this second generation is its close link with the ski area, defined upstream, with the buildings located on the «snow fronts», directly on the slopes. However, this new generation operates on a much larger scale than the first, providing accommodation for thousands of people only during the winter season.¹⁵ The example of Sestrière, settling in pastures untouched by human intervention expresses this modern tendency for the mountain to become a project. This has led to the creation of single-purpose facilities that are heavily used in winter and virtually abandoned the rest of the year. Offering summer activities linked to the mountains is thus becoming a complex challenge that resorts have to face, and in the light of global warming with the lack of snow, it is becoming even greater nowadays.

¹⁵ Delorme, « Du village-station à la station-village. Un siècle d'urbanisme en montagne », 8-11.

✓ Resorts of Sestrière (IT), 1957



In the 1960s, the Snow Plan provided the impetus for the creation of third-generation mountain resorts in France, with the emphasis on skiing. The «Service d'étude et d'aménagement touristique de la montagne» was created to implement this ambitious plan. The aim was to develop functional, ski-focused high-altitude resorts, with vertical urban planning and privileged partnerships with investors. Local residents were excluded from the planning process, which was entrusted to private developers such as Société des montagnes de l'Arc (Les Arcs) and Cogédim in Val-d'Isère. Unlike contemporary seaside resorts, these mountain resorts were dedicated to skiing and operated mainly in winter, often unoccupied for more than half the year. Urban planning and architecture, under the direction of an architect or group of architects, helped to shape the identity of each resort, with notable names including Marcel Breuer at Flaine, L'Atelier d'architecture en montagne and Charlotte Perriand at Les Arcs, Michel Bezançon at La Plagne and Jacques Labro at Avoriaz.¹⁶



Fourth generation

From 1975 onwards, a new approach emerged in the design of winter sports resorts, giving rise to a fourth generation. In 1977, Valéry Giscard d'Estaing announced the «Directive Montagne» in Vallouise, creating the Committee for New Tourist Units to oversee mountain development and putting an end to the Snow Plan. At the same time, resorts focused their activities and management on the sale of pre-organised holidays, with an increased focus on profitability. Operators are aiming for optimum occupancy and an extension of the season to create a genuine summer season, thereby encouraging the integration of local populations. Developers are opposing the exclusive use of flats by owners, with the emphasis on rental. The fourth-generation resorts, such as Valmorel, adopted an artificial village model with attractive, playful and picturesque architecture, sometimes verging on cliché. Although the architectural principles are reminiscent of the essence of the early 20th century holiday resort, the resorts are more like staged backdrops for tourist crowd postcards.¹⁷ It's a way of doing architecture that Carlo Mollino is challenging in his innovative architecture, combining vernacular elements with totally modern buildings.

¹⁶ Delorme, «Du village-station à la station-village. Un siècle d'urbanisme en montagne», 13-17

¹⁷ Ibid, 19-22

△ Avoriaz 1800 site and development plan

▽ Valmorel's ski resorts in Savoy



The previous chapter showed that the economic potential of mountains is a recent concept. The case of Sestrière shows that with modernity, the mountain becomes not only a project, but also an architectural laboratory.¹⁸

The Aosta Valley Regulator Plan, directed by Doc. Adriano Olivetti, drew up a development strategy for this mountainous valley in northern Piedmont. It was in fact a preliminary study, seeking to draw up a general picture of its natural, economic and social environment. The aim was to suggest strategies for «rebuilding» the valley in the midst of the economic and social crises.¹⁹

La natura

In his preface, Olivetti describes nature as exceptional. A «great reservoir of joy» to be exploited to the fullest. In his research, particularly for Le Breuil, the graphics and photos highlight a powerful, immaculate nature. The Cervin is visually highlighted in numerous photos. Edward Whymper's achievement is still present in the collective consciousness.

¹⁸ De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3: 32,33.

¹⁹ Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 13,14.

IL PIANO REGOLATORE DELLA VALLE D'AOSTA (1937)



*«a solemn, majestic, varied nature, here panoramas of perhaps unique magnitude, with the aspects of a landscape that is sometimes boundless, rugged and heroic, sometimes intimate and idyllic, but with spectacles that are always new and immeasurable. [...] An immense and inexhaustible reservoir of joy, pleasure and recreation for the nation, an almost untouched wealth to be preserved, defended and enhanced.»*²⁰

The study of this immaculate landscape that Piano's architects love so much leaves no room for vernacular architecture. The landscape, projectively speaking, is translated into nature. The architecture proposed here is purely rational, as is the way in which the broad outlines of the projects for the valley are approached. Calculations of sunlight levels, depending on the time of year, and spatial arrangements, clearing views towards the mountains will be given priority.



Precariousness

A superb picture that contrasts with, as a second observation made by the architects ; the precarious living conditions of Aosta Valley farmers:

*«But in contrast to this solemnity, this incomparable splendor, are the absolutely backward living conditions of a hard-working people, poorly rewarded by a miserly, insufficient and disharmonious economy. [...] So much misery and decay are no longer compatible with the possibilities and the will to build generations that civilization still understands by social progress.»*²¹

Several reasons have been put forward to explain the situation of the people of Valle d'Aosta at the beginning of the 20th century. The first certainty is that mountain terrain is naturally more difficult to farm. The high mountain regions were particularly affected, as arable land was only a small part of their territory and vegetation was active for only 4 or 5 months of the year. The main resources in these valleys was sheep farming, firewood, timber and tools, but these was not enough to provide a decent living. What's more, farming here was mostly passive; in other words, still geared towards subsistence, the various crops grown, such as wheat, rye or barley, were not financially profitable to farmers. These low incomes were not even enough to pay for the work put in once the various costs have been deducted. Farmers put in a lot of hard work and make considerable sacrifices to obtain little harvests. The fields, which were often difficult to access, are located between rocks and on steep slopes. The land was often scattered, with fields far apart. The dairy economy of the plains, simpler to produce, has surpassed that of the mountains. Previously, the economy of the valleys, oriented towards its own subsistence, was separate from the economy of the plains. The crisis came when this barrier was broken and the easier, more profitable economy of the plains caused the price of mountain produce to fall as well. From then on, there was a real split between the lowland and mountain economies, pushing mountain

²⁰ Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 17, 18.

²¹ Ibid, 18.

▲ « cervino's appeal comes from its plastic tending to pure geometric lines ». from *Il piano regolatore della Valle d'Aosta*, 1937

farmers to the brink. With taxes having risen uniformly in a variety of contexts, the crisis took hold in these remote regions, with no active state support for mountain farming.²²

As a result, economic, financial, demographic and health crises have set in. Excessive farming was practised, including at night. The whole family had to work, usually with little sleep, to meet their needs. Overwork, a diet that was often too poor, the hygienic conditions of the farms and their consequences, had a considerable impact on the population, its health and its collapsing volume. This demographic decline is due to a number of factors. Living conditions lead to a low birth rate and a high mortality, particularly among children. Under such conditions, young people and those who would be best placed to contribute to the family effort are leaving the valleys for the plains. All this contributes to a negative spiral that threatens the existence of these populations. Various measures were envisioned to support mountain dwellers, including subventions to improve pastures and build cowsheds, free insurance against fire and livestock disease, aid for road infrastructure, expansion of health and

²² Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 36.

✓ «Family life takes place in the barn». In winter, only the warmth of the animals in the cowshed can help them survive the extreme cold. from *Il piano regolatore della Valle d'Aosta*

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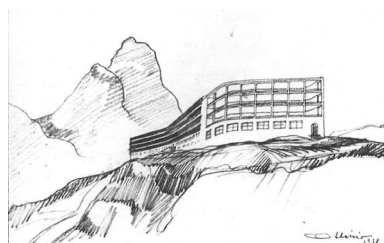
la vita familiare si svolge nelle stalle

hospital services, development of crafts and small industries to boost employment in times of stagnation, and facilities for emigration. The emphasis was on preserving and restoring land unity in the mountains, by encouraging exchanges between owners of adjacent plots. Some of the remedies proposed to resolve the crisis in the mountains were not be as effective as hoped. Implementing them, even partially and gradually, would not bring any real dynamism or change into the valleys. The only defence against mass emigration was to be found in the very strong bond that mountain dwellers had with their homeland. This difficult situation did not offer any good prospects. Yet old census figures showed that fifty or a hundred years ago, the high mountains were more populated and fed more people. The close contact between the mountains and the plains created a disparity in living conditions, marked by numerous and inequitable sacrifices. Within the framework of state institutions, the creation of an institute is considered. Its aim was to make the most of government support for land improvements, particularly for mountain dwellers. The institute will also provide, at an affordable cost, essential technical services during the planning stage, as well as monitoring and controlling the implementation of the work. The aim was to reduce disparities and support the development of mountain areas. However, the Aosta Valley Regulatory Plan aims to create a new dynamic to overcome these problems by providing for major development projects through tourism.

The project

The various projects will be implemented thanks to extensive legislative, financial and executive intervention by the State. According to those involved, they will aim to preserve what we would like to call the aesthetic integrity of the mountains». These projects are based on a desire to limit disorganised construction and free private initiatives. This kind of construction is detrimental to the harmony of the landscape and contaminates the land. In this situation, urban planning plays a crucial role in pre-establishing the overall layout of buildings and their arrangement. This process is based on aesthetic and functional principles, guiding the volumetric development of building complexes and the design of thoroughfares. The aim is to create healthy, aesthetically pleasing environments by imposing legal constraints designed to prevent any alteration of nature's beauty. Social and technical development are at the heart of this project, according to the architects behind the study. They believe that the problem cannot be approached solely on the basis of strictly objective criteria of financial and economic profitability. In the Olivetti project, the mountain is transformed into a national reserve, evolving as an alpine gymnasium and sports area, and serving as a playground to revitalise the depleted energies of the urban masses. It becomes an essential and irreplaceable complement to the centres of work. The Aosta Valley master plan is designed to restore, preserve and organise the

▼ Study for an hôtel at Plan - Maison, Ottorino Alloisio, 1938



mountains, not only for the well-being and life of its inhabitants, but also for the satisfaction and happiness of the nation. The urgency of the living conditions in which the people of Valle d'Aosta found themselves has led to radical transformation projects. This plan aims to provide a new stability of income and quality of life for a population that continues.²³

Based on this observation, a strategy for the economic development of these valleys will be outlined. The architects' plan highlights the completion of the road network in the province of Aosta as a key strategy for the development of the tourist area. For the future, an in-depth comparative analysis of agricultural and livestock conditions in the Valle d'Aosta is planned, suggesting that the practical approach and ongoing examination of these complex issues will be managed by the Experimental Agricultural Economy Centers (government).

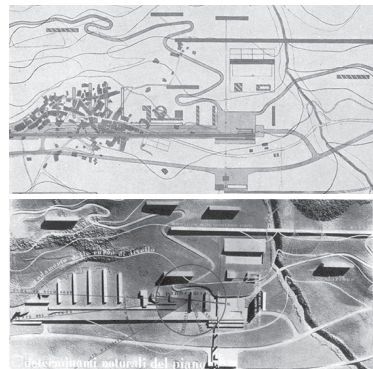
In addition to a general tourism development strategy, the *plan* proposes urban projects for five centres in the region. These five interventions propose responses adapted to the different specificities of the locations: AOSTA, the valley's main town, should capitalise on its Roman heritage and act as a pivotal point for tourism in the Valle d'Aosta; BREUIL, the future international high-mountain resort in summer and winter; IVREA, for the construction of housing for the region's industrial workers; PILA, the ski resort for the many post-war mountain tourists; SOUTH SIDE OF MONT-BLANC (Courmayeur), a new tourist centre at the foot of Mont-Blanc, Europe's largest mountain, restructuring the high-altitude villages. Certain areas are subject to immediate regulations to ensure coherent urban planning. This requires in-depth studies to ensure balanced development. Architects also contribute to national social objectives by creating specific areas, such as sanatoria, to solve problems identified in their future plans.

In these projects, the mountain becomes a rich field of architectural experimentation that will also serve the architecture of the plains. Indeed, the mountains, described as «a blank page» by Figini and Pollini (architects of the south side of Mont-Blanc project), saw a rational approach to the projects, and a *tabula rasa* was also the order of the day in the Courmayeur project, which planned to demolish almost the entire existing village.²⁴ This rationality can be felt in the Plan's projects; no inspiration for vernacular architecture can be found in Olivetti's dossier. On the contrary, in the regulatory plan, traditional mountain architecture is expected to showcase a new way of building that retains a traditional spirit but breaks away from traditional forms. Henceforth, the architectural project is based on oro-hydrography, the calculation of sunlight in the valleys and geometric positioning according to unobstructed views towards the mountains. With this trend, the notion of landscape is increasingly abandoned for the notion of nature. This point of view was sharply contrasted by another great figure of Italian modernism: Carlo Mollino, whose architecture played with vernacular codes and described their principles in his article *Tabù e tradizione nella costruzione montana* (Taboo and tradition in mountain construction).

²³ Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 36.

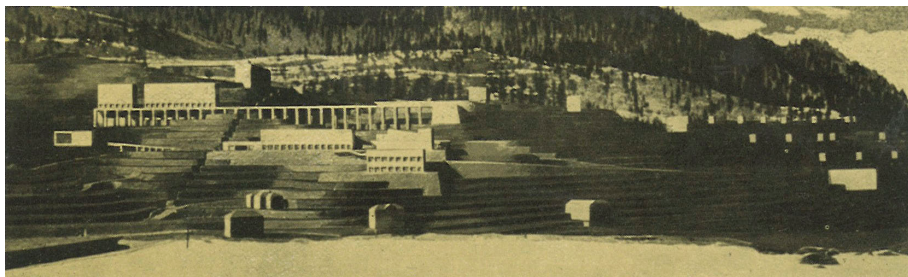
²⁴ Ibid, 104.

✓ The *tabula rasa* proposed by Gino Pollini and Luigi Figini for the village of Courmayeur from *Il piano regolatore della Valle d'Aosta*, 1937





✓ Model with the arrangement of buildings on the ground,
plan for Breuil's development



It all starts with a valley floor that is devoid of any human enterprise, apart from a few farm buildings. Already at the time of the study of the *Piano Regolatore della Valle d'Aosta*, unlike other localities examined simultaneously as part of the Aosta Valley master plan, the Breuil basin had the characteristics of an emerging element. This progression naturally led to significant increases in land values, conflicts of interest and the inevitable emergence of chaotic building initiatives, irreversibly jeopardising the characteristics of the landscape. Before talking about the development of this village, it would be useful to do a little toponymy to understand the origins of this «double-names». This will help us to understand the origins of this village, which hardly existed before the beginning of the 20th century.

CERVINIA, from the Italian *Cervino*, referring to the famous Matterhorn mountain overlooking the entire valley. The name was added in the early 1930s, as part of Mussolini's plans to «Italianise» Valle d'Aosta's village names that were too close to French.²⁵ Founded by Dino Lora Totino, he founded a new town based on the Piedmontese village of Sestrière, in line with the regime's hypotheses: «*Thus was born from nothing this very modern town, which was to take the name of its fascinating tutelary deity Cervinia: 'Cervinia'. A ringing name, very Italian, a Fascist name.*»²⁶

²⁵ Morosini, *Sulle vette della Patria. Politica, guerra, e nazione nel Club alpino italiano (1863-1922)*, 48.

²⁶ Lora Totino, *Cervinia Martien Bernardi Vittorio Zumaglini Ski Montagne Alpinisme*, 6.

²⁷ «Francoprovençal patois en Vallée d'Aoste».

BREUIL, from the Celtic *breuill* meaning «lake, marsh», the Franco-Provençal origins of the Aosta Valley dialect dates back to Merovingian times.²⁷ In these Breuil it is common to call the bottom of the valleys «Lo Breuil».

Today, the municipality has decided to administratively change the name of the village back to its original pre-1936 name of «Le Breuil», although the «Cervinia» brand remains for the ski resort and its international reputation. Several regulatory plans were studied for the resort, but in the end none were accepted until 1983, well after its architectural and construction development. We're going to take a look at the different projects that the architects have come up with for the basin.

▼ The new building arrangement of Breuil as seen from the north.



CERVINIA – BREUIL

In 1935, Diego Brioschi and Mario Cereghini, two architects with close links to the companies behind the resort, undertook a study to draw up a Regulatory Plan. The plan proposed improving the structure of the road network, reorganising the ski area and preserving views of the Matterhorn. Because of their direct links with the companies responsible for creating the resort, their efforts to regulate real estate activity in the Breuil valley were met with little success.²⁸

Belgiojoso et Bottoni (1937)

As Brioschi and Cereghini's project did not provide a satisfactory solution for a village in full expansion, the basin was studied in a new project by Belgiojoso and Bottoni as part of the Aosta Valley Regulatory Plan. The region, under the impetus of Dino Lora Totino with his cable cars, was already under construction when the two architects set to work on their study. The study was drawn up with the aim of establishing a stricter zoning, precisely defining the building plan in line with the needs of a particular tourist resort, while preserving the characteristics of the basin, in keeping with the pre-existing situation at the time. The aim of the study undertaken was to devise a regulatory plan that was both theoretical and practical for the locality of Breuil. Divided into two distinct parts, one analytical and the other programmatic, it begins with an analysis of the geographical and historical conditions and local resources. This analysis is intended to provide the keys to define the ideal characteristics of the future tourist resort. By looking at factors such as climate, sunshine, winds and avalanches, the study aims to determine the most suitable locations for construction and the access routes. In addition, an in-depth comparison is made with other tourist facilities, whether at regional, national or Alpine level in general, including those abroad. This analysis of facilities abroad, for example in Zermatt, has influenced the Breuil hotel organisation

²⁸ Micheletto, « PERSPECTIVES D'AVENIR POUR UNE STATION? », 2.

▼ Urbanistic plan of Breuil from *Il piano regolatore della Valle d'Aosta*, 1937



in particular in terms of data on bed numbers and quality. By also examining local resources, the research takes into account accommodation for the permanent population as well as complementary activities such as commerce, crafts, local agriculture and public services. The project plan is subdivided into different functions: housing, production, distribution, leisure, rest, communication and transport. The architects sketched out a construction scheme comprising a core of urban buildings, hotels classified according to their characteristics, a villa zone, a shopping centre and a sports area at the heart of the basin. The layout of the buildings was carefully thought out, taking into account weather and sunlight conditions, in order to preserve the view of the Matterhorn from the Breuil basin. Despite the rapid development of construction at Breuil, exceeding the initial conditions of the plan, the study claims a potential contribution to the future development of Breuil. Even setting aside the contingent factors of applicability, it offers a theoretical value to Alpine town planning within the framework of the general plan for the Valle d'Aosta.²⁹ However, this ambitious project was shelved with the advent of the Second World War, leaving the resort to develop uncontrollably before its first regulation plan was accepted in 1983.

Cielo Alto by Renato Piramide, Maria Coletti, Mario Megna, Francesco Dolza (1978)

This project is the last large-scale urban development to come to fruition in the resort, and demonstrates the disparity in terms of both location and architecture that makes up Cervinia-Breuil. It is located in the hills above Cervinia, around one kilometre from the village centre. Although the project is part of a second-generation resort, it is more like a third-generation resort, built from a single block.

Carlo Mollino also proposed a town-planning project for the basin, which was never to come to fruition.³⁰ But we'll take a broader look at Carlo Mollino in the next chapter.

²⁹ Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 117.

³⁰ Bolzoni, Carlo Mollino, architetto, 192, 193.

▼ Model of the Cielo alto project for Cervinia, 1978



▼ Mass plan, Cervinia, 2021 ①



The mountain becomes a project because so many people come to ski. On paper, the plan defends itself by wanting to preserve the mountain and its nature by avoiding a general disorder that unplanned construction creates. However, it has to be said that the plan - which, according to Olivetti, should be followed up with a pre-study that is too general - has not been implemented. Although it would have been necessary to do so, the second world war took away any hope of following through. So the architects' words did not necessarily live up to their promises. Cervinia, in particular, was developed without a plan, and shows signs of certain chaos.

CARLO MOLLI

ARCHITECT

LINO

T AND SKIER

A STORYTELLER

Carlo Mollino is not one of the modern architects you study in architectural history courses. He is often associated with his many other facets: photographer, ski instructor, aeroplane and car pilot. Yet his architectural work is extensive and reflects a passionate and prolific life. Mollino's architectural legacy is reflecting his role not only as an architect but also as a storyteller. Born in Turin in 1905 and died in 1973, he was the only child of a middle-class family from northern Italy. In addition to his activities as an architect, Mollino was a keen skier, revealing an acute awareness of the complex relationship between the body in motion and the forces exerted on it. His multifaceted approach to architecture was marked by a fascination with movement, drawing inspiration from different styles such as futurism, surrealism, expressionism, rationalism and organicism. Intentionally mixing these diverse influences, he sought a personal synthesis that reflected his dynamic and open creativity.³¹

Some architects compare the work of Carlo Mollino with that of Antonio Sant'Elia. The comparison is interesting, and the two contemporaries share the same inspirations, but their projects are different. An emblematic figure of *Futurism*, Sant'Elia advocated a new era in architecture. In his manifesto *L'architettura Futurista* (1914), he sharply criticised the architecture of his contemporaries. In the same year, he proposed *La Città Nuova*, a future industrialised and mechanised city, not as a collection of individual buildings, but rather as a large, multi-level, interconnected and integrated urban area, centred on the life of the city.

Sant'Elia's projects were never executed, as he died at the front during the First World War.³² This is where Mollino really stands out. While Sant'Elia proposes imaginary worlds that do not exist, the architect from Turin uses them and injects his creation into a tangible landscape that is constantly evolving. He himself refutes this assimilation in one of his articles in the Casabella newspaper:

*«Some have tried to see points of contact between Oberon and Sant'Elia; let's rule out any possibility of parallels: Saint Elias had prophetic virtues and perhaps those of genius; Oberon (a work written by Carlo Mollino), on the other hand, arrived when the show had already begun and the fates were already inevitable.»*³³

Carlo Mollino believes that in the Alps, the landscape itself should play a central role, diluting the influence of traditional architecture in favour of a contemporary approach. His studies of local buildings take into account the aesthetics of ancient rural constructions through precise graphic representations, albeit tinged with a personal interpretation. His future design proposals aim to avoid the scattering of houses and chalets across the land by building concentrated, collective complexes. In modern mountain construction, the architect has to dissociate himself from the inhabitant. It is no longer the person living in the building who is the designer and builder, but the architect.³⁴ Mollino's reflection on architectural language led him to overcome the problem of

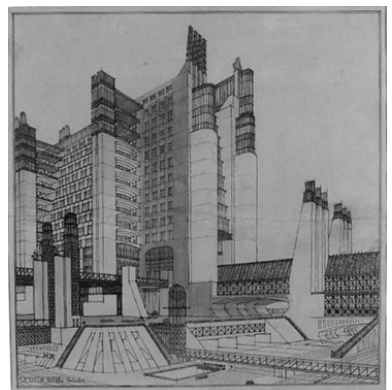
³¹ Sabatino et al., *Carlo Mollino*, 10.

³² Redazione, «Antonio Sant'Elia e il contributo del futurismo italiano in Metropolis e Akira».

³³ Mollino, «Vita di Oberon II: prodromi mediterranei», 29.

³⁴ Bolzoni, *Carlo Mollino, architetto*, 194.

▼ Sant'Elia's *La Città Nuova*, 1914



constructive sincerity:

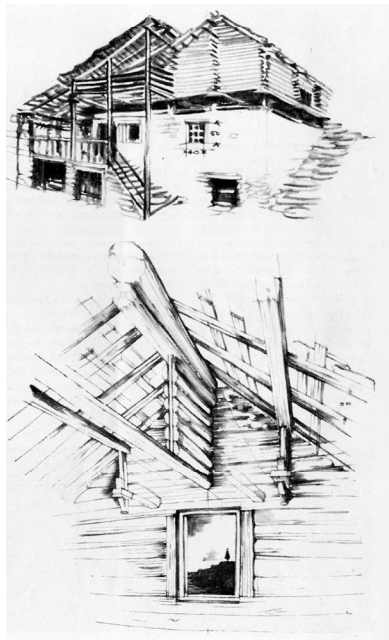
carlo Mollino, architect and skier | 47

«The only way to go beyond a technical fact is to permit a slip [...] into what is useless, because if we set ourselves on what is useful, or rather a precise verification of the technical fact, we arrive [...] at just one solution.»³⁵

This “slip into useless” characterizes a lot of Mollino’s building (going beyond the zero degree of functionalism), as example the unrealised project with aerodynamic shape of the cable car station on the Furggen.

³⁵ Carlo Mollino cited by De Rossi, *Modern Alpine Architecture in Piedmont and Valle d’Aosta*, 3, 3.: 47.

✓ Typical alpine structures in the Aosta Valley drawn by Carlo Mollino, ca. 1954



✓ Carlo Mollino photographed in Casa Miller,
ca. 1936



✓ Carlo Mollino performing a skiing position while being tied with a rope to a tree, ca. 1944



Carlo Mollino became interested in alpine architecture in 1930, still a student, drawing vernacular buildings in the valleys of Gressoney and Valtournenche. He is described by Roberto Gabetti: “a dry and petite stature, a hollowed-out face and above all a snappy style, taken from the world of the circus, *à la Cocteau*, a bit like Charlot.”³⁷

Carlo Mollino has a special relationship with Cervinia. Although he played a key role in its construction, it was not Mollino who brought modernity to the valley. In fact, when he first visited the valley in the 1920s, the engineers had already prepared the ground: dams, roads and bridges. The valley was therefore ready for the development it was destined to receive, a broad-based development for a resort geared towards international tourism. The road between Cervinia and Valtournenche was completed in 1934 and,

CARLO MOLLINO IN CERVINIA

thanks to this, the area developed like a large part of Valle d'Aosta. At that time, everything had to be built. This great white canvas attracted many famous architects, all of whom left their mark on the valley to a greater or lesser extent: Ottorino Aloisio, Franco Albini, Gio Ponti, Ernesto Bontadini and Edoardo Gellner.³⁸ This multiplicity, and the absence of a master plan, leads to a wide variety of projects, but also generates conflicts:

*“A swarm of buildings risks suffocating Cervinia. It could have been the most beautiful village in the Valle d'Aosta, but without an urban development plan houses and skyscrapers are mushrooming chaotically. Now it is difficult even to lay out roads.”*³⁹

Mollino is part of this elite, investing a great deal of time and effort in the basin and producing numerous projects. The opportunities offered by the resort also allowed him to experiment a great deal with architecture. But most of these designs remained at the draft stage. Between 1950 and 1961, Mollino collaborated with Lino Binet to draw up a town planning scheme for Valtournenche and Breuil, but they were unable to bring their project to fruition. So he didn't build Cervinia with his own hands, but his passion for it led him to make a completely different and all the more fascinating contribution: a general infatuation with the resort through a new vision of the landscape and skiing holidays. In addition to his architectural work, he is involved in many other areas: as a ski instructor and photographer, but also as a tenant and property developer in the resort. He even drew the piste maps and made scarves bearing the Cervinia logo. As an architect, his achievements are limited to the Furggen cable car mountain station and the Casa del Sole. He also collaborated on the renovation of the La Gran Baita cable car

³⁷ Brino, Carlo Mollino. *Architecture as Autobiography*, Foreword by Gabetti A.

³⁸ Bolzoni, *Carlo Mollino, architetto*, 192.

³⁹ La Stampa (1962) cited by De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3.: 57.

✓ Poster of Cervinia, Gina Lollobrigida before the Cervin and the Furggen cable, 1953

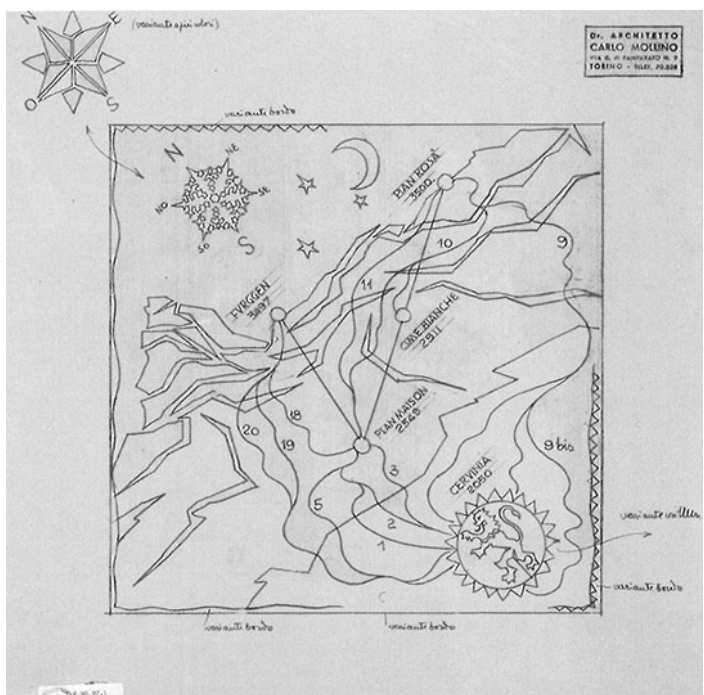


hotel and supervised the fitting-out of the Leo Gasperl boutique and the Pavia restaurant in the Casa del Sole. Influenced throughout his life by the sea, he writes of the mountains:

*«In the end, being in the mountains is a bit like being on a cruise, a temporary condition of isolation, but also great views over a landscape that can be used like that of an open sea.»*⁴⁰

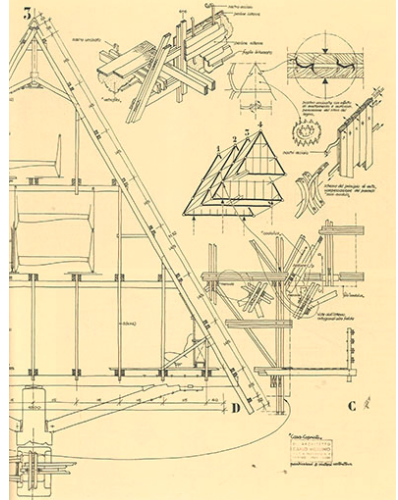
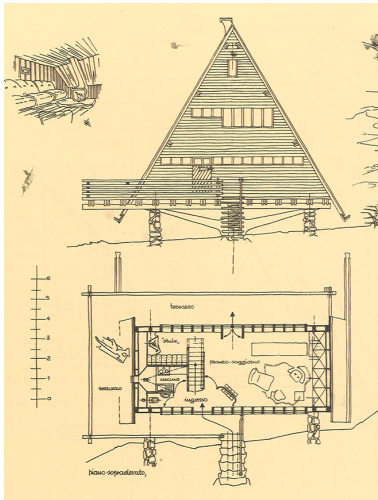
⁴⁰ Bolzoni, Carlo Mollino, architetto, 196.

✓ Illustration of the Cervinia slopes designed by Carlo Mollino for scarves.



The capriata house is designed, in Mollino's words, for a couple of skiers. It is an insulated box designed to be installed on different mountain terrains and suspended by different types of structures. The entire construction rests on three concrete pillars. This project contradicts the work carried out in Cervinia on collective housing and was not built during Mollino's lifetime. A group of architects decided in 2008 to build the project as they interpreted it.

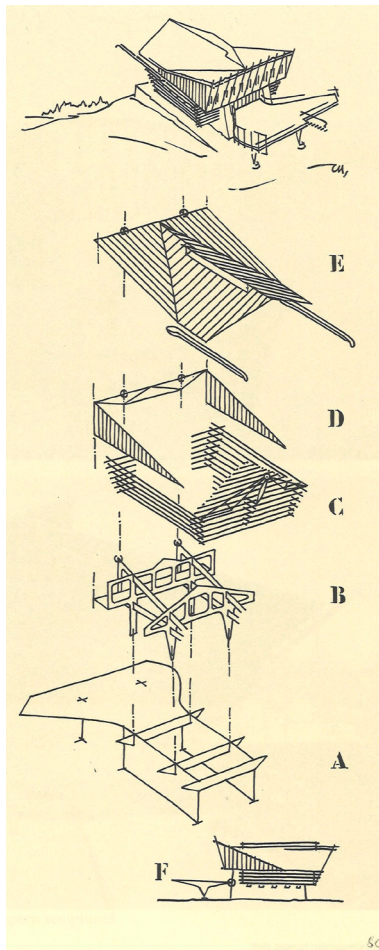
- ⌞ Elevation and floor plan of the Casa Capriata
- ✓ The Casa Capriata was designed to be constructed in every situation of mountain ; Construction detail sheet.

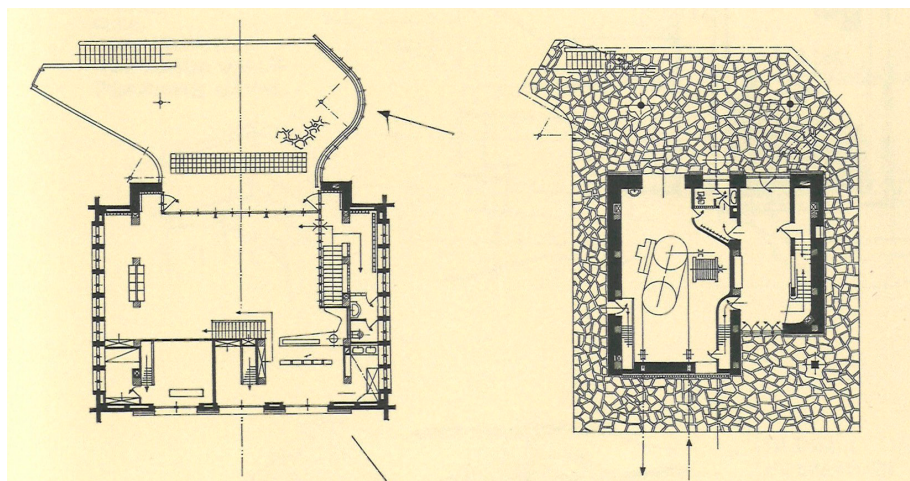


SELECTION OF PROJECT IN THE ALPS

Lago Nero Sledge is a sled station for skiers. This project reveals the way in which Molino develops his buildings, first designing traditional mountain buildings, then creating a new building by deforming the roofs and facades into designed geometries. The project has a double face, with two very distinct facades: on the valley side, a facade close to traditional Alpine buildings. On the mountain side, the façade is completely articulated between the large terrace and the upper volume. Emptiness is a dominant theme in Mollino's architecture, and he uses numerous cantilevers and the new properties of reinforced concrete to enrich his projects.

- > Floor and terrace plan of the project
- └ The lago nero sledge when in use by the skier
- └ Axonometry of the construction concept.

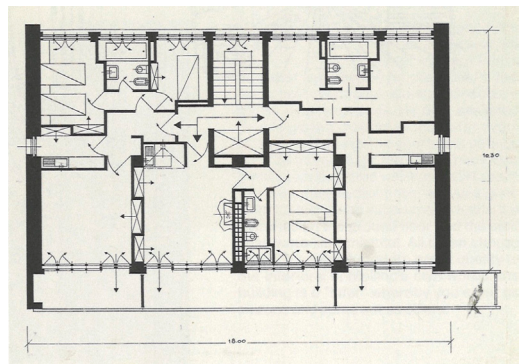
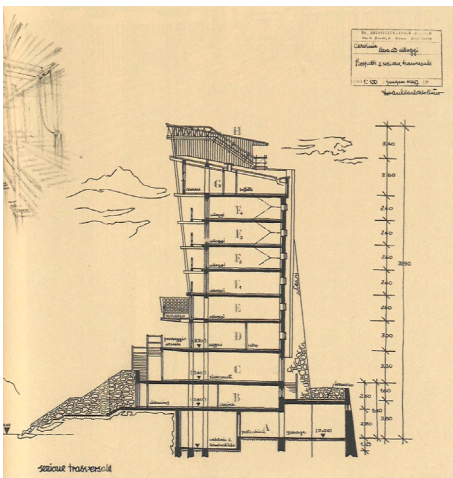




The Casa del Sole, initially called the «Vertical Village of Cervinia» when it was published, was not just a simple architectural project, but a complete real estate operation. The architect, who also acted as a promoter, produced numerous information brochures and took part in sales attempts, presenting models and scale models. In this first project, Mollino designed a block of flats overlooking the mountains and the valley, offering the possibility of purchasing two- or four-room flats. It is a 'vertical village' clad in wood, inspired by the architect's passion for skiing and his desire to create a warm, welcoming space, reminiscent of the cosy comfort of a wooden box after a dazzling day in the snow. The rooms offer modern comforts, with features such as wall-hung sanitaryware and contemporary heating systems. Mollino has designed a slender, proud building that contrasts with Franco Albini's humble but robust Hotel Pirovano, just a few metres away. This comparison between the two works seems to be a predictable operation: on the one hand, the dynamic skier Mollino erecting an urban tower, on the other, the walker Albini advancing cautiously, aware that any excess in the mountains can be fatal. These two temperaments manifest themselves in different directions but converge in the same place, acting as vectors and forces that project the future while preserving elements of the past and tradition.⁴¹

⁴¹ Bolzoni, Carlo Mollino, architetto, 198-200.

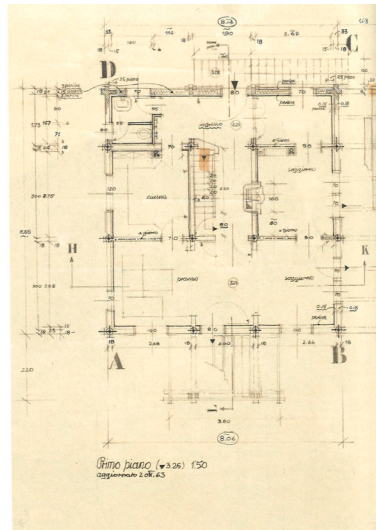
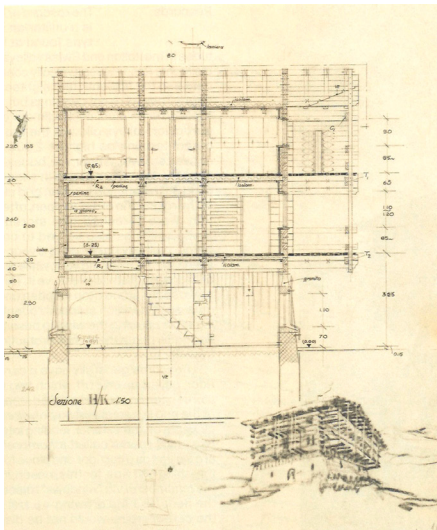
- The *vertical village* developed by Carlo Mollino in Cervinia
- ✓ Floor plan of the project
- ⌞ Section of the Casa del Sole





Clotilde and Felice Garelli acquired the rascard Taleuc (1664) with the intention of transforming it into their mountain weekend house. Under the guidance of Carlo Mollino, the building underwent a meticulous process, being disassembled from its original location and reassembled in Champoluc. Mollino, known for his innovative approach, adapted the former storage space into a modernised residence. The transformation was largely philological, preserving the traditional character of the structure, with the only notable addition being a modernist concrete staircase on the exterior. This project showcases Mollino's ability to blend historical elements with contemporary design, resulting in a unique and harmonious mountain retreat.

- └ The Champoluc rascard by Mollino with his modern concrete stairs
- ▼ Ground floor of the project
- └ Rascard's section





At first the Furggen cable car was a project of Count Lora Totino, engineer and initiator of the cable car. It had to be a first step for the further whim of reaching the summit of the Cervin. Molino then designs a suspended building with terraces facing the mountains of the Aosta Valley. In the end, only the concrete construction was built, the terraces and the restaurant remaining at the design stage. In the extreme conditions of the high mountains, costs were multiplied and it was finally decided to build only what was strictly necessary to transport skiers to the top of the Furggen ridge. Built in 1953 by the Società Nazionale delle Officine di Savigliano, it has always been poorly operated, with constant problems due to extremely unfavourable environmental conditions. The cable car, a type of system *non-débrayable à va-et-vient* (non-releasable to-and-fro)⁴² has a total length of 2,887 metres and a height difference of 931 metres without intermediate posts, a record for the time. This cable car was built with two hauling cables to avoid installing a brake on the carrier: a large cable would need a large bending radius to avoid being overloaded during operation, and space on the mountain is very limited. The cabins were equipped with suspensions simply consisting of a *boxed* metal shaft, square in plan. The ski tunnel, leading right to the glacier and the famous slope, was completed three years later in 1956.

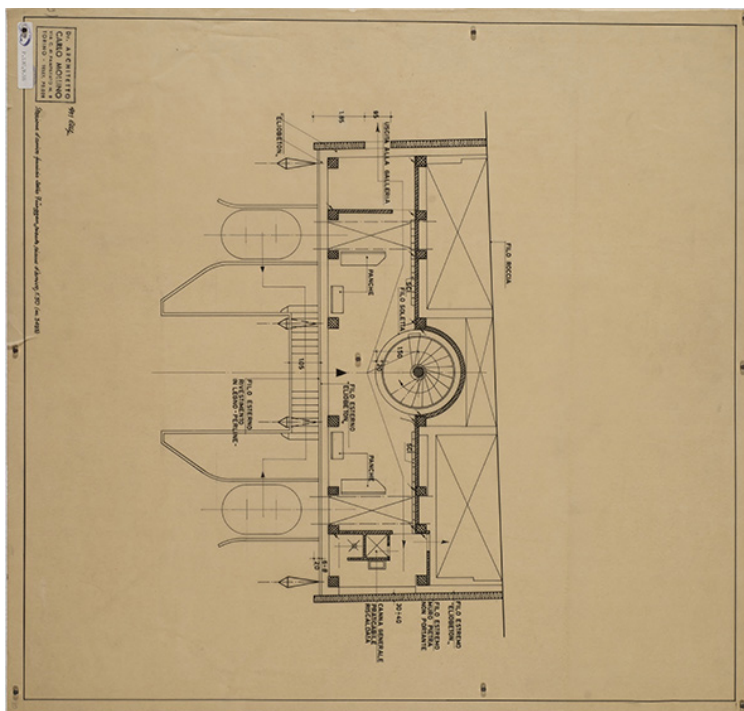
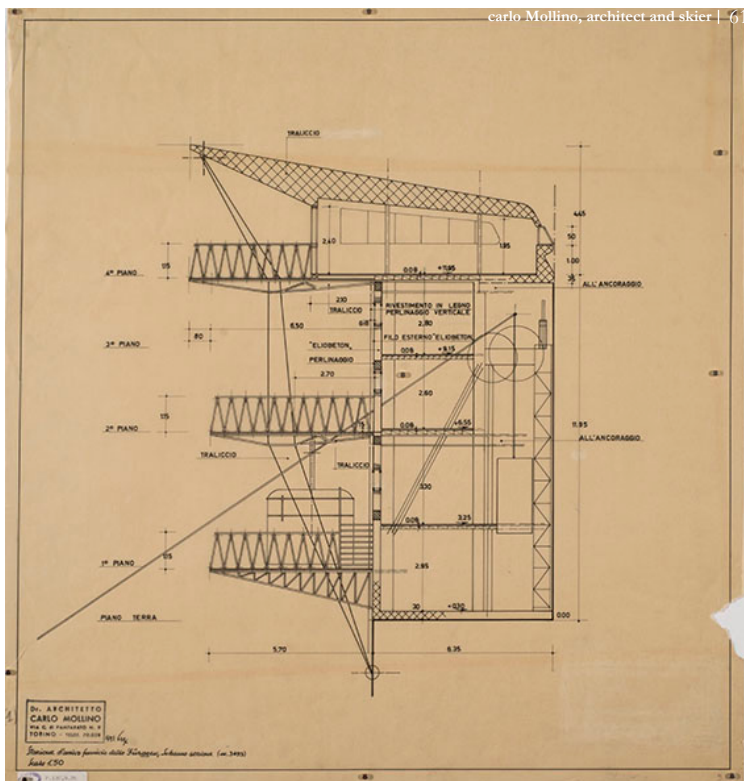
It's important to remember, at this point, what an impact the construction of this project has had alongside the two cable cars at Plan-Maison and Plateau Rosa. Thanks to this construction, the resort of Cervinia was able to compete with the biggest ski resorts and, with its many assets such as the Cervin, positioned itself as a world-class resort. An architectural craze developed in *Le Breuil*, and Molino, a keen alpine architect, came to make his contribution on the very ridge of the Cervin to create a new slope for the resort of Cervinia. He planned to build the arrival station in such a way as to be anchored in the vertical rock face, in the manner of cable car tie rods. The dual purpose of this design is to minimise the visual impact on hikers in search of unspoilt nature and to provide protection from the strong mountain winds.

⁴² De Oliveira Simas, « *Transport à Câble Aérien En Milieu Urbain* », 255.

7 Furggen project's section plan

> Floor plan of the station

PROJECT OF THE FURGGEN'S CABLE CAR STATION (1950-53)



The only volume to emerge is the restaurant, which is clad in aluminium cladding, a lighter material that is easy to work with in these high-altitude conditions. Mollino designed it in the shape of a lenticular, tapering towards the top, to offer the least possible resistance to the gusts of wind. He imagined a cantilevered terrace on the roof of the station, like a belvedere overlooking this incredible blue and white amphitheatre. Among his drawings, there is a project that can be attributed to an alpine refuge, in a more or less similar situation, which proposes even bolder solutions, suspended and clinging above the void. In 1951, the cable car station was quickly erected, and by the end of the following year it was carrying the first daring skiers ready to challenge the snow-covered ridge.

Although Cervinia is known as a skiing town, its creation is not limited to Mollino's influence. For Mollino, this project represents an opportunity. Although he was not the initiator of the modernisation of Le Breuil or the main architect of Cervinia's future urban plan, he aspired to leave his mark on the resort and position himself as a central figure in Cervinia. At the time, the Furggen project marked a number of innovations, not least being the first single-span cable car in the world. Located at an altitude of 3500 metres, where the snow lasts almost forever, construction time is precious. In this context, the engineers set themselves the challenge of designing the building as an extension of an environment that was both wild and unspoilt. In this way, Mollino's approach complements that of the engineers, placing the architect in the role of implementer rather than project leader. The architect describes the Furggen project:

*«I see this building as representative of an architectural solution in the high mountains, which is also new as a building concept.»*⁴³

The Turin-based architect believes that the real challenge does not lie in the extreme exploration of architectural solutions by adapting them to the site, nor in finding the most judicious way of resolving delicate issues such as a building suspended in a vacuum. Rather, his main aim is to create an architectural invention that incorporates all the starting conditions, including space constraints, difficulties of location, operation and cost, while devising a system for efficient and rapid construction. Italo Barmasse, an aspiring guide, describes the construction process:

*«I was 22 when I was recruited to build the cable car. There were a dozen of us and we had to build the power line first; there were no helicopters or jeeps. We left early in the morning, worked twelve hours a day, with a packed lunch, carrying the materials on our backs.»*⁴⁴

In 1993, ice began to form on the hauling cables, and the overload led to one of the cables breaking. As it was too expensive to repair, it was decided to abandon the infrastructure. For safety reasons, the cabins were lowered and the cables dismantled. The upper station was left to decay, and with it the only built remains of its past.

⁴³ Soluzione di architettura cited by Bolzoni, *Carlo Mollino, architetto*, 204.

⁴⁴ De Oliveira Simas, «Transport à Câble Aérien En Milieu Urbain», 255.

➤ The Furggen cable car station abandoned up there on the mountain.

✓ The station as projected by Carlo Mollino, ca. 1950





In summary, Carlo Mollino's unconventional journey spans architecture, skiing, and photography, defying traditional categorizations. His alpine architectural endeavors, especially the Furggen cable car project in Cervinia, showcase innovative designs that contributed to the region's global skiing prominence. While the cable car's later abandonment underscores the challenges posed by mountainous environments, Mollino's legacy extends beyond structures. His comprehensive book on skiing techniques and his involvement in Cervinia's development reflect a holistic perspective on the interplay between architecture, nature, and recreational pursuits. Ultimately, Mollino's story is one of a passionate and multidisciplinary life, leaving a lasting impact on alpine landscapes and the realms of skiing and photography.

DISCUSSION,

FROM TH

, LESSONS

HE FURGGEN

A CRISIS?

The word is powerful but it has the advantage of raising questions and opening up discussion on the subject. It's important to contextualise a number of aspects before talking about a crisis. This term has come to the forefront because the situation of ski resorts is a recurrent topic in the Swiss media. Indeed, the rise in isotherms and the instability of snowfall, as well as competition between resorts and the ageing of facilities, are putting considerable economic pressure on ski resorts. Today, in fact, it's the smaller ski resorts that are struggling, with their survival uncertain and the threat of overgrowth looming. In 1986, the Dino Lora Totino cable cars were replaced by more efficient gondolas, first from Cervinia to Plan Maison, then successively to Plateau in 1990. In 1993, the Furggen failed and was no longer in service. With the creation of new links, the towns of Zermatt and Cervinia can now be reached by cable car in the same way as Chamonix and Courmayeur, without having to put on skis. These two resorts thus form a «super resort» revolving around the Matterhorn. The case of Furggen in Cervinia does not therefore raise questions about the viability or economic health of the resort, but rather questions about the foundations of ski resorts and the impact they have had on the area. In this particular case, we're interested in the Valle d'Aosta and Breuil-Cervinia in particular. This resort, designed by the architect Carlo Mollino, also raises questions about Alpine architecture. Answers were developed during this modern era at Cervinia and the Furggen, *«a solution for high mountain architecture»* according to Mollino, offers an opportunity to reflect on its future

Presents this issue stem from the fundamental aspects of contemporary ski resorts? Does the abandonment of the Furggen top station highlight the lack of respect for ecological realities on the part of the developers who built the resort? We saw at the outset that the human relationship with the mountains has changed a great deal, particularly in the 18th and 19th centuries. The mystical and untouchable nature of the mountains was gently transformed into passion and attraction. With modernity and technological innovations such as cable transport, the mountains became accessible to all. On the contrary, the poets of the 18th century created a sublimated vision of the mountains in their poems, engravings and paintings. This sublimated vision is still relevant today, as we have seen in the case of the political campaign for the initiative *«to put an end to the invasive construction of second homes»*. We have also seen that ski resorts are made up of many different situations and problems, with the four generations theorised by Delorme facing different challenges.

SKI RESORTS

The humanist aims of Olivetti's *Piano regolatore della Valle d'Aosta* are well defended. The Alpine valleys, harsh and difficult to farm, are on the brink of collapse as a result of the growing economy of the plains. The transformation did take place, but the valleys would develop differently than in Olivetti's project. The construction of roads did breathe new life into the valleys, but the lack of political stability in the years leading up to the Second World War prevented controlled urban development in these resorts. The case of Cervinia, a second-generation resort, is a very concrete example, raising structural and management problems. A number of urban development plans were drawn up, including those by Carlo Mollino, but to no avail. However, the international enthusiasm for the resort led to the construction of numerous projects in an urban chaos that made the resort unique. In his contributions, Mollino decided to work with Lora Totino on a project that would establish Cervinia's reputation.

Fuite en avant

The case of the Furggen, on the other hand, shows us that the construction of this type of building has a non-negligible impact on the development of a ski resort and therefore of the Alpine region. So it's vital to think about the ecological consequences that these resorts can have. As we said earlier, today it is the small resorts with limited financial resources and low altitudes that are affected. Awareness is already

being raised (the ‘crisis’ is already rife in many areas) and these small resorts are developing ‘four-season’ principles to avoid the infrastructure’s single function dedicated to skiing.

*«I half understand that the company is in a bad financial situation, which I suspected, and which was the logical outcome. They’re doing everything they can to sell property. This ‘headlong rush’ that I denounce is traumatic for them.»*⁴⁴

Laurent Chappis also considers that the hotel business is essential to the economic stability of a ski resort, as it brings revenue to the resort in a different way to the operation of the ski area. The most common economic strategy adopted by winter sports resorts will not be focused on the sustainable operation of the ski area or on the hotel business. For many resorts, the bulk of their revenue will come from real estate, a strategy known as the “fuite en avant” (headlong rush).

But it’s important to remember that these large resorts, which are subject to a great deal of investment, are simply putting off the problem until later. Mechanical snow-making makes it possible to compensate for the instability of snowfall, but the environmental costs are considerable: energy and water consumption, as well as the impact and infrastructure needed to operate them, such as water retention basins. The case of the San Bernardino ski area also shows us that even large resorts can be subject to financial collapse. The resort has opened for the new season after 10 years of neglect (2023-2024), but the bill for the renovation of the facilities and the development of the resort, in particular the luxury hotels, is a hefty 300 million francs.

In the case of Cervinia, we’re looking at a second-generation resort. It is imperative that the respite offered to these large resorts by technological means is invested in real sustainable thinking about their development and their future in the mountains.

This study has a number of limitations. A more in-depth investigation into the different generations of ski resorts would provide a more complete picture of the situation in the Alpine areas. A comparative study would help us to understand the future challenges facing ski resorts.

⁴⁴ Chappis, *Ma montagne... du rêve à la réalité*. Tome 1, 50 ans d’études d’urbanisme en montagne, 1:195.

The Furggen resort raises another question, that of Alpine architecture. Carlo Mollino has spent a large part of his life in the mountains. Immersed in skiing by his father Eugenio, it inspired and gave rhythm to much of his career. In his buildings, the architect sought to find his own response to the foundations of Alpine architecture. While Olivetti did not want the slightest reference to vernacular architecture in his *Piano Regolatore della Valle d'Aosta*, Mollino took a different path. For Olivetti, the plan was clear: large blocks of flats would be built into the valley, replacing existing buildings. In Breuil-Cervinia, however, the project was never carried out and no urban development plan was ever implemented in the basin. This inability to manage urban development was reflected in the many examples of modern Alpine architecture built in the resort. Among these architects was Franco Albini, designer of the Hotel Pirovano, a building that defends vernacular values. At a conference, he moves forward:

*«Pirovano building poses the problem of its position in the alpine landscape, making use of examples of older buildings in the Aosta Valley that are still current and in tune with the modern spirit [...] Once again, we may say that modern architecture does not consist in the use of new materials and building techniques, but that all building means are valid at all times provided they are logical and still efficient.»*⁴⁵

Mollino advocates a different approach to Alpine architecture. He deconstructs the elements of vernacular architecture to create his own language. He claims to design architecture that is rooted in its territory, because the materials he uses and highlights come from the context in which it is set.

*«The 'style' of mountain architecture cannot be predetermined through an arbitrary imposition dictated by mental habit that is both literary and abstract", "a solution exists, which must become authentic architecture, for every building issue arising from questions of position and purpose.»*⁴⁶

For Mollino, the Furggen is a solution for high mountain architecture. In the media, he criticises architects who are too attached to vernacular architecture:

⁴⁵ Franco Albini cited by De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3:50,51.

⁴⁶ Carlo Mollino cited by De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3:47.

MODERN ALPINE ARCHITECTURE

*«I don't think I'm being pessimistic when I say and insist that the problem of building in the mountains still coincides, as far as the authorities and developers are concerned, with the vague idea of mountain centres made up of chalets and hotel complexes hidden away and disguised as «Alpine villages».»*⁴⁷

The concerns brought up by Cereghini go beyond simple considerations of local aesthetics, whether as “disguiser” or “non-disguiser” (in adapting existing building structures). He addressed a fundamental matter: the formal aspect of alpine architecture is intricately connected to contemplating how mountains are perceived and utilised. The author of the famous *Costruire in Montagna* (1950), Mario Cereghini, offers this reflection on mountain architecture:

«First of all it is necessary to establish what type of architecture is suitable to what zone or to what valley. And then indeed even before that, it is necessary to establish whether it is good to emphasise a particular feature in each region or valley, for tourist-folklore purposes. [...] Should local aesthetic traditions be considered, or not? I believe they should. Besides, this assertion fits well into the tourist game.»
(In *Architettura di Montagna in relazione alla difesa del paesaggio*)⁴⁸

⁴⁷ Mollino, «*Tabù e tradizione della costruzione montana*, in “*Arti e Rassegna Tecnica della Società degli Ingegneri degli Architetti in Torino*”», 151.

⁴⁸ Mario Cereghini cited by De Rossi, *Modern Alpine Architecture in Piedmont and Valle d'Aosta*, 3, 3:54.

➤ The hôtel Pirovano in the fore ground and the Casa del Sole at the foot of the Cervin



OBSOLESCEN

POTENTIAL

NCE

OBsolescence

Obsolescence of the Furggen cable car station's was sealed in 1993 by the resort Cervino Ski Paradise in Cervinia. In the eyes of the ski area's management, the breakage of one of the two traction cables meant that the lift was no longer economically viable. It means that regarding the economic model of Cervinia (a monofunctional, second generation ski resort) it was obsolete. But what does obsolescence mean in architecture? "*An obsolete building is in place but out of time.*"⁴⁹ reminds us Cairns and Jacob in *Building must die*. Today obsolete architecture is pretty inspiring for people. Buildings too have a more or less long life, containing a lot of stories. Urbex is a very telling concept: go in search of an abandoned building, infiltrate it, explore and discover spaces, objects and stories. Abandoned buildings have a way of inspiring us to work with our subconscious, to imagine for ourselves how the building has been used and inhabited. It's important to remember that taking an interest in the obsolescence of a building allows us to better understand the life of a building in its full potential. Generally, in the history of a building, we are interested in its original use, the one that was defined for its construction. But potential emerges when the building becomes obsolete and this primary function is removed. A form of sustainability emerges from an awareness of the potential of a building's obsolescence:

*"Taking obsolescence seriously teaches the value not just to sustenance but of transcendence".*⁵⁰

Buildings that provide flexibility of use enable its life to be extended over different uses and eras. The case of the Furggen alone tells a lot of history. A ski tourer climbing to the summit of the Furggen at an altitude of 3489 metres will certainly ask questions about the history of this building. In this paper, we have tried to understand its origins dating back to the modern era. The story of a ski architect who wanted to build in the mountains. In the next few chapters, we'll be looking at the potential offered by the obsolescence of the Furggen cable car station.

⁴⁹ Cairns et Jacobs, *Buildings Must Die*, 103.

⁵⁰ Abramson, *Obsolescence: An Architectural History*, 146.

Abandoning is the most economical solution available in the short term when the primary function of the building becomes obsolete. Economic reasons are not the only ones leading to a building being abandoned. Needs can change over time and inflexible projects can contribute to rapid obsolescence. In autumn 2023, the non-governmental organisation *Mountain Wilderness Switzerland* counted fifty-five abandoned ski facilities across Switzerland (Furggen is not included as it is an Italian territory).⁵¹ Abandonment is therefore a recurring problem in the Alps. The consequences can vary from one region to another. Small lifts have a moderate impact, but cable car terminals, often combined with a restaurant, have a much greater impact. Mountain Wilderness, which works to preserve natural areas, is fighting against this abandonment. Ski resorts are run by private companies and when the

ABANDONING

company goes bankrupt, there is no money left to look after the facilities. So the easiest solution is to abandon them, leaving nature to do the hard work of returning the materials to their natural state. The case of the Super Saint Bernard ski area is a well-known and symptomatic example of the abandonment of ski lifts in the Alps. Abandoned in 2010, the facilities are still derelict today.⁵² The Furggen station illustrates a problem caused by abandonment: the decomposition of the construction. Indeed, abandonment, if it lasts too long, transforms the building to a point of no return, at which point it can no longer be used or transformed. Abandoned for over thirty years, the station is beginning to show signs of weakness ; part of the roof has collapsed and the ski tunnel is deteriorating badly. The unforgiving mountain continues its slow process of decay.

⁵¹ « Installations obsolètes », Mountain Wilderness Switzerland

⁵² « Le casse-tête du démontage de l'ancienne station de ski de Super Saint-Bernard (VS) », RTS

✓ The now-abandoned Iron Mountain Ski Resort in Canada



Dismantling an installation raises interesting questions about our heritage and our relationship with the mountains, their landscape and their *wild nature*. The NGO *Mountain Wilderness* is working to dismantle obsolete installations in the mountains, describing them as «black spots» and calling for a «return to wilderness» and «added value through dismantling». In other words, installations in the Alps diminish both the experiential value and the cultural and natural richness of the Alpine landscape. It restricts the experience of wilderness. The aim of decommissioning is not simply to «clean up» areas, but to restore and preserve the value of the landscape.⁵³ They are therefore spontaneous actions carried out without government assistance on previously inventoried sites. This point of view is strongly criticised by Lionel Laslaz, a French geographer. In his view, renaturalization is seen as participating in a «tyranny of appearances», favouring the aesthetics of protected areas to the detriment of their content and missions. Laslaz also criticises the rhetoric of guilt and responsibility surrounding these actions, seeing them as «heritage thorns» that require a critical look at the dogmas and imperatives that accompany them.⁵⁴ The two positions seek an ideal that is fairly close, but the two points of view need to be qualified. On the one hand, these dismantling actions tend towards a *rediscovered nature* of the mountains. We realised earlier that this idealised vision is a romantic legacy of the 18th century in our conception of the mountains. The situation has changed a great

DISMANTLING

deal since then, and environmental issues now require a rational approach to mountain development. Today, man has established himself everywhere on the mountain and it would be wise to approach the challenges of dismantling these installations in a more rational and less idealised way. This reflection is reminiscent of Adriano Olivetti's project *Il Piano regolatore della Valle d'Aosta*, whose research also aims to limit the impact on the landscape and environment by building large modern buildings in the valleys of the Aosta Valley.⁵⁵ Fiona Pia's thesis is another evocative example of this contrast. In her book *Urbaniser les alpes* (Urbanising the alps), she describes a rational approach to the problem of urban sprawl in mountain resorts. The aim of her work is to adopt an urban planning approach to mountain resorts, rather than continuing to build to «mountain» standards. Radical densification would make it possible, among other things, to limit the sprawl of the *chalet* houses that are proliferating in ski resorts.

Laslaz's point of view also needs to be qualified. A distinction needs to be made between the different

⁵³ «Installations obsolètes», Mountain Wilderness

⁵⁴ Laslaz, «Renaturaliser sans patrimonialiser», 44-46.

⁵⁵ Olivetti, *Studi e Proposte Preliminari per il Piano Regolatore della Valle d'Aosta*, 21.

interventions that Mountain Wilderness can carry out. Re-naturing can be taken into account in many situations in which the installation may pollute the soil or harm wildlife or humans. On the other hand, rethinking the heritage character of certain installations may not be an argument for maintaining useless installations, but may also allow them to be transformed. These transformations could become an opportunity to design an architecture that imagines an ecological approach to mountain construction. A reasoned discourse is therefore the basis for any future intervention.

✓ *Mountain Wilderness* after one of their action. Here, the demolition of an abandoned hut in the alps.



The process of transforming a building, according to our definition of obsolescence, will necessarily involve a process of *reassignment*. The case of the Furggen shows that without reassignment, the building is doomed to decline. As its primary program was economically impossible, only a change of use would have ensured its continued potential. A number of opportunists have turned one of the building's rooms into a small kitchen-living room for ski-tourers strolling at the foot of the Matterhorn; a sort of assembly hut, in itself. This proves the potential of buildings in these extreme mountain conditions. The desire to diversify in order to mitigate the impacts of climate change is not limited to the introduction of new recreational activities (which are already highly diversified). It also encompasses exploring new spaces, attracting new audiences, exploring new moments, creating new meanings, and adopting new modes of cultural and territorial intelligence in tourism. Faced with a variety of challenges and change factors to consider, various processes operate in the tourism sector, offering multiple opportunities for intervention. These processes include the dynamics of territorial and cultural anchoring, regulation exercised by public players and civil society, demanding environmental quality standards, prudent risk management, vitality and innovation in the non-market sector, and seasonal complementarity between summer and winter, the advantages of multiple tourism and non-tourism activities, the assertion of the recreational-residential in-between zone, the role of external players such as small resorts and mountain ranges, fluctuations in tourist numbers (years with or without snow), the rediscovery of contemplative and heritage tourism, and the resurgence of climatism and a new approach to thermalism focused on well-being. Under these conditions, serious consideration of a transition away from the *all-ski* model also implies an evolution away from the *all-snow* and even *all-tourism* paradigms.

CONCLUSION

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Although the issue of ski resorts is a current problem that we are gradually becoming aware of, the problem is often approached emotionally. It's important to understand that the myth of the pristine mountain with a small chalet on it is a sublimated vision that dates back over two hundred years. Skiing has drastically changed the Alps. Enthusiasm for the sport and the resulting major projects in the Alps, which have created urban centres in the mountains but disconnected from the rest of the territory, have posed more than one problem. Carlo Mollino is one of those architects who not only built and urbanised the mountains, but also took Alpine architecture to its most radical level. The Furggen cable car contributed to make the resort famous worldwide, indirectly leading to the uncontrolled expansion of the Breuil basin. This edifice, exceptional for its location and the technical prowess that went into its construction, is now being battered by the implacable law of the mountains. There is no better example than the Furggen, perched on one of the crests of the undisputed Matterhorn, to highlight the excesses of ski resort construction. There is no heritage value or environmental awareness attached to these buildings. As a result of this lack of interest, the Furggen is left to suffer the inevitable punishment that the mountain has in store for it. At a time when we are becoming increasingly aware of climate change and the importance of the evolution of our buildings, the question of their impact and future is a contemporary issue that is emerging, but it is often approached in an emotional way.

So we need to get away from this dynamic of grandeur which perpetuates an old system doomed to failure. Abandonment should no longer be seen as the definitive obsolescence of these objects, but as a new opportunity to address the challenges facing the resorts. The «marks» (or tracks) left by Carlo Mollino open up a vast field of possibilities for a new generation of architects and thinkers, where everything remains to be imagined.

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I would like to thank all the people who contributed to the elaboration of this theoretical statement: my professor who followed me throughout the semester **professor Alfredo Thiermann**, as well as the whole team of the **HITAM laboratory**. I'd also like to thank my teaching supervisor **Anja Fröhlich** and **Tiago Borges** for all their advice, **Luisa Deubzer** at *Mountain Wilderness Switzerland* for all the data she provided, the historical archives of **Turin Polytechnic**, the **Casa Mollino Museum** and all **my relatives** for their intense proof-reading work.

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