Sublime Visions

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# Sublime Visions Architecture in the Alps

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## Contents

**Matthias Boeckl**—Foreword

The present book developed out of a dissertation at the University of Applied Arts Vienna and at the École nationale supérieure d'architecture de Versailles. In focusing on the world of the mountains, it examines a central and richly facetted arena within the debates on modern architecture and documents them from the perspectives of very different disciplines. Borrowing from the tradition of the encyclopedias in the Enlightenment, for the first time this complex of themes is dealt with comprehensively, in a publication with the character of a textbook that can be used in a variety of ways, and is graphically presented using all the expertise of a trained architect.

But how did the examination of nature in the Alps achieve this important role in the discussion on modernism? The answer lies in the fundamentally ambivalent nature of this setting. On the one hand, at the very heart of the continent that invented modernism, the unconstrained forces of nature presented modernism's rational side with an enormous challenge: as with urban civilization, there was a perceived need to open up and control a potentially dangerous area of nature by means of large technology. On the other hand, experiencing such elementary natural forces has always provoked in us archaic and intense emotional reactions. Even today, those whisked by cable car in just a few minutes from the valley to rugged precipices and snow-clad peaks at a height of several thousand meters cannot escape these elementary, touching, and deeply unsettling feelings.

The traces of such feelings are found throughout European intellectual history, and in the Enlightenment they were gathered together in the complex term of the "sublime." Consequently, despite the growth of industrialization, the European Alps have been able to preserve something of their original primitive quality to the present day. The mountain world transformed from a scenario of fear into a precious, magical resource with healing powers. Very soon it showed modernism where its boundaries lay: technoid civilizations can neither replace nor artificially generate the functions of the brain stem.

This tension had a profound effect on the artistic production of modernism, which has always aimed at designing entire environments for life. In the mountains it is put to the test: employing intelligent strategies, modernism is called upon to make the powerful but at the same time immensely vulnerable resource usable in a way that does not threaten to destroy it. This demands highly creative technical achievements. Modern architecture has accepted this challenge; many of its leading figures are today still dealing with the theme of building in the mountains. This has led to the development of effective structures and powerful symbols.

On the following pages Susanne Stacher explores the history of this development using the tool of the sublime, in the process moving through a variety of different disciplines from philosophy to medicine to the arts, among which architecture is the central focus of interest. But this book is also a standard work on self-enquiry and the precarious legitimation of modernism against the background of a vulnerable environment which has substantially shaped our DNA for thousands of years and which is under threat today.

Matthias Boeckl, Professor at the University of Applied Arts Vienna

## Philippe Potié—The Alps, or The Sublimation of Urban Life

The Alps that Susanne Stacher invites us to explore are a sublime amplifier of urban life. Far from damping the noise and hectic bustle of the city, the echo of the deep valleys actually doubles their effect and makes them visible like a reflection in a magnifying mirror. The landscape here does not play a calming role; on the contrary its "*super*-nature" appears to stimulate a "*super*-urbanism." In contrast to the *hameau de la Reine* (the picturesque farm built by Marie Antoinette in Versailles), which imitates rural peace far away from the excitement of the city, the "alpine cities" created out of nothing exaggerate urban passions to the extreme. Curiously, here the Alps function as project accelerators, as emotional amplifiers. It seems as if this exceptional geography makes it possible to work on the boundaries, indeed even beyond the boundaries. On these pages the sublime—a category which, up to now, has had far too many cultural and philosophical connotations to be invoked—finds a new topicality that allows us to rediscover its relevance.

As already suggested by the etymology, this term refers to a struggle with boundaries, which also implies a radical questioning of every function and form. This fundamental danger uncovers the brutality of longings, and of social and architectural forms—and here it is remarkable that, as "super architectures," the buildings analyzed seem to magnify the obsessions of a century: from the *super*-sophisticated quality of the 19th century grand hotel and the *super*-hygiene of the sanatoriums, to the libertarian cooperative Monte Verità, the Alps stimulate the spread of urban passions which, undisturbed, can be indulged in fully there. The architectures respond in an amplifying way, in the superlative, to the emotional and spiritual revelations that people experience through their bodies: the cantilever of Breuer's hotel Le Flaine appears to unbalance the static monolith of the church of La Tourettte, while Gustav Gräser, naked in the garden of Monte Verità, seems to force Thoreau into the constrictions of naturism, deep into the woods of *Walden* (the forest of the new Robinson Crusoe)—and a few pages further on: the tower of the Fiat children's summer "colonies" that make Bentham's panopticon seem like just a faded sketch of centralized bodies and souls.

There is an impulsive quality in the expression of these buildings which, with their triumphant shapes, offer the possibility of a highly charged aesthetic experience. Susanne Stacher invites us to rethink a theory of the sublime, in order to redevelop this art of accentuation and powerful tonalities, of consciously placed contrasts. Because nature and culture contrast strongly with each other there, the Alps offer an opportunity for this kind of expressive power to grow, as here the emancipation from an excessively civilized *superego* is able to develop freely: in this sense the heightened radical nature of the architecture corresponds with bodies that frolic in the sun or are mercilessly exposed to it.

On the following pages we are invited to take part in a crossing of the mountains that captures the vitality of these different kinds of architecture, which rewrite the project of civilization, as they liberate themselves from constraints of any kind with a grand emancipatory gesture that is both vast and libertarian—sublime.

Philippe Potié, Professor at the École nationale supérieure d'architecture de Versailles

## Introduction

As an architect and enthusiastic traveler to the Alps, I often asked myself what exactly it is that draws us to the Alps again and again. You go to the mountains to enjoy the partially intact villages and the remaining untouched nature, and destroy these things just through your own presence or with buildings that enable you to enjoy this world in the first place.
Despite mass tourism and the imposing structures that have been built in the Alps since the 19th century, people continue to pour into the mountains: "With approximately five million vacation beds, 500 million overnight stays and 120 million holidaymakers, the Alps represent one of the largest tourism regions on the globe. This is where a quarter of the world's tourism takes place." (*BauNetzWoche*, March 19, 2015, in reference to our exhibition "Dreamland Alps."[1])
What are they looking for? What drives them?
If we examine the variety of motivations that have inspired urbanites throughout history to visit the Alps, the result is a strikingly heterogeneous image that is immediately expressed in architecture. This book presents architectures designed by city dwellers for city dwellers in the mountains: in the 19th century, at the grand hotel, they wanted to taste the experience of the sublime they longed for; at the life reform colony of Monte Verità they strove for the utopia of a radical new beginning in the midst of "wild nature"; with the sanatoriums and solariums, they sought an ideal climatic environment for the healing of the body; in the 1920s and 1930s they enjoyed the rapture of movement, as expressed in the film "White Ecstasy"; in the ski resort towns of the 1960s, as mass tourists, they experienced the perfect domination of nature; as encapsulated individuals (or as couples) they lie in a transparent glass bubble, as in Ross Lovegrove's Alpine Capsule (2008).
All of these approaches, from the beginning of tourism to today, can be considered fundamentally different—but isn't there something that connects them? Don't they have a "common denominator," a kind of DNA that they share with each other?
Upon closer examination, these buildings and projects do not appear "neutral" to me: the underlying, mostly "strong concept" is linked to a precise idea of what our life with and in "wild nature" should look like. Throughout this consciously growing relationship with our natural surroundings, the mountains crystallized as an ideal location for the projection of visions that imply a different form of existence. Moreover, as secluded places, they often have an "insular" character and, like geographical islands, seem predestined as a territory for utopias. Strikingly, there is usually a certain kind of borderline experience that involves the mind and body at the same time. Just through the spatial separation of man and nature alone, the question of dealing with the limit already arises in an essential way.
This question leads us back to the 18th and 19th centuries, when the sublime (Latin, English, French *sublime*; in German *Das Erhabene*) was the decisive factor in the reception of the Alps, as all pictures, travel accounts, and philosophical writings prove. It is based on a mixture of fascination and terror—a transcendental, even ecstatic emotional state that implies

going beyond one's own limits. This is already contained in the etymological root of the Latin word *sub limen*: "under the threshold/limit/boundary, to the limit, in limbo."
If this term is not associated with times gone by but regarded as a crucial component of our existence, then the sublime can be used as a possible interpretation of the architecture in the Alps, which was designed by city dwellers for city dwellers. Since this definition is not rigid but has noticeably changed in the course of history and has always been reinterpreted, the different architectures in the Alps are to be understood as an expression of this change. They shed light on the respective mental attitude of the different epochs and social phenomena.

**The Specific Relationship between the Sublime and the Alps**
The sublime is a general term that can be applied to oceans, volcanoes, natural disasters, or generally to *all* mountains; nevertheless, in various philosophical writings it has been associated most commonly with the Alps. This has historical, geographical, and political reasons: historically, the Alps were much more traveled than the Pyrenees, the Carpathians, or the Apennines, for they lay on the route of an English aristocrat's Grand Tour to Italy.
In the course of the increasingly more intensive examination of "wild nature," a change of perspective took place toward the end of the 17th century; the "terrible" mountains became the "sublime" ones. In terms of cultural history, the Alps stood at the center of this transformation and likewise played a certain pioneering role in the development of tourism. As I focus primarily on the phenomenological character—not only concerning the choice of the territory studied but also the selection of projects—other mountainous areas in Europe are excluded from this investigation. The phase of the projects—whether construction, plan, or vision—is irrelevant in this context. On the contrary, the different, complementary examples are compared and considered in juxtaposition.
Given the great heterogeneity of the built or planned architectures conceived since the beginnings of tourism, I was interested in the visions underlying the respective projects and the extent to which they are related to the sublime. Because this term has sustainably shaped the cultural-historical development of the Alps, it would have to be reflected in the specific architecture. But how has this process changed over the centuries? To what extent has the sublime altered our relationship with the mountains, and how far have philosophical views of nature created an ideal terrain for visionary buildings, from the advent of tourism to the present?

**An Architecture of the Sublime?**
In order to explain the motivations from which city folk have built various architectures in the Alps, we must first take a closer look at the phenomenon of the "experience of the sublime." The focus of reflection is on nature, its culturally determined symbolic meaning, and the human imagination, as well as the body, which plays a considerable role thereby. To comprehend how these factors are interconnected, the theory of the French psychoanalyst Jacques Lacan, who understood the relationship between the real, the symbolic, and the imaginary as an inseparable unit, is quite helpful. According to him, the imaginary plays a key role for the body, because it is the first step toward corporeal enjoyment.[2] Lacan illustrated his thesis by means of the Borromean knot, which, with its complex entanglements, represents the structure of the subject. This is composed of three units that influence one another and are interlocked; the symbolic,[3] for instance, is to be found in the imaginary as well as in the real.
Starting from the unity of the real, the symbolic, and the imaginary, the question arises as to whether, in addition to the purely intellectual experience of the sublime, a "physiology of the sublime" can also be assumed. Everything here is equally moral and physical: in the sublime, the real communicates with the imaginary. The object itself, such as the ocean, is not qualified as sublime, as Immanuel Kant already determined: "Its aspect is horrible," and one "must have stored one's mind in advance with a rich stock of ideas"[4] in order to feel such an emotion (as explained in more detail in chapter 1). The sublime presupposes a state of mind, an intellectual constitution and a certain mood, and is always associated with a symbolic meaning (the "higher," the "absolute," the "ungraspable," etc.).

With the power of imagination (the imaginary), *material* nature (the body) has a shattering and, at the same, uplifting effect on us. Expressed analogously, we perceive a limit and, simultaneously, the possibility of surmounting this (in Burke through feeling, in Kant through reason, see chapter 1). The "sublimation" is thus an act of self-transcendence and consists of two stages: first being shattered and then rising

above it (not in the psychological but rather in the transcendental sense).
The sublime is difficult to capture; it cannot easily be asserted that "this mountain (or this architecture) is sublime," because two components always play along when viewing an object: subjective perception (the way I see it) and objective symbolism (what it stands for in terms of cultural history, and the contents it is loaded with). The sublime is, concurrently, the condition and its experience, the principle and its effect (it can only be experienced through its effect and not through the thing itself). It is the mountain (along with its culture-bound symbolic content) and its experience (the sensation of an exciting shudder, if one is receptive to it).
To be able to speak about the sublime, philosophers (including Kant) draw on many an example, and this shows that the tangible representation of the sublime cannot be avoided.
To investigate how architecture contributes to triggering the experience of the sublime, one needs to delve deeper into how it affects humans and generates borderline experiences. Not only do the mind and the disposition play a central role, but also the body. After all, it is the body that travels, hikes, or climbs through the mountains, it is the body that brings us into borderline situations—and architecture is also built for it. Depending on whether the body is sitting or observing, lying sick in bed, or in frenetic or athletic motion, the architecture differs accordingly. It adapts to the diverse needs and always generates new typologies, based on the physical uses to which it is put. The reciprocity between the real, the symbolic, and the imaginary—between architecture and nature (the real), their symbolic content, and our yearnings or visions (the imaginary)—is articulated in a permanent interaction with the body.
As a consequence, we can focus our inquiry as follows: In what way did the mental dimension of the sublime successively shift to a physical borderline experience, and how does this change manifest itself in architecture?
We are interested in architecture not only as a structural "framework" for a contemplation of nature but also as a "covering" for a body seeking protection and, equally importantly, as a "dynamic *dispositif*" that confronts the body with nature. Architecture should not only be regarded as the *result* of a thinking, yearning, projecting society, but also as a *medium* that has an influence on us. In that sense, architecture is not just a reflection of an ever-changing society that gives us information about how it is changing, it actively contributes to it.

**Structure**

Six overlapping themes show to what extent the sublime is "declinable":
"The Emergence of the Sublime", the introductory chapter, outlines how the sublime has shaped our view of the Alps and what contribution architecture has made to it.
The second chapter, "Crystal, Crystallization," investigates how the principle of the "crystalline" spread from cultural and art history to architecture, and looks at the role the natural sublime played as a basis for the transcendental aspects of the crystalline.
The following chapter, "Therapeutic Landscape," examines the Alps as an ideal terrain for recovery and the development of new architectural typologies that served the body. What relationship did the various healing methods have to the sun, the mythical symbol of the sublime, and how does this find expression in architecture?
Chapter Four, "Contesting for the Child," is dedicated to children's colonies constructed under various political auspices in the Alps. By means of comparative analysis I examine the extent to which ideological programs ranging from reform to dictatorship express themselves in architecture. In this context, the meaning of the "sublime," which fascism incorporated for political purposes, is questioned.
The chapter "Movement, Rapture, and Vertigo" addresses a different "experience of the sublime," which is evoked by the body, preferably in the Alps. Here, the focus lies on the rapturous borderline experience, which is enabled and staged by various architectures.
Finally, "Sublimation of 30,000 Beds" goes into mass tourism from the 1960s onward. The central question is how consumer society, which makes a flawless domination of nature possible, has changed our relationship to the mountains, and what is left of the "sublime" in these "urban transplants."

This book should make us aware of our current visions in regard to nature and how they are articulated in concrete terms. Alpine architecture is employed as a basis to point out how the relationship between man and nature has changed

throughout history in order to stimulate reflection on the present and the future—because, after all, nature's resources are limited and threatened by ever-increasing tourism.

**1** The exhibition "Dreamland Alps" was developed by Susanne Stacher together with her students in the context of teaching at the École supérieure nationale d'architecture de Versailles (ENSA-V). Since 2013 it has been shown at various locations in and around the Alps (Innsbruck, Merano, Munich, Chambéry, Salzburg, Saalfelden, Bellinzona, St. Jean-de-la-Maurienne, Modane, Annecy).

**2** Jacques Lacan, RSI Seminar, March 18, 1975.

**3** In Lacan's work the symbolic stands not only for language and discourse but also for power.

**4** James Creed Meredith, "Analysis of the Sublime, § 23, Transition from the Faculty of Estimating the Beautiful to That of Estimating the Sublime," in *Kant's Critique of Aesthetic Judgment, translated, with Seven Introductory Essays, Notes, and Analytical Index* (Oxford: Clarendon Press, 1911) [=Kant (1790) 1911], 245f.

## Baldine Saint Girons—The Sublime as a Principle of Self-Transcendence: Can We Create It without Betraying It?

Writing about the effervescence into which we can be thrust by the sublime—doesn't that already mean betraying it, weakening its nature, robbing it of its original might and tremendous autonomy? How can we assimilate the sublime or grasp it in a work? Assuming the sublime is what penetrates me and things, what goes beyond my comprehension and overwhelms me, it is what leads me to experience my limits not as a boundary stone that delimits and ends my existence, but quite the contrary: it is what challenges my very being in a profound way, calling for a beginning, a new beginning.

The difficulty of the sublime has to do with the fact that it thrusts us somewhere else, into a different place—even though we sometimes perceive it as a kind of hell—which ultimately proves to be a "new paradise": this alpine paradise which Rousseau described so unforgettably. The inanimate things then assume an as yet unknown realm in our soul, the impressions become stronger and ideas come and go when they like, "when they please, and not when I call for them." The self is suspended, on the one hand, while the place becomes "supra-natural," atopic, unclassifiable, on the other. Impossible to grasp it all—in the moment or thereafter. The desire for renewal predominates over the simple pleasure of conservation. "[Impressions and ideas] come when they please, and not when I call for them; either they avoid me altogether, or rushing in crowds, overwhelm me with their force and number. [...] how then should I find time to write them? In stopping, I thought of nothing but a hearty dinner; or departing, of nothing but a charming walk; I felt that a new paradise awaited me at the door, and eagerly leaped forward to enjoy it."[1]

It is impossible to become aware of everything that can suddenly be seen—and not just seen, but foreseen as tremendous: "The horizon presents more objects to the eye than it seems able to contain; [...] the spectacle has something indescribably magical, supernatural about it that ravishes the spirit and the senses; you forget everything, even yourself, and do not even know where you are."[2]

Do we exist in a more intensive way or do we completely cease to exist? Do we still see or do we no longer see?

A Chinese saying alludes to the disappearance of what appears with maximum intensity or to the formal collapse of what emerges from a dynamic that makes any assimilation impossible: *jian shan bu shi shan; jian shui bu shi shui*, which could be translated as follows: "You no longer see the mountains as mountains; you no longer see the water as water." What has happened? The sublime renounces any reification of transcendence; at the same time, it calls for sublimation, extinction, an overcoming of the *Ego*. There is no more substance, there are simply flows. Rousseau thus claims to only really "see" what he can remember and to no longer have any other "understanding," in the social and abstract sense of the word, "except in [his] recollections."[3]

Writing is only a stopgap solution, an intervention not worthy of the object. Even if it serves to present an image of its author, which resembles him even more ("Had I been present, my worth would never have been known"[4]), there is something servile, obsequious about the process, to which Senancour, Rousseau's worthy successor, points: "I should have to write down what I felt, but in that case the mood of exaltation would have soon deserted me. In the very act of recording one's thought for future reference there is something that savours of bondage and the cares of a life of dependence. In moments of intensity one is not concerned with other times and other men."[5] "To think in an extraordinary way," finding access to the "moment of intensity"—what does this mean? It does not mean thinking without images and words but rather thinking with images and words that are captivating. It does not mean filling oneself with constant intensity but rather feeling a higher energy flowing through us. Rousseau and Senancour influenced our sensitivity. Like them, we also lay claim to an immediate way of relating to an alpine landscape which is not overbuilt and is accessible to the senses, one that offers us an opening, allowing us to be greater than ourselves and facilitating the development of an extraordinary way of thinking. However, there is nothing less lonely and less mediatized than our approach to high mountains today: what is left of this wonderful "alpine freedom" which was exalted in the second half of the 18th and at the beginning of the 19th century, as an alternative to an all too socialized, regulated, and standardized life? Is the sublime of Rousseau and Senancour already obsolete, even passé?

## From the Poetic and Rhetoric Sublime to the Naturally Sublime

In order to answer this question we must take recourse to a very old sublime: the poetic and rhetoric sublime of Greek-Latin antiquity. This reference has a two-fold advantage: it allows us to understand that what we refer to as the "naturally sublime" is not something unique but rather a cultural-historical development; it forces us to introduce "machines of the sublime" between us and it, prostheses of any kind. However, it was only later that "nature" (in the sense of all beings and things that were not created by man) was seen as important. The sublime, which Longinus sought in the first century AD can already be grasped as the culmination, the peak of rhetorical discourse. The idea of altitude, as a physical dimension, in contrast to latitude and longitude, already exists in the Greek *hupsos*. It also already is expressed in the Latin adjective *sublimis,* which is derived from *sub*, alluding to an upward movement and *limis* (oblique, diagonally upward) or also *limen* (boundary, threshold). In both cases the vertical and the idea of altitude, which is associated with depth, dominate. However, we find ourselves in the register of metaphors—and for this reason we must be careful not to unduly naturalize the old sublime—and this for two reasons.

On the one hand, the symbolism of the naturally sublime already appears in Longinus but only in a parenthesis in chapter 35 of his epistolary treatise: not simple rivers, but rather enormous rivers like the Nile or the Danube can trigger the awe of the sublime; not simple mountains, but rather volcanoes. The vast expanses, the unforeseen and terrifying, are the basic principles whose illustration through the natural elements is secondary.

Even though Longinus praises "the invincible love that nature has instilled in us for the great and the divine," he notes that "not even the world in its totality is wide enough for the soaring range of human thought."[6] The peak of sublime discourse is the echo of a great mind. The sublime also resides in the natural ability of the rhetorician and in the principle of self-transcendence.

## The Naturally Sublime as the Result of a Cosmological Humiliation

We should bear in mind that the subject of the naturally sublime only emerged toward the end of the 17th century, in Burnet, Dennis, or Shaftesbury, in connection with the Galilean-Copernican Revolution. At the time Euclidean and Ptolemean space appeared inadequate, wrong, and too narrow; we must take leave of it to open up spaces befitting of the new sciences.

This need was also spawned by scientists who like Horace-Bénédict de Saussure turned the actual view of Mont Blanc into a morphogenetic vision ("I look at this primitive mountain range made up of individual layers [...]. I saw how these materials structure themselves horizontally in concentric layers"[7]): a new spatio-temporality reveals itself to intuition just like the materialization of a scientific dream suddenly unfolding.

Yet this need is also that of the ordinary man who strives to find, if not an illustration, at least a vision of the world that overlaps better with the new cosmology. Indeed, this is not something to be taken for granted as Théophile Gautier emphatically asserts:

"If you live in cities or on the plain, you easily forget that you are moving through a space that cannot be grasped, carried away by a planet that circles the sun with amazing speed. [...] The data of astronomy, as precise as they may be, still appear almost chimerical and you almost wish you could return to the Ptolemean system that made our puny inner space the core of the universe."[8]

Injury or cosmological humiliation—this first, fundamental new beginning of the subject, the injury that Freud mentions in connection with the progress of culture—is an attack against self-love or better, against "secondary narcissism."[9] The illusion of the omnipotence of ideas is shattered. This is the trauma we must return to in order to grasp the profound impact of the revolution. Man, in fact, has not just "lost his place in the world, or, more correctly perhaps, lost the very world in which he was living and about which he was thinking, and had to transform and replace not only his fundamental concepts and attributes, but even the very framework of his thought,"[10] as Alexandre Koyré reflects.

What does the "thrill of the Alps" mean under such circumstances? When Rousseau and Senancour, each in his own way, call into question writing, and even the word, then they are doing this to the benefit of a new sublime which is all too quickly confused with an ineffable hypostasis, in that it is identified with an autonomous existence. This sublime is the sublimity of solitude that one willingly accepts: it allows us to

discover the power of our body, which is confronted with steep slopes and overcomes its exhaustion—a profound stimulation resulting from the inhalation of fresh, cold air; the excitation of animated thoughts, triggered by magnificent, constantly changing views and vistas. The peak to be reached is no longer that of discourse. Instead, it is about reanimating an intensive physical and mental life, giving it meaning, leaving behind an increasingly complex, artificial world so as to be able to find something of our primal unity within ourselves. "For never did I exist so completely, never live so thoroughly, never was so much myself, if I dare use the expression, as in those journeys made on foot."[11] Rousseau explains, recalling how much walking—the long and lonely trails through the mountains or on the plain—moves thoughts and gives them rhythm.

**The Sublime as Principle and Effect**

The reference to Greek-Latin antiquity not only makes the effects of the cosmological revolution on the renewal of the concept of the sublime more understandable; it also compels us to reflect on the relationship of the sublime to the instruments and vehicles it favors (which are not infallible but are relatively unimportant in themselves)—in short, a reflection on the principle and effect of the sublime.

Why is the question of the sublime so difficult? I believe that it can be explained by the fact that the sublime is both a principle and an intervention—an inherent principle that also relies on the tools that it uses: language, painting, architecture, nature, etc. On the one hand, there is the original sublime, the more or less mythical principle; on the other hand, there are the means, all the "machines" that it "uses" to become manifest: the various discourses (poetic, rhetorical, historical, philosophical), the various arts (painting, sculpture, architecture, music), and the various landscapes.

The methodological difficulty that appeared in my studies on the sublime is to be found in the fact that we are moving in a circle. *The sublime emerges from the already sublime; it has the quality of applying itself*. The sublime produces the experience and the meanings that allow it to appear. We must thus distinguish between the sublime as a principle that triggers an experience and the sublime as an experience that facilitates the discovery of the principle. The two overlap, and the latter invariably partakes of the sublime, is already possibly sublime itself. It generates the experience and the meanings (signifiers) that make it possible to be experienced; and everything that it makes tangible invariably partakes of this process and is thus already sublime. This is very clear in Longinus: the first source of the sublime lies not in general thought but in the power of conception that reaches its goal effectively *(to peri tas noêseis adrepêbolon)*. Its second goal is not passion in general but rather the vehement passion that triggers enthusiasm *(sphodron kai enthousiastikon pathos)*. As for the technical sources, it is not just about simple rhetorical figures but about those that are in themselves successful; not the expression as such but rather the already noble expression; not the mere synthesis or orchestration but one that already has dignity and elevation. We must thus grasp a constant back and forth between a *principal use* of the sublime and a *differentiated and specific use*, in keeping with the respective type of actualization—here and now.

**The Alpine Architectural Sublime: Three-Dimensional Invention/Verbal Invention**

There are three main protagonists in Susanne Stacher's book: the sublime, the Alps, and … architecture. The central focus is not literature and philosophy but architecture and the alpine projects that were created between the 19th and the 21st century, all wonderfully backed by drawings, painting, dance, photography, or film. The idea is to confront architecture with the so-called "natural architecture of the Alps"— even if, at first, the latter seems to overshadow and destroy the former, it may also challenge, stimulate, and inspire. These two phases are actually characteristic of the sublime: on the one hand, there is awe and inhibition resulting from this process; on the other, we have the mobilization of physical and mental energies—of what Susanne Stacher calls "the DNA of the sublime," a spiritualized DNA.

Let us join Susanne Stacher in juxtaposing Caspar David Friedrich's "Wanderer above the Sea of Fog" with Friedrich Hodler's "View to Infinity." The former is shown from behind, standing perpendicular to a rocky elevation that forms a kind of pedestal—that of great men who have been immortalized in sculptures but also one that prevents the viewer from seeing a large part of the landscape. The wanderer shows the majesty of a threshold, in the truest sense of the word—but it is also a threshold that is both paradoxically impassable and movable. The wanderer "architecturalizes" the landscape and tends to

reify it. Seen from the back—and thus robbed of his main expressive elements, he leads us into the landscape—or does he rather create a blind spot? Does he initiate or does he block something? At first, we oscillate between the two positions. The sublime emerges from a conflict that we must overcome—ultimately, though, it is the aspect of initiation that prevails. This dark and heavily clad "figure from behind," planted firmly on a black rock and propped on an alpine stick, is juxtaposed with Hodler's frontal figure of a naked young man who rises up from a flesh-colored stone with his arms crossed. This figure is not centered: it is that of a still fragile "new man" in a stage of becoming, as Susanne Stacher reads it. What have we lost, what have we gained? Answering this question could be seen as one of the objectives of this book.

A second diptych emerges between Friedrich's wanderer and Lovegrove's surprising Alpine Capsule, which is described in greater detail at the end of the book. Two types of a "new man" seem to appears at the beginning of the 20th and 21st century: the former appears before us in a mirrored effect just as created by nature: naked, completely stripped of all clothing, and without any tools; the latter, by contrast, is revealed completely equipped to master the world. If there is something sublime in both of these more recent examples, then it is certainly not the same as in the Romantic Age, which primarily aims at a viewer and not at an actor who is naively, or by contrast, completely armed. What is the relationship between Hodler's regression and the architectural progress represented by the capsules in endless space? To answer this question could be seen as another objective of this book.

However, the objective that is expressed most clearly in this study seems to be the attempt to link six basic aspects of our relationship to the Alps by viewing them through the "prism of the sublime." Susanne Stacher tries to reveal strange affinities between philosophical endeavors, the desire for crystallization or growth based on geometric formulas, the perfection of therapeutic devices, the development of educational agendas (of more or less fascist leaning), the revalorization of climbing and racing sports, or the structuring of hotel facilities. Sundry concrete descriptions, like that of the Fiat towers in Sauze d'Oulx, the Monte Verità life reform colony, or the sculpted rocks and crystalline domes of Bruno Taut, will please the reader—it is as if the entire history of man were being retraced at the crack of dawn when the exploitation of the Alps sets in.

**The Sublime Passes: You Accept It and It Absconds**

The sublime provokes the search and the invention of figures of itself, which can rise up to its heights. It thus appears structured like a risk: the risk of the horrific, the grotesque, the obscure, the rudimentary, etc. Without any doubt absolutely nothing except for the raised awareness that what we develop out of it can save it from being used for despicable ends. However, this does not keep it from constantly confronting us with new challenges.

The strength of Susanne Stacher's book lies in the way it shows the sublime as a veritable principle that prompts completely different efforts which, however, can be diverted from their goal by an obsession with profit, megalomania, over-adaptation, coquetry, etc. When the Alps still make up almost a quarter of world tourism, isn't it ultimately also because the call of the mountains—as muted and distorted as it may be—still resounds in us, in both a literal and figurative sense?

Baldine Saint Girons, Professor Emerita of the University Paris-Nanterre

**1** Jean Jacques Rousseau, *The Confessions of Jean Jacques Rousseau, complete, in 12 Books*, trans. W. Conyngham Mallory, privately printed for the Members of the Aldus Society (London, 1903; repr. The Floating Press, 2012) [=Rousseau (1903) 2012], bk. 4, chap. 1, 188. The original text was written in 1769 and first published posthumously in 1782.
**2** Jean-Jacques Rousseau, *Julie, or the New Héloise: Letters of Two Lovers Who Live in a Small Town at the Foot of the Alps*, trans. Philip Stewart and Jean Vaché, vol. 6 of *The Collected Writings of Rousseau*, ed. Roger D. Masters and Christopher Kelly (Lebanon, NH: University Press of New England), 65
**3** Rousseau (1903) 2012, 133f.
**4** Ibid.,135.
**5** Etienne Pivert de Senancour, *Oberman* (1804), ed. Fabienne Bercegol (Paris: Flammarion, 2003), 95.
**6** Longinus (1674), chap. 35. Translated by H. L. Havell as *On the Sublime* (London & New York: MacMillan & Co., 1890) [=Longinus (1674) 1890], 68.
**7** Horace-Bénédict de Saussure, *Premières ascensions au mont Blanc* (Paris: François Maspero/La Découverte, 1979), 151f: "Je voyais cette chaîne primitive composée de feuillets [...]. Je vis ces matières s'arranger horizontalement par couches concentriques."
**8** Théophile Gautier, "Vue de Savoie et de Suisse," *Le Moniteur universel* (June 16, 1862), in *Impressions de voyage en Suisse* (Lausanne: L'Age d'Homme, 1985), 83f.
**9** See Sigmund Freud, *Vorlesungen zur Einführung in die Psychoanalyse* (Vienna, 1916/1917; Frankfurt am Main: S. Fischer, 1969), chap. 18, and *Eine Schwierigkeit der Psychanalyse,* 1917.
**10** Alexandre Koyré, *From the Closed World to the Infinite Universe* (Baltimore: John Hopkins Press, 1957), 2.
**11** Rousseau (1903) 2012, 187.

John Closterman, "Maurice Ashley-Cooper and Anthony Ashley-Cooper, 3rd Earl of Shaftesbury," ca. 1700–1701

# 1 The Emergence of the Alpine Sublime

*Qu'on se figure d'énormes prismes de glace, blancs, verts, violets, azurés [...]. On dirait une ville d'obélisques, de cippes, de colonnes et de pyramides, une cité de temples et de sépulcres, un palais bâti par des fées pour des âmes.*[1]

**Victor Hugo, *Fragment d'un voyage aux Alpes*, 1825**

*Let the reader imagine enormous prisms of ice, white, green, violet, or blue […]. The scene suggests the idea of a town constructed of obelisks, columns, and pyramids; a city of temples and sepulchres; a palace built by fairies for disembodied spirits.*

From the early 18th century onward, the Alps developed into an ideal location for the projection of philosophic, utopian, or visionary thoughts. The changes in the way of looking at the world triggered by the Galilean-Copernican revolution had also introduced a paradigm shift in regard to nature: from the "terrible" to the "sublime mountains." The sublimity of nature was the result of the questioning of geocentrism, the transition "from the closed world to the infinite universe," as Alexandre Koyré (1892–1964) formulated it; "since the human being has […] lost his place in the world, or, more correctly perhaps, lost the very world in which he was living and about which he was thinking."[2] The sublime made it possible to conceptualize the new world that had emerged from the ruins of the ancient cosmos. We can infer from a quote by Théophile Gautier (1811–1872) that the mountains played a vital role: "Living in cities and on plains, we tend to forget that we are whirling through fathomless space, carried away by a planet that revolves around the sun at a prodigious speed."[3] But this is not the case in the mountains, since "grand mountains help us understand that the earth is actually a heavenly body floating in the ether."

Toward the end of the 17th century, three categories of the sublime in nature evolved: the gigantic, the high, and the demiurgic, since nature seemed to be provided with an enormous energy, which its cosmic activity and mobility testifies to. Through the positive revaluation of the mountains, the Alps moved into the forefront of aesthetics, accompanied by the emerging passion for scientific investigation and physical conquest that was later combined with the enjoyment of sports.

Wild nature—especially the one that impresses through infinitude, such as the vastness of the ocean or the grandness of the mountains—became an expression of an intensive feeling ranging between horror and fascination. These contrasting emotions evoked by the confrontation of the extremes of a borderline experience constitute the basis of sublimity, as can be gathered from the word's Latin origin *sub limen* (up to the threshold, to the threshold, in limbo). The term thus implies the confrontation with one's own threshold and the crossing of it. This was articulated over the course of centuries in all possible forms and is still current today.

### Pseudo-Longinus: The Sublime Strikes Like a Bolt of Lightning

The philosophical term of the "sublime" originally came from ancient Greek rhetoric before it was used to denote a certain way of observing nature. The sublime was first theorized in

*De sublimitate* (Greek *Peri hypsous*), inscribed by Dionysius-Longinus, a hitherto unknown ancient Greek author and rhetorician, who went down in history as Pseudo-Longinus.[4] He was fascinated by those discourses or poems that broke the rules of rhetoric and captivated the auditors: the sublime "gives Discourse a Noble Vigour, an Invincible Force that ravages the Souls of all that hear us."[5] It concerns a type of oratorical force that convulses beyond rational borders and evades the criteria of criticism because it can only refer to the conventional rules of aesthetics. The learned technique of the orator is not the determining factor here but rather his natural talent. Pseudo-Longinus was fascinated by the power and effect of such discourses, narratives, and poems that strike "like a bolt of lightning": "For the effect of genius is not to persuade the audience but rather to transport them out of themselves. Invariably what inspires wonder, with its power of amazing us, always prevails over what is merely convincing and pleasing. […] A well-timed flash of sublimity shatters everything like a bolt of lightning and reveals the power of the speaker at a single stroke."[6] The sublime elicits extreme emotions alternating between horror and fascination, whereby emphasis is placed on the feeling of "suspension." Pseudo-Longinus identified "five sources of sublimity"[7] and, in addition to an elevation of the mind, pointed to pathos and enthusiasm as essential factors that lend the orator fire: "The second [source of sublimity] lies in pathos: what I mean is the enthusiasm and natural vehemence that touches and moves us. […] It is this type of enthusiasm and noble fury that animates the discourses and lends them fire, as well as divine force."[8]

He occasionally held the view that naturalness is an important aspect of the sublime (in reference to the use of the rhetorical figure of the hyperbaton). Art must step back behind nature: "For art is then perfect when it seems to be nature, and nature, again, is most effective when pervaded by the unseen presence of art."[9]

Despite earlier translations of Pseudo-Longinus's treatise, the version translated into French by Nicolas Boileau (1674) proved to be groundbreaking, possibly because he published *L'Art poétique* in the same year, making the properties of the sublime properly conceivable for the first time (in this guide to poetry, the sublime has a special significance, because, in the spirit of Longinus, it enthuses and emotionally moves the reader).[10] In his preface to Pseudo-Longinus's treatise, he points to the fact that "under the term 'sublime' Longinus does not mean what rhetoricians call the 'sublime style,' but the unusual and the magnificent qualities of a discourse which ultimately make a work uplift, enthuse or move."[11] Pseudo-Longinus's notion of the sublime thus came into play toward the end of the 17th century, as did his concept of nature, which led above all in enlightened England to the positively connoted idea of a "wild nature." In this new perspective, the Alps were to also assume a role—the way there, however, had to first be paved.

The run-up to the emergence of the natural sublime is first illustrated through mountain experiences by Francesco Petrarca and Conrad Gessner, among others.[12] In their descriptions, the interplay of body, mind, and soul is especially interesting, since the feeling of sublimity does not appear as a purely intellectual experience but in implicit connection with the body.

### Francesco Petrarca: Ascending with the Body, Mind, and Soul, 1336

Francesco Petrarca (Petrarch) wrote one of the first accounts containing thoughts about the experience of ascending a mountain. It has been passed down to us in the form of a letter. In it Petrarch described his ascent of Mont Ventoux in the year 1336 and his intellectual and physical experience to a friend. In order to get an overview, he had decided, together with his brother, to climb the steep, pyramidal mountain. Doubt overcame him on the difficult trails, which he sought to surmount by drawing on the metaphor of virtue and comparing the physical exertion with the spiritual one "on the stony path to virtue": "What you have so often experienced today while climbing this mountain happens to you, you must know, and to many others who are making their way toward the blessed life. This is not easily understood by us men, because the motions of the body lie open while those of the mind are invisible and hidden. The life we call blessed is located on a high peak. 'A narrow way,' they say, leads up to it. Many hilltops intervene, and we must proceed 'from virtue to virtue' with exalted steps. On the highest summit is set the end of all, the goal toward which our pilgrimage is directed."[13] Petrarch's comparison between the physical and spiritual path of suffering is interesting. Just as the body

Altichiero da Zevio, "Francesco Petrarca and Lombardo della Seta," ca. 1376

suffers during the ascent, so too does the soul suffer on the path to virtue. After the arduous scaling of the mountain, he asks himself whether it would not be more difficult in the end to raise the body than the winged soul: "Would that I might achieve with my mind the journey for which I am longing day and night as I achieved with the feet of my body my journey today after overcoming all obstacles. And I wonder whether it ought not be much easier to accomplish what can be done by means of the agile and immortal mind without any local motion 'in the twinkling of the trembling eye' than what is to be performed in the succession of time by the service of the frail body that is doomed to die and under the heavy load of the limbs.[14]

He nevertheless did succeed in completing his strenuous climb, as his mind "leapt rapidly from corporeal to incorporeal matters." When he reached the peak, he was impressed: "At first I stood there almost benumbed, overwhelmed by a gale such as I had never felt before and by the unusually open and wide view. I looked around me: clouds were gathering below my feet."[15] He subsequently described the clouds and the snow-covered mountain peaks in the distance, as well as the landscape on the Italian side, his home county, which he had left ten years earlier and was now yearning for. Absorbed in thought, he nostalgically recalled his eventful, happy past and wrote: "I admired every detail, now relishing earthly enjoyment, now lifting up my mind to higher spheres after the example of my body, and I found it fit to look into the volume of Saint Augustine's *Confessions*."[16] The book was a gift of his friend for whom he (posthumously) penned this letter.[17] Petrarch described how he coincidentally opened to the famous passage in which Augustine calls for introspection, instead of indulging in the admiration of nature: "And men go abroad to admire the heights of mountains, the mighty billows of the sea, the broad tides of rivers, the compass of the ocean, and the circuits of the stars, and pass themselves by."[18] Petrarch referred this to his own experience: "I was full of surprise as if touched by lightning,"[19] he wrote, and consequently did not let himself be seduced by the overwhelming view of the landscape: "I was completely satisfied with what I had seen of the mountain and turned my inner eye toward myself. From this hour nobody heard me say a word until we arrived at the bottom."[20]

Reading Augustine had changed his perception of the mountain, which suddenly appeared small to him as he descended: each time he turned back to look up to the summit, it seemed to be hardly higher than a cubit. Afterwards he compared the smallness of the mountain to the height of human nature, "were the latter not plunged into the filth of earthly sordidness," as he quickly added. Augustine had addressed the seductive attraction of infinitely grand nature and called for moral-religious introspection—against *vana curiositas* (vain curiosity) and *concupiscentia oculorum* (visual lust).[21] In his day, Petrarch was still willing to follow this, since natural sublimity first arose with the heliocentric view of the world.

**Conrad Gessner: Four Seasons in One Day, 1541**

Two hundred years later, in 1541, the humanist Conrad Gessner (1516–1565) from Zurich wrote in a letter about the "grand spectacle of the universe," from the wonders of which the human being "recognizes something higher, indeed the highest being itself."[22] In a similar fashion he observed the spectacle of the mountains, which deeply moved him because he saw the work of the grand architect (*summus illius architectus*) in them. Together with Benedict Marti (ca. 1522–1574), he climbed Mount Frakmont (Pilatus) (1,920 meters), Mount Stockhorn (2,192 meters) and Mount Niesen (2,366 meters), whereupon, full of enthusiasm, he desired "each year to ascend a few mountains, or at least one, […] when the vegetation is flourishing, partly to become acquainted with it, partly for the sake of bodily exercise and the delight of the Spirit. For how great the pleasure, how great, think you, are the joys of the Spirit, touched as is fit it should be in wondering at the mighty mass of the mountains while gazing upon their immensity and, as it were, in lifting one's head above the clouds? In some way or other, the mind is overturned by the dizzying height and is caught up in the contemplation of the Supreme Architect [*in summi illius architecti considerationem*]."[23]

Tobias Stimmer, "Portrait of Conrad Gessner," 1564

Gessner not only mentions "bodily exercise" but also the "delight of the Spirit" in an attempt to comprehend the world of the mountains, still to be explored, as a part of the cosmos. He emphasized that by studying nature, not only can the interplay of the elements be understood but the perception of the senses will be stimulated to the highest. He admired the "variety of nature which in the mountains is shown withal in a single peak," whereby "the pleasure of the mind joins into a harmonious pleasure of all the senses. Which other type of delight within the boundaries of nature […] will you indeed find that is truer, grander, and more complete than any whole number is?"[24] He regarded the mountains as part of a perfect order and compared them to the abstraction of "whole numbers." As a component of nature, however, the mountains would outdo numbers in terms of size and completeness, since unlike these, they touch the senses. His companion Marti wondered how anyone could possibly not love the mountains and stressed their timelessness and unusualness: "If you yearn for something old, you have the monuments of ancient pedigree, precipices, cliffs, rocks suspended in the air, deep crevices and the astounding openings of mountains, hidden caves: hardened ice, also in the midst of the blazing sun. Enough! There is the theater of the Lord, enduring monuments—without distinction—apprehending the delights of marvelous wisdom and the extraordinary."[25] In their unusual enchantment, the mountains were an expression of divine wisdom for Marti and of the higher order of the "wise architect" for Gessner. When both ascended Mount Pilatus (2,132 meters), Gessner was impressed by the altitude levels at which the plants showed various developments, as they do in different seasons: "We can thus divide the high mountains of the Alps into four regions. At the top altitude, a constant winter, with snow and ice and cold winds, prevails. Then follows the spring region […], then the autumnal location where three seasons occur, winter, spring, and something of autumn; and finally the lowest depth, where a brief summer is also found, therefore, all four seasons."[26] Gessner noted that while the cherries are ripe in the lower zone (as in spring), farther up it is the blackberries (as in autumn). This impressed him greatly as he was able to experience all four seasons at the same time at one location and on a single day. From this phenomenon he derived a cosmogony, a general theory about the functioning of the world, its building plan.

While the scientific study of nature was associated with the Neo-Platonic idea of God, Gessner had helped give positive connotations to the mountains in an emotional sense. Nevertheless, his experiences and research were not incorporated in the encyclopedia being compiled at that time in Basel, the *Cosmographia universalis*[27] by Sebastian Münster (1544), which included all of the geographical, botanical, mineralogical, and anthropological knowledge. In it, however, mountains were still described as a "topos horribilis."[28] Gessner's research found no consideration, because in his admiration for the "grand spectacle of the cosmos" and the "unreachable height of the mountains" he was ahead of his time. Not only did he lay the ground for all cosmogonies in which the mountains played a central role, he also paved the way to sublimity.

## The Advent of the Natural Sublime

Two years after Gessner's letter, Nicholas Copernicus (1473–1543) publicized his seminal discovery in 1543 that the Earth is one planet among others and revolves with these around the sun. Johannes Kepler (1571–1630) realized in his work *Astronomia Nova*, which appeared from 1609 to 1618, that the movement of the planets around the sun occurs in elliptical orbits that follow mathematical rules. Through his observations of the supernova in the year 1604, he put an end to the belief in a stellar vault. In *De motu corporum in gyrum* (1684) and *Philosophiae naturalis principia mathematica* (1687), Isaac Newton (1643–1727) was able to mathematically prove the Keplerian Laws. He placed the laws of gravity prevailing on Earth into a generally valid formula that describes the mutual attraction of two bodies, which is also applicable to the

Conrad Gessner, drawing of "Fragaria vesca," in *Historia Plantarum*, 1542.

universe and the planets. The Earth now stood, as had been proven, in a universal correlation with an all-embracing, moving cosmos. This was considered as a well-ordered system by the Neo-Platonists, held in perpetual motion by the *Demiurgos*. The Christian concept of God transformed; God henceforth operated in nature and in mankind. As a result, the previous relation to wild nature, and thus to the mountains, changed: everything on Earth, even uncontrollable nature with the attendant storms, avalanches, and other natural catastrophes, was now regarded as a part of the moving cosmos.

With the conception of a "harmonic cosmos," a novel feeling for nature arose, one that went hand in hand with a certain type of religiosity. As soon as wild nature was viewed as a part of the cosmos kept in permanent motion by the demiurge, the grand architect, a passion could be felt for "the high mountains, the vast floods of the sea, the huge streams of the rivers, the circumference of the ocean and the revolutions of the stars,"[29] which Augustine had warned against. The introspection he demanded transitioned into self-reflection, which found an expression in the natural sublime. Since aesthetics were still inseparable from science, philosophy, ethics, and religion, the natural sublime was first able to emerge with the heliocentric view of the world.

**"New Science" and the New Concept of Nature**

Wild nature increasingly moved into the forefront of aesthetics, borne by the disciples of the enlightened English New Science Movement (1640–1700, also called New Philosophy), based on the doctrines of antiquity.[30] Although the first translation of Pseudo-Longinus's treatise by Francesco Robertello[31] followed in 1554, in Gessner's time, in Basel, the sublime first made a breakthrough with the second, widely read translation by Nicolas Boileau in the year 1674, which smoothed the path from the horrible to the sublime mountains.

Pseudo-Longinus's idea of nature ("nature is the highest art") was taken up at the end of the 17th century in revolutionary England, where, linked to a notion of identity and freedom, it broke through in aesthetics as an antithesis to the geometric austerity of absolutist French gardens. The new concept of nature expressed itself in the English landscape garden, where the natural character replaced the perfectly domesticated one, and wild nature became the setting for new experiences and feelings, concomitant with an enlightened mindset.

In England, John Milton, who came from a Protestant family and was close to the Anglican Church at the beginning of his career, published *Paradise Lost* in 1667. In this epic poem he put the expulsion from Paradise in a positive light, since the self-determination of humanity would only have become possible thereby. (The Archangel Michael tells Adam of the possible redemption of humanity from original sin through Jesus and says to him consolingly when he is expelled from Paradise: Perhaps you will find "a paradise within thee, happier far."[32])

By contrast, the cleric Thomas Burnet insisted on the doctrine of original sin and in 1681 depicted the mountains as God's punishment for the banishment from Paradise. For John Dennis, however, these were already the "wonders of the new World" in 1693. The transformation of the concept of nature also became apparent in the writings of the Neo-Platonist Anthony Ashley-Cooper, 3rd Earl of Shaftesbury, who saw wild nature as an expression of God, as a part of the harmonic cosmos. Joseph Addison associated the Swiss mountains with a concept of freedom that symbolically stood for England's constitutional monarchy, which was established in 1688.

Excerpts from texts by these four English philosophers illustrate how, within the space of only fifty years, a negative conception of the Alps tainted with original sin transformed into a topos of liberty. It is interesting that the allegory of flight

was present in these philosophical reflections: sleeping, flying, or floating bodies enable the surprise effect of the wild landscape to be dramatically staged at the moment of awakening. With the help of imaginary flight, a paradisiacal dream world can be sketched out; but it also makes it easier to build up the necessary distance to philosophical observation.

**Thomas Burnet: The Awakening in the Middle of the Alps, 1681**

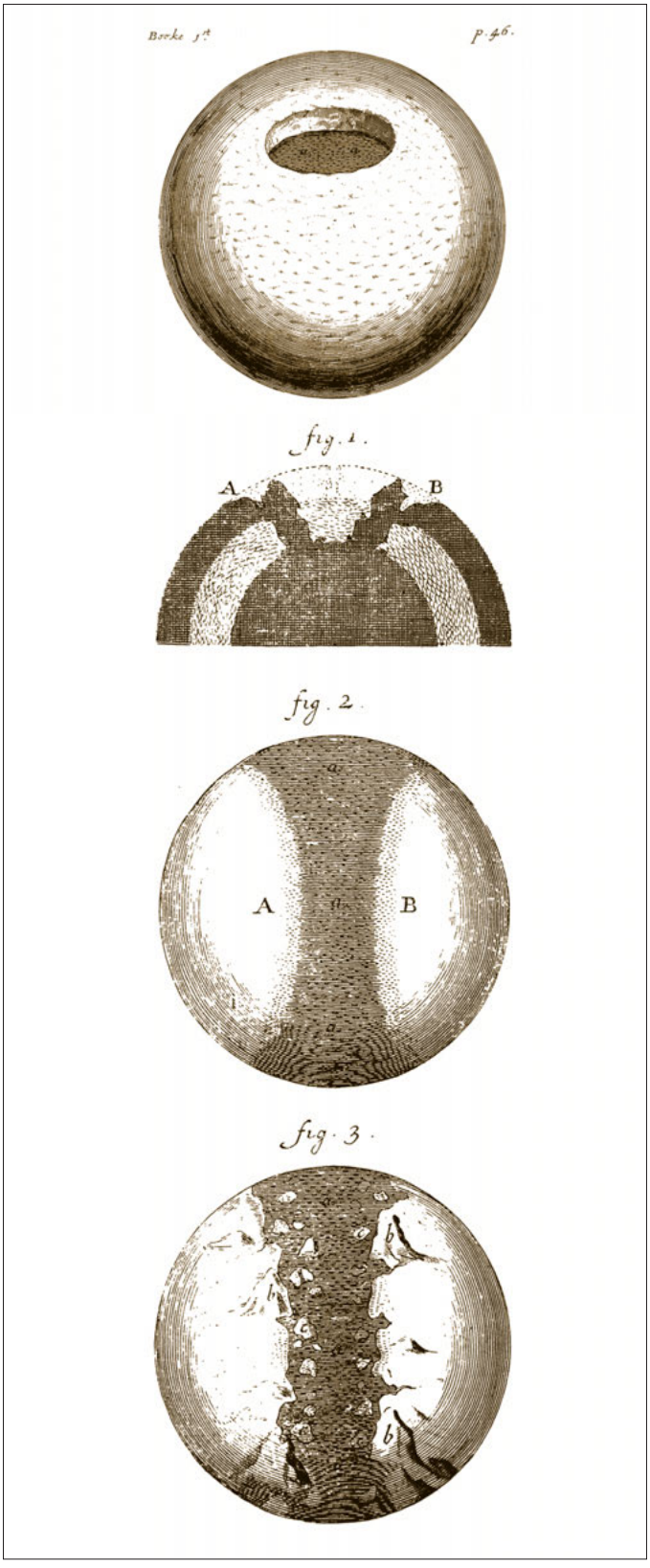
The young theologian Thomas Burnet (1635–1715), who earned his livelihood as the tutor of a young nobleman before the Glorious Revolution, undertook a journey to Rome with his pupil in keeping with the conventions of the English noblesse back then. Their route led over the Alps—a life-changing experience that influenced his later work *Telluris theoria sacra* (1681 in Latin, 1684 in English: *The Sacred Theory of the Earth*).[33] The work is a speculative cosmogony about the genesis of the Earth, based on Luther's theory of original sin.[34] It rests upon the assumption that the Earth had been a smooth, perfect egg (*ovum mundi*) which broke up during the Deluge and was flooded, leading to the creation of the mountains. God destroyed the "frame of the old World" at one stroke and made a new world out of its ruins, in which we still live.[35] Instead of "a wide and endless plain, smooth as the calm Sea,"[36] there was now only "wild, vast and indigested heaps of Stone and Earth."[37] These "ruines of a broken World,"[38] without symmetry and proportion, shall remind human beings of original sin and be an admonition from God through their ugliness: "They are the greatest examples of confusion that we know in Nature; no Tempest or Earthquake puts things into more disorder."[39] Thomas Burnet illustrated his cosmogony with a series of graphics in ground plan, section, and axonometry. They depicted the formation of the mountains and the break of the smooth *ovum mundi*; during this occurrence, according to his theory, the broken pieces of the crust formed into the five continents. He nevertheless had a fractious relationship with the Alps. Despite his punishment theory, Burnet felt a certain fascination, since the mountains affected him like a "different world." In order to illustrate this, he played with the following mental image: if one were to carry a sleeping person from a flat land into the Alps, the person waking up on the mountain would believe himself to be in an "enchanted land," or even in a "different world": "Vast bodies thrown together in confusion […]; Rocks standing naked round about him; and the hollow Valleys gaping under him […]. He would hear the thunder come from below, and see the black Clouds hanging beneath him; Upon such a prospect, it would not be easie to him to perswade himself that he was still upon the same Earth."[40]

All the same, Burnet, like Petrarch before him, was enchanted by the panorama, by the wide horizon, by the proximity to heaven's tent and to the stars—and he also thought about God in the course of this: "There is something august and stately in the Air of these things, that inspires the mind with great thoughts and passions; We do naturally, upon such occasions, think of God and his greatness."[41] He attributes this moving feeling to the infinite: "and whatsoever hath but the shadow and appearance of INFINITE, as all things have that are too big for our comprehension, they fill and over-bear the mind with their Excess, and cast it into a pleasing kind of stupor and admiration."[42]

Nevertheless, he adds a warning straightaway (similar to Petrarch, who turned to introspection), since his personal mountain experience was not reconcilable with the theory of original sin: "We shall not wonder of their greatness and vastness, seeing they are the ruines of a broken World."[43] Burnet wavers between the theory and his personal experience. As nature is afflicted with original sin according to Luther (as opposed to Zwingli), he attempts to derive the emergence of the wild mountains from the Deluge. Hence, the mountain ruins must have been terrible, but he also experienced them as splendorous, because they inspire "the mind with great thoughts."

Although the basic characteristics of the sublime already begin to show here, based on the interplay of contrary traits like amazement, admiration, boundlessness, fear, terror, excess, and torpidity, Burnet cannot see any connection to his faith therein.

Thomas Burnet, drawing of the *Ovum mundi* (lat. 1681), in *The [Sacred] Theory of the Earth*, 1697




J. Faber, "Thomas Burnet, Master of the Charterhouse," after a painting by Sir G. Kneller (1697), 1752

**John Dennis: Mountains as the Greatest Wonder of the "New World," 1693**

Shortly after the appearance of Nicolas Boileau's *L'Art Poétique* and his translation of Pseudo-Longinus's treatise (both published in 1674), John Dennis (1657–1734) sketched a new, positively connoted picture of the wild mountains in *Miscellanies, in Verse and Prose* (1693) as a direct criticism of Burnet's Deluge theory. In doing so, he conveyed the basic properties of the sublime that had only been applied up to then in rhetoric and poetry to the contemplation of nature.

He described his crossing of the Alps, which he undertook as a young man in the course of his grand tour on a mule, with excited and mixed emotions, uniting the experience of fear and dread with aesthetic enjoyment.[44] Moreover, he compared the quaint hilly landscape, which is pleasant and appealing, with the rugged mountains that astonish the beholder and impress in a much stronger manner: "For the Alpes are works which she [Nature] seems to have design'd, and executed too, in Fury. Yet she moves us less, when she studies to please us more."[45] The wild, "irregular and naked" aspect of the mountains deeply impressed him: "Ruins upon Ruins in monstrous Heaps, and Heaven and Earth confounded."[46] Feeling uneasy, he associated the dreadful sight with destruction: "In the mean time we walk'd upon the very brink, in a litteral sense, of Destruction; one Stumble, and both Life and Carcass had been at once destroy'd."[47] Looking at this

John Vandergucht, "Mr. John Dennis," 1734

sight, he felt "a delightful Horrour, a terrible Joy, and at the same time, that I was infinitely pleas'd I trembled."[48] According to Dennis, the high mountain range triggered dread, sometimes even desperation, but also the moving joy "that is consistent with Reason, a delight that creates or improves Meditation."[49] He compared the visual experience with music: "The frightful view of the Precipices, and the foaming Waters that threw themselves headlong down them, made all such a Confort up for the eye, as that sort of Musick does for the Ear, in which Horrour can be joyn'd with Harmony."[50] The aesthetics of the sublime, which accompany the new view of the world, are articulated in the simultaneity of conflicting feelings.

In closing, John Dennis referred to the much-discussed theory of Thomas Burnet: "But if these Mountains were not a Creation, but form'd by universal Destruction, […] then are these Ruines of the old World the greatest wonders of the New."[51] Unlike Burnet, who still regarded the mountains as the punishment of God, his view did not pessimistically look backward, but rather forward, into the future: In this way, they could be "the greatest wonders of the New"—because still to be explored—world.


**Anthony Ashley-Cooper, 3rd Earl of Shaftesbury: Flying above the Mountains like Pegasus, 1709**

The young Anthony Ashley-Cooper, 3rd Earl of Shaftesbury (1671–1713), presents his philosophical thoughts about God and the world in a Socratic dialog that he lets his protagonists conduct while they are flying over the mountains. He thereby dealt with a personal experience he had had while on his grand tour across the Alps. This influenced his philosophical body of thought, which was shaped by John Locke's teaching of the rationalism of the Enlightenment. The young man, however, reacted against the purely rationalistic viewpoint of his tutor, which was based on abstract morality, and wanted to link it with experience appreciable to the senses.

Andrew Ashfield and Peter de Bolla formulated Shaftesbury's desire in the following way: "That moral ideas could not at all be expressed by words, if they could not be pictured to us by means of analogous sensible objects."[52]

This brings the discussion about the sublime to the point: "To construct via analogy a structure to the sublime experience which relates affects to causes."[53] Shaftesbury tried to connect enthusiasm with reason, which was a new approach back then. Passion and enthusiasm thus became a new type of nature experience.

He communicated his philosophical thoughts in *The Moralists* (first published in 1709) in the form of a Socratic dialog between Theocles, the tutor (John Locke), and Philocles, his pupil (reporting in the first person). The latter should accompany the master on his intellectual, abstract flights of fancy; however, Philocles desires concrete demonstrative examples to illustrate the abstract edifice of teachings; how should he otherwise be able to follow him through all the various climate zones, "from pole to pole and from the frigid to the torrid zone"? Only if his teacher spoke about the phenomena of the Earth would he be prepared to fly along like "the Pegasus of the Poets"[54] provided they do not draw all too close to the moon and remain near the Earth's surface. They thus set out on an imaginary journey around the world, which has an educational purpose and combines philosophy with nature studies, geography, and religion. The mythological figure of Pegasus allows the philosopher to gain not only an overview in a flying manner but also an insight into the different phenomena of the world. He describes wild nature in a breathtaking way: "Where huge embodied rocks lie piled on one another, and seem to prop the high arch of heaven.—See! with what trembling steps poor mankind tread the narrow brink of the deep precipices! From whence with giddy horror they look down, mistrusting even the ground which bears them; whilst they hear the hollow sound of torrents underneath, and see the ruin of the impending rock; with falling trees which hang with their roots upwards, and seem to draw more ruin after them."[55]

"Anthony Ashley-Cooper, 3rd Earl of Shaftesbury, English politician, philosopher, and writer," 1702

In the face of this devastation, "thoughtless men, seized with the newness of such objects, become thoughtful and willingly contemplate the incessant changes of this earth's surface,"[56] writes the young philosopher, impressed by the transience of things. He faces the "ruinous wilderness" with mixed feelings: "The faint and gloomy light looks horrid as the shade itself: and the profound stillness of these places imposes silence upon men, struck with the hoarse echoings of every sound within the spacious caverns of the wood. Here Space astonishes. Silence itself seems pregnant; whilst an unknown force works on the mind, and dubious objects move the wakeful sense."[57]

After the stirring emotions, Theocles's eye becomes calmer; he bids farewell to the sublime: "Theocles was now resolved to take his leave of the sublime."[58]

Here the natural sublime is already clearly outlined. Through astonishment, the usual perception is subsumed; one is moved and everything around seems like a highly tensed magic, which vividly finds expression in the sentence "Silence itself seems pregnant."

Shaftesbury situated God in nature and in the cosmos. The knowledge of nature makes it possible to conceive and to understand God. The active, questioning pursuit of knowledge in the sense of natural sciences consequently supersedes the belief up to now. Everything that belongs to nature, even the human being, he found to be good. (The concept of original sin was no longer relevant for him.) With Shaftesbury, this was linked to an emotive perception of nature. He glorified nature and lent it a divine status: "O mighty Nature! Wise substitute of Providence! empower'd Creatress! Or thou empowering Deity, supreme Creator! thee I invoke, and thee alone adore."[59] Each single work of nature would offer vastly more impressive scenes and a nobler spectacle than could ever be produced by art, he emphasized, full of admiration. He counterposed wild nature with the artificial labyrinth of the Prince's Gardens, and came to the conclusion that he likes the wilderness far more, along with the frightening things and animals, as these are also part of the harmonic cosmos and therefore useful, too.[60] Shaftesbury was a proponent of "divine nature" and thus differed from the English deists, who accepted the purely rationalistic principles and considered God simply as the mechanic of the cosmos. For Shaftesbury, however, the mechanical system had to have a "spirit" that drives the vast machine of the cosmos, wherein the concept of God lay for him. He reacted against the predetermined rationalistic monotony that could only lead to atheism. The roughness of nature holds riddle, surprise, wonder, and fright; in its "madness" he saw the divine expression of wisdom, not only in the harmonic order, since the unpredictable moves us and provokes us to reflect:

"We must have riddles, prodigies, matter for surprise and horror! By harmony, order, and concord, we are made atheists; by irregularity and discord, we are convinced of Deity! The world is mere accident, if it proceeds in course; but an effect of wisdom, if it runs mad!"[61]

For Shaftesbury, the sublime lay in this area of conflict: a God-Nature concept in which good and evil are united and the assumed chaos is recognized as part of the order. Reason and emotion converge in his philosophical view of the world, which he sought to convey through Pegasus's flight over the mountains.

## Mountains as a Symbol of Liberty

### Joseph Addison: The Swiss Alps as a Symbol of Liberty, 1710

After having crossed the Alps in 1701, the English author, poet, and politician Joseph Addison (1672–1719) took up the theme of the journey of initiation in the journal *The Tatler*[62] in 1710, describing it in the form of an imaginary dream. He transferred this allegory likewise in a Socratic dialog of antiquity, "The Table of Cebes" (Cebes, pupil of Socrates). Exhausted from reading it, the narrator falls asleep and flies over the Alps in his dream, leaping weightlessly from one summit to the next, landing finally on the highest mountain peak: "I fancied myself among the Alpes, and, as it is natural in a dream, seemed every moment to bound from one summit

"The R.t Hon.ble Joseph Addison Esq., one of his Majesty's Secretary's of State," ca. 1712

to another, till at last, after having made this airy progress over the tops of several mountains, I arrived at the very centre of those broken rocks and precipices. I here, methought, saw a prodigious circuit of hills, that reached above the clouds, and encompassed a large space of ground, which I had a great curiosity to look into."[63]


After bounding airily, he gains an overview from a peak and describes how rugged white mountains rise barrenly on one side, while fertile green meadows, which have a magical effect on him, cover the mountainsides on the other.[64] Addison employs the contrast of both landscapes to bring the concept of liberty into play in the midst of this wild paradise: "I was wonderfully astonished at the discovery of such a paradise amidst the wildness of those cold hoary landskips which lay about it; but found at length, that this happy region was inhabited by the Goddess of Liberty; whose presence softened the rigours of the climate, enriched the barrenness of the soil, and more than supplied the absence of the sun."[65]

This imaginary flight over the frightening and, at the same time, paradisiacal Alps conveys an image of freedom drawn by a sensual depiction of the landscape. Ten years after his Alpine experience, he transferred his impressions to a philosophical-political level, whereby he arrived at the conclusion that it is liberty which separates the two contrasting landscapes: while the suppressive regime of Louis XIV reigns on the barren side, free Switzerland lies on the fertile side. Through this allegory Addison was able to express his political disposition (he was closely affiliated with the Whigs) and implicitly criticize French absolutism. The "Goddess of Liberty" (with an angelic voice, clothed in white ermine, with tamed lions crouching at her feet) appears several pages later as the "Genius"[66] of the English constitutional monarchy.

The Swiss mountains thus became the symbol of freedom of post-revolutionary England, whereby the sublime played a vital as well as novel role. Its complex ambiguity betwixt horror and fascination was dualistically split in order to symbolically represent two opposing forms of government (suppression vs. liberty) through different mountain landscapes which correspond to a certain nation and its governmental form. After England had carried out the introduction of a constitutional monarchy in 1688, France also revolted against absolutism one hundred years later and celebrated the newly risen republic in 1789. Once again, the mountains were used as a symbol of liberty, this time in an artificial form, and stood for the new values of "liberty, equality, and fraternity." As symbolic icons of revolution, they were erected for grand celebrations on public spaces, crowned by the Statue of Reason (Project 1). They were also intended to be stacked up in churches, representative of the new destination—the mountain—for which the church, in a reversal of values, merely had to serve as a "vestibule" (Project 2).

## Wild Mountains as Scenery, Wild Mountains to Be Explored

After the wild mountains had advanced to ac symbol of liberty through the philosophical perspective of the Enlightenment and moved into the center of attention, they stood for a very specific idea of nature. This went along with the notion of "wilderness," which, post John Dennis, was not only frightening but also magically appealing—because unknown and still to be explored. Located in the Austrian Alps, the Wildbad Gastein (Gastein Hot Springs) fulfilled this concept. In the 18th century it made quite a splash, especially among English guests, because of the healing power of the thermal springs and, above all, the aesthetics of the wilderness (Project 3).

Besides the philosophical interest in the Alps and the incipient touristic development, there was the endeavor to explore this new paradise and to make it usable for people. The hot springs not only exemplify the enthusiasm for the aesthetics of the wilderness but also illustrates the use that was made of it in the course of the reform policy of Archduke Johann (1782–1859). He was a mineral collector, an Alpinist, a hunter,

1 *La Montagne* as a Symbol of Liberty in the French Revolution, 1794

farmer, vintner, industrialist, and patron all at the same time and spent his life mainly in the Alpine provinces of Styria, Tyrol, and Salzburg. A true outdoorsman, he hiked most of the Austrian mountain ranges, climbed glaciers, and let his court painters capture him doing these things in paintings. He explored the mountains and placed them in the service of man in order to improve the living conditions of the mountain farmers. In his biography, the efforts he made to promote progress and industrialization are accompanied by an enthusiasm for nature and the mountains, in the spirit of the Enlightenment—these passions were viewed as irreconcilable opposites toward the end of the 19th century, but with the advancing industrialization, the "idyllic mountains" were set against the dirty city as an alternative world that increasingly served as a place of refuge for ailing city dwellers.

**Horace-Bénédict de Saussure: The Panorama View of the Mountains, 1776–1796**

Horace-Bénédict de Saussure (1740–1799), professor at the Geneva Academy, visited the Alps in order to explore them. He cast a scientific glance onto the mountains that had already been cultivated by humanism (as emerges from Gessner's text) and further advanced in the Enlightenment. De Saussure published his Alpine research between 1779 and 1796 in the four-volume work *Voyage dans les Alpes*,[67] which appeared in numerous editions and was translated into German and English. His studies of the Alps generated general knowledge that was to provide information about the functioning of the universal laws. As the first sentence of the introduction to the volume *Voyage autour du Mont Blanc* announces, he attempted to derive a general theory of the Earth (cosmogony) from the observed phenomenon: "Mont Blanc is one of the mountains of Europe whose study brings the greatest insights into the theory of the Earth."[68]

He was interested in geology, zoology, botany, and glaciology and had all the animals, rocks, plants, crystals, and glaciers he observed drawn by Marc-Théodore Bourrit, who accompanied him on his expeditions. His meteorological research was of particular importance, since he employed various self-developed measuring instruments during the expeditions. Among other things, he was able to determine the different blue values of the sky by means of his own custom-built cyanometer—a wheel made of cardboard with various shades of blue, numbered on a scale of 1 to 16, in order to suggest the atmospheric pressure. He thus attempted to create a "pattern of the sky" when he reached the peak of Mont Blanc as one of the first to ascend it. De Saussure's efforts to study, measure, and record everything not only pertained to mountains, plants, and meteorology, but also to the conditions of his own body during the ascent, which he observed and exactly described. The closer he came to the summit, the weaker his body became and demanded long breaks because of the mountain air: "I hoped to reach the summit in less than three-quarters of an hour, but the thin air unexpectedly caused me great difficulties. In the end I was forced to gasp for breath every 15 to 16 steps; most of the time I did this standing, supported by my hiking stick, but every third time I had to sit down, because the need to rest was absolutely invincible. When I attempted to overcome this, my legs refused their service; I felt the beginning of a breakdown."[69]

The knowledge gained went along with a different way of looking at things, which also articulated itself in the representation of the mountains. De Saussure developed a new manner of depicting landscape, one that manifested itself from the peak of a mountain, namely the panorama: "This drawing was produced to convey an impression of a panorama of the mountains that one has from the summit of the Buet. The viewer is supposed to be placed in the middle of the figure; all of the objects are arranged in perspective around a central point, as if seen by an eye located in the center, which successively circles the horizon."[70]

His way of representing soon became the model of panorama drawings which aimed to reproduce the landscapes or places in a true-to-scale manner, for example, Karl Friedrich Schinkel's circular panorama draft of Palermo, which was transferred to

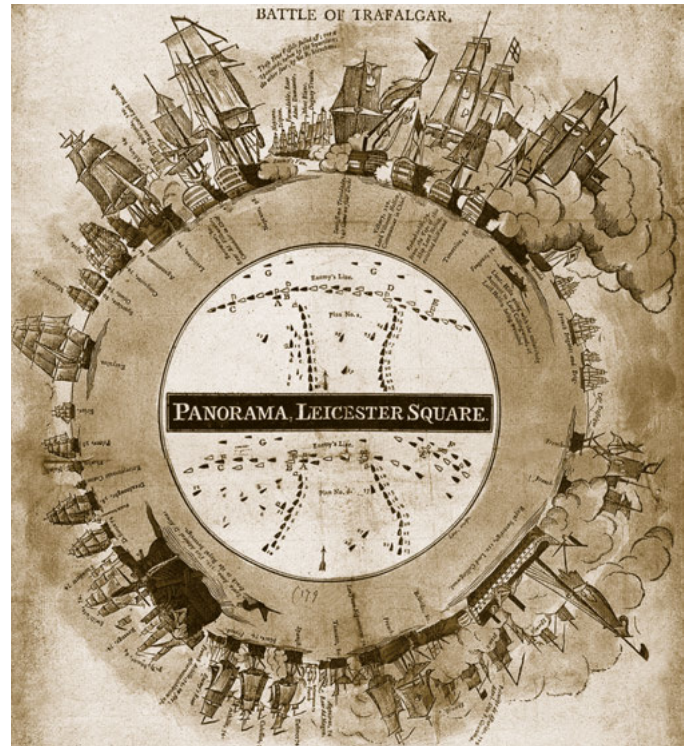
Artificial Mountains as Temples de la Raison, 1793

Lane, Advertisement for the Panorama, Leicester Square, London: "Battle of Trafalgar," 1806, colored engraving after H. A. Barker

Marc-Théodore Bourrit, "Circular View of Mountains Seen from the Top of the Buet Glacier," in Saussure 1779

a canvas exhibited in a rotunda (see the "Panorama" chapter). De Saussure's scientific view did not prevent him from beholding the mountains from an aesthetic perspective as well. His method of observation is part of the Alpine reception of the sublime. He described the mountains as a thrilling "spectacle" in which the beholder feels emotionally torn by the richly contrasting occurrences ranging from "multiple rainbows, avalanches, terrible destructions, thundering, perpetual ice," on the one hand, and a "tender image" on the other: "Grand spectacles alter the scene at each instant; here a spring arises from a rock, forms surfaces and cascades that dissolve into raindrops and offer the beholder double and triple rainbows that follow his steps and move with him. There avalanches are triggered at lightning speed, traversing and bursting through the forests, uprooting the largest trees with a crash more terrible than thunder. Somewhat further on, grand spaces constructed out of eternal ice give the impression of a suddenly frozen ocean at the moment when the north wind whips up the waves. And next to this ice, in the midst of frightening objects, there are wonderful, small niches, friendly meadows, exalting the perfume of thousands of flowers that are just as rare as they are useful and beautiful; and in this favored climate they convey the tender image of spring and endow the botanist with the richest harvest."[71]

The overlapping of science and aesthetics finds expression in his work; it is to be recognized that the sublime had established itself as the cultural foundation of the mode of perception. Parallel to the scientific exploration of the Alps, the examination of the "wild mountains" in the fields of philosophy and aesthetics, especially in regard to the feelings they induce, progressed as well.




**Edmund Burke and the Artificial Reproducibility of the Sublime, 1757**

The English philosopher, writer, and politician Edmund Burke (1729–1797) was the first to consider the sublime as a separate aesthetic category that reacts antithetically to the beautiful, like light to shadow.[72] In *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*, an early work of his published in 1757, he comes to terms with the Alpine experience he had had ten years previously. Influenced by Shaftesbury, Burke was also fascinated by the mountains because they aroused evocative emotions, and decided to explore "what things they are that cause in us the affections of the sublime and beautiful."[73]

Passion, enthusiasm, and ecstasy were themes already broached by Longinus and taken up by Shaftesbury. The latter transferred these extreme sentiments to wild nature, but not

3 Wolfgang Hagenauer, Bathing Palace in Wildbad Gastein, 1791–1794

without seeking a balance between emotion and reason in the process. Burke indeed borrowed from this but concentrated on the "affects of the sublime," without balancing and contrasting them with reason. He consequently introduced early Romanticism, which featured an emotive variant of the sublime.

In the process, Burke concentrated on the psychological and sensory impressions. He endeavored to record all details and to order them according to their effectuality. The list of the chapters of the second part of his investigation illustrates at one glance the possible sources of an experience of sublimity: "Passion, Terror, Obscurity, On the Difference between Clearness and Obscurity, Power, Privation, Vastness, Infinity, Succession and Uniformity, Magnitude in Building, Difficulty, Magnificence, Light, Color, Sound and Loudness, Suddenness, Intermitting, The Cries of Animals, Smell and Taste, Feeling, Pain."[74]

He especially stressed the "scalelessness, dazzling splendor and boundlessness" that simultaneously called forth horror and deep fascination in the beholder. The sublime triggers much larger emotions than the beautiful because it is connected with pain.

Burke wondered which of these causes could also be artificially reproduced and came to the conclusion that this is possible with most of them, with the exception of two phenomena: the true magnitude of nature and infinity. He thereupon examined the concept of magnitude and compared all forms of nature: "I am apt to imagine likewise, that height is less grand than depth; and that we are more struck at looking down from a precipice, than at looking up at an object of equal height. […] A perpendicular has more force in forming the sublime than an inclined plane; and the effects of a rugged and broken surface seem stronger than where it is smooth and polished."[75] The single most important factor of the sublime, however, is infinity: "Infinity has a tendency to fill the mind with that sort of delightful horror, which is the most genuine effect, and truest test of the sublime."[76]

In order to pursue his question of whether infinity could be fashioned in an artificial way, he dealt with succession and uniformity. He thereby underscored the necessity of the presence of all boundaries, deciding that an artificial space is only then perceived as infinite if it is round; since only then does no obstacle disturb the impression of infinity: "It is in this kind of artificial infinity, I believe, we ought to look for the cause why a rotund has such a noble effect. For in a rotund, whether it be a building or a plantation, you can no where fix a boundary; turn which way you will, the same object still seems to continue, and the imagination has no rest. But the parts must be uniform, as well as circularly disposed, to give this figure its full force."[77]

He referred to Addison, who based the pleasant effect of a rotunda on the fact that the observer could grasp half the space at a single glance (*Spectator*, no. 415).[78] For Burke, however, the reason lay in the sublime itself, which is elicited by the impression of infinity.

Burke's theory of artificial infinity and de Saussure's circular representation of the panoramic view to the Alps caught on. Shortly thereafter, the English artist Robert Barker conceived the first self-contained panoramic view, which he displayed in a rotunda separately built for this purpose. He had his invention patented in 1787 (Project 4).[79]

The round principle as the ideal form for representing infinity was spatially implemented here for the first time; the upper and lower picture frame were carefully hidden in this type of presentation to avoid the perception of any kind of boundary, in keeping with Burke's theory.

**Immanuel Kant's Criticism of Burke: The Sublime as an Intellectual and Moral Experience**

Immanuel Kant did not like to travel and had never been in the Alps. His theory of aesthetics, which differentiates between the beautiful and the sublime, did not derive from his personal experiences (like the philosophers presented up to now). He rather attempted to explain the experiences of others and to place them in the light of rational enlightenment. Immanent, exuberant feelings were to be controlled and transferred to the intellectual level of a higher consciousness, as they can only help provide intuition in this way. Kant criticized Burke's treatise. In his estimation, this merely follows the approach of an empirical psychology, thus supplying "material for future empirical rules to be systematically combined"[80] (history was to prove him right, as Burke's treatise actually influenced the artificial creation of the sublime). He investigated "affect or movement awakened in acting, in poetic conceptions, and by objects of nature"[81] and, according to Kant's biting criticism, laid claim to the explanation of causes without getting to the

Christian von Mechel, Marquard Wocher, plates 10 (t) and 2 (b) from "Voyage of Mr. de Saussure to the top of Mont Blanc in the month of August, 1787," 1790

bottom of them. Therefore, this undertaking should not be called "philosophy" but at best "psycho-logy."[82] In *Critique of Judgment* (1790), Kant subsequently wrote his own philosophical treatise about the sublime and the beautiful, although he—unlike Burke—did not place emphasis on the sensory aspects but rather on reason.

In German philosophy, the "sublime" not only underwent a conceptual transformation but a content-related one as well. As opposed to the Latin and Anglo-Saxon languages, the Latin word *sub limen* (which suggests a borderline experience) is replaced by the German word *erhaben*, which implies *sich über etwas erheben* (to rise above something).

The change in terminology is characteristic of the German interpretation of the sublime. It has less to do with exceeding boundaries through stirring feelings than it does with rising above one's own powerlessness, which is felt, for example, when looking at the endless ocean or the grandeur of the mountains. Kant emphasized mental power that could rise about the physical force of nature (the external force, but also the internal one). "Although man would have to succumb to that power,"[83] he could rise above it morally and mentally, thus becoming aware of his own being (the "own sublimity of destiny"). "Sublimity, therefore, does not reside in any of the things of nature, but only in our own mind," he wrote, since the landscape in itself could not be sublime: "Thus the broad ocean agitated by storms cannot be called sublime. Its aspect is horrible, and one must have stored one's mind in advance with a rich stock of ideas, if such an intuition is to raise it to the pitch of a feeling which is itself sublime—sublime because the mind has been incited to abandon sensibility and employ itself upon ideas involving higher finality."[84]

Kant made a difference between the mathematical sublime and the dynamic sublime. The former arises through the inconceivable magnitude of nature; the latter is triggered by the movement of the mind, based on emotional shock.[85] While the beautiful is associated with quiet contemplation, the feeling of sublimity is connected to what stirs and moves us and to fear. Yet man must not surrender to the force of 'nature; this shall simply be the trigger of his fears: "Bold, overhanging, and, as it were, threatening rocks, thunder-clouds piled up the vault of heaven, borne along with flashes and peals, volcanos in all their violence of destruction, […] make our power of resistance of trifling moment […]. But, provided our own position is secure, their aspect is all the more attractive for its fearfulness; and we readily call these objects sublime, because they raise the forces of the soul above the height of vulgar commonplace, and discover within us a power of resistance of quite another kind, which gives us courage to be able to measure ourselves against the seeming omnipotence of nature."[86]

4 Robert Barker's Panorama, Architect Robert Mitchell, London, 1793(–1864)

William McGregor, two drawings from "Ascent of Mont Blanc," ca. 1850

Sublime, therefore, in the sense that man becomes self-aware as an independently thinking and acting being.[87] Thanks to the intellectual superiority he feels in the face of terrifying nature, the everyday matters ("worldly goods, health, and life")[88] appear small to him. Nonetheless, the sublime also has an extrasensory dimension with Kant, which is to be comprehended through the mind (reason, idea, the free play of imagination): "The astonishment amounting almost to terror, the awe and thrill of devout feeling, that takes hold of one when gazing upon the prospect of mountains ascending to heaven, deep ravines and torrents raging there […] is not actual fear. Rather is it an attempt to gain access to it through imagination, for the purpose of feeling the might of this faculty […], and of thus being superior to internal and, therefore, to external, nature."[89] The "magnitude as such," therefore, can only be seen in relation to one's own consciousness.[90] Kant's theory of the beautiful and the sublime changes the relation to the mountains. Nature was no longer frightening as such, but merely as a notion. Only if man feels safe can he perceive wild nature as arousing and feel sublimity; the intellectual rising above the outer, terrifying nature as well as the inner one makes the reflection upon one's own existence possible, whereby everyday things are put into perspective. The possibility of cognizance is anchored in Kant's notion of sublimity.

**Friedrich von Schiller's Interpretation of the Sublime as Intellectual Freedom and the Emotional Realization of Our Limits**

In *Of the Sublime*,[91] Friedrich Schiller draws upon Immanuel Kant's reason-oriented theory. He interprets the sublime as a form of intellectual freedom, "because the sensuous instincts have no influence upon the legislation of reason, because the mind acts here, as if it stood under no other than its own laws." The sublime procures for us "an exit from the sensuous world" whereby "reason and sensuousness" do not harmonize; "precisely in this contradiction between both lies the magic wherewith it seizes our soul."[92] According to Schiller, the question of boundaries plays an essential role here: on the one hand, because of our limited mental capacity to procure for ourselves a picture of the sublime; on the other, because of our life force, which, in view of the power of nature, is infinitesimally small. This realization of our own limits attracts us "with irresistible force": "Would this be quite possible, if the limits of our imagination were at the same time the limits of our power of comprehension?"[93]

The sublime as a borderline experience was also taken up by Friedrich Nietzsche, who nonetheless criticized Schiller's moral approach. In *Thus Spoke Zarathustra* (published privately from 1883 to 1885; as of 1886 by the E. W. Fritsch publishing house), Nietzsche introduced a sublimity that is not grounded in morality, but lies in the pure self-quest. This is articulated in

the figure of the *Übermensch* (superman), whereby the body, in an intimate coalescence with the elements of nature, has a crucial part to play, as is elucidated in the chapter "Therapeutic Landscape." Kant's theory had a lasting influence on the German philosophy of aesthetics (and therefore the observation of nature and the conception of art, as is shown in the second chapter "Crystal, Crystallization"), but not its English cousin. Burke's approach remained the decisive reference in England, as Uvedale Price's theoretical work *An Essay on the Picturesque: As Compared with the Sublime and the Beautiful* (1796) infers.

**Uvedale Price: The Picturesque and the "Improvement of the Landscape," 1796**

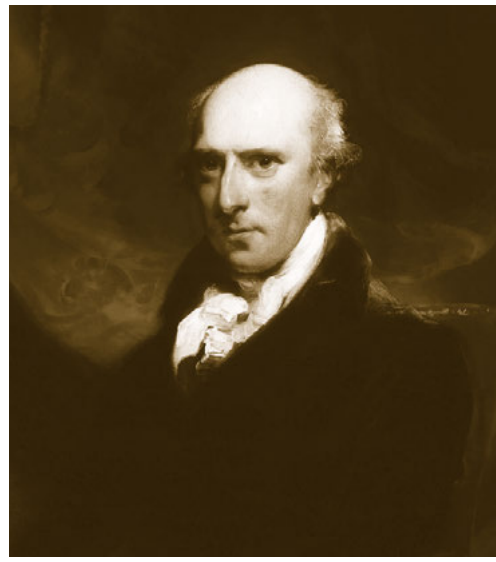
The young Baron of Herefordshire, Uvedale Price, was the oldest son of the painter Robert Price, who had undertaken an expedition to the glacier on Mont Blanc in 1741 (his travel report appeared in 1743 under the title *Mercure de Suisse*). Possibly because of his father's extreme experience, Uvedale dealt intensively with the maximum nervous tension that wild nature was capable of triggering; he had also had his own sublime experience on his grand tour in 1768.[94] The many sensory impressions prompted him to reflect upon the attraction of the landscape and motivated him to put his insights to test artistically at his English country manor. He thus approached it from the perspective of a painter. He did not view proportionality and artistic perfection as stimulating but rather the wilderness itself. Price was indeed aware that it is impossible to create the sublime through artificial gardens; the exciting picturesque, on the contrary, could very well be designed.

In his mature years, he processed the practical knowledge he had gained in his theoretical magnum opus *Essays on the Picturesque, as Compared with the Sublime and the Beautiful: and, on the Use of Studying Pictures, for the Purpose of Improving Real Landscape*.[95] As the title announces, he explicitly pursued the goal of improving the real landscape through the study of pictures.[96] His treatise was to serve as a theoretical instruction. He held the view that landscape could be more stimulatingly designed, or rather artificially produced, through an artistic intervention. The threshold between nature and art is by no means fixed: Price's "designing of landscape" was, like Burke's "creation of the sublime," an undertaking to aspire to, one that could definitely be conducted in an artificial way as well to achieve the desired effect.

Uvedale Price placed a third "basic statement" between the two antithetically behaving aesthetic categories of the beautiful and the sublime: the picturesque. This term originated from the Italian language and, in the 16th century, described a landscape "worth painting." Situated between the harrowing sublime and the exhilarating beautiful is the confining picturesque.[97] It oscillates between the other two aesthetic categories and distinguishes itself through a lively curiosity. While the sublime is defined above all through boundlessness, in the case of the picturesque it depends on how and in which way limits are set: "Infinity is one of the most efficient causes of the sublime; the boundless ocean, for that reason, inspires awful sensations: to give it picturesqueness, you must destroy that cause of its sublimity; for it is on the shape and disposition of its boundaries, that the picturesque must, in great measure, depend."[98]

Burke had already determined that the most important factors of the sublime are limitlessness and scalelessness. Price added that the picturesque, on the contrary, does not depend on magnitude, but much more on randomness and irregularity, combined with a certain decadence. While the sublime clearly sets itself apart from the loveliness of beauty through its solemnity, the picturesque first renders it more captivating.[99] The three aesthetic categories are, according to Price, not at all exclusive, but quite the opposite. The picturesque can sometimes lie closer to the sublime and sometimes closer to the beautiful; it can appear in all possible combinations, whereby the emphasis constantly changes. Noteworthy is the fact that Price correlates the three categories with different nervous states. Whereas the sublime (and the feelings of fear and horror provoked by it) creates the highest tension, the passion arising through the beautiful thus elicits love and complacency, and the languid inward sense of melting completely soothes the nerves.[100]

The picturesque, on the other hand, settles exactly in between and has regulating properties: it makes the "sublime more bearable" and the "beautiful more accessible." Using the example of a romantic mountain landscape, he describes the properties of the picturesque: "Curiosity, […] while it prompts us to scale every rocky promontory, to explore every new recess, by its active agency keeps the fibres to their full tone;



Sir Thomas Lawrence, "Sir Uvedale Price, 1st Baronet," ca. 1799

and thus picturesqueness, when mixed with either of the other characters, corrects the languor of beauty, or the tension of sublimity."[101]

Price opines that the picturesque is "a coquetry of nature; it makes beauty more amusing, more varied, more playful, but also 'less winning soft, less amiably mild.'" However, it is also liberating for the mind, since "it excites that active curiosity which gives play to the mind, loosening those iron bonds, with which astonishment chains up its faculties."[102] Of the three categories, Price was convinced that the picturesque has the "most extensive influence."

## Artificial Mountains: From the Sublime to the Picturesque

In connection with his activity as a landscape designer, Uvedale Price had found out that the most characteristic aspect of the picturesque is the boundary that makes "the sublime more bearable" and "the beautiful more accessible." In this sense, the question of the limit concerns every creative intervention in nature, including architecture, since it sets boundaries to nature solely through its existence. Architecture, by being built into the alpine world, limits nature in itself. Mountain architecture limits that very nature which is received as being sublime. Panorama windows give the landscape a frame whereby the "wild nature" outside becomes a picturesque image of a nostalgic yearning for limitlessness.

The sublime feeling evoked by the wilderness, however, already belongs to the picturesque as soon as an attempt is made to stage or artificially reproduce it. This finds expression in the grand hotels and villas of the 19th century along with their landscape parks and fake grottos. Any and all picturesque imitations of nature emerged in the Alps: little self-contained worlds in the middle of real wilderness.

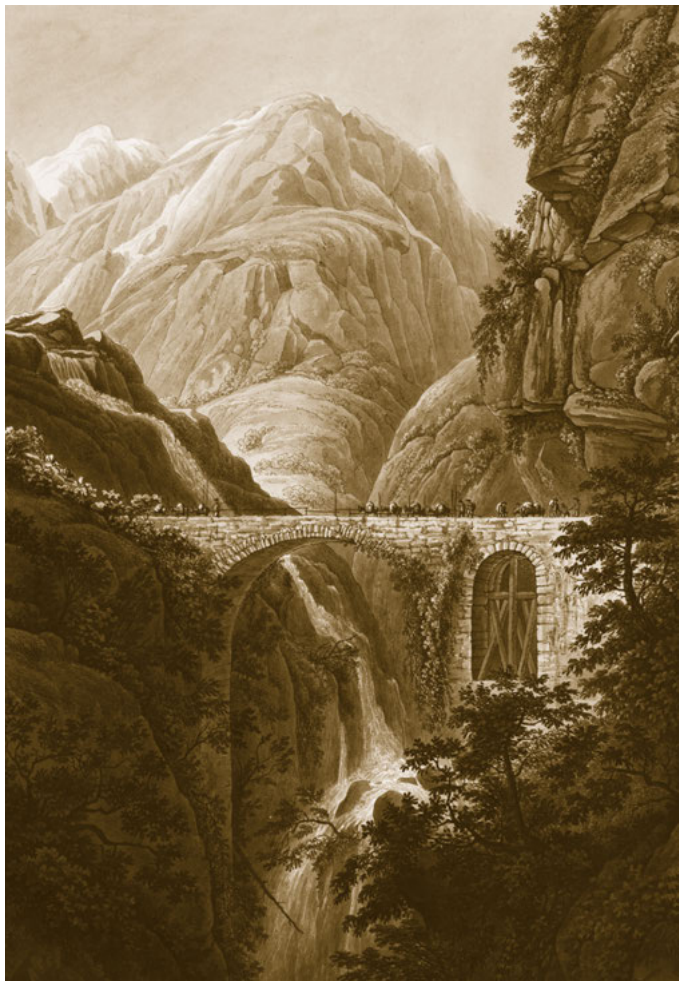
In the cities, reproductions of nature, as true to nature as possible, are articulated as panoramas, dioramas, and artificial mountains. Different means are employed in the diverse artificial reproductions of the mountains to awaken fascination and horror, in a way that is as similar as possible to the "real" Alps.

Several landscapes, cities, or historical scenes were stacked on top of one another in the panorama, irrespective of real temporal and spatial relationships, so that the visitor could travel through different spaces and eras in the shortest amount of time.

It had its heyday in the 19th century, but coexisted for a long time with other media that produced immersion in various ways. Although the panorama conveyed an overwhelming impression of infiniteness, it did not provide the exciting sensation of fear and horror, and the diorama, which captured the audience in a different manner, was soon invented. Flickering plays of light and shadow darted over painted canvasses in richly varying animations, accompanied by flashing lightning and artificial thunder. Music provided growing suspense, as was already the case with the panorama, and even actors were involved (Project 5).[103] The total immersion of the public became more and more important as a goal, whereby the whole body was integrated in order to grab hold of all the senses if possible.

At the end of the 19th century, mountains at world's fairs became a popular attraction: in 1896, the first "Swiss Village" was erected at the Exposition Nationale Suisse (Swiss National Exposition) in Geneva, with a gigantic artificial mountain in the background. It turned out to be such a overwhelming success that one was set up four years later at the World's Fair in Paris. Visitors were able to wander through reconstructed Alpine villages, surrounded by a mountain scene made of papier mâché. In this artificial idyll, farmers (paid extras) and animals had the task of staging a typical daily routine. Through complete immersion, the visitor became a part of the scenario. (Today, adventure parks function according to this model, even if the subject has changed [Project 6].) The panorama also developed further: for the 1900 World's Fair in Paris, Giovanni Segantini created a design for an Engadin Panorama, which was not provided with an observation platform for its center (as was otherwise customary) but an artificial mountain instead, which farmers and animals were to "populate" to grab hold of the visitors with all their senses (Project 7).

Johann Gottfried Jentzsch, Wilhelm Rothe, "View from the 'Teufelsbrücke,'" near Gestinen, ca. 1810



The display of a "picturesque country life" was an integral component of large exhibitions and was employed in this form up until the end of the 1920s. Within the scope of the 1925 exhibition "Exposition internationale de la houille blanche et du tourisme" in Grenoble (which was dedicated to hydropower and tourism), a "Savoyarde village" could be admired. National and especially regional identity were not only communicated but also created in the process.
Whereas the panorama strove to create a sublime feeling, the "Swiss Village" of the world's fairs was a picturesque imitation of nature that was to be as true to life as possible. The panorama could therefore be seen as a "machine of the sublime," the diorama and the idealized village as a "theater of the picturesque." With all of these attractions, as different as they were, the dissimulation of the boundary proves to be essential, since it is the decisive factor in determining whether the desired effect is achieved or the artificiality is unmasked.

5 Louis Daguerre, Diorama, 1822

## City Dwellers Conquer the Alps: The Sublime as the Leitmotif of Alpine Reception

After the Alps had caused a furor in the cities, urbanites flocked to them flocked to experience the sublime in situ, staged in iridescent colors. As tourism began to develop, mountains were increasingly made accessible. Initially only negotiable via meandering, narrow roads, the longed-for heights could now be reached with the help of railways and cog railways, a technological advance that was introduced toward the end of the 19th century. The first Alpine grand hotels (see the chapter "Movement, Rapture, and Vertigo") sprang up in close proximity to the railway stations and at the most attractive locations. Here began the architectural history of all those projects that city folk erected in the Alps to follow their yearning for the highly publicized "sublime mountains."
The illusionistic image of the Alps was transferred from urban reproductions to the real mountains, thereby changing the way they were perceived. An interplay between the experience of the original and that of its reproduction developed. In the process, the sublime became the leitmotif of Alpine reception and the picturesque the modus vivendi. With the growing control over nature through science and technology, the feeling of human impotence when facing the wild mountains diminished. Toward the end of the 19th century the Alps no longer evoked horror, but rather aesthetic pleasure. The picturesque and, according to Price, more exciting experiencing of landscape now overlaid the sublime experience. Analogously, attempts were also made to further heighten the intense emotions evoked by the sight of the Alpine world and to not disappoint expectations (for example, through picturesque landscape parks featuring grottos, illuminated mountains, scenes with stuffed bears, and deer antlers in the entrance halls of the grand hotels).
Uvedale's proclaimed goal "of changing the landscape through pictures" fulfilled itself here, with the desired effect of "improving the landscape" through interventions, which intensified the experience of the Alps through sensual perception. The reciprocity between reality and picture was augmented by tourist advertising posters. The Alps were staged on them in a paradisiacal manner to inflame the passions. Through the staged illustrations of the landscape, the perception of the mountain landscape transformed. It was

broken down into single images resulting in a series of disjointed motifs. They created very specific clichés of a mountain world that was combined with concrete contents and uses. An advertising poster from 1912 illustrates how the image of the landscape was "improved" in the sense of the picturesque: the waterfalls in Giessbach, a true tourist attraction, were lit every evening, since they ultimately had to compete with the impressive staging of the dioramas. A number of grand hotels had located very close to the waterfalls in order to frame the roaring torrents of the illuminated natural spectacle through panorama windows. On the poster, the waterfall merges with the grand hotels and the railroad line through the lighting and, together with the twinkling starlit sky, optically creates an inseparable fusion of nature and culture.

Viewing the spectacular rapidly became one of the key motivations for travel. Siegfried Kracauer, a German philosopher and architect, stated that in the 1920s it was no longer a matter of the specificity of a location, but about foreignness per se. Instead of the pyramids, "any spot in the world whatsoever" would be described as exotic in so far as it "appears unusual from the perspective of any other point in the world," he declared, pointing to the "exoticization" of nature in the form of nature preserves: "This relativizing of the exotic goes hand in hand with its banishment from reality—so that sooner or later the romantically inclined will have to agitate for the establishment of fenced-in nature preserves, isolated fairy-tale realms in which people will still be able to hope for experiences that today even Calcutta is hardly able to provide. This is rapidly becoming the case."[104]

The creation of such fairy tale-like areas was already practiced by the Alpine grand hotels, as we are able to discern from the advertising posters. The staging of the Alps was stylized and exaggerated to such an extent—in order to achieve the wished-for emotive effects—that the reality could often only be a dull likeness of what had been announced with gleaming images and gushing words. Moreover, the descriptions in travel guides also contributed to the emergence of a very distinct image of the Alps that the tourists wanted to experience just as it was described. As soon as the actual impression failed to match expectations, disappointment arose. This is also linked to the rapid development of Alpine tourism, which had developed to such an extent in the second half of the 19th century that, through the presence of numerous other travelers, a certain deadening effect in regard to Alpine reception occurred. This finds expression in the satirical work *A Tramp Abroad* (1880) by Mark Twain, who poked fun at the "Baedeker tourists": "An old Englishman settled himself in his seat and said: 'Well, I am satisfied; I have seen the principal feature of Swiss scenery—Mont Blanc and the Goiter—now for home!'"[105] Twain had difficulty reconciling the descriptions of the "sublime mountains" with his own experiences, because the presence of other tourists constantly impaired his perception of the Alps. The experience of the individual became a collective experience, the individual experience an already pre-programmed attraction. This is the reason why the experience could no longer be sublime (it was no longer surprising and eerie, because it was already familiar and expected), but picturesque.

## The Physical Dimension of the "Sublime"

It is not only a matter of aesthetic-visual-intellectual perception but, beyond that, of the all-encompassing experience of the sublime—which also implies the body—as a travel account by George Sand attests to. In 1847, she had crossed the Alps in a horse carriage and remained deeply impressed by the peaks and gorges. In her memoirs *Histoire de ma vie* (1855), she described this as a horrific, vertiginous experience, at the same time "delightful" and "not without charm." The wild landscape evoked extreme emotions within her, which overlapped with her pain in parting: "When leaving Pierrette, when ascending a mountain with the extraordinary speed of the harnessed horses, when listening to the roaring mountain torrent in its incredible wildness, the soul chokes and a feeling of insurmountable horror freezes the heart. […] The route serpentines along the flanks of a deep gorge, along the walls of an abyss. The boulders slant and hang over the abyss. […] All of this appears horrible and delightful at the same time. I had fear, an incredible and ground-less fear, a fear of vertigo, which was not without charm. I was as if drunk and I felt like screaming."[106] This quote illustrates that the sublime is an elementary psychological experience connected with an intensive physical feeling.

6 "Swiss Village," Exposition Nationale Suisse, Geneva, 1896; Paris World's Fair, 1900

7 Giovanni Segantini, Design of an Engadin Panorama, Paris World's Fair 1900

Friedrich Studer, "Giessbach – On Lake Brienz – Waterfalls illuminated every evening," advertising poster, 1912

Karl Bickel, "Trümmelbach – Lauterbrunnen – Switzerland" advertising poster for the Trümmelbach Falls, 1929

**Racing through the Mountains of the Amusement Park**

The much-publicized travel accounts of the extreme psychological and physical experiences to be had in the Alps unleashed a collective wave of enthusiasm. In order to satisfy the resulting Alpine desire—similar to substitute drugs—various facilities were devised that artificially produced the thrilling effect and made it accessible to a broad public. However, it no longer had to do with harrowing contemplation, as with the panoramas, or with an eerie picturesque experience, in the case of the dioramas. Around 1900 it had considerably more to do with enabling an unconditional plunge into an artificial world of horror, which was to holistically capture the body, mind, and soul. Fake mountains were erected in amusement parks, exemplified by Dreamland at Coney Island, New York (built in 1904), which aspired to provide its visitors with holistic immersion (Project 8). The name Dreamland was symbolic, characterizing a country in which dreams carrying us into the illusory realm of extraordinary affective states in a split second can be experienced. Up to now these dreams had only been accessible (albeit in another way) to a certain social class.

By means of frantic speed and spine-tingling scenes, fear and horror were produced; the reality effect was ramped up even more by the use of icy temperatures, noises, and special effects. The visitors were placed into a type of limbo that made them lose their orientation. The titillating transgression of limits was achieved by ceding control over one's own body, which was willingly put at the mercy of the rush of movement and vertigo. Through a "total experience" one felt, if only briefly, liberated from the real world.

In his 1928 essay "Rollercoaster," Siegfried Kracauer gave the following description of the feeling of pleasure, of being released, and the unconditional letting-oneself-fall—self-abandonment—that could be experienced in the amusement


Otto Baumberger, "Höllgrotten Caves near Zug – Amazing stalactite caves," advertising poster, ca. 1931

parks: "The car begins to zoom. It dashes toward the abyss at speeds that cannot be measured. A single scream pierces the air. Everyone has to scream. […] These instincts, usually suffocated by the solid construction of things, are released by the solid confusion of the external, by the entwinement of facade and wood scaffolding. The insane tempo awakens them completely and now they are playing at insurrection. The car passengers scream out of the fear of being smashed to bits, they are horrified at the edge of the world; the picture of danger puts them into terror. Their screaming is elementary. […] It almost seems as if they are all screaming because they fully consider themselves to be redeemed. A shriek of triumph: we are here, we are floating amidst happiness, we are racing further and further along. This racing can mean death; it is also at the same time salvation. The scream continues. The game is brought to a close in an endless giddiness. The secrets of pitch dark tunnels are elucidated with lightning speed; blurred facades rush by. The world has become a wild scribble. These people who witness the plummeting of boulders, the rustle of lines, and the crescendoing din of pieces, are no longer workers, common people, and employees. They are people who exist in the moment, who, like flying lines, extend from one pole to another. From the mountain to the valley, from the heights to the depths and once again back up to the heights."[107]


Through the frenzied movement of the body and the horror associated with it, a disengagement from everyday life was possible. The crossing of boundaries etymologically contained in the term "sublime," which at the time of the Enlightenment applied primarily to the emotions, sense, and capacity of the mind, articulates itself here above all in a physical dimension. The relationship between the body and the imaginary was also addressed by Michel Foucault in *Le Corps utopique* (1966), where he identified the longing for the abandoning of one's own body, for incorporeality as the "most original form," that of a "body without body" (*corps incorporel)* which falls from a mountain and rises up again, alive: "It may be very well that the first utopia, the one most deeply rooted in the hearts of men, is precisely the utopia of an incorporeal body. The land of fairies […] is the land where wounds are healed with marvelous beauty in the blink of an eye. It is the land where you can fall from a mountain and pick yourself up unscathed. It is the land where you're visible when you want, invisible when you desire."[108]

The "utopian body" that flies over the mountains at the speed of light, falls, and rises again is the topos of a recurrent dream which traverses the history of humanity and surfaces at the beginning of the 20th century in the form of amusement parks. We already find the limbo of a "body without body" in the writings of Shaftesbury and Addison at the start of the 18th century as an imaginary flight over the mountains.

As the 20th century commenced, the incorporeal floating transformed into a truly viable body experience. Out of the contemplative floating came the frenetic plunging, the unrestrained losing of one's self in a sought-after attraction that confronted people with "nothingness" (see the chapter "Movement, Exhilaration, and Vertigo").

It is interesting, in the case of the artificial alpine attractions, that those factors Edmund Burke had listed 150 years previously when he investigated the causes creating the

experience of the sublime were employed: namely, fear and terror, suddenness, astonishment and passion, the cries of animals, clearness and obscurity, intermitting, smell and taste, sound and loudness, and a sense of infinity in the perception of unboundedness. Practically applied in diverse attractions in a variety of ways, Burke's theory of the sublime functioned as a sort of "instruction manual" for the artificial creation of the sublime.

**The Panorama as a Time Machine**

Film, particularly the breathtaking mountain films of the 1920s, surpassed and soon superseded the sensations that the panorama and all the other illusionistic contrivances could convey. Even if in another form, the panorama celebrated a renaissance through contemporary media technology: Jean Nouvel conceived a modern presentation of the panorama in a rusty cube in the middle of Lac Léman on the occasion of the Exposition National Suisse in 2002: On the top floor the historical panorama picture "The Battle of Morat" (painted by Louis Braun in 1894) was displayed; below it, through a narrow slit in the façade, the real panorama of Morat could be seen, while a gigantic multimedia show of modern-day Switzerland took place on the bottom floor.

Valerio Olgiati and Bonzi Verme Peterli's design of a panorama on the Gorner Ridge opposite the Matterhorn is a reinterpretation. The four seasons, already mentioned by Conrad Gessner, that can be experienced on a single day were to be made virtually tangible here by means of a time-lapse recording in less than half an hour. In this panorama building installed in the midst of the mountains, the circular view was no longer to be staged (it can be observed better outside in reality) but rather the dimension of time (Project 9). The "collapse of the perception of time and space"[109] was regarded in the postmodern philosophy of Jean-François Lyotard as a basic characteristic of the sublime. The panorama alludes to this experience by arbitrarily changing space and time.

8 Dreamland, Coney Island, New York, 1904–1911

Valerio Olgiati with Bonzi Verme Peterli, Design of the Gornergrat Panorama, 2011

9

*Fête de l'Être suprême* (Festival of the Supreme Being), June 8, 1794

## 1 *La Montagne* as a Symbol of Liberty in the French Revolution, 1794

During the Revolution, France's proclaimed secularism needed strong symbols to replace the previous religion with a *réligion révolutionnaire*, based on the new principles of liberty, equality, and fraternity. Mountains were used for this purpose, and stylized into a symbol of liberty.

Since the foundation of the constitutional monarchy, those parliamentarians who sat in the upper left-hand ranks and supported the foundation of the republic had been called *Les Montagnards*. This designation may have originally been ascribed to the political defense *Lettres écrites de la montagne* (1763–1764, burned during the Age of Absolutism in Paris and La Haye), whose author Jean-Jacques Rousseau was an intellectual model for the democratic revolutionary movement. The name may also be related to the political topography of the movement, whose seat was on Montagne Sainte-Geneviève in Paris, while the financially powerful right, called *Le Marais*, lodged in the plain on the right bank of the Seine.

Soon afterward, *la montagne* became a symbol of liberty for the young republic: When *La Fête de l'Être suprême* (The Festival of the Supreme Being) took place on June 8, 1794 (*le 20 prairial de l'an II*, year II of the newly introduced calendar), artificial hills were erected on all the squares of French cities. In Paris, it was in the middle of the so-called Champ de la Révolution (the former Champ de Mars), crowned by the "Tree of Liberty," next to it "the Statue of Reason," enthroned on a classical column. As the head of the National Convention delegates, Robespierre had led the procession of the singing and music-making crowd. The hymn to the "Supreme Being" acoustically underpinned the ceremony, which ended with the roar of cannons and gigantic fireworks.

VUE DE LA MONTAGNE ELEVÉE AU CHAMP DE LA REUNION

*pour la fête qui y a été célebrée en l'honneur de l'Etre Suprême le Decadi 20 Prairial de l'an 2de de la Republique Française.*

*A Paris chez Chereau Rue Jacques, aux deux Colonnes, près la Fontaine Sorcin, N.o 257.*

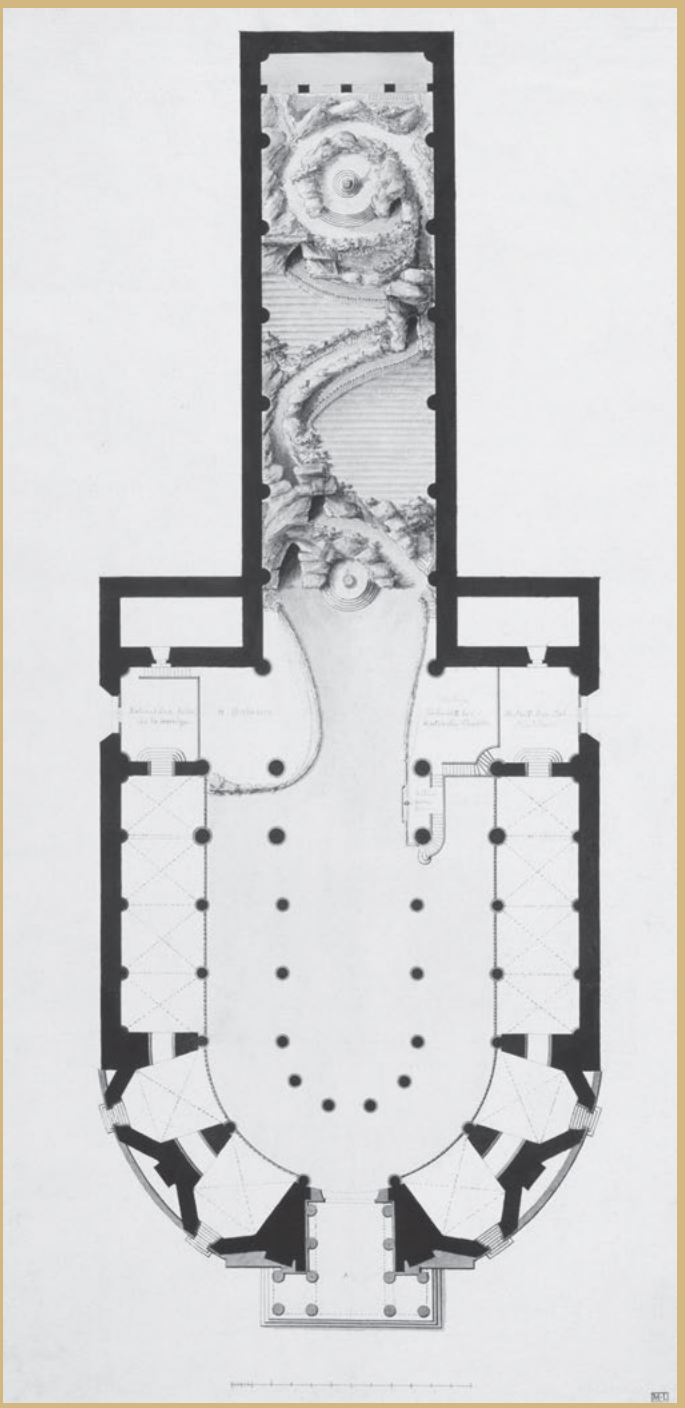
## 2 Artificial Mountains as *Temples de la Raison*, 1793

Robespierre's regime, which is also referred to as *La Terreur* owing to numerous persecutions and executions, pursued a vehement anti-clericalism. After the decree of November 23, 1793, the practice of "religious cults" was forbidden, the churches were stripped of their congregations and converted into so-called temples of reason (*Les Temples de la Raison*).

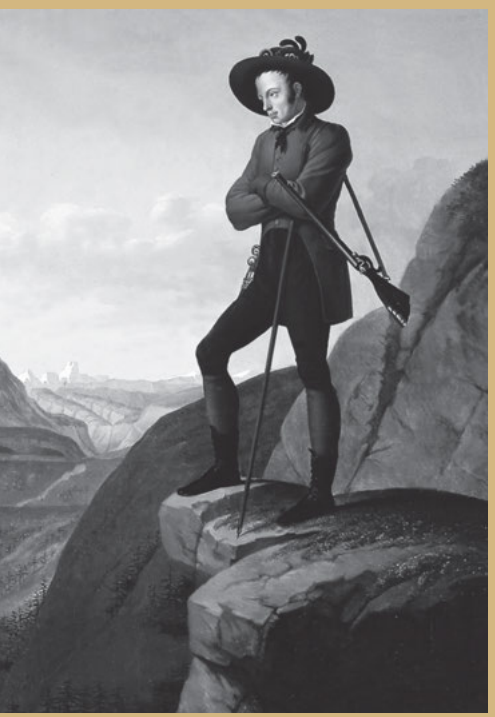
Particularly active during the time of the revolution, the architect Alexandre-Théodore Brongniart (1739–1813), who had built the Theâtre de la Montagne in Bordeaux, was commissioned to convert the Gothic Saint-André Cathedral in Bordeaux into a *Temple de la Raison*.[110]

For *La Fête de la Raison* (The Festival of Reason) on December 10, 1793 (*le 20 frimaire de l'an II*), he conceived a radical transformation of this cathedral,[111] which was to be used the other way round from now on. The building was to be entered through an opening broken into the apse and exited in the direction of the former main entrance. The choir would now serve as a kind of porch to the new sanctum, the artificial mountain, laid out at the intersection of the nave and the transept. A meandering path was to lead to its summit at the height of the organ and the "Statue of Liberty" sitting atop it. Artificial grottos, hedges, and small groups of trees, based on the English model of a picturesque landscaped garden, were to adorn the mountain.[112] The French garden could not serve as a model, because its strict Baroque garden architecture was an expression of absolutism and not sustained by democratic considerations.

The plan was to eradicate the sacral architecture and place an artificial mountain, which stood for the new social order, at the center of contemplation. The mountain illustrated the sublime; as a visual symbol of the "higher," it was to represent the ideals of the republic. The sublime thus became the political instrument of a nation that sought not only to achieve the "quest for the higher" socially and politically but also to stage it spatially. The fact that the initial aspiration for liberty soon became a pompous celebration of a regime opposed to Catholicism is connected with the anti-revolutionary policy of the pope.



Alexandre-Théodore Brongniart, project for a mound for the "Festival of Reason" in the Cathédrale Saint-André, Bordeaux, 1793



Johann Huber (after Johann Peter Krafft, 1817), "Archduke Johann on the Hochschwab," 1839

**3 Wolfgang Hagenauer, Bathing Palace in Wildbad Gastein, 1791–1794**

Gastein's healing power was known early on thanks to its extraordinary location by a waterfall, its springs, and tunnels. The Wildbad (the Gastein Hot Springs) experienced its first heyday in the 16th century before the plague, earthquakes, fires, and floods led to stagnation. Toward the end of the 18th century, the Salzburg Archbishop Hieronymus of Colloredo initiated its reactivation. From 1791 to 1794 he had a classicist palace built according to plans by Wolfgang Hagenauer and resided there from 1794 to 1800 during his summer spa stays. The palace was converted into a public health resort in 1807, extended by a spa resort—accessible over a bridge—on the other side of the waterfall. It was demolished down to the level of the first floor and rebuilt in 1857. Only the classical portal featuring dark green serpentine rock (Gastein marble) remains of the erstwhile princely furnishings.

Ferdinand III, who had exchanged the Grand Duchy of Tuscany for the Electorate of Salzburg, promoted the resort by creating a bathing commissariat in 1804 and establishing coach services between Salzburg and Gastein. On his tour through the province of Salzburg, which had been passed to Austria in 1805, Emperor Franz II/I also came to Gastein in 1807 to get an idea of the necessary innovations of the current imperial and royal bath. He recognized the economic importance of the healing springs and prompted the construction of a new pipeline for the spring to protect it against contamination. Ultimately, he decided to implement a project that had already been drawn up and which Archbishop Ladislaus Pyrker helped finance, in order to redirect the thermal spring water to Hofgastein (1828–1830).
Archduke Johann, a younger brother of the Austrian Emperor, fell in love with the Wildbad Gastein during his first spa stay in 1822 and had a small villa built in 1828 in the immediate vicinity of the town, which he visited annually with his wife Anna, Countess von Meran, born as Anna Plochl, the daughter of the postmaster of Bad Aussee. In the end, Archduke Johann was to go down in history as a great patron of Styria. Franz II/I had forbidden his brother to stay in Tyrol, since he supported the Tyrolean freedom fighters. Johann loved the mountains because they were the epitome of freedom for him, as he wrote in his diary:
"Where has freedom been maintained, where has it been asserted, where is heart, courage, love for the homeland, firm belief, faithfulness, harmlessness, simplicity of custom still to be found other than in the mountains!"[113]

This concept of freedom, which went hand in hand with a pure, unspoiled image of the Alps, brought fast-growing, international tourism to Gastein as well. The wild character of the natural bath was especially appreciated by English visitors, in whose honor an "English coffee house" was set up, as can be seen in a painting from 1850. The Wildbad attracted numerous famous personalities, for example, Franz Grillparzer, Arthur Schopenhauer, Franz Schubert, Wilhelm von Humboldt, Emperor Franz Joseph I, Kaiser Wilhelm I, Otto Prince von Bismarck, Empress Elisabeth, and many others. Between 1871 and 1905, the number of guests tripled. Empress Elisabeth (1837–1898) wrote a melancholy poem during her first extended stay in Bad Gastein.
She hoped for an all-encompassing healing by nature, a recovery of body and soul in the hot, almost "mystical" spring of the native wild mountains:

Thomas Ender and Josef Kuwasseg, "Wildbad Gastein," loose leaf showing Bad Gastein and environs, 1850

**Gastein**
Nur kranke Glieder dachte ich zu bringen,
wo mystisch deine heißen Wasser springen,
geheimnisvoll versagend und ertheilend,
hier jede Hoffnung raubend, dort heilend.
Doch wie der Hirsch von trauter Heimatstelle,
den Pfeil im Herzen, sich flüchtend an die Quelle,
So bring ich dir ein Herz, zu Tode verwundet;
vernarben mag's, doch ob es je gesundet?

Brief von Kaiserin Elisabeth, 1. Juli 1886

**Gastein**
Only sick limbs I thought to bring
to where your hot water mystically springs
mysteriously failing and conferring,
consuming all hope here, healing there.
But like the stag of the familiar homeland,
arrow in its heart, fleeing to the source,
I bring you a heart, wounded to death;
scarred, but will it ever heal?

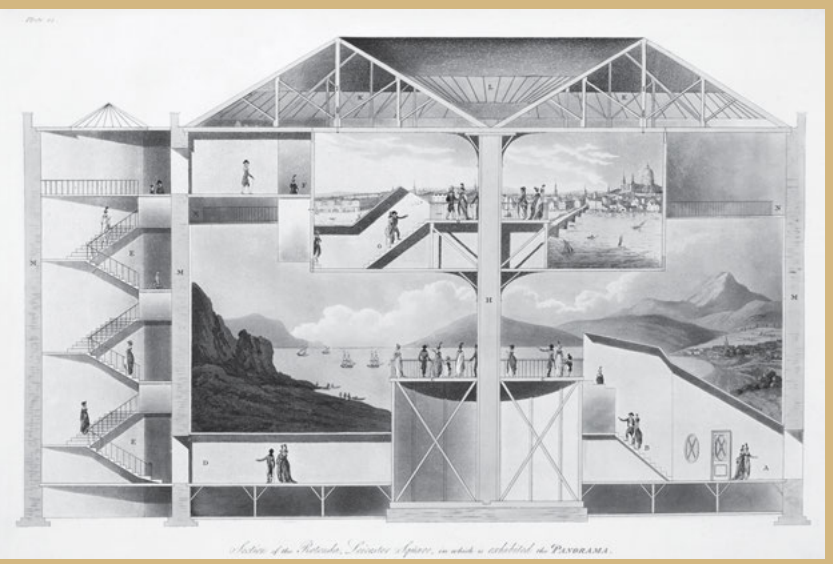
Letter from Empress Elisabeth, July 1, 1886

Robert Mitchell, Panorama, Leicester Square (1792), in "Plans, and views in perspective," section, 1801

Johann Baptiste Isenring, Gäbris panorama

**4 Robert Barker's Panorama, Architect Robert Mitchell, London, 1793(–1864)**

In 1787, the Irish painter Robert Barker (1739–1806) designed the first circular panorama painting, "View of Edinburgh,"



which he exhibited in the same city. On June 19 of the same year, he patented his invention, first calling it "La Nature à Coup d'Œil," before coining the term "panorama," composed of the Greek words *pan* (all) and *horama* (view), in 1792. He was looking for a medium that "organizes the visual experience."[114] To present his panoramic paintings in an adequate exhibition space, he commissioned the architect Robert Mitchell in 1792 to design a wooden rotunda for Leicester Square in London according to the specifications of his patent. The panoramic paintings were to be exhibited in a cylindrical building in such a way that the upper and lower edges of the canvas would not be visible to viewers standing on a central platform. The platform must have a certain distance from the image so as not to disturb its observation. The light is to come in from above while visitors step into the room from below, so as to not interrupt the circular shape. Furthermore, with regard to the profitability of the investment, he arranged two panoramic images at the same time.

The paintings lined the interior walls of the rotunda, which opened on May 25, 1793, depicting remote cities and landscapes or historical scenes. By temporarily immersing in another environment or time, visitors were able to escape everyday life for a moment and to "travel" to those places actually reserved for wealthy people at the price of only one shilling (per painting). There was a particular ritual, a special introduction, that could enhance the image's surprise effect: coming from the entrance, visitors were channeled through the darkness into the light—via a dark corridor and over a curved staircase to the first viewing platform, where the splendor of the panorama landscape, illuminated by the bright light falling through a continuous glass skylight on the roof, overwhelmed them. The sight amazed the viewers and gave them the impression of being in the center of a virtual world.

Visitors were subsequently taken down the same corridor to a spiral staircase, which opened up to a slightly smaller viewing platform above. It offered a different scene, mostly pictures (or stations) with opposing motifs, giving the visitors the impression of travelling from a distant city to a strange landscape, or taking a time journey into history. Air was blown in by fans placed under the platform, giving the impression of a fresh breeze.[115] After the patent period had expired in 1802, numerous painters also began to paint panoramas that turned out to be a great public success and went from one place to another. Atmospheric music accentuated the panorama landscape experience, while march music lent the historical battles more authenticity.

Alexis Donnet, "Diorama and Waxhall," sheet 23, section (t) and plan (b), 1837–1840

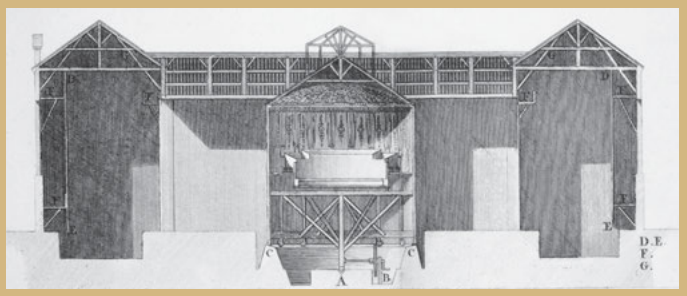
**5 Louis Daguerre, Diorama, 1822**

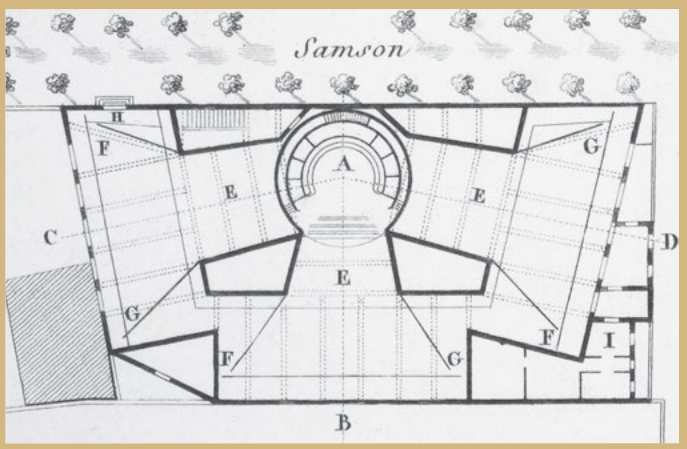
Louis Daguerre (1787–1851) invented the diorama in 1822, for which he developed special effect pictures in collaboration with Charles Marie Bouton. Both worked as assistants to Pierre Prévost, the first French panorama painter, and at the same time as theatrical painters. During this period, they explored new techniques that were to flow into their later invention: transparent painting, a young, sensational medium, and the staging of a theater space through lighting effects, which had inspired some stage designs from 1803 onward. The diorama they developed was a spatial contrivance that staged landscape and created the illusionistic experience through a double picture-frame stage. Presented in a specially designed architecture, the scenes required extremely complicated superstructural parts and had to be permanently installed. As a result, the stage scenery did not revolve around its axis, as in a theater, but the whole audience area, holding about 350, mostly standing people, rotated from one scene to the next. This meant that two, and later in England even three, different large-format scenes could be played one after another for a span of fifteen minutes each. The 7.3-meter-wide and 6.4-meter-high proscenium hid the edges of the screen in front of the audience, so as not to interfere with the reality effect of the scenery.

The partially transparent canvas, painted on both sides, either opaque or translucent depending on the desired effect, was animated by alternating lighting: on one side of the canvas, for example, one landscape was shown by day; on the other side, the same motif at night. The audience saw the side facing them, showing the landscape in the light of day when the light fell on that surface of the screen; however, to bring out the image on the other side, it was backlit, so to speak, from above, so that no outlines of any actors who might be there were to be seen. Gentle transitions could be created when both lights fell on the screen simultaneously. Additional special effects were generated using various color filters; even fire was used.

In Daguerre's Diorama in the tenth arrondissement of Paris, near La République, which burned down in 1839, the infamous "Landslide in the Valley of Goldau in Switzerland"[116] was shown. On one side of the picture was the mountain before the disaster, on the other, the terrible devastation after the catastrophe. In 1823, just a year after the first diorama was constructed in Paris, Daguerre opened one in London, at Regent's Park, built by architect Augustus Charles Pugin. The show was a success because the audience had the impression of being in the middle of the action.

From 1830 onward, the English artists Clarkson Stanfield and David Roberts developed even more elaborate dioramas, equipped with acoustic effects and involving actors to increase the total immersion.



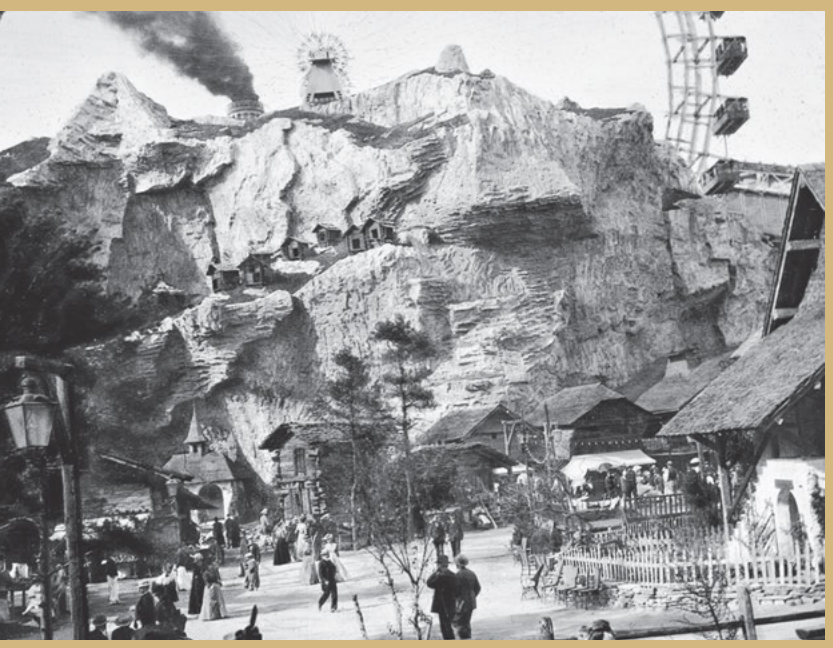


"The Swiss Village," with Ferris wheel in the background, Paris World's Fair, 1900

**6 "Swiss Village," Exposition Nationale Suisse, Geneva, 1896; Paris World's Fair, 1900**

"Swiss identity" showed itself in the form of a "typical" village in which everything was installed artificially. Over a terrain measuring 23,191 square meters, the architects Paul Bouvier and Aloys Brémond (with the help of the architect Edmond Fatio and the painter Francis Furet) built 56 houses and wooden cabins, originals or plaster imitations, as well as three farms with stables, 18 original *mazots* (huts) and a church. The backdrop was a 40-meter-high artificial mountain landscape with a waterfall, which dropped 166 liters of water per second, about six million liters per day, into the valley. An authentic flair was provided by 353 "residents" dressed in different costumes, while 33 Swiss companies presented their products and 22 policemen made sure things ran smoothly.

More than a million visitors viewed the "Swiss Village," sometimes up to 40,000 per day. Even those who had previously expressed their skepticism and sarcasm were ultimately convinced—thanks to the faithful replicas, as Gaspard Vallette, a reporter of the Commission du Village suisse, enthused: there was an "absolute illusion of authenticity" because the "wonders of true Switzerland were placed in the middle of the magnificent exhibition architectures."[117]



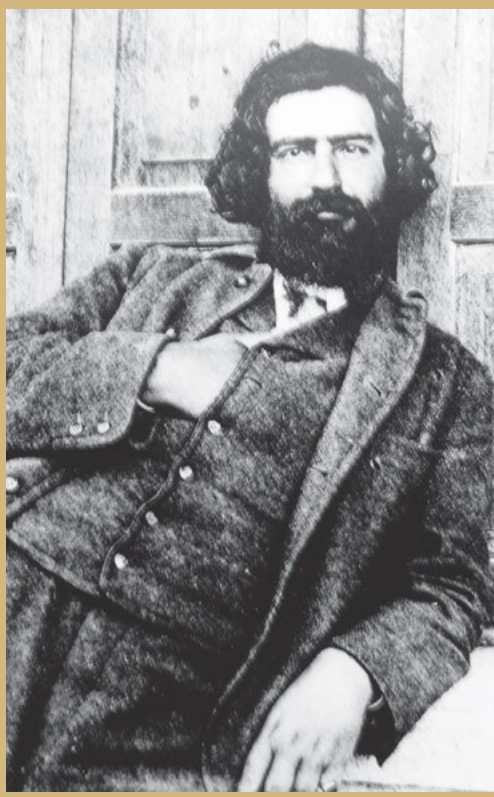
Similar to the panorama and diorama, the ensuing illusion was intended to take effect without any disruption. To achieve this, the boundaries had to be unrecognizable and the objects replicated as accurately as possible. Country life was staged realistically and the supposed inhabitants acted as if on a theater stage (like the actors who were to increase the authenticity effect in the dioramas). Visitors integrated into the picture were able to watch the farmers and craftsmen at their work without embarrassment. This kind of "life experiment" was a popular means in the 19th century of creating emotions through exoticism.

Due to its great success in Geneva, a "Swiss Village" was exhibited at the World's Fair in Paris in 1900, this time according to the plans of the Swiss garden architects Henry Correvon and Jules Allemand (who had already designed the "Swiss Garden" at the Exposition Nationale Suisse four years previously). The village's 21,000-square-meter area was adjacent to the Champ de Mars, just off the main axis of the World's Fair. A giant Ferris wheel towered over the mountain backdrop and gave the ensemble a somewhat bizarre touch, as evidenced by contemporary picture postcards.

Since the architects of the "Swiss Village" placed value on as authentic an appearance as possible, they had houses in the most remote villages in Switzerland taken apart and reassembled in Paris. The different parts of the village and types of houses were named after regional Swiss capitals, so fairgoers could leisurely stroll through Bern and Lausanne without having to travel there. This village was enlivened by 300 "farmers" and various "artisans" (woodcarvers, embroiderers, and lace crocheters) in traditional garb.

"The Swiss village is Switzerland in Paris," an advertising brochure proclaimed. The artifact represented Swiss national identity; it was considered an "animated synthesis" of the "small, original country" whose "natural beauty generates the admiration of thousands of tourists from all over the world each summer."

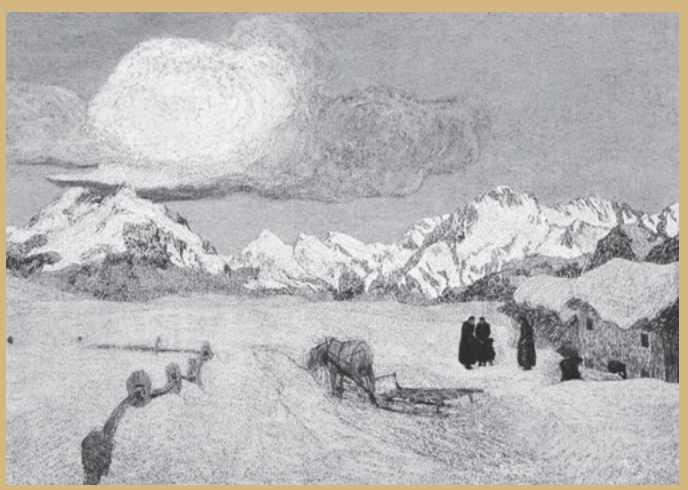
Giovanni Segantini, 1898



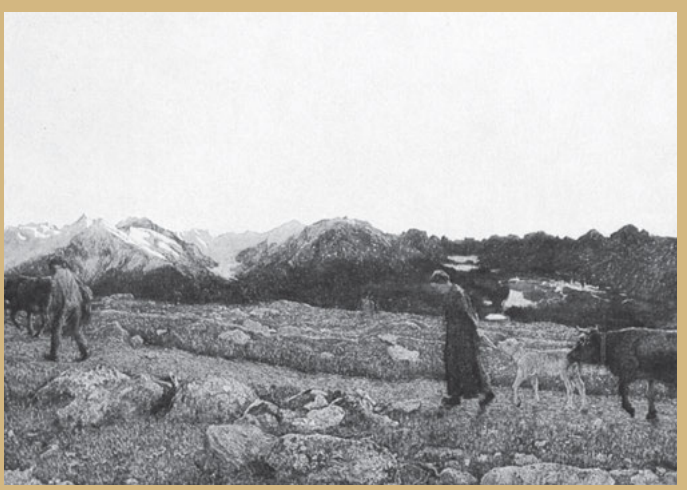
**7 Giovanni Segantini, Design of an Engadin Panorama, Paris World's Fair, 1900**

Giovanni Segantini (1858–1899), originally from Arco in Trentino (which was then part of the Austrian Empire), designed an Alpine panorama in 1900 for the Paris World's Fair. According to his plan, a rotunda in iron construction with a total surface area of 3,850 square meters, "in the best tradition of the panorama of the 19th century," was to present "the recreation of the natural beauties of the Engadin by means of artistic and sculptural illusionism."[118] The entrance and views afforded by this Engadin panorama ("Alpine Symphony") were special and therefore differed from previous panorama buildings. Instead of the corridor, the spiral staircase, and the viewing platform, the artist envisioned a mountain with a spiraling uphill path. This would have had the advantage of conveying the many aspects of the landscape to visitors, who would be obliged to keep circling the mountain to reach its summit. Arriving at the peak, they could let their gaze wander 360 degrees and grasp the full extent at once: the very same landscape over the course of the four seasons. In physical terms, not least because of the spiraling ascent, the visitor would have symbolically experienced a cyclical journey through time. This panorama was to offer not only a visual perspective, as had been usual up to that point, but an overall experience based on total immersion: extras disguised as farmers and real animals, as "inhabitants" of the artificial mountain, were to increase the sense of authenticity.

However, the project remained in the draft phase, as Segantini's clients, the hoteliers of St. Moritz, canceled for financial reasons (just the rent of the site alone cost one million francs). He then created a monumental Alpine triptych—"La Vita" (Becoming), "La Natura" (Being), "La Morte" (Passing)—which was to be shown instead of the panorama at the World's Fair. While painting in an exposed position on Schafberg Mountain, he fell ill and died soon afterward. The triptych is on display today at the Segantini Museum in St. Moritz, erected by Nicolaus Hartmann in 1908 in a specially constructed rotunda in memory of the circular building, which the painter had built as a model (at a scale of 1:10) for his planned Engadin panorama at the Paris World's Fair.



Giovanni Segantini (1858–1899), Alpine triptych, "Death," 1898–1899



Giovanni Segantini, Alpine triptych, "Nature," 1898–1899

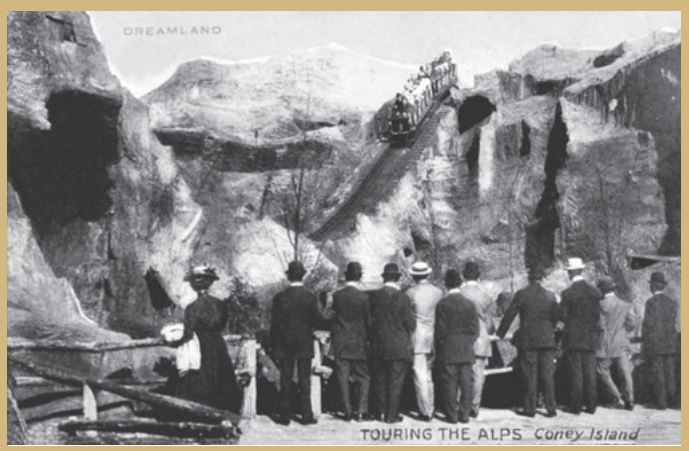
Dreamland, "Luna's Mountain Torrent," Coney Island, New York, 1906 (t)

Dreamland, "Touring the Alps," Coney Island, New York, 1907–1911 (b)

8 **Dreamland, Coney Island, New York, 1904–1911**

The sensations of the Dreamland amusement park in New York included various artificial mountains that thrilled the audience in various ways. They offered the opportunity for frantic speed as well as more contemplative amenities, plus a fully air-conditioned snowscape that captured all the senses.

"Over the Great Divide"[119] was a breathtaking attraction relying on fear and terror. A papier mâché mountain landscape was the starting point for a spectacular ascent and descent. An electrically powered train pulled its passengers up a steep rise to a height of 15 meters in order to then rush down the valley at high speed, traversing tunnels and gorges and crossing a 21-meter-long bridge, which led to a second mountain. The wagons climbed high up this to a "spewing volcano," to land after another descent in the midst of an artificial mountain lake, whose water splashed when braking.


A serious accident happened in 1907, when a two-car train derailed as it was about to shoot down a steep incline into a dark tunnel, injuring a dozen people.

"Coasting through Switzerland," designed by architect Thomas J. Ryan, took place in a hermetically sealed room. Paintings of snow-capped Alpine peaks decorated the façade of the building, vaguely announcing what would happen inside: the first fully air-conditioned landscape, providing a refreshing mountain atmosphere as a counterpoint to hot Manhattan. Like most dreamlike trips, this one started with a distinct threshold area that separated the outer world from the inner one: the audience traveled in a red sleigh, with cold air blown up from its benches, over a 150-meter-long tunnel to the inside, past roped climbers about to scale a steep summit—until a rope suddenly snapped, seemingly without warning, and one of the party dramatically plunged into the depths to cries of alarm from the audience.[120] The subsequent picturesque scenes, filled with "Swiss life," made it possible to forget the initial shock. A view of the Mont Blanc was the highlight of the journey; a gentle slope brought the travel experience to a pleasant end.

"Touring the Yellowstone" offered a different experience: the entrance to the ride lay at the foot of a miniature mountain, where a train awaited visitors. Once they were sitting comfortably in it, it began to vibrate, suggesting its locomotion, while in reality the landscape passed by. This was painted on a 1.2-kilometer-long scrolling canvas, displaying all possible attractions, regardless of their real geographic location or spatial sequence: Fort Yellowstone, Hot Springs Terraces, Black Glass Mountain, Upper Geyser Basin, Old Faithful Geyser, and Morning Glory Pool.

Most of Dreamland's attractions burned down during a major fire in 1911.

Valerio Olgiati with Bonzi Verme Peterli, "Panorama Gornergrat," computer rendering (t) and section (b), 2011

**9 Valerio Olgiati with Bonzi Verme Peterli, Design of the Gornergrat Panorama, 2011**

The unexecuted design by Valerio Olgiati and Bonzi Verme Peterli of a panorama on the Gornergrat Mountain was intended to reinforce the "mountain experience." The building

for it was to stand at an elevation of 3,100 meters, opposite the Matterhorn, where a panorama of more than twenty peaks of the Alps, including Monte Rosa and Mount Lyskamm, opens up.

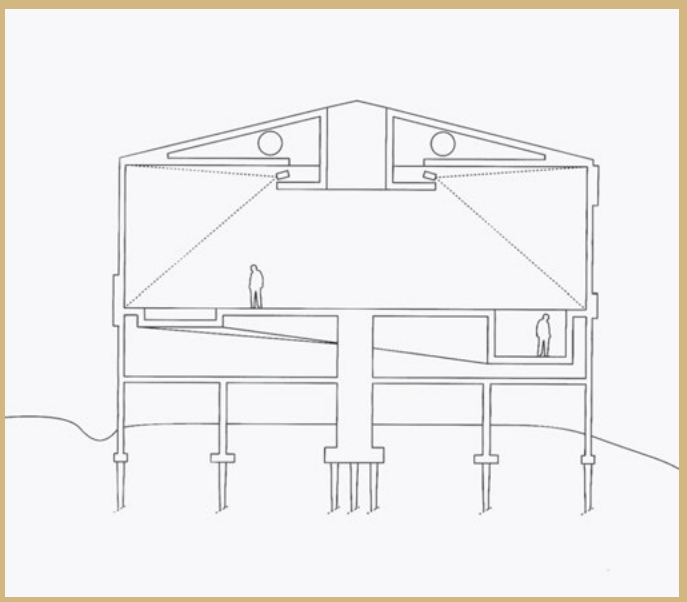
Since this panoramic building was not to be located in the city, as was common in the 18th century, but rather in the middle of the mountains, the architects designed a new panoramic typology.

A spiral ramp leads visitors into a circular projection room 20 meters in diameter. There they experience an audiovisual video projection that depicts the seasonal changes in the Matterhorn and gives the impression of traveling back in time or into the future with a time machine.

To enhance the visual experience through an outdoor experience, the monolithic structure is not hermetically sealed: through zenithal openings located in the center of the building, as well as at the four corners between the round roof (which covers the circular projection room) and the square shape of the outer walls, light, rain, snow and fog, warm or cold air can get inside, blending virtual reality with the real world.

On the building envelope of the "erratic block"[121] made of white exposed concrete, slightly protruding concrete ribs are reminiscent of the lines of minerals, visually anchoring the structure in the geometry of the landscape.

In connection with his autobiographical iconography, Valerio Olgiati explained in an interview that he strives to create an architecture that is "ultimately non-referential" and generates something new. But as this is hardly possible, he feels forced to "design an architecture that in the end is 'merely' abstract and therefore, if possible, dense and rich."[122] He therefore freed the building for Peak Gornergrat from cultural and stylistic references in order to inscribe it into a geometricaly abstract principle consisting of a circle and a square in the layout. The expectation of the visitors is to be led astray by the absence of stylistic references. They experience another type of destabilization through the zenithal hole (reminiscent of the pantheon archetype) and the interstice that opens to the sky and directly confronts them with the elements of nature. This introverted panoramic cube has something archaic and mysterious about it; in its timelessness, the abstract form seems to stand up to the mountains.



**1** Victor Hugo, "Fragment d'un voyage aux Alpes" (1825), in *Œuvres complètes de Victor Hugo: En voyage*, vol. 2, *France et Belgique, Alpes et Pyrénées, Voyages et Excursions* (Paris: Ollendorff, 1910), 12. Translated in Adèle Hugo, *Victor Hugo*: *A Life Related by One Who Has Witnessed It; Including a Drama in Three Acts, Entitled Inez de Castro, and Other Unpublished Works*, vol. 2 (London: Wm. H. Allen & Co, 1863), 124.
**2** Alexandre Koyré, introduction to *From the Closed World to the Infinite Universe* (Baltimore: Johns Hopkins Univ. Press, 1957), 2.
**3** Théophile Gautier, "Vue de Savoie et de Suisse," *Le Moniteur universel* (June 16, 1882), in *Impressions de voyage en Suisse* (Lausanne: L'Âge d'Homme, 1985), 83.
**4** Longinus, *De sublimitate* (*Peri hypsous*). This book was initially attributed to the scribe Cassius Dionysius Longinus (213–273), then Dionysius (Dionysios of Halikarnassos, 1st cent. BC). Since the author could not be clearly identified, he went down in history as Pseudo-Longinus. Source: G. M. A. Grube, *Longinus: On Great Writing (On the Sublime), Translated, with an Introduction* (New York: The Liberal Arts Press, 1957).
**5** Longinus, "Traité du sublime ou du merveilleux dans le discours," chap. 1 (introduction), in Nicolas Boileau Despréaux, *Oeuvres diverses du Sieur D *** avec le traité du sublime ou Du merveilleux dans le discours, traduit du grec de Longin* (Paris: Denis Thierry, 1674) [=Longinus 1674], n.p. Translated by Nicholas Rowe as "A Treatise of the Sublime," in *The Works of Monsr. Boileau Despréaux*, vol. 2 (London: E. Sanger & E. Curll, 1711) [=Longinus (1674) 1711], 141.
**6** Longinus 1674, chap. 1 (introduction), n.p. Translated by Stephen Halliwell as *On the Sublime*, Loeb Classical Library, vol. 199 (Cambridge, MA: Harvard University Press, 1995) [=Longinus (1674) 1995], 163.
**7** Longinus (1674) 1995, 149: Longinus's five points are: the grandeur of thought, strong emotions, certain figures of thought and speech, noble diction, and dignified word arrangement.
**8** Longinus 1674, chap. 6, "Les Cinq Sources du Grand," n.p.
**9** Longinus (1674) 1890, 46.
**10** Marjorie Hope Nicolson and William Cronon, eds., *Mountain Gloom and Mountain Glory: The Development of the Aesthetics of the Infinite*, rev. ed. (1959; repr. Seattle, London: University of Washington Press, 1997), 31f.
**11** Longinus 1674, chap. 1 (introduction).
**12** See William Barton, *Mountain Aesthetics in Early Modern Latin Literature* (London, New York: Routledge, 2017).
**13** Francesco Petrarch, "The Ascent of Mount Ventoux" (1364), in Ernst Cassirer, Paul Oskar Kristeller, and John Herman Randall, eds.,*The Renaissance Philosophy of Man* (Chicago: University of Chicago Press, 1948) [=Petrarch (1364) 1948], 36–46.
**14** Ibid. | **15** Ibid. | **16** Ibid.
**17** Heinz Hofmann, "Francesco Petrarca, der Mont Ventoux und die literarische Textur der Erinnerung," *Le Portique* 13–14 (2004), repr. *NZZ*, December 24, 2011 . Hofmann pointed out that Petrarch's letter was not immediately written after the ascent, but only many years later: "The theological and philosophical symbolism and the dense literary-allegorical nexus that characterizes the epistle text presume an intellectual development that Petrarch first underwent around 1352/1353."
**18** Saint Augustine, *The Confessions of Saint Augustine*, trans. E. B. Pusey, bk. 10 (Oxford: James Parker and Co. and Rivingtons, 1876), 190. Cited in Petrarch (1364) 1948, 36–46, Lat.: "Et eunt homines admirari alta montium et ingentes fluctus maris et latissimos lapsus fluminum et occeani ambitum et giros siderum, et relinquunt se ipsos."
**19** Petrarca (1364) 1995, 25.
**20** Petrarch (1364) 1948, 36–46.
**21** Ruth and Dieter Groh, *Weltbild der Naturaneignung, zur Kulturgeschichte der Natur: Zur Kulturgeschichte der* Natur (1991; repr. Berlin: Suhrkamp, 2004), 36.
**22** Ibid., 112.
**23** Conrad Gessner: "Libellus de lacte et operibus lactariis" (Zurich, 1541). Cited in Jens Awe, "Berge mit Licht- und Schattenseiten," in Walter Regel, Hartmut Köhler, eds., *… hoch gerühmt, fast vergessen, neu gesehen …: Der italienische Maler und Poet Salvador Rosa; Studien zur Neubewertung* (Würzburg: Königshausen u. Neumann, 2007), 88. Translated in John Hale, *Civilization of Europe in the Renaissance* (New York, London: Touchstone, 1995), 534, Lat.: "Constitui posthac […] quotannis montes aliquos, aut saltem unum conscendere, cum in suo vigore plantae sunt, partim earum cognitionis, partim honesti corporis exercitii animique delectationis gratia. Quanta enim voluptas, quantae sunt putas animi, ut par est, affecti deliciae, montium moles immensa spectaclo admirari et caput tanquam inter nubes attollere? Nescio quo pacto altitudine stupenda mens percellitur, rapiturque in summi illius architecti considerationem."
**24** Gessner (1541) 2007, 89, Lat.: "Quod quaeso aliud intra naturae quidem limites, honestius, maius & omnibus absolutius numeris oblectamenti genus inuenies?"
**25** Gessner (1541) 2007, 89.
**26** Johannes Hanhart, *Conrad Gessner: Ein Beytrag zur Geschichte des wissenschaftlichen Strebens und der Glaubensverbesserung im 16. Jahrhundert, aus den Quellen geschöpft von Johannes Hanhart* (Winterthur: Steinerische Buchhandlung, 1824), 179f.
**27** Gessner was interested in the *Cosmographia universalis* by Sebastian Münster (Basel: Henri Petri, 1572), which published all the information about the globe, such as maps, measuring instruments and scientific findings; however, he was not invited to collaborate. See Sophie Linon-Chipon, Daniela Vaj, *Relations savantes: Voyages et discours scientifiques* (Paris: PUPS, 2005), 182f.
**28** Ibid., 182.
**29** Augustine, in Petrarch (1364) 1948, 36–46.
**30** See Dmitri Levitin, *Ancient Wisdom in the Age of the New Science: Histories of Philosophy in England, c. 1640–1700*, Ideas in Context 113 (Cambridge: Cambridge University Press, 2015).
**31** Francesco Robertello, *Dionysi Longini rhetoris praestantissimi liber de grandi sive sublimi orationis genere* (Basel, 1554), new Latin edition of Longinus's *Peri hypsous* (translated from Ancient Greek).
**32** John Milton, *Paradise Lost: A Poem in Twelve Books* (1667; Birmingham: printed by John Baskerville for J. and R. Tonson in London, 1759), bk. 12, lines 463–465: "Whether in Heav'n or Earth, for then the Earth / Shall all be Paradise, far happier place / Than this of Eden, and far happier days." and bk. 12, lines 585–587: "Of all the rest: than wilt thou not be loath / To leave this Paradise, but shalt possess / A Paradise within thee, happier far."
**33** Thomas Burnet, *The [Sacred] Theory of the Earth, Containing an Account of the Original of the Earth, and of All the General Changes which it Hath Already Undergone, Or is to Undergo Till the Consummation of All Things* (1681/1689 Lat.; 1684/1690 Engl.; 3rd ed. London: printed by R.N., for Walter Kettilby 1697) [=Burnet (1681) 1697].
**34** Burnet's work, however, did not go uncriticized; Newton himself wrote to him about augmenting the speculative cosmogony with a scientific thesis (concerning the length of the days), which Burnet decisively rejected.
**35** Ibid., 53: "And so the Divine Providence, having prepar'd Nature for so great a change, at one stroke dissolv'd the frame of the old World, and made us a new one out of its ruines, which we now inhabit since the Deluge."
**36** Ibid., 47. | **37** Ibid., 95. | **38** Ibid., 100.
**39** Ibid., 98. | **40** Ibid., 96. | **41** Ibid., 94f.
**42** Ibid., 95. | **43** Ibid., 100.
**44** See Harry Gilbert Paul, *John Dennis, His Life and Criticism* (New York: Colombia University Press, 1911) and Hope Nicolson (1959) 1997.
**45** John Dennis, *Miscellanies, in Verse and Prose* (London: printed for James Knapton at the Crown in St. Paul's Church-Yard, 1693), 138.
**46** Ibid., 139. | **47** Ibid., 134. | **48** Ibid., 134.
**49** Ibid., 138f. | **50** Ibid., 139. | **51** Ibid., 139.
**52** Andrew Ashfield and Peter De Bolla, *The Sublime: A Reader in British Eighteenth-Century Aesthetic Theory* (Cambridge: Cambridge University Press, 1996), 60. | **53** Ibid.,
**54** Anthony Ashley-Cooper, 3rd Earl of Shaftesbury, "The Moralists, a Philosophical Rhapsody" (1709), part 3, sect. 1, in *Characteristics of Men, Manners, Opinions, Times, with a Collection of Letters by the Right Honorable Antony Earl of Shaftesbury,* vol. 2 (Basel: J. J.Tourneisen and J. L. Legrand, 1790), 316.
**55** Ibid., 322. | **56** Ibid. | **57** Ibid., 323
**58** Ibid. | **59** Ibid., 286.
**60** Ibid., 321: "The wildness pleases. We seem to live alone with Nature. We view her in her inmost recesses, and contemplate her with more delight in these original wilds, than in the artificial labyrinths and feigned wilder-

nesses of the palace. The objects of the place, the scaly serpents, the savage beasts, and poisonous insects, how terrible soever, or how contrary to human nature, are beauteous in themselves, and fit to raise our thoughts in admiration of that divine wisdom, so far superior to our short views."
**61** Ibid., 280.
**62** *The Tatler* was founded by Sir Richard Steele in 1709 (and ceased publication in 1711). Addison published numerous articles in the journal.
**63** Joseph Addison, *The Tatler,* no. 161, April 20, 1710, 156f.
**64** Ibid., 158: "I thereupon continued my former way of travelling through a great variety of winter scenes, till I had gained the top of these white mountains, which seemed another Alps of snow. I looked down from hence into a spacious plain, which was surrounded on all sides by this mound of hills, and which presented me with the most agreeable prospect I had ever seen."
**65** Ibid.
**66** Ibid., 158: "On the right hand of the goddess was the genius of monarchy. She was clothed in the whitest ermine, and wore a crown of the purest gold upon her head. In her hand she held a scepter like that which is born by the British monarchs. A couple of tame lions lay crouching at her feet: her countenance had in it a very great majesty without any mixture of terror: her voice was like the voice of an angel, filled with so much sweetness, accompanied with such an air of condescension, as tempered the awfulness of her appearance, and equally inspired love and veneration into the hearts of all that beheld her."
**67** Horace-Bénédict de Saussure, *Voyage dans les Alpes, sur l'histoire naturelle des environs de Genève,* vol. 1, part 2, *Voyage autour du Mont Blanc* (Neuchâtel: Samuel Fauche, 1779) [=Saussure 1779].
**68** Ibid., 408. | **69** Ibid., 247.
**70** Ibid., 495: explanation of Table 8
**71** Saussure (1779) 1787, "Préliminaire," 15, 16.
**72** See Vanessa L. Ryan, "The Physiological Sublime: Burke's Critique of Reason," *Journal of the History of Ideas* 62, no. 1 (April 2001).
**73** Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* [=Burke (1757) 1824], 95–96.
**74** Ibid., chapter titles of the second part.
**75** Ibid., 52. | **76** Ibid., | **77** Ibid., 55.
**78** Addison compared the Pantheon in Rome with a Gothic cathedral: despite its larger dimension, the latter seems significantly smaller than the Pantheon because of its excessive ornamentation. See Edmund Burke, *Recherche philosophique sur l'origine de nos idées du sublime et du beau* (1757), trans. and ed. Baldine Saint Girons (Paris: Edition Vrin, 2009), 146.
**79** The Prague-born painter Wenceslaus Hollar had already made a panoramic view from a church spire entitled "Long View of London from Bankside," which consisted of a six-piece etching that, when put together, measured 2.7 meters in length; however, it was flat and not exhibited in a round space.
**80** Immanuel Kant, "Handschriftlicher Nachlass, Erste Einleitung in die Kritik der Urteilskraft" in *Akademieausgabe von Immanuel Kants Gesammelten Werken: Bände und Verknüpfungen zu den Inhaltsverzeichnissen* (1789; Korpora.org) [=Kant 1789], chap. 10, "Von der Nachsuchung eines Prinzips der technischen Urteilskraft," 238: "Mithin Stoff zu künftigen systematisch zu verbindenden Erfahrungsregeln."
**81** Ibid. | **82** Ibid.
**83** Kant (1790) 1911, "The Dynamically Sublime in Nature, § 28, Nature as Might," 264.
**84** Kant (1790) 1911, "§ 23, Transition from the Faculty of Estimating the Beautiful to That of Estimating the Sublime," 245f.
**85** Kant (1790) 1911, "§ 27, Quality of the Delight in Our Estimate of the Sublime," 258ff.
**86** Kant (1790) 1911,"§ 28, Nature as Might," 261.
**87** Ibid. | **88** Ibid., 262. | **89** Ibid., 269f.
**90** Ibid.
**91** Friedrich Schiller, "On the Sublime," (first published under the title "Vom Erhabenen," 1793) in *Friedrich Schiller: Poet of Freedom*, trans. William F. Wertz, Jr., vol. 3 (Washington, DC: Schiller Institute, 1990) [=Schiller (1793) 1990], n.p.
**92** Ibid. | **93** Ibid.
**94** See Charles Watkins and Ben Cowell, *Uvedale Price (1747–1829): Decoding the Picturesque* (Woodbridge: The Boydell Press, 2012).
**95** Uvedale Price, *Essays on the Picturesque, As Compared with the Sublime and the Beautiful: And, on the Use of Studying Pictures, for the Purpose of Improving Real Landscape* (1796; London: printed for J. Mawman, 1810) [=Price (1796) 1810], vol. 1.
**96** See Gerhard Hard, "Zu Begriff und Geschichte der 'Natur' in der Geographie des 19. und 20. Jahrhunderts," in Götz Grossklaus, Ernst Oldemeyer, and Henning Eichberg, eds., *Natur als Gegenwelt*, Karlsruher kulturwissenschaftliche Arbeiten (Karlsruhe: Von Loeper, 1983): a saying in the 18th century goes, "A landscape is called such when it looks as if painted by Claude Lorrain."
**97** Price (1769) 1810, 84. | **98** Ibid.
**99** Ibid., 86: "The sublime, by its solemnity, takes off from the loveliness of beauty; whereas the picturesque renders it more captivating."
**100** Ibid., 87: "Astonishment is that state of the soul, in which all its motions are suspended with some degree of horror: the sublime also, being founded on ideas of pain and terror, like them operates by stretching the fibres beyond their natural tone. The passion excited by beauty, is love and complacency; it acts by relaxing the fibres somewhat below their natural tone, and this is accompanied by an inward sense of melting and languor."
**101** Ibid., 88. | **102** Ibid., 89.
**103** Anno Mungen, *Bilder-Musik: Panoramen, Tableaux vivants und Lichtbilder als multimediale Darstellungsformen in Theater- und Musikaufführungen vom 19. bis zum frühen 20. Jahrhundert* (Remscheid: Gardez, 2006).
**104** Siegfried Kracauer, "Travel and Dance" (1925), in *The Mass Ornament: Weimar Essays*, trans. Thomas Y. Levin (Cambridge, MA: Harvard University Press, 1995) [=Kracauer (1925) 1995], 65–66.
**105** Mark Twain, "Meeting a Hog on a Precipice," chap. 64 in *A Tramp Abroad* (London: American Publishing Company, Chatto & Windus, 1880), n.p.
**106** George Sand, *Histoire de ma vie*, vol. 8, *1847–1855* (Paris: Michel Lévy frères, 1856), 120f.
**107** Siegfried Kracauer, "Roller Coaster" (1928), trans. Ann Smock, *Qui Parle*, vols. 5–6 (Fall/Winter 1991), 59–60.
**108** Michel Foucault, *Le Corps utopique, suivi de Les Hétérotopies* (1966) (Paris: Nouvelles Editions Lignes, 2009), 10f. Translated by Lucia Allais as "Utopian Body," in Caroline A. Jones, ed., *Sensorium: Embodied Experience, Technology and Contemporary Art* (Cambridge, MA: The MIT Press, 2006), 229.
**109** Jean-François Lyotard, *Das Inhumane* (Vienna: Passagen Verlag, 1989), 197f.
**110** Odile Lesaffre, "Une fête révolutionnaire en province: la fédération de Lille (6 juin 1790)," in Michel Vovelle, ed., *Les Images de la Révolution Française* (Paris: Publications de la Sorbonne, 1982), 149.
**111** Christian Taillard, "Le Mobilier de la cathédrale St. André de Bordeaux, du milieux du XVIIIè siècle au milieu du XIXè siècle," in Marc Agostino, ed., *La Cathédrale Saint-André, reflet de neuf siècles d'histoire et de vie bordelaises* (Pessac: Presses Universitaires de Bordeaux, 2001), 134.
**112** Sylvia Pressouyre, "Brongniart à Bordeaux et à La Réole (1793-1795)," in *Bulletin Monumental*, vol. 124, no. 1 (1966), 87f.
**113** Klaus Albrecht Schröder and Maria Luisa Sternath-Schuppanz, eds., *Von der Schönheit der Natur. Die Kammermaler Erzherzogs Johann* (Vienna: Verlag Albertina, 2015), 82.
**114** See Stephen Oetermann, *The Panorama: History of a Mass Medium* (New York: Zone Books, 1997), 7.| **115** Ibid.
**116** Louis Daguerre, *Historique et description des procédés du daguerréotype et du diorama* (Paris: Susse Frères, 1839), 75f.
**117** Gaspard Vallette, *Le Village suisse à l'Exposition nationale suisse* (Geneva: Commission du Village Suisse, 1896).
**118** Annie-Paule Quinsac, "Der Fall Segantini: Schwankungen in der Rezeptionsgeschichte und die Bedeutung seines Werkes heute," in *Giovanni Segantini: 1858–1899*, exh. cat. Kunsthaus Zürich (1990), 21.
**119** Jeffrey Stanton, "Coney Island: Independent Rides" (1997), last updated September 6, 2013, http://www.westland.net/coney-island/articles/independentrides.htm.
**120** Rem Koolhaas, *New York délire* (Paris: Parenthèses, 1978), 61.
**121** Gian-Marco Jenatsch, "Maschine und Kaaba," *WBW,* no. 10 (2004), 91.
**122** Valerio Olgiati, cited in Laurent Stalder, Sandra Bradvic, *Valerio Olgiati: English Texts* (Lucerne: Quart Publishers, 2014), 8ff.

Andrea Deplazes and Studio Monte Rosa ETH Zurich,
Monte Rosa Hut, 2009

# 2 Crystal, Crystallization

*The self-contained eurhythmy of crystals and other perfectly regular forms of Nature are thus to be found in certain structures [such as tumuli and pyramids]. They are very impressive as microcosms existing only for themselves, as symbols of the universe which knows nothing beyond itself.*

*So ist bei gewissen Bauwerken die eurythmische Abgeschlossenheit der Krystalle und andrer vollkommen regelmäßiger Formen der Natur wiederzufinden [wie Grabkegel und Pyramiden …]. Sie sind […] als vollständig für sich bestehende Mikrokosmen, als Symbole des Alls, das nichts außer sich kennt […], sehr eindrucksvoll.*

**Gottfried Semper,**
***Der Stil*, 1, *Textile Kunst*, Prolegomena, 1860, XLIII**

In Romanticism, the metaphysical and infinite dimension of the sublime was projected into a small, metaphorical object: the crystal. The development of the metaphysical sublime feeling in Romanticism was not only decisive for the change in our perception of nature but also for the "crystalline art creation" derived from the concept of nature. The sublime view of the "wild mountains" led to the desire both to grasp nature through art and to shape it through architecture. The crystal became the symbol of a structure- and growth-based explanation of the building plan of the world (cosmogony). In this process, technology was also assigned a central role as part of the creative plan.[1] Gottfried Semper (1803–1879) had stressed the cosmic-geometric dimension of the crystalline in the introduction to his major work *Der Stil*, which was published in 1860: "The self-contained eurhythmy of crystals and other perfectly regular forms of Nature are thus to be found in certain structures [such as tumuli and pyramids]. They are […] very impressive as microcosms existing only for themselves, as symbols of the universe which knows nothing beyond itself."[2]

This symbolism fascinated many architects, artists, and writers who fashioned utopian or mystical cosmogonies around the crystal at the turn of the 20th century. Due to its distinctive geometry, the crystalline form allows architects to give shape to the cosmic-metaphysical view of nature, or to allow it to formally exist in the midst of "wild nature," as architecture becomes part of the "abstract creation." In the German-speaking world of the 19th century, the crystalline became an important topos in art history; the premise for this, however, is considerably older.

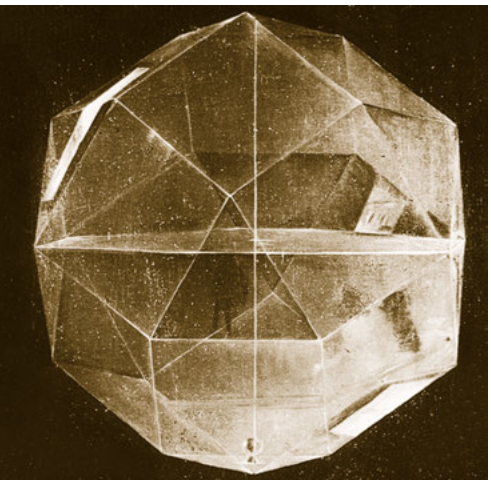
## The Crystal in Cultural History

Since antiquity, the crystal has had both a transcendental and a geometrical and mathematical dimension through which one tried to comprehend the rules of the cosmos. With Plato's dodecahedron, the quintessence found its geometric symbol in the perfect twelve-sided crystal. Aristotle described the *quinta essenzia* as ether,[3] the light-bearer, the warmth of life. For the alchemists, quintessence was the result of an extraction: pure matter. It represented the universe and the essence of all substances;[4] it is macrocosm and microcosm at once; its symbol is the crystal. Leonardo da Vinci (1452–1519),



Arnold Fanck, "The Holy Mountain," 1926, still of Karl (Luis Trenker) in the ice storm

Jacopo de' Barbari (attributed), "Portrait of Luca Pacioli," studying a crystal (b) and detail (t), ca. 1495



pupil of the mathematician Fra Luca Pacioli, illustrated for his master *De Divina Proportione*, a study published in 1509 on perfect (divine) proportions, which also included several types of crystal structures. He studied the forms of the five Platonic solids and assigned the four earthly elements to them (fire: tetrahedron, water: icosahedron, air: octahedron, earth: cube), with the fifth corresponding to the whole world, the quintessence.

**The Crystal as a Construction Plan**

Due to its perfectly geometrical matrix and its inherent construction plan defining the growth process, the crystal was regarded as a microcosm of a superordinate world order. In the Age of Enlightenment, Johann Gottfried Herder, in *Outlines of a Philosophy of the History of Man* (1784–1791), described crystallization as a creative act, articulated in geometric structures: "The immeasurable chain descends from the creator down to the germe of a grain of sand; for even this has it's determinate figure, in which it often approaches the most beautiful crystallizations […]

[…] A still more powerful and pure action of fire and of cold was requisite to crystallization, which inclines not to the shelly form, exhibited by silex in it's fractures, but to geometrical angles."[5]

In Friedrich Schiller's novel fragment *The Moral-Philosophical Conversation from the Ghost-Seer* (1787–1789), the crystal stood as an illustrative example of a fragment of a universal plan. Schiller addressed the human endeavor to derive the creator from his own species and illustrated this with the crystal, whose world plan must be analogous to this crystallization: "If you give a crystal the ability to have ideas, its greatest world plan will be crystallization, and its godhead will be the most beautiful form of crystal."[6]

Kant also referred to the crystal in his *First Introduction to the Critique of the Power of Judgment* (1790), because, together with other higher building plans, it emerged from a preprogrammed growth process of nature; it is a system, a technique, and, therefore, an art as well: "With regard to its products as aggregates, nature proceeds *mechanically, as mere nature*; but with regard to its products as systems, e. g., crystal formations, various shapes of flowers, or the inner structure of plants and animals, it proceeds *technically,* i. e., as at the same time an *art.*"[7]

**The Empathy with Nature as a Pioneer of Crystalline Art Theory**

In the Enlightenment, art no longer strove for nature's most realistic imitation (mimesis), but rather its interpretation, which Kant ascribed to the genius of the artist. In his theory of aesthetics, the *Critique of the Power of Judgment*," which appeared in 1790, he had detached himself from the principle of mimesis and laid the creative process in the subject: Nature is interpreted by the *genius* (mind) of the artist, whereas reason and taste are the mediators between nature and art. By genius he understood a talent (a natural endowment) "which gives the rule to art." But since it "belongs itself to nature," genius is "the innate mental aptitude (ingenium) *through which* nature gives the rule to art."[8] Human nature, which became the medium between nature and art through the sensibility of its "mind," replaced the artistic-technical virtuosity of mimesis through interpretation.

The Kantian ego extension of the sublime contemplation of nature can be regarded as the basis for the ensuing "empathy" with nature, which arose in 19th-century German art history. Caspar David Friedrich's "Wanderer above the Sea of Fog" (1818) can be seen as an expression of this sensitive observation of nature, because the beholder experiences the view of the mountains through the figure of the wanderer by empathizing with him. While in the Enlightenment the morally acting human being stood in the foreground, as the basis of an enlightened society, in Romanticism it was the withdrawal into one's own self, which emotionally attempted to become one with nature (and the cosmos).

Arthur Schopenhauer (1788–1860) built upon Kant's theory of the sublime, but replaced self-elevation above the forces of nature through reason with a contemplative merging with nature. This union can lead to an ecstatic self-emptying (in Greek *kenosis*) that arises through contemplative meditation. Thus, the observer is "no longer an individual—for the individual has lost itself precisely in this perception—but is pure, will-less, painless, timeless, subject of cognition."[9] Schopenhauer quotes Lord Byron (1788–1824), who after his Grand Tour asks: "Are not the mountains, ways and skies, a part of me and my soul, as I of them?"

During the Romantic period, the metaphysical dimension of the sublime, based on the merging with nature, was emphasized. In the second half of the 19th century, Gustav Theodor Fechner (1801–1887) introduced the concepts of "empathy" and "soul of the universe," rooted in the idea of a general ensoulment that ranges from living beings such as humans, animals, and plants, to inorganic things, all the way to atoms and heavenly bodies.[10] He extended the basis of the theory of empathy, which was crucial for artistic creation in Romanticism and in which the cosmic dimension played an important role. Robert Vischer (1877–1933) brought up the notion of *Einfühlung* (empathy), which he understood as a psychic act by which external sensuous phenomena were filled with spiritual content.[11] Theodor Lipps (1851–1914) took up this concept, transferring it to the psychic reception of art, whereby the ego melds with the object under consideration, from which aesthetic pleasure arises.[12] The empathetic and metaphysical contemplation of nature was transferred from nature to art, and became an important aspect in the art theory of German Romanticism.

## The Crystal in Art Theory

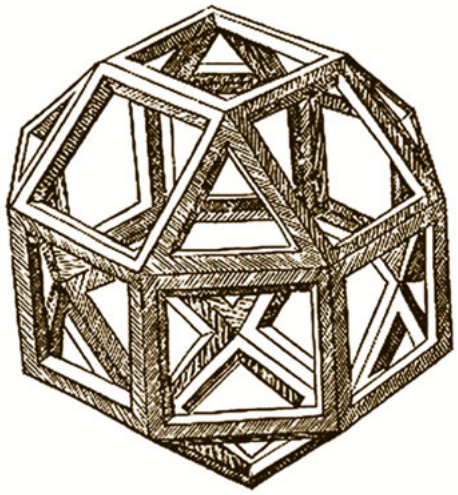
In the 19th century, the crystalline became an important topic in art theory. The "crystalline striving for art" was based on a cosmic dimension that can also be found in the sublime. The mediator was the sensitive, talented, and inspired human being, the philosopher, artist, or architect who empathizes with nature to draw inspiration for his creations from it.

The discussion on aesthetics led by German philosophers influenced art theory and artistic work as well, with the crystalline playing an important role.

Friedrich Wilhelm Schelling (1775–1854) assumed that the structure of nature could be fathomed through art and compared the growth of nature with artistic creation. He saw the crystal as a superordinate law of form that unites nature and art. Although the mimetic relationship of art to nature persisted, it was reinterpreted as an analogy of the process of creation and growth, as Regine Prange aptly puts it.[13] The crystal made it possible to fuse art and nature, with the creative process was compared with the growth of nature. Alois Riegl (1858–1905) saw in "crystallization" the "fundamental law according to which nature forms dead matter," and derived from this the "crystalline artistic-desire" (*Kunstwollen*, by which he meant artistic creation) that, through the union of mind and matter, leads to a "striving towards bliss." The metaphysical dimension of the crystalline symbolically stood for creation, with crystalline growth structures following a geometric principle considered to be the expression of a cosmic whole.[14]

At the beginning of the twentieth century, Wilhelm Worringer (1881–1965) articulated in his dissertation *Abstraction and Empathy* (1907) a clear distinction between the principle of empathy and crystalline abstraction, whereby the crystalline became a proper form of expression in art and architecture. He borrowed from Lipp's theory of empathy, denying, however, that aesthetic pleasure could only emerge in this way, and countered it with the human urge for abstraction, which he derived from the crystalline. While empathy emerges through the contemplation of landscape or the losing of oneself in a perspective view, crystalline abstraction stands for the quest for a holistic union with humanity, nature, and the cosmos—and not least with science and technology too. Worringer regarded the principle of abstraction as being

Leonardo da Vinci, first printed illustration of a rhombicuboctahedron, in *De divina proportione*, 1509



embodied in the geometry of the crystalline, because—detached from time and space—it stands for a superordinate cosmic order that, in contrast to empathy, is not based on the feeling of the individual, but on an absolute and universal structure.
His thesis especially influenced abstract and Expressionist artists.

**Gottfried Semper, Eurythmic Crystals and Perception from Inside the Crystal, 1858**

In contrast to his contemporaries, Gottfried Semper was not concerned with the emotional aspect of the crystals, but with their structure as a means to derive connections to space, architecture, and art. After the crystal metaphor was reactivated in 1851 by the construction of the London Crystal Palace, Semper, who had experienced the building from inside, tried to grasp the new spatial sensation of dematerialized walls and ceilings. He examined the geometry of crystalline shapes and, in particular, explored the viewer's position by asking how crystals appeared from the outside and from the inside. From crystalline structures he deduced the symmetrical composition of eurythmy, by which he understood the "principle of formation for completely self-contained forms indifferent to the external world." They would be distinguished by "relating directly and only to themselves" and arranged around a nucleus or center: "Eurythmy is closed symmetry […] of elements of the regular form" that may be two- or three-dimensional: "This regularity becomes absolute, all-embracing uniformity in the circle […] and in the sphere (a polyhedron of infinite flat surfaces). Therefore these forms have been valued since time immemorial as symbols of the absolute and of perfection."[15]
As for crystal, all these factors coincide in a stable ordering principle. "Unlike regular crystal forms that completely isolate themselves from the universe and are true microcosms, symmetrical forms are not sufficiently consistent *in themselves* for their form to express the possibility of their existence beyond the world."[16] In light of their hermetic unity, Semper pursued the question of how crystals affect the beholder. Generally, the viewer is excluded from the crystalline principle; however, if he stands in the center of the crystal, he becomes an "enclosed" or "framed" figure. He illustrated the eurythmic principle with the frame. While Kant dismissed the frame as "ornamentation (*parerga*),"[17] Semper lent it an autonomy that went far beyond the "ornament" of pictures. He was not concerned with an aesthetic, but with a more substantial phenomenon, which is related both to the closure and to the scale of what is framed: "The frame is one of the most basic forms used in art: no enclosed image without a frame, no scale without it" because it forms "an enclosed figure around the framed object."[18]
For Semper, the eurythmic-crystalline embodied a self-contained system that has an outside and an inside. If it is two-dimensional, the enclosed subject becomes a framed object. But if it is three-dimensional, inclusion takes on another meaning: the perspective effect is canceled out if the observer is in the geometric center of a crystalline eurythmic structure.
Semper had experienced this kind of perception when he set up the exhibition spaces for Turkey, Egypt, Sweden, and Denmark for the World's Fair at the Crystal Palace. However, the spatial perception was not communicated to us by him, but by other eyewitness accounts, with Lothar Bucher's report from 1861, in particular, expressing surprise at the non-existent perspective effect: "We see a fine network of symmetrical lines that does not, however, provide any clues whereby one could estimate its distance from the eye or the actual size of the mesh. The side walls stand too far apart to be taken in at a glance, and instead of meeting a facing wall, the eye moves upward over an endless perspective, or one whose end appears diffuse and blue," and optically dissolves "in a remote background in which everything corporeal, even the lines themselves, disappears and only the color remains."[19] The crowd melted in the "vast space" that Bucher compared to "a piece of the Midsummer Night's Dream in the noonday sun." Semper's eurythmic principle of the frame seems to have found a three-dimensional spatial embodiment in that the crystal was experienced from within.

## The Crystalline in Architecture – The Architect as a Utopian Creator

*"Light wants to pass through the universe and is alive in the crystal."*[20] Paul Scheerbart, aphorism on the cornice of the Glass Pavilion in Cologne, 1914

Before the crystalline received an appropriate—in the geometrical and formal sense—shaping in architecture (as in Taut's crystal architecture), the principle of crystalline form was retroactively projected onto the Gothic in the 19th century. In the crystalline, art found a way to stylize the experience of an "ideal nature"—and to exploit it for "higher purpose." Similar to the sublime, the crystalline was also appropriated for political and ideological sentiments. While the sublime became a concept of freedom in the Enlightenment, the crystalline was first overlaid with national-visionary, then increasingly utopian yearnings. In contrast to the formless concept of the sublime, the crystalline could have a shaping effect or could be symbolically assigned to an existing shape, as was the case with the "crystalline Gothic." Thus, a direct connection from the crystalline to art and architecture could be established via the *shape*.

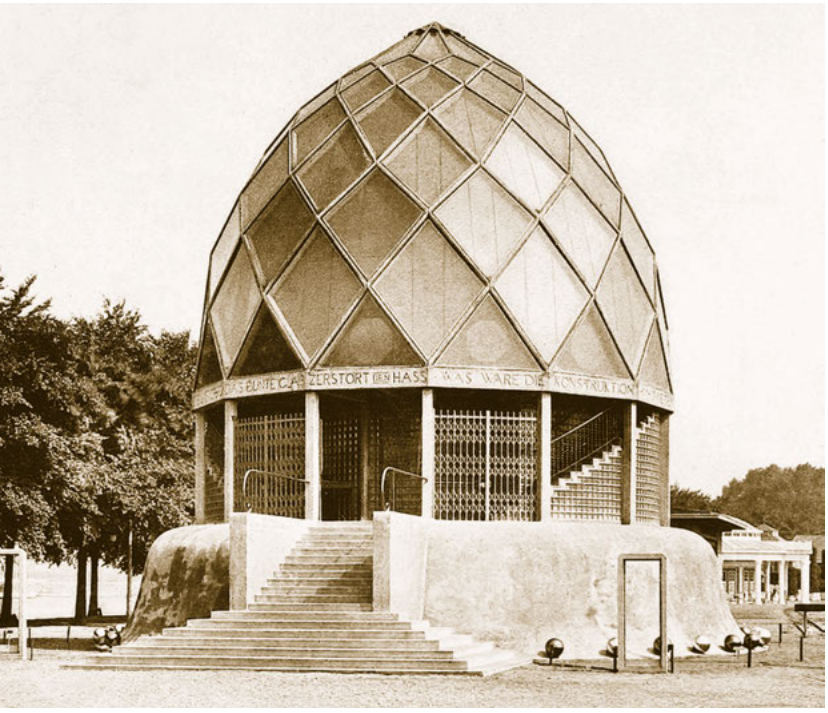
### From the Crystalline Gothic Cathedral to the Crystal Palace for the People

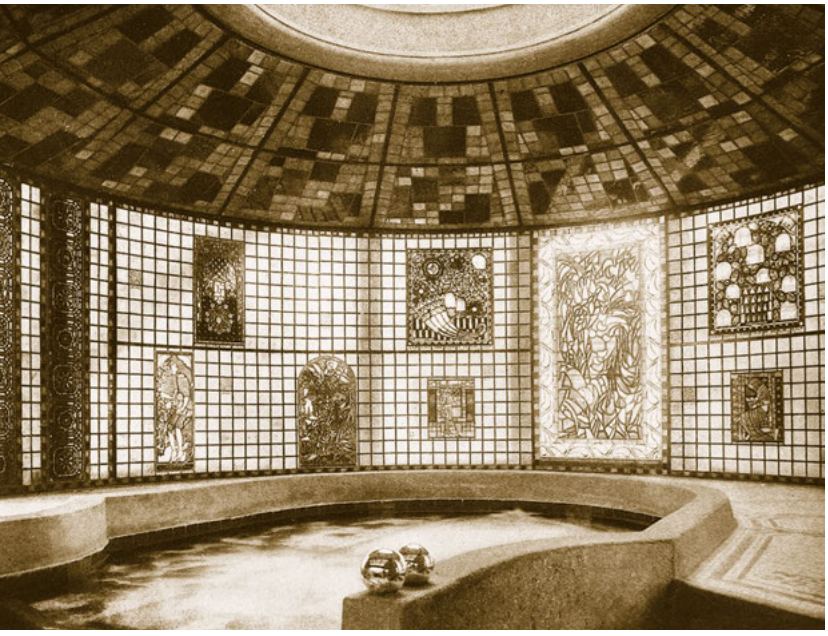
Karl Friedrich Schinkel and Caspar David Friedrich painted "crystalline Gothic" cathedrals (as they were then called) as a symbol of yearning for a German identity. However, the latter had to be created first with the founding of the German Confederation in 1815 (which arose as a result of ongoing national wars for pacification). In this tumultuous period, Schinkel painted ideal utopian urban landscapes, using the backward-looking symbol of the crystalline Gothic church to make it an image with the power to shape the identity of the new German nation (such as the idealized "Medieval City on a River," 1815, or the "Gothic Church on a Rock by the Sea," 1815). Caspar David Friedrich also painted Gothic cathedrals as semi-transparent, crystalline formations that can only be conjectured in the clouds ("The Cross in the Mountains," 1812, or "The Cathedral," 1818). The crystalline was more monumentally articulated in his painting "The Sea of Ice," (1823–1824), which shows wildly strewn ice floes characterized by grand dynamics. One hundred years later, Walter Gropius took up this dynamic and expressive form for his "Monument to the March Dead" (1922), designed on behalf of the trade union cartel for striking workers murdered by Nazi putschists on March 15, 1920. According to Gropius, the monument was supposed to look like a "lightning bolt from the grave's ground as a symbol of the living spirit."

At the beginning of the 20th century, the longings for national identity projected on "Gothic-crystalline" cathedrals in the 19th century shifted to cosmic political utopias that stood for progress, democracy, and peace. The technical achievements of the time (such as the invention of the glass block, which also lent structural properties to glass as a building material), gave this quest a new formal expression. The crystalline became a utopian symbol, with glass as the future building material of a visionary architecture coming to the fore. Although the "crystalline Gothic" symbolically served as a model, the architects sought detachment from its formal language, in favor of pure crystal forms, drawing on Joseph Paxton's glass palace. They developed an Expressionistic, crystalline design vocabulary, with colorful glass that was to shine like an enchanting kaleidoscope. The program also changed: the function of the church was transposed to a gathering place of the people for art, culture, and science, which continued, however, to be connected with "devotion" and the "pursuit of higher aspirations." In this regard, the German art historian Adolf Behne stated in 1915 that the cathedral was "liberated from bondage to a purpose," so it must be understood as an "artistic rapture," as a "higher eagerness to build." The transposition of the church to crystalline glass architecture is expressed as well in Paul Scheerbart's saying that "the Gothic cathedral is the prelude" to glass architecture,[21] while dreaming of its expansion all over the earth. We should then have "a paradise on earth and no need to watch in longing expectation for the paradise in heaven" (Portrait 10).

This vision came to fruition for the first time in Bruno Taut's pavilion at the Werkbund Exhibition in Cologne, which he was able to build in May 1914 in intensive exchange with Scheerbart. Neither nature nor artifact, on the inside, this building resembled a crystal mountain. The visitor entered the building via a concrete base, on whose cornice a saying of Scheerbart's stood: "Without a palace of glass, life is a burdensome task. Colored glass destroys hatred." Then he was

Bruno Taut (1880–1938), Glass Pavilion, Cologne Werkbund Exhibition, exterior view (t) and interior view of lower level with cascade stairs (b), 1914





led up a flight of stairs to the upper dome, whose white, translucent glass rhombuses produced white, milky light. A central hole in the glass mosaic floor revealed a view to the space below, with a colorful cascade in the middle. The visitor was led down a glass staircase again and surprised by the colorfulness of the room. As he walked out, his gaze was fixed on a large kaleidoscope whose steadily moving shards of glass elicited a hypnotic effect. The light was split into countless color dots that danced on the walls. The visitor was inside a transparent, colorful, luminescent crystal; he was charmed, surprised, and shaken at the same time, because he was "relieved" of the familiar spatial perception.[22] The effect triggered enthusiasm, the glasshouse was hailed as a "jewel," as a "youthful source of stimuli." Adolf Behne wrote in 1915 in the *Kunstgewerbeblatt* of the "flower-like delicateness" of this building, of its "incredible spirituality," and averred that one had seen the "alluring beauty of the ideal in a delightful fragment": "The longing for purity and clarity, for glowing lightness, crystalline exactness, for immaterial lightness, and infinite liveliness found a means of its fulfillment in glass—the most ineffable, most elementary, most flexible and most changeable of materials, richest in meaning and inspiration, fusing with the world like no other. This least fixed of materials transforms itself with every change of atmosphere. It is infinitely rich in relations, mirroring what is above, below, and what is below, above. It is animated, full of spirit and alive. The thought of the beautiful cupola room, vaulted like a sparkling skull, or of the unreal, ethereal stair, which one descended as if walking through pearling water, moves me and produces happy memories."[23]

Behne, in his flowery language, emphasized the "liveliness" of this crystalline building, the dome of which he likened to a "sparkling skull," "full of spirit and alive." The crystalline was experienced as something living, in coherence with the discovery of liquid crystals.

**From the Creation of Nature to the Architect as Creator**

Schopenhauer's conception of nature, Nietzsche's Zarathustra, and Scheerbart's fantastic stories inspired numerous artists and architects. Wenzel Hablik, Wassily Luckardt, and Bruno Taut designed crystal architecture in the mountains and in space at that time. Their work reflects the influence of philosophers, especially in terms of the cosmic utopian desire to unite with nature, but also the god-like creativity of the artist figure, who pits himself against the forces of nature. As the ideal place for these utopian crystal palaces, the highest peaks of the Alps were chosen. At the sight of the mountains, however, there was no awesome shudder anymore, but an urge to shape nature through crystalline forms. A breach can thus be found in our relationship with nature.

10 Paul Scheerbart, Glass Architecture, 1914

It was no longer a model for an artistic, imitation-based creative process, but an object to be fashioned. The crystalline became the epitome of artistic design that sought to embellish nature itself. The geometric structures and forms of nature were taken over by art, not only reproduced but also "perfected." The process of creation, which spread from art to nature, consisted of purification: in the pursuit of pure form, in search of the quintessence, the crystal.

In his quest for "higher things," Bruno Taut, in his picture book *Alpine Architecture* (Project 11), not only envisaged the erection of colorful glass palaces, but also the perfecting of mountaintops by giving them precise, geometric crystal forms. Worringer's thesis, which assumes the possibility of breaking loose from "temporality and arbitrariness" through abstraction and "geometric-crystalline order,"[24] shines through in these approaches. This may have prompted the Expressionists to lend crystalline forms to architecture and the mountain landscape in order to elevate them to a "higher existence." The chosen form of abstraction, which could be both geometric and organic (Taut even designed glass flowers adorning the mountains), testifies to the longing for a fusion of man and nature.

Thus, the relationship of nature had changed from an empathetic to a formative principle. The cosmic dimension of the higher, the eternal, and the infinite, as well as the quest for transcendence remained. The experience of the limit, inherent to the sublime, was no longer sought in the contemplation of nature, but in the utopian quest for perfection which lay in crystalline creation. A statement by Taut illustrates this: "We too are [Mother Nature's] atoms and follow her commandment—in creating. Inactively marveling at her is sentimental. We create in her and with her, and we adorne her."[25] The artist-architect endeavored to perfect nature through crystalline forms and thus became the actual creator. In his role he saw the task of elevating nature to higher art in order to found a better society. In the Expressionist visions, the crystal was stylized into a cosmogony that encompassed not just the mountains, but the entire universe. Technology played a key role, because it was considered an integral part of creation, which was now no longer divine, but human. Aeroplanes and runways appear in Taut's visions, just as much as crystal flowers and viaducts with Aeolian harps.

## The "Ensoulment" of "Living" Crystals in Architecture, Dance, and Film

When Otto Lehmann discovered the existence of liquid crystals in 1904, the cosmic emotional conception of the crystalline was intensified by the idea that crystals live. This notion was shaped by the naturalist Ernst Haeckel (1834–1919), who published the book *Crystal Souls – Studies of Inorganic Life*, in 1917, in which he stated: "All substances, inorganic as well as organic, possess life; all things have a soul, crystals as well as organisms."[26] Considered up to then as inorganic and thus soulless, crystals would now have to be regarded as "living nature" and, "in view of their psychomechanical properties, also as 'ensouled.'" Therefore, the focus should no longer be on the pure description and classification of the crystal forms, but on "exploring their development." The new science of the "psychology of crystals," as he called it, "as well as that of organisms, has to investigate their physical behavior and chemical behavior," whereby the "direction of their mysterious molecular forces" is also to be explored.[27] According to Haeckel, the "energy forms" play an essential role. He referred to the newly known structure of the atoms, to their directional principles, and to the environmental influences that bring about the growth of liquid crystals.

As a result, the emotional dimension of the crystalline was further enhanced, because the organic nature of the crystals made it possible to compare crystalline and human structures that imply both the body and the psyche. The crystal thus advanced to the abstract identification figure of man.

The new scientific findings and Haeckel's crystal studies aroused great interest among architects, artists, and dancers. Just as radically as in science, what had hitherto obtained was to now be reconsidered and renewed in the architectural, art, and dance scene as well. The crystalline served as a source of inspiration, in terms of the structural, organic, and psychological aspects.

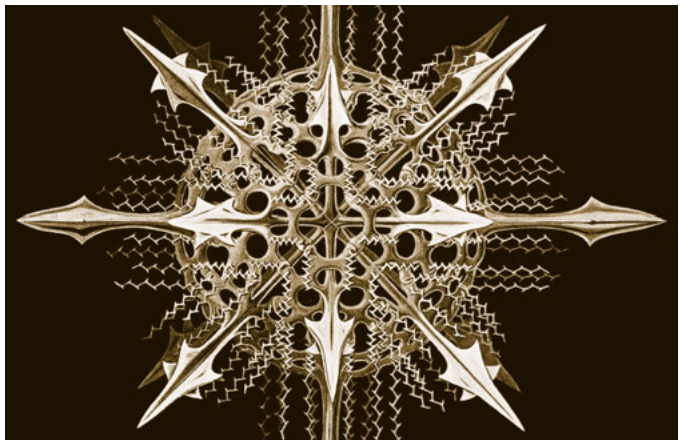
**Wenzel Hablik: Glass, What Magnificent Building Material!**

"What magnificent building material!"[28] the painter Wenzel Hablik (1881–1934) delightfully exclaimed in his article "The Freestanding Dome," which appeared in a 1922 issue of the magazine *Frühlicht* dedicated to glass construction

Bruno Taut, Alpine Architecture, 1919

Ernst Haeckel, drawing of a Radiolaria marine protozoa, Acanthophracta, cover image for *Crystal Souls*, 1917

(the publisher was Bruno Taut ). After graphically depicting all geometrically conceivable possibilities of crystalline construction, Hablik raved about a new technical mode of production; since colored glass would soon be fabricated from earth (in the bubble cell wall system, which had just been invented for beer bottles), and without visible metal construction: "Just like now, e.g., in rock crystal or the invisible iron bars in concrete, occasionally shimmering metal bands surrounded by heaped bubbles will lie in the glass as constructive supports



or pipes! It is not much longer until then."[29]

Hablik regarded the technical development of the building material of glass as the harbinger of the future. He equated building with crystallization, by which he understood a physical process of molecular form-finding, in which the "living" flow of forces is an organic one: "In any case, the many possibilities that exist from a technical point of view already enable us today to speak of 'building' as a crystallization, an amalgamation of 'regularly aligned molecules' of most diverse matter into a single entity. The more certain the 'attraction points' of the molecules with respect to the living axes of the forces can be determined, the more uniform, organic, and secure the finished structure of force and substance will be."[30]

He then appealed to the "cosmic sentient mind" of the architect, who could give infinite forms to the simple cube by splitting its geometry according to the laws of crystallization, thereby creating new architectural forms and thus a new way of life: "Of course, even the simplest cube (conceived in the sense of the laws of crystallization) is architecturally infinitely variable (as, after all, any form used by a cosmic sentient mind), but in today's usual 'housing box with holes' only a few know what to do with it—therefore, our home looks like a caricature of everything that could be called 'human spirit and wit.'"[31]

The organic dimension of the crystalline became the symbol of social renewal. It had already articulated itself in Taut's *Alpine Architecture*, where both organic and geometric shapes led to novel constructions; Hablik's text, however, adds the aspect of the living, which gave a new characteristic to glass as a building material after Haeckel's *Crystal Souls*.

**Rudolf von Laban: The Crystal Is Alive!**

Three years after Haeckel attributed all forms of life to crystalline structures, the dancer, choreographer, and theorist Rudolf von Laban (1878–1958) wrote in fascination: "The crystal is alive!" Now, through crystallography, he found scientific confirmation of what he had been searching for in dance for some time, the combination of emotions with a spatial-geometric directional principle: "The crystallization process is excitement and movement," he wrote in *Die Welt des Tänzers* (The World of the Dancer, 1920), referring to the new findings of physiology that the center of thinking is no longer located exclusively in the brain: "'Understanding' means basically to follow excitement, a force by means of movement, growth," Laban concluded. There would be foreign and innate impulses in the movement, just like the strivings into certain directions within the crystal, or the impact of human fantasy in the manifold directions of thought, drives and feelings.[32] For Laban, the combination of crystal structures and human movement (physical and psychic) was evident. To explore it more deeply, he tried to derive human motion in dance from crystalline structures, subsequently making the drawing "Dancers in the Crystal."

It represents three stages of movement: the outer hexagon shows the outstretched human being; the middle hexagon depicts a self-contained posture, and in the inner hexagon, finally, man is represented as a mere mass.[33]

Corresponding to the new spatiotemporal ideas since Albert Einstein's Theory of Relativity (1905–16), Laban wanted to represent space as an open principle and to systematize the three-dimensionality of movement, as well as the forms, rhythms, and "spatial paths of the dancer's body." The spatial model of the icosahedron (20-plane crystal) should make it possible to comprehend the "objective laws" of human motion and to structure the directions of movement. He then put his

12 Rudolf von Laban, the Dancer in the Crystal

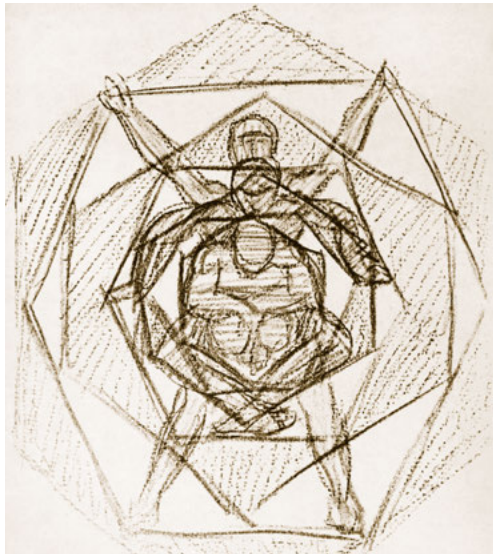
pupils into a human-sized crystal structure to teach them the crystalline principles of direction as a model for human movement (Portrait 12).

**Crystal Mysticism in the Mountain Film**

In the Expressionist mountain films of the 1920s and early 1930s, the crystal developed into a cinematic theme. Less utopian than in architecture and less structuralist than in dance, the crystal in the mountain film served rather as a mystical symbol, as a mysterious, luminous counterworld. Man was united with nature in the crystal. This occurred in Arnold Fanck's film "The Holy Mountain" (1926) in the form of a hallucination that arises in the fear of death when climbing on a rock face. The luminescent blue of the ice palace with a superhumanly large block of ice as a wedding altar appears as the last glimmer of hope. In the crystal, the longing for a coalescence of man and nature comes into play, staged by a gigantic spectacle of nature (Film Portrait 13).
Leni Riefenstahl's film "The Blue Light" (1932) also focuses on man's union with nature, embodied by the figure of the wild mountain girl Junta, played by Riefenstahl herself. She is mysteriously connected to a crystal cave that magically attracts her—it is her life, but also her downfall, as the villagers begin to exploit the crystal cave. In both films, humans and nature are united in the crystal, whereby transcendence turns into mysticism, and life into death (Film Portrait 14).
Although the union of man and nature was already present in Schelling's natural philosophy and Riegl's theory of art, it acquires a succinctly mystical dimension here, dualistically based on good (nature and crystal) and evil (villagers and greed).

## Crystal Architecture in the Alps, from the 1950s to the Present Day

Geometry, science, and technology are just as inherent in the crystalline principle as transcendence is. While the crystal, as a symbolic geometrical form, inspires architects to analogous constructions, the concept of the "crystalline" emerges from the discourse of art theory, which preceded crystalline architecture. The latter acquired a certain momentum in the course of the 20th century and increasingly broke away from 19th-century discussions around art theory. Nevertheless, the theoretical basis of the crystalline is also present in these projects, for the crystal always has something timeless, abstract, and, in its "cosmic" properties, also something universal about itself.



**Science, Technology, and Crystalline Spheres**

In the crystal visions developed at the beginning of the 20th century, the cosmic dimension was closely related to the formal and technical sphere. In response to the formal language of Expressionism, Worringer had announced in 1922 the change from "artistic sensibility" (*Kunstsinnlichkeit)* to the scientific "sensuality of thought" (*Denksinnlichkeit*) by which he understood the "clear spiritualization of the crystalline" that only science could produce (and not the art that disappointed him). After the heyday of Expressionism, the crystalline was carried forward in a technically and scientifically motivated architecture. With the emergence of functionalism, the technical aspects soon became the main design principle. With the exploration of outer space in the 1960s and 1970s, the crystalline experienced an update as an expression of a futuristic-utopian connectedness with the newly graspable universe. After the moon landing in 1969, numerous artists and architects addressed the potential expansion of mankind into the scientifically conquered spheres of the cosmos.
The cosmic utopian dimension finds expression in the geodesic domes of the American architect Buckminster Fuller, which float over the mountains in the night sky on some of his drawings (Project 15). In the Alps, too, the issue of the unrestricted expansion of man was broached, as the technology that enabled access to the last untouched altitudes became

Crystal Mysticism in the Mountain Film – Arnold Fanck, "The Holy Mountain," 1926 13

Leni Riefenstahl, "The Blue Light," 1932 14

a design topic. Crystal structures were also used here, as illustrated by Gerhard Garstenauer's geodesic domes, which he constructed in the early 1970s in Sportgastein in different variants (Project 17). The crystal structure of pyrite served as his model to plan the expansion of the village of Sportgastein.

**Crystalline Analogies and Optimization**

The crystalline is neither art nor nature. There is a certain charm in this ambivalence. The symbolism and the isolation of compact crystalline systems stimulate architects to experiment with such forms. Here, both a constructive and a formal approach is apparent: Today, the crystalline is no longer, as with Fuller or Garstenauer, a matrix of lines and connecting points of a perfect, self-contained form, but a shape-lending symbol of nature which, by the principle of analogy, is able to stand up to the problem of scalelessness in the midst of nature. Considered from this point of view, crystals or spheroidal shapes are not perceived as foreign bodies in the landscape, but as integrable components of nature. By imitating crystalline natural forms, these constructs become a "fractal" of the mountain landscape, a man-made microcosm in the midst of the superordinate macrocosm. Gottfried Semper's view that there can be found in certain structures the "self-contained eurythmy of crystals," which are impressive as microcosms existing only for themselves, as symbols of the universe," still seems to be relevant in this respect.
Today, symbolic analogies and optimization are the architects' key motivations for using crystalline forms when building in pristine mountain areas. As a mimetic natural principle, the crystalline is contrasted with the traditional building typologies originating from cultural space. In the search for an architectonic form of expression in the midst of the high mountains, architects find an adequate solution in the crystal, which is sometimes connected with the need for climatic optimization: since crystal forms are compact, they can satisfy the high thermal requirements. In the internal competition of the Studio Monte Rosa of the Swiss Federal Institute of Technology Zurich (ETH Zurich), the crystal came out as a winning project, because only this form could satisfy the climatic and formal demands, as Andrea Deplazes explained: "For how can one build in the midst of a scale-less glacier landscape, completely without any cultural context? A hut seems ridiculous there!"[34] (Project 16)

**Cosmic Connectedness**

Nowadays, the ambiguity of Worringer's notion of "the sensuality of thought" manifests itself in a novel facet: on the one hand, in the rationalistic principle of optimization (in terms of construction and climatic and thermal aspects); on the other, in the pursuit of a form of "sensuality" that addresses needs that go beyond rational necessities. This quest could generally be described as a search for "aesthetics." In Romanticism, the striving prompted by this longing culminated in "self-emptying," which goes hand in hand with the crossing of emotional borders. Even if the concept of art and architecture has changed fundamentally today, the question could nevertheless be asked whether this striving does not continue to exist and to what extent it can be experienced through architecture. Ross Lovegrove's project Alpine Capsule illustrates that the above question is still valid: the English designer chose a hermetically self-contained bubble as an architectural shape that hovers above the high plateau of Piz La Ila as a highly technoid primeval form. He aimed for an essential experience from within the crystal, with panoramic views of the Dolomites and the starry sky. The contemplative experience ties in with the compassionate conception of nature in the Romantic era, in search of a "cosmic" union with nature in the crystal (see Project 45). This project is presented in the last chapter: as a contemporary trend of luxury tourism, where crystalline projects reappear. This shows that the crystal theme extends right across the Alpine architectural history of the last one hundred years and remains a topical subject to this day, despite the different motivations and backgrounds that inform it.

15 Buckminster Fuller, Geodesic Spheres as the Cosmic Concept of the World, 1949–1981

16 Gerhard Garstenauer, Crystalline Spheres as a Ski Lift Station in Sportgastein, 1972

Ross Lovegrove Studio, Alpine Capsule on the Piz La Ila, Alta Badia, rendering, 2008

Andrea Deplazes and Studio Monte Rosa ETH Zurich, Monte Rosa Hut, 2009

Wilhelm Fechner, photograph of Paul Scheerbart, 1897

**10 Paul Scheerbart, Glass Architecture, 1914**

The German poet Paul Scheerbart (1863–1915) considered art as the savior of mankind and published *Paradise: Home of the Arts* (1889) in response to the repressive Socialist Laws enacted in 1878 under Kaiser Wilhelm I. In this novel, Scheerbart described a fantastical symbolic journey in search of art; after passing through luminous grottos, the expedition ends in a vast cathedral resplendent with diamond cupolas and purple vaults. The novel impressed the Expressionists associated with the artists' group Die Brücke, as well as Bruno Taut. From 1897 on, glass emerged in Scheerbart's texts as a visionary element, since he imagined it as the building material of the future, the ideal medium for light and colors. His visions were about a progressive world, about utopian dream worlds that embodied themselves in the building material of glass.

Parallel to Bruno Taut's planning of the Glass Pavilion in Cologne, Scheerbart began writing the text *Glass Architecture* in 1913. Published shortly before the completion of the pavilion in 1914, it was dedicated to Bruno Taut. For the first time, Scheerbart also examined the building material of glass from the technical side, with a concrete reference to the architectural application that Taut dealt with when designing his glass pavilion. A kind of glass architecture manifesto, the text was designed to convince society of its revolutionary architectural features. Glass was not only a new building material for Scheerbart and Taut, it was also meant to bring moral purity into the human world; they emphasized its cosmic properties: a light, transparent link between the earth and the universe.

Many passages of the text also concerned the landscape, particularly the mountains, and influenced Bruno Taut's illustrated book *Alpine Architecture*, which he drew during World War I. Scheerbart mentioned glass as a landscape design element that would embellish the earth's surface and turn it into a glittering paradise. The idea of an artificial illumination of the mountains through glass architecture—a vision that Taut adopted—enraptured him. "Mountain illumination: So much sounds fantastic, which actually is not fantastic at all. If one suggests applying mountain illumination to the Himalayas, this is just a ridiculous fantasy outside the realms of practical discussion. Illuminating the mountains near the Lake of Lugano is quite another thing. There are so many hotels there which would like to be part of the scenery, that they would be well disposed to glass architecture, if the proposition were not beyond their means. Their means are not inconsiderable, and the illumination of the mountains by illuminating the hotels, if these were built of glass, can no longer be described as fantastic. The rack-railway, which ascends the Rigi, could also be illuminated very easily and effectively by flood-lights. When aeronautics have conquered the dark, the whole of Switzerland will have her mountains colourfully lit up at night by glass architecture. We constantly forget how many things have changed in the last century. In the 1830s, the aged Goethe did not see the coming of the railways. Less than a hundred years have passed since then, and the whole earth is encompassed by steel rails. Mountain illumination, which today still seems a fantasy to many, can develop just as quickly."[35]

With the invention of the steam turbine, artificial lighting spread rapidly at the beginning of the 20th century. According to Scheerbart, crystalline hotel buildings and illuminated cogwheel railways could transform the Alps into a fantastic landscape, making them more attractive to tourists. Some of his visions had meanwhile become reality: in Switzerland, lighting was already being used in tourism promotion, as illustrated by the advertising poster for Giessbach's illuminated waterfalls from 1912. However, it was not glass palaces, but picturesque grand hotels that stood in the immediate vicinity of the falls; the glass architecture as a tourist attraction was yet to be invented. Scheerbart considered this highly necessary, because to him traveling had a routine triteness to it: "Today

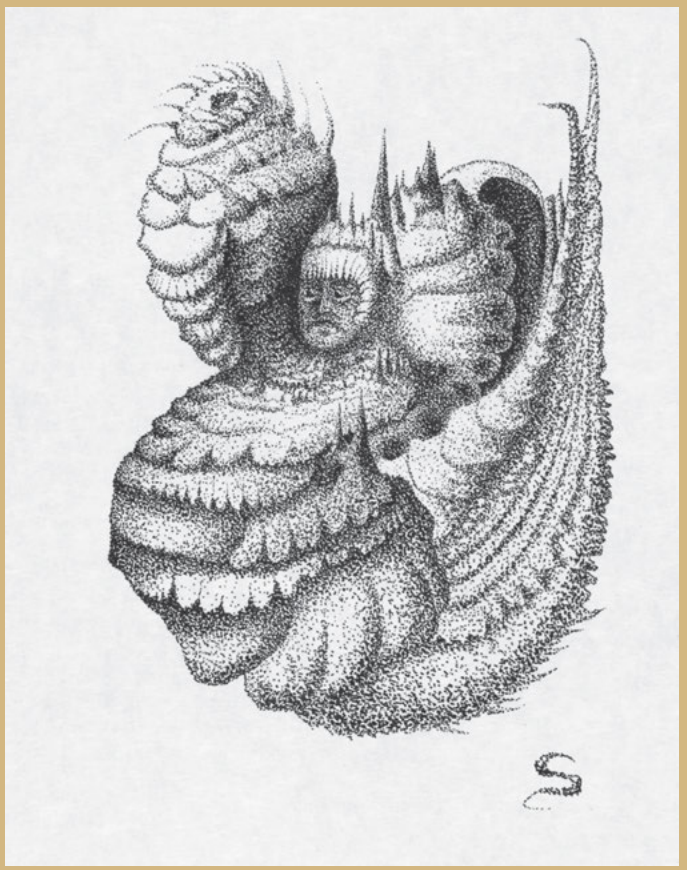
Paul Scheerbart, drawing (b)

Paul Scheerbart, drawing, plate 5, Jenseits-Galerie, Berlin, 1907 (t)

people travel from nervous habit: they want to have something different, and although they know that all hotels and towns, mountain villages and health resorts have a dreadful sameness, they travel there just the same. They travel, knowing well that they will find nothing better wherever they go."[36]

Glass architecture, on the other hand, can have an alluring effect and give traveling a new appeal: "In the future, people will travel in order to look at new glass architecture, which will differ widely in various parts of the world. To travel for the sake of glass architecture has at all events a meaning; one may surely expect new glass effects in other places. One may also assume that nine-tenths of the daily press will report only on new glass effects. The daily press wants novelty—so it will not be unfriendly to glass."[37]

In glass architecture, Scheerbart saw the possibility of a radical cultural change, which induced him at the conclusion of his screed to predict, in the manner of a utopian visionary, the coming of a "glass culture": "Glass culture: After all the above, we can indeed speak of a glass culture. The new glass environment will completely transform mankind. […] But we also want to strive after the new, with all the resources at our disposal; more power to them!")[38]

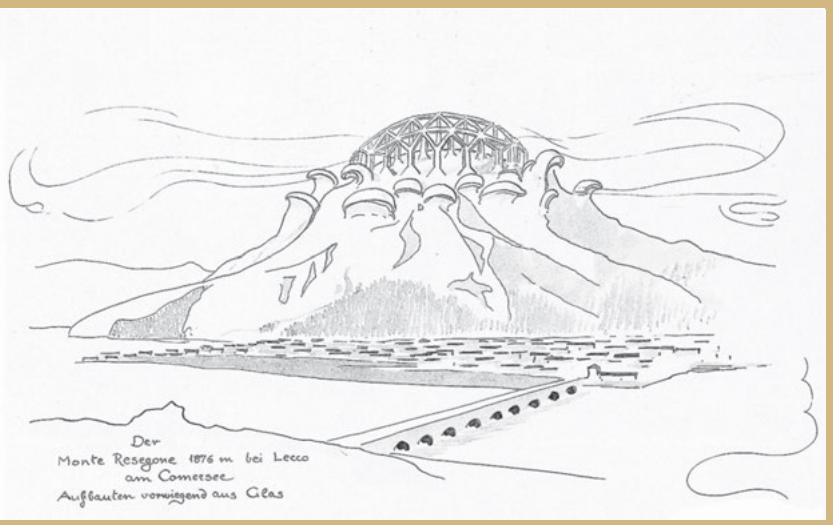


Bruno Taut, *Alpine Architektur,* Folkwang publishing house, Hagen, 1919, sheet 14, detail

Bruno Taut, *Alpine Architektur,* Folkwang publishing house, Hagen 1919, sheet 10

**11 Bruno Taut, Alpine Architecture, 1919**

Bruno Taut's visionary "crystal architectures" could be viewed as a first attempt to conceive a formal language for Alpine architecture that is not based on conventional building traditions. In a certain way, the discourse about the beautiful and




the sublime, which had already been going on for 200 years at the time, becomes apparent in it, because something "higher" should be created through architecture, with transcendence converging with social utopias.

During World War I, Scheerbart's visions of glass architecture prompted Taut to project a utopian counterworld into the crystalline world. He was against the war and refused to join the army. While the tumultuous war years passed, he wrote and illustrated the books *The City Crown* and *Alpine Architecture*, both of which were published after the war in 1919. The latter consists of a series of crystalline projects in the mountains, which draw on Scheerbart's "glass architecture" in many aspects. Taut attempted to oppose the war with a utopian worldview based on universal peace, where cosmic-crystalline aesthetics were to touch man in order to sensitize him to a superior world order.

With crystalline glass structures, Taut emulated the formations of nature in order to ultimately surpass them in their beauty. The irregular contours of the mountains are to be molded into geometric shapes by the architect's hand. The mountains themselves strive for perfection, the rocks pleading to be designed by the architect: "We do not want to be merely grotesque; we want to become beautiful through the human spirit. Build the universal architecture!"[39] The architectural act of will is expressed even stronger on sheet 14, where the mountains, through blasting, are transformed into an endlessly large, terraced landing area. Spectator bleachers are installed on the edge of Lake Lugano, where "aeronautical, balloon, light and water displays" are to take place. Thanks to the human creator, the simple mountain becomes a crystal one: "The Crystal Mountain: The rock is hewn and smoothed above the vegetation zone into multiple crystalline forms" (sheet 7). Luminous cupolas were to lend the mountains absolute beauty and make them timeless monuments to a peaceful society.

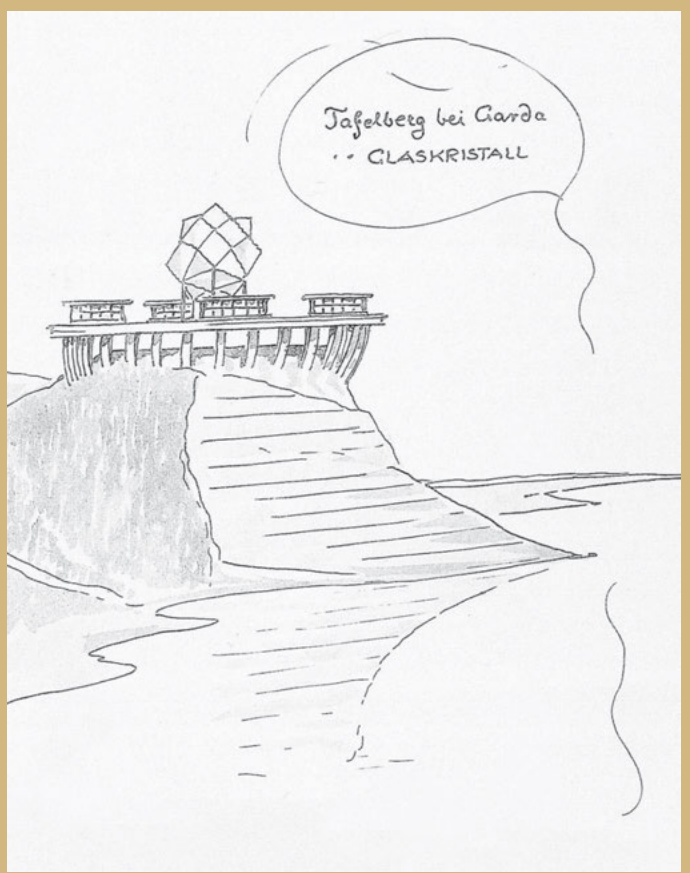
Sheet 16 is politically and socially critical; Taut appeals to the people here: "Nations of Europe! Shape your sacred assets!—Build! Be a thought of your planet, Earth, which wishes to adorn itself—through you!" Depicted is a map of the Alps that Taut calls the "map of the building area," which brings to consciousness the transnational, gigantic dimension.

Bruno Taut, Alpine Architektur, Folkwang publishing house, Hagen, 1919, sheet 14, detail

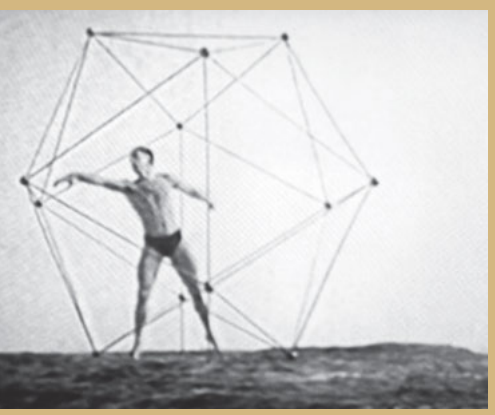
The people are to participate in the beautification of the mountains in order to strive for "a higher idea," since "utility and comfort" would lead to "boredom," to "quarreling, strife, and war": "lies, rapine, murder, misery, [bloodshed] a million million times over.— Preach: be peaceful! Preach the social idea: 'You are all brothers, organise, you can all live well, be well educated and have peace!" The masses are to be engaged in a great task "which fulfills everyone. […] Which [demands] enormous sacrifice in terms of courage, power and blood from billions." Technology is not to serve boredom and strife (war), but "the striving of the truly active human spirit." Taut's vision was based on the submission of the people to "the higher," which was to be achieved through continuous work and art: "There is only restless courageous labour in the service of beauty, in a subordination to the transcendent."

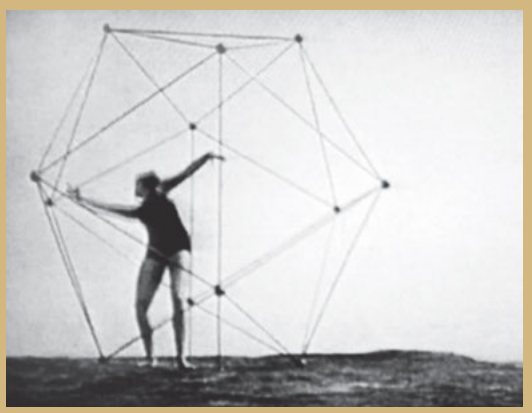
The picture book *Alpine Architecture* is subdivided into five sections, with the scale becoming ever larger and gradually advancing from the microcosm to the macrocosm. Thus, the first part is dedicated to the "Crystal Building," the second to the "Architecture of the Mountains," the third to "Alpine Building," the fourth to "Earth's Crust Building," while the fifth is given a cosmic dimension with "Astral Building." Here the Cathedral Star floats as a crystal ball in space (sheet 26), while sheet 28 exclaims: "The Spheres! The Circles! The Wheels!" Here Taut alludes to the ultimate abstraction and the cosmic movement; comets, stars and crystals float in an explosive figure in space. On sheet 29, he drew galaxies: "Systems of systems—worlds—nebulae" before ending on sheet 30 in an Eckhartian Nothingness:

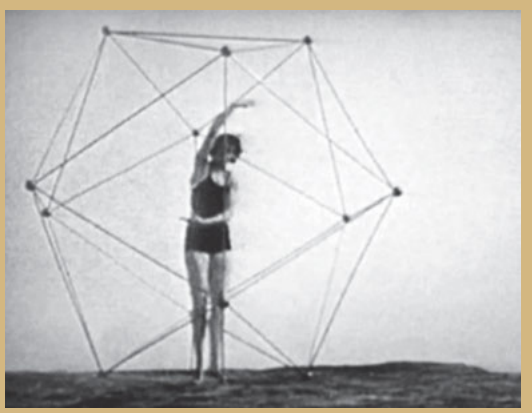
"Stars
worlds
sleep
death
The great nothingness
THE NAMELESS
END"



Laban dance school, dance exercises in the icosahedron, sequence from an anonymous silent film (untitled), 1'41", 1928

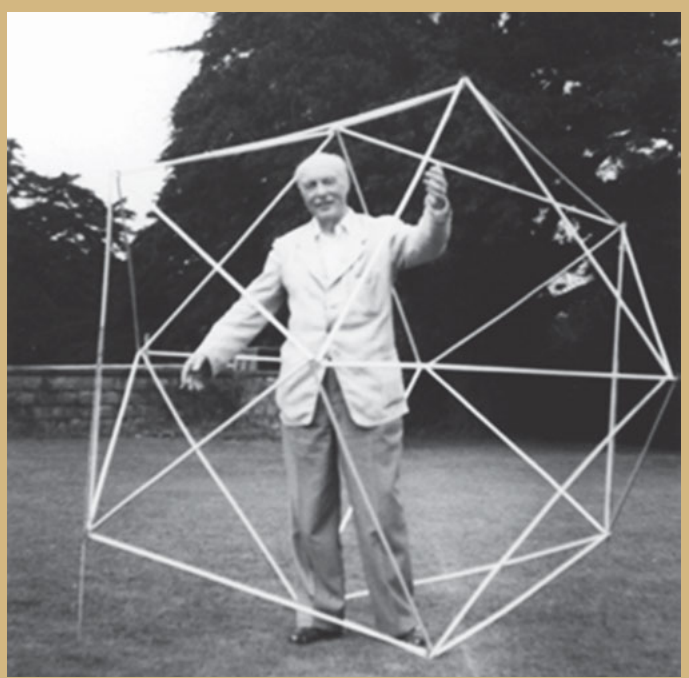






## 12 Rudolf von Laban, The Dancer in the Crystal

The dancer, choreographer, and dance theorist Rudolf von Laban (1879–1958, actually Rezsö Laban de Váraljas), was born the son of a Hungarian officer in Bratislava, a part of the Habsburg Austro-Hungarian empire at that time. After studying art in Paris, he founded his first dance troupe in Munich and followed Émile Jaques-Dalcroze to Hellerau in 1913. Like him, Laban was anxious to find a form of dance that was appropriate for the body. His experimental exercises generated a new type of body awareness, which was based (especially in the 1920s) on crystalline directional principles. He saw the crystal as a universal structure whose geometry could be found in impassioned human gestures such as in dance and fighting movements. Crystal structures served as a model for the learning of novel forms of movement based on universal, archaic principles: "In the two regular crystals, dodecahedra and icosahedra, we have structures in which these oblique relations are expressed quite purely. The amazing thing, though, is that the edge inclinations in these bodies are positioned to each other in very particular harmonic relations, and even more amazing is that our most common movement scales, such as the most skillful defensive holds in various types of combat, have exactly the same basic angles as certain harmonic sequences in the mentioned polyhedra. It gives us a spatial structure to which we can relate the harmonic and disharmonious mobility of the human body, and from which we can describe and capture every artistic dance movement in an easily understandable way."[40]

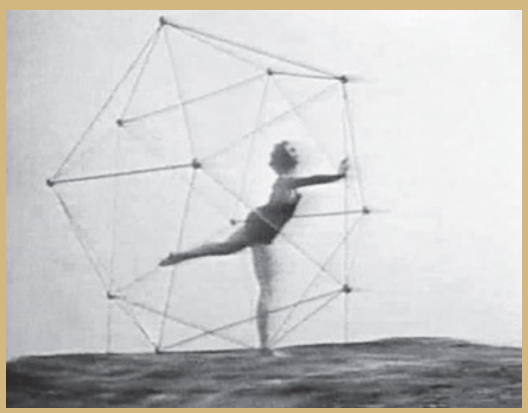


Rudolf von Laban in the icosahedron that he designed

Equipped with a protractor and measuring tape, he measured the positions of the limbs of his dancers, recorded them, and studied the balance and the exertion. He designed a spatial movement model based on the radii of the limbs and their position in space. The connection of all spatial points resulted in a dodecahedron, leading him to conclude that man stood in the center of an invisible crystal. Then he built human-sized crystal structures which he let his students dance in: "The human skeleton is the crystal of crystals. The skeleton delineates in its functional as well as expressive movements, the edges and inclinations of an invisible spatial crystal. This spatial crystal is the medium in which the structural tension of man is built."[41]

From modern crystallography he obtained confirmation of his structural insights, which he derived from tension relationships: "Every tension is an invisible crystal. It builds itself up

according to established laws of form."[42] He also dealt with the phenomenon of the breaking of structure, such as when the dancer falls: "The fall we see makes us dizzy, as if we ourselves would rush through space without support".[43]



Breaking out from the structure implies the confrontation with the limit of a system; latent balance becomes a fall, an unstable hurtle. Balance and imbalance, rest and speed, verticals and diagonals, all the forms of movement based on opposites provide the foundation for Laban's expressive dance.

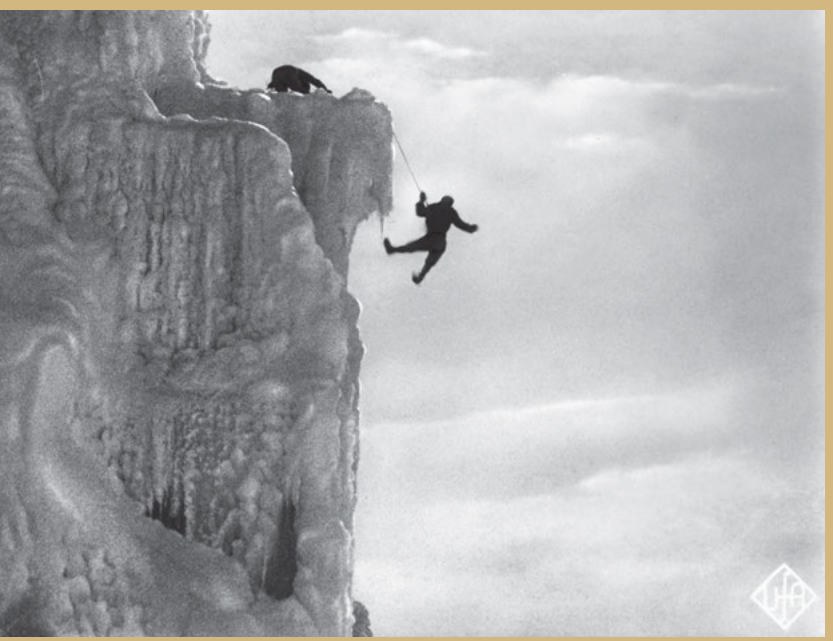
A result of the structural analyses was the "Labanotation," the first attempt to capture movement in a "dance notation," which he called "kinetography." He developed a system of 1,421 abstract symbols to record the dancer's movements in space, as well as the energy level and time. Laban's concept of nature was bound to the geometry of the laws of nature, whose laws also govern man.

Rudolf von Laban in front of the dance notation he developed, holding a crystal in his hand

Arnold Fanck, "The Holy Mountain," 1926, still from the climbing scene before the fatal fall

## 13 Crystal Mysticism in the Mountain Film – Arnold Fanck, "The Holy Mountain," 1926

In the German mountain film, the crystalline found a new medium in which the worship of nature, the cult of the body, and crystal mysticism came together. Directed by Arnold Fanck (1889–1974), "The Holy Mountain" featured Leni Riefenstahl in the role of the dancer Diotima. A former student of Mary Wigman's dance school, Riefenstahl had played in the silent movie "Ways to Strength and Beauty" in 1925.



At the beginning of the film, she is dancing to the rhythm of the rolling waves of the ocean, following her emotions, being one with nature, until she decides to go to the mountains. Two climbers watching her dance fall in love with her, setting off a drama of jealousy. While Karl, the older man, withdraws to the mountains to sort out his feelings, Vigo wins over Diotima. During an icy climb, the jealous Karl falls. While he is hanging on the rope, fighting for his life, a blizzard begins. In a hallucination, he envisions his marriage to Diotima in an ice palace, in front of a mystical steaming block of ice as a wedding altar, whose formidable size towers over the couple. Wanting to approach her, he pulls himself and Vigo, who is holding him on the rope, into the depths—and thus to death.

Culminating in the hallucination in the ice palace, the mystical element of this film is indicative of the crystal symbolism of Expressionism. With its crystalline Gothic cathedral shape, the elaborately constructed ice palace, which was 16 meters high and had to be built twice due to a temperature fluctuation, entered into Expressionist architectural language. The fusion with nature, articulated by the girl dancing in front of the waves at the beginning of the film and climaxing in the visionary union in the ice palace, can be regarded as a typical expression of crystal mysticism mixed with the sublime sentiment of Romanticism. This is also expressed in the figure of Karl, who, like Zarathustra, retreats to the mountains in search of self-awareness (while Vigo follows his emotions). Karl's sublime spirituality culminates in the ice palace vision, where he becomes one with his beloved in spirit, amidst the bluish glow of the crystal light.

The mystical intermingling of sublime visions with crystalline longings implies the body, mind, and soul in a holistic way. This kind of melding with nature in the crystalline reflected the German zeitgeist of that era.

Well beyond the borders of Germany, the film thrilled audiences around the world: it was successfully received in France, Spain, Portugal, Denmark, Greece, America, Brazil, and Japan. In 1931, the film critic and director Béla Balázs described "The Holy Mountain" as a "huge spectacle of swirling angry clouds, deep crevasses and backlit scenes" in which the figures merely appear as "shadows" to cast "the human eye" deep into "the monstrous world of monsters." Siegfried Kracauer, who sensed a danger in the mystical surge of nature romanticism (*Naturromantik*), especially with regard to the radicalization of the German youth movement and the emerging National Socialism, reviewed the film in the *Frankfurter Zeitung* with sharp criticism:

"Created by Dr. Arnold Fanck in one-and-a-half years, this film is a mammoth composition of body culture fantasies, solar idiocy, and cosmic bilge. Even the hardened old hand, who is no longer touched by mundane emotional drivel, finds himself thrown out of balance here. There may be here and there in Germany small youth groups which attempt to counter everything that they call mechanization by means of an obsessive nature worship, i.e. by means of a panic-stricken flight into the foggy brew of vague sentimentality. As an expression of their particular manner of not existing, the film is

Arnold Fanck, "The Holy Mountain," 1926, still from the interior of the ice palace

a masterpiece. The heroine could have been invented by Fidus. The girl always has to dance, first, as a child, by the sea with the waves, and later in the high mountains, where she longs for the pure and beautiful, and God knows what."[44]

But Kracauer, too, was impressed by the "nature shots for whose sake the eccentricities are happening" and had to acknowledge: "A ski race in all its phases is filmed with unprecedented vehemence, the tracks of the skis appearing like magic lines. […] The diabolical spirit of the plot unfortunately rides" on this skillful "photography," in these "art prints on glossy paper," as he sarcastically added.

Leni Riefenstahl, "The Blue Light," 1932, still of Junta in a mystic pose in the luminescent crystal cave

**14 Leni Riefenstahl, "The Blue Light," 1932**

In 1932, the film "The Blue Light" hit the screens. It marked Leni Riefenstahl's directorial debut and was produced together with Béla Balázs, with Hans Schneeberger operating the camera. Riefenstahl plays the lead role of the wild, spiritual mountain girl Junta, who has an existential connection to a bluish crystal cave, which she—as if magically attracted—climbs up to, barefoot, at full moon. The locals, on the other hand, fail miserably while attempting to climb the rock face, mysteriously shining in the moonlight, and fall fatally into the depths. Only Junta knows the secret of the luminous Monte Cristallo; only she can climb it. The jealous village youth call her a witch and pelt her with stones as she comes down from her mountains into the valley. This young Viennese painter Vigo coincidentally witnesses this scene and feels drawn to Junta. He follows her into the mountains, where they live together. One night, when the moon is full and Junta climbs to the crystal cave like a somnambulist, Vigo awakens and quietly follows her. He discloses the cave's secret to the village youth, suddenly turning the source of fright into one of possible wealth. Under Vigo's guidance, they find the right climbing path and remove the treasure. Next full moon, Junta, unsuspecting, resumes her ascent; but since the blue light is gone, she misses her way and falls down a precipice. The painter, too late to rescue her, bends over the shining face of the dead girl.

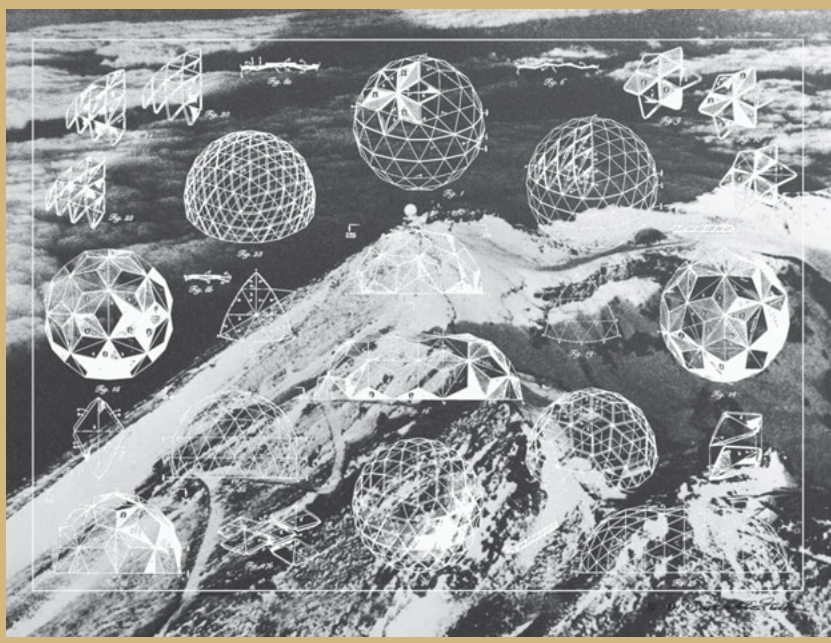
Junta's mystical connection with the crystals makes her appear as a higher natural being, in contrast to the villagers, who, in their everyday existence, are depicted as jealous, covetous, and vicious. The crystal emerges here symbolically as an element that unites nature and mankind.

Sigfried Kracauer wrote in *From Caligari to Hitler* (1947): "Beautiful outdoor shots stress the insoluble ties between primitive people and their natural surroundings. […] While the peasants are merely related to the soil, Junta is a true incarnation of elemental powers, strikingly confirmed as such by the circumstances of her death. She dies when sober reasoning has explained, and thus destroyed, the legend of the blue light. With the glow of the crystals her very soul is taken away. […] This mountain girl conforms to a political regime which relies on intuition, worships nature and cultivates myths."[4] It is not the rational but the irrational that prevails: "What remains is nostalgia for her realm and sadness over a disenchanted world in which the miraculous becomes merchandise."[46]

Kracauer analyzed the connections and transitions of the films of the pre-fascist era and the Nazi films. Especially with the mountain films, he saw all the influences taking place through a "fusion of the mountain cult and the Hitler cult."[47] The mystical character of the mountain films in the interwar period (including the recurrent crystal symbolism) helped change the interpretation of the sublime concept, which fascism incorporated for its purposes. The mystical mountain movies were a viable basis for propaganda, because the art of creating emotions by cinematic effects could easily be "diverted" from the mountains to other goals and purposes. The sublime feeling shifted from the power of nature to that of the omnipotent Führer (see chapter 4, "Docile Body"). Hitler was enthusiastic about Riefenstahl's mountain film and was able to win her over for Nazi propaganda. In 1934 she made the propaganda film "Triumph of the Will" (1935) during the Nuremberg Nazi Party rally, in which the cloud masses surrounding Hitler's plane resembled those in the mountain films, as Kracauer pointed out.[48]

Richard Buckminster Fuller (1895–1983)

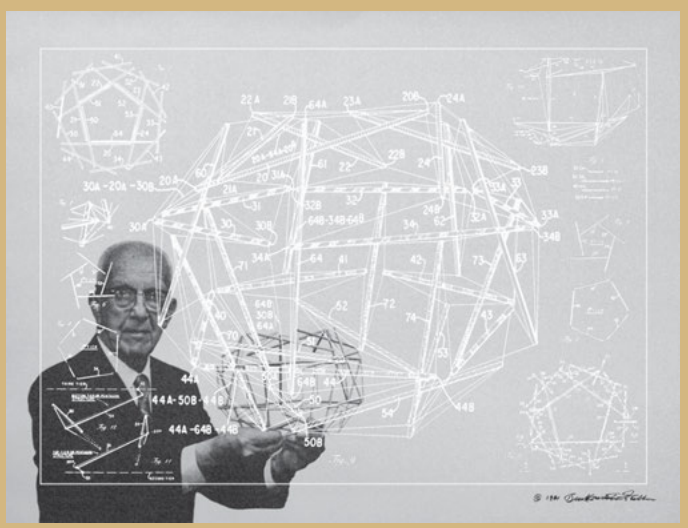
Richard Buckminster Fuller, "Laminar Geodesic Dome from the 'Inventions: Twelve Around One' portfolio," 1981



15 **Buckminster Fuller, Geodesic Spheres as the Cosmic Concept of the World, 1949–1981**

In the 1920s, Buckminster Fuller explored optimization and developed his famous principle of dynamics, maximization, and tension, which became known shortly thereafter in the abbreviated form of "DYMAXION." He had already designed the "4D House" from 1928 to 1930, a prefabricated, mass-produced, hexagonal, energy-efficient aluminum home with all the furniture fully integrated in its inner shell. Three years later, he designed a teardrop-shaped aerodynamic car with innovative fuel efficiency. During World War II, his interests shifted to the macrocosm, when in 1943 he contrived the "DYMAXION map": a two-dimensional world map composed of triangles that could be folded into an approximate spherical shape. When selecting the cut locations, he was careful not to disrupt the continuity of the land areas in order to raise public consciousness about the connection between the various continents. Twenty years later, this flat pattern of the Earth became the playing surface for his "World Game" (invented in 1961), an awareness-raising game—without losers—that was meant to draw attention to and inspire a sustainable way of dealing with "Spaceship Earth" which did not come with any "instruction book."[49] In 1949, with the help of his students, he constructed his first geodesic dome, 4.3 meters in diameter, covered by a vinyl plastic foil. The structural principle was characterized by continuous tension and discontinuous pressure elements, without buckling and bending moments. It was stable, light, and fast to build, whereupon the US Army commissioned Fuller's design company to construct such domes for the Marine Corps. Soon afterward, thousands of these could be found all over the world. In 1953, he erected his first large-scale geodesic dome for Ford, and, on the occasion of the 1967 World's Fair in Montreal, the "Biosphere."

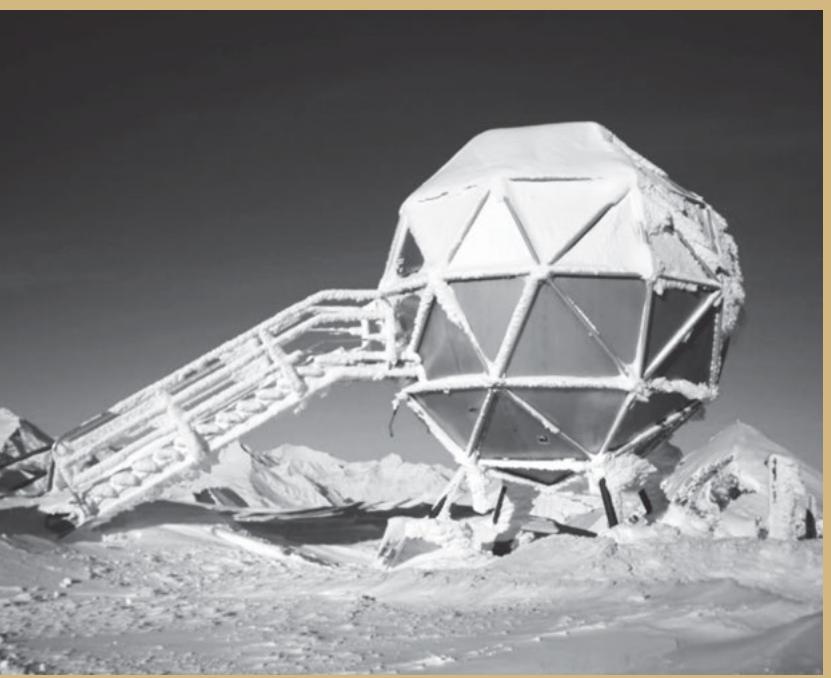
Buckminster Fuller worked obsessively on decomposing the globe into triangular structures that could be put together to form geodesic domes by using steel rods in all conceivable scales, forming a kind of "inner space of the world." Starting on a small scale that enveloped his own body, these domes grew larger and larger, until they ultimately exceeded a constructible dimension and enveloped Manhattan as a utopian vision, turning the New York borough into a bubble-shaped, climatically protected inner space. On his drawings made in 1981, crystalline spheres float as cosmic objects in the sky, above high mountain peaks, reminiscent of Bruno Taut's crystal visions in the Alps.



Gerhard Garstenauer, crystalline sphere next to the dome-shaped ski-lift station in Sportgastein, 1972

**16 Gerhard Garstenauer, Crystalline Spheres as a Ski-Lift Station in Sportgastein, 1972**

The Salzburg-based architect Gerhard Garstenauer was fascinated by crystalline shapes for constructive reasons because they stand as perfect, self-contained structures for timelessness and universality. Taut's crystal cathedrals and Fuller's geodesic domes inspired him, as he explained in an interview with the author. Following a summer workshop led by Konrad Wachsmann, he delved into the new technology of steel-rod construction, which could be assembled in various geometries.



When he received commissions to develop new tourist facilities in Bad Gastein and Sportgastein, he designed geodesic glass spheres that gave the roofscape of the Felsenbad thermal pool and the Congress Center in Bad Gastein the form of cupola-like hemispheres, while in Sportgastein they emblematically marked the ski-lift stations as spheres.

Devoid of reference, the abstract spherical shape seemed adequate to him in the pristine context of the mountain landscape, because the view from below is just as important as the overall view and the top view, as he explained in an interview: "It also affords a 360-degree panorama of the surrounding peaks and provides a relatively large volume of space. From a technical perspective, it also offers little air resistance, which prevents one-sided snow drifts."[50]
The glazed aluminum network spheres, 6 meters in diameter, were flown as a complete unit to the high mountains by helicopter, built onto steel columns, and anchored in the rock, while the 12-meter spheres were delivered in two parts.
He designed the geometry of the spheres with horizontal main loops to enable a subdivision, as well as a simple anchoring in the ground.

Garstenauer also planned the same construction method for the cable-car station of the Schareck Glacier Railway, this time as hemispheres. A universal system was to be deployed for different uses and to become the iconic trademark of Gastein, which wanted to attract young tourists with modern architecture. His specially developed gondolas for the Stubnerkogel cable car in Bad Gastein, which are characterized by superelliptic shapes in Plexiglas, caused a sensation in the 1970s—part pop art and part futuristic spaceship.
Garstenauer was likewise fascinated by the crystalline principle for other reasons, because it is organic and capable of growth, at every stage it looks self-contained and to a certain extent "finished."[51] The crystalline structure of pyrite served as a model for the design of the newly founded town of Sportgastein. As the tourist center, which had been conceived *ex nihilo*, was not to be built in a single construction phase and had to be capable of further growth, the crystalline properties seemed to be particularly suitable.
Neither the Schareck Glacier Railway nor his design for Sportgastein came to fruition. Garstenauer sought a synthesis between man and nature, art and technology—and found them in the crystal.

Andrea Deplazes with Studio Monte Rosa ETH Zurich, plan of 1st floor of the Monte Rosa Hut, 2009

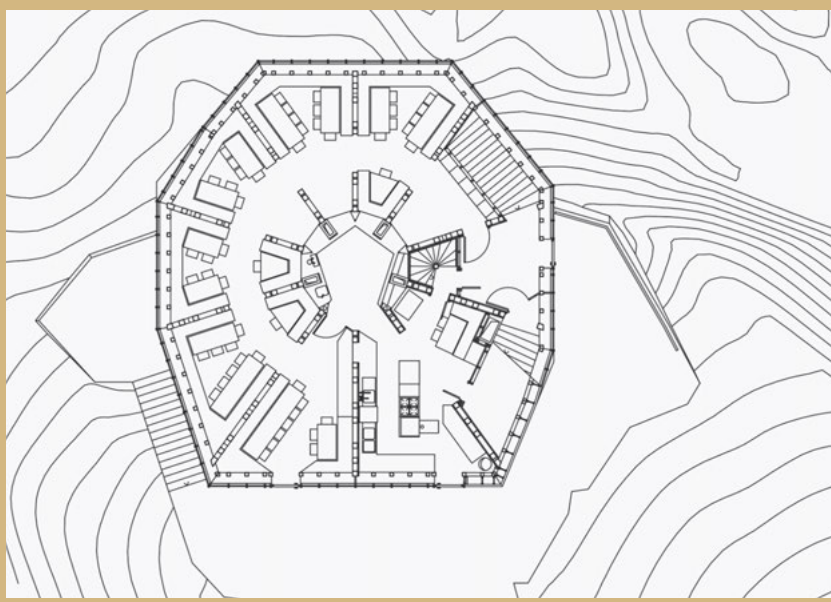
**17 Andrea Deplazes and Studio Monte Rosa ETH Zurich, Monte Rosa Hut, 2009**

The project of the new Monte Rosa Hut was designed and built between 2003 and 2009 by students of the Swiss Federal Institute of Technology Zurich (ETH-Z) in Andrea Deplazes's design studio, in collaboration with the Swiss Alpine Club SAC, the University of Lucerne, and the Swiss Federal Laboratories for Materials Testing and Research. Since the former hut was dilapidated, a new building had to be designed, in accordance with today's energy requirements. To meet the special conditions in the high mountains, the Monte Rosa Hut is completely self-sufficient with solar panels and a water treatment system. Andrea Deplazes and his students sought a new form of sustainable building in the Alpine region: "It was an interesting idea [to build] a mountain hut in a place that cannot be connected with civilization at all, at least not to the extent we are used to in the city: no sewerage, no water connection, no electricity connection. The students are faced with the question: What is a building actually? How does this work? Where do the things that we need every day come from? I think it's very important to understand that so fundamentally."[52]

The winning project of the internal student competition was characterized by its crystalline form: "Only this one could stand up to the scale-less glacier, on account of its timeless, abstract character. Moreover, the compact form was able to best meet the climatic requirements," as Andrea Deplazes explains.[53]

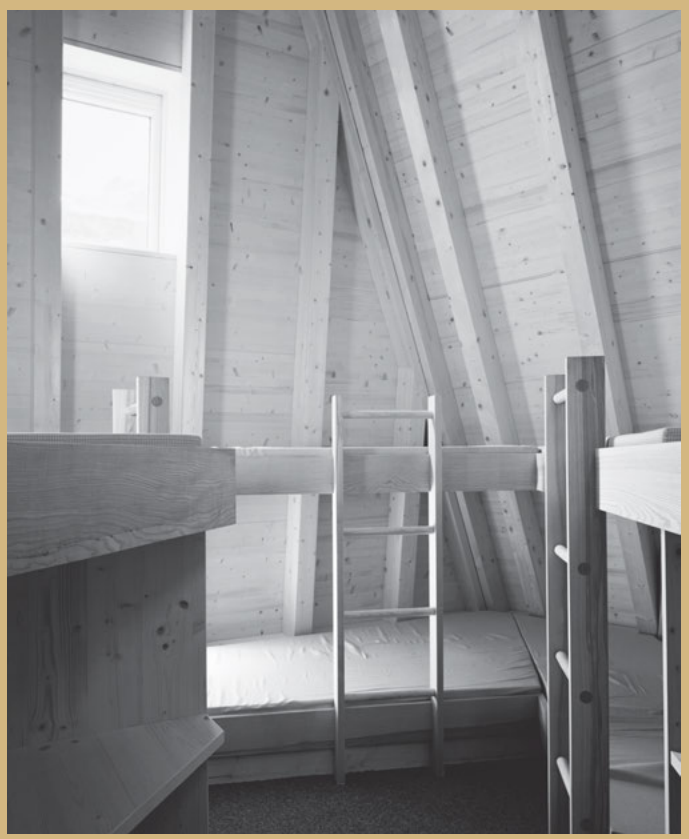
The construction of the hut situated at an altitude of some 2,800 meters was carried out by completely prefabricating all of the components, which were delivered by helicopter. A wooden platform establishes a horizontal surface to provide access to the hut. Situated in the entrance level is the dining room, which is uniformly made of wood, from the trusses to the furniture. The architectural team Gramazio Kohler used a computer-controlled program to enchase artificial wood veining into the supporting structure, bringing out the materiality of the building in semantic and symbolic terms.

Accessed by a staircase that continuously winds upward on the outside of the structure, the rooms are arranged radially around a central supporting core. A panoramic window along the staircase offers views to the countryside, while the room windows are kept small to minimize heat loss. Featuring crystal facets, the outer shell is composed of sheet metal cladding and solar collector surfaces, depending on the orientation to the sun. Here, the crystal bases its existence not only on formally analogous aspects but also on technical optimization, adding a new dimension to the centuries-old discourse on the crystalline.



Monte Rosa Hut at night

Volume projecting outward above the cliff with ascending staircase



Bedroom on upper floor with wooden boarding

Stairwell with continuous band of windows

**1** See Regine Prange, *Das Kristalline als Kunstsymbol: Bruno Taut und Paul Klee; Zur Reflexion des Abstrakten in Kunst und Kunsttheorie der Moderne*, Studien zur Kunstgeschichte 63 (Hildesheim, Zurich, New York: Georg Olms Verlag, 1991) [=Prange 1991].
**2** *Gottfried Semper: Style in the Technical and Tectonic Arts; or Practical Aesthetics*, trans. Harry Francis Malgrave and Michael Robinson (Los Angeles: Getty Publications, 2004) [=Semper (1860) 2004], 87–88.
**3** See Gernot Böhme, Hartmut Böhme, *Feuer, Wasser, Erde, Luft: Eine Kulturgeschichte der Elemente,* Beck'sche Reihe (1996; Munich: C. H. Beck, 2004), 143ff.
**4** See Prange 1991.
**5** Johann Gottfried Herder, *Outlines of a Philosophy of the History of Man*, trans. T. Churchill, vol. 1 (London: Luke Hansard for J. Johnson, St. Paul's Church-Yard, 1803), 46.
**6** *Friedrich Schiller: Poet of Freedom*, trans. William F. Wertz, Jr., vol. 2 (Washington DC: Schiller Institute, 1988), 414.
**7** Kant 1789, chap. 4, "Von der Zweckmäßigkeit der Naturformen als so viel besonderer Systeme," 217. Translated by Paul Guyer and Eric Matthews in Immanuel Kant: *Critique of the Power of Judgment* (Cambridge and New York: Cambridge University Press, 2000), 20.
**8** Kant (1790) 1911, "Analytic of the Sublime, § 46, Fine Art Is the Art of the Genius," 307.
**9** Arthur Schopenhauer, *The World as Will and Presentation*, trans. Richard E. Aquila, vol. 1 (London and New York: Routledge, 2016), 222.
**10** See Gustav Theodor Fechner, *Elemente der Psychophysik* (Leipzig: Breitkopf & Härtel, 1860) and *Vorschule der Ästhetik* (Leipzig: Breitkopf & Härtel, 1876).
**11** See Robert Vischer, *Über das optische Formgefühl: Ein Beitrag zur Ästhetik* (Leipzig: Hermann Credner Verlag, 1873); see also Paolo Amaldi, *Architecture, Profondeur, Mouvement* (Geneva: Infolio, 2011), 187.
**12** See Theodor Lipps, *Psychologie des Schönen und der Kunst* (1903; Hamburg, Leipzig: Verlag Leopold Voss, 1906).
**13** Prange 1991, 511.
**14** Alois Riegl, *Historische Grammatik der bildenden Künste*, vol. 1, *1897/98*, from the estate of Karl M. Swoboda, ed. Otto Pacht (Graz, Cologne: Böhlau, 1966).
**15** Semper (1860) 2004, 84.
**16** Semper (1860) 2004, 86–87.
**17** Kant (1790) 1911, "Analytic of the Beautiful, § 14 Exemplification," 226.
**18** Semper (1860) 2004, 86.
**19** Lothar Bucher, *Kulturhistorische Skizzen aus der Industrie-Ausstellung der Völker* (Frankfurt am Main: Lizius, 1851), 10. Translated (in Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Oakland: University of California Press, 2014), 47.
**20** Paul Scheerbart, aphorism on the cornice of the Glass Pavilion in Cologne, 1914. He proposed this aphorism to Bruno Taut in a letter dated February 8, 1914 (Aphorism no. 10): see Leo Ikelar, *Paul Scheerbarts Briefe von 1913–1914 an Gottfried Heinersdorff, Bruno Taut und Herwarth Walden* (Paderborn: Igel Verlag, 1996), 71 and 102.
**21** Scheerbart's quote was printed in the accompanying text to Bruno Taut's *Glashaus: Werkbund Ausstellung Köln 1914, Führer zur Eröffnung des Glashauses* (Cologne, 1914). 10. Translated in Dennis Sharp, ed., *Glass Architecture by Paul Scheerbart and Alpine Architecture by Bruno Taut* (New York, Washington: Praeger, 1972) [=Scheerbart (1914) 1972], 61.
**22** See Prange 1991, 72ff.
**23** Adolf Behne, "Bruno Taut," *Neue Blätter für Kunst und Dichtung*, no. 2 (April 1919), 13ff. Translated in Kai Konstanty Gutschow, "The Culture of Criticism: Adolf Behne and the Development of Modern Architecture in Germany, 1910–1914" (PhD diss., Columbia University, 2005), 268.
**24** Wilhelm Worringer, *Abstraction and Empathy: A Contribution to the Psychology of Style*, trans. Michael Bullock (Chicago: Elephant Paperbacks, 1997), 42. According to Worringer, the urge of abstraction of primitive peoples was concerned with "the need to connect up the rendering of the natural model with the elements of the purest abstraction, namely geometric-crystalline regularity, in order by this means to impress upon it the stamp of eternalisation and wrest it from temporality and arbitrariness."
**25** Bruno Taut, *Alpine Architektur, eine Utopie – a Utopia* (1919), ed. Matthias Schirren (Munich: Prestel Verlag, 2004) [=Taut (1919) 2004], sheet 12.
**26** Ernst Haeckel, *Kristallseelen* (Leipzig: Kröner Verlag, 1917), 10f.
**27** Ibid., 12.
**28** Wenzel Hablik, "Die freitragende Kuppel," *Frühlicht*, no. 3 (1922), 173.
**29** Ibid.
**30** Ibid.
**31** Ibid.
**32** Rudolf von Laban, *Die Welt des Tänzers: Fünf Gedankenreigen* (Stuttgart: Walter Seifert Verlag, 1920) [=Laban 1920], 59. Translated in Dick McCaw, ed., *The Laban Sourcebook* (London and New York: Routledge, 2011) [McCaw 2011], 62.
**33** See Evelyn Dörr, "Der Tänzer im Kristall – Rudolf von Laban und die Gemeinschaftsideologie," in Frieder Reininghaus and Katja Schneider, eds., *Handbuch der Musik im 20. Jahrhundert: Experimentelles Musik- und Tanztheater* (Laaper: Laaber Verlag, 2004), 46.
**34** Andrea Deplazes, "Die neue Monte Rosa Hütte," lecture, Conference at CCS-Paris, April 5, 2012.
**35** Scheerbart (1914) 1972, 56.
**36** Ibid., "Present-day Travel," 68.
**37** Ibid., "Future Travel," 68.
**38** Ibid., "Glass Culture," 74.
**39** Taut (1919) 2004.
**40** Rudolf von Laban, "Der Tanz als Eigenkunst" *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft*, vol. 19 (1925), 363f.
**41** Laban 1920, 89. Translated in Vera Maletic, *Body – Space – Expression: The Development of Rudolf Laban's Movement and Dance Concepts* (Berlin, New York, and Amsterdam: Mouton de Gruyter, 1987), 67.
**42** Laban 1920, 31.
**43** Ibid., 73.
**44** Siegfried Kracauer, "Der heilige Berg," 1927, *Frankfurter Zeitung* 168, March 4, 1927.
**45** Siegfried Kracauer, *From Caligari to Hitler: A Psychological History of the German Film,* ed. Leonardo Quaresima (Princeton NJ: Princeton University Press, 1947) [=Kracauer 1947], 259.
**46** Ibid.
**47** Ibid., 258. | **48** Ibid.
**49** Richard Buckminster Fuller, *Operating Manual for Spaceship Earth*, ed. Estate of R. Buckminster Fuller (Baden: Lars Müller, 2008), 87: "Now there is one outstandingly important fact regarding Spaceship Earth, and that is that no instruction book came with it."
**50** Gerhard Garstenauer, interview with Susanne Stacher, spring 2016.
**51** See Gerhard Garstenauer, *Interventionen,* ed. Architekturzentrum Wien (Vienna: Anton Pustet, 2002), 116ff.
**52** Andrea Deplazes, "Bauen aus Leidenschaft," film interview, ETH Zürich, YouTube, November 7, 2010, 5′ 56″, https://www.youtube.com/watch?v=Vso2XHgNC9I.



WOLFSBERG ZÜRICH

Otto Morach, "The Road to Strength and Health Passes through Davos," poster, ca. 1926

# 3 Therapeutic Landscape

*Je doute qu'aucune agitation violente, aucune maladie de vapeurs pût tenir contre un pareil séjour prolongé, et je suis surpris que des bains de l'air salutaire et bienfaisant des montagnes ne soient pas un des grands remèdes de la médecine et de la morale.*

**Jean-Jacques Rousseau, *Julie, ou La nouvelle Héloïse*, 1761**

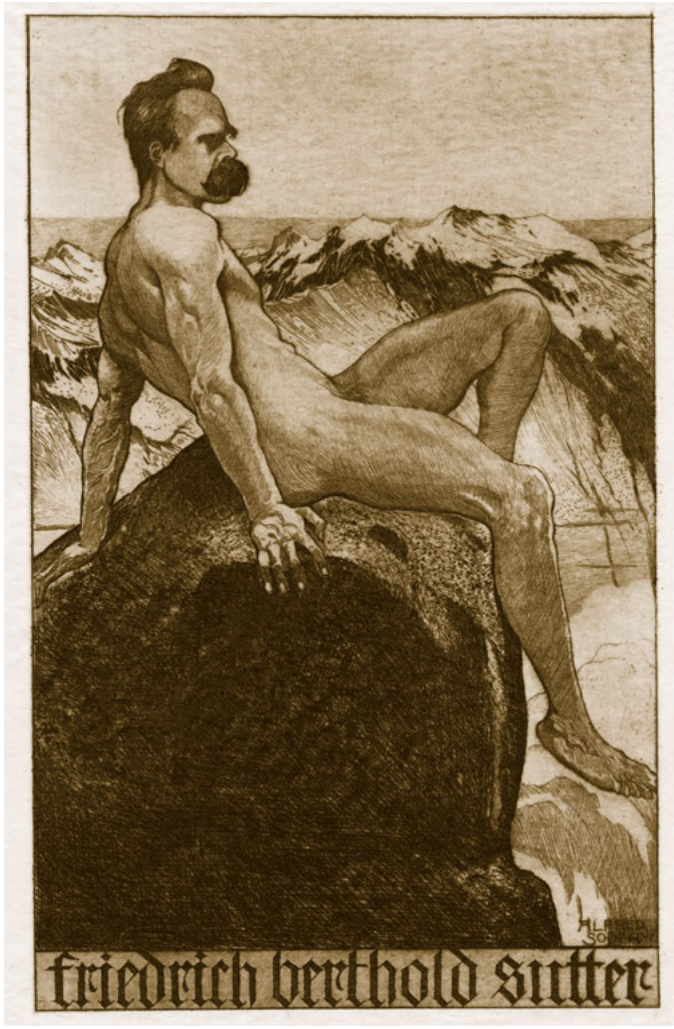
*I doubt much whether any violent agitation, or vapours of the mind, could hold out against such a situation; and I am surprised that a bath of the reviving and wholsome air of the mountains is not frequently prescribed both by physick and morality.*[1]

From the second half of the 19th century the Alps were seen as a therapeutic landscape; the mountains, the fresh air, and, above all, the sun as a panacea, were mythologized. It was not just untouched nature that was now deemed "sublime" but also the sun, now elevated to mythical status, and seen as being conducive to good health. On the posters of the 1920s and 1930s, the hope placed in the healing power of nature was made emblematically visible, with contrasting representations boasting mountains in the radiant sun and cities covered in dark shadows. There are figures raising their arms toward the radiant sun, which, around 1900, had become a sort of religion ersatz. It was, to be sure, a different image of God and nature than that portrayed by Shaftesbury in the early 18th century, who saw wild nature as a divine expression of a well-ordered cosmos. At the beginning of the 20th century, it was "the new man" who was foregrounded in the world image. He put nature to his service and transformed the sun into a mythic symbol of health. The notion of God and nature thus shifted from the wild mountains to the sun; its radiance was to further the healing and recovery of the "new man." The sun was seen as a kind of ersatz for God. The hope was to free man from his unhealthy existence, which was associated with city life and alienation. The reverence felt in the 18th century for the force of nature expressed in a sense of sublimity shifted, in the early 20th century, to the force of the sun, which served various conceptions of healing.

## The "New Man" and Nature as the Purveyor of Cure and Salvation

The notion of the "new man" can already be found in Jean-Jacques Rousseau who saw untouched nature, far away from civilization, as the ideal setting for children to grow up in. In his *Bildungsroman* (a coming-of-age story), *Émile, ou De l'éducation,* he wrote: "Émile, be a new man, you have nothing more to complain about from fate than about nature. Your misfortunes are null, the abyss of nothingness has swallowed them all; but what is real, what exists for you is your life, your health, your youth, your reason, your talents, your enlightenment, your virtues, in sum, if you wish it, and consequently your happiness."[2] The notion of the "new man" only appeared in social discourse at the beginning of the 20th

Alfred Soder, Ex libris plate for Friedrich Berthold Sutter: naked man (Nietzsche) sitting on a rock in the mountains, 1907




century; it ultimately gained traction in the 1920s, marking the abrupt break with the "old society" of the fin de siècle, which was now declared decadent.

As early as the 18th century Rousseau had recognized the potential healing force of nature: "I doubt much whether any violent agitation, or vapours of the mind, could hold out against such a situation; and I am surprised that a bath of the reviving and wholsome air of the mountains is not frequently prescribed both by physick and morality."[3] However, the times were not ripe then; the Alps were only discovered as a "therapeutic landscape" with the rise of industrialization and its concomitant ailments, especially in the second half of the 19th century when the polarization between "sublime nature" and the "ugly city" became more acute.

In this connection, mention should be made of John Ruskin and the English Arts and Crafts Movement, which advocated a renaissance of artisanship—as a counterpole to mass production. The life reform movement, which started, primarily, from Germany and Switzerland, championed arts and crafts, but it set particular store on the body. It, too, was to be liberated from its subjugation to civilization so as to be able to aspire to the "authentic," the "true," and the "pure."[4] Under the sway of the philosophical discourse of the time, these abstract concepts were also manifested in healthy nutrition, abstinence, movement, and reform clothing that catered to the body. The reform movement and its achievements should not be underestimated, as they paved the way for the liberation of the body, to social reforms, and to an emancipated relationship between the sexes. It generated a sense of a new era that was about to dawn, based on a new beginning that was not only radical and utopian but also lyrical—one in which nature and the liberated body took center stage.

**Schopenhauer's "Will," Nietzsche's "Homo Natura" and "Naked Nature"**

The conceptual constructs of the philosophers Arthur Schopenhauer and Friedrich Nietzsche can be seen as the intellectual underpinnings of the "life philosophy" of the German reform movement, especially with respect to the significance of the body. After the mid-19th century, mind and soul were no longer seen as autonomous entities but as components of the individual, dependent on (and also working together with) the body. As a result, the aesthetic categories of the beautiful and the sublime no longer related exclusively to the mind, art, and the study of nature, but also to the body. As can be gleaned from his philosophical treatise *The World as Will and Idea* (1819), Arthur Schopenhauer did not grasp "will" as the free will of man, but as a "thing-in-itself,"[5] by which he meant vital force, the irrational essence of the world and nature which is controlled by drives (*Drangfähigkeit*).[6] Friedrich Nietzsche built on Schopenhauer's philosophy, but reversed the status and import of the body. For him it was not the immediate expression of will but rather the very basis of will. "Homo natura" (a Nietzsche quote from *Beyond Good and Evil,* 1886) was his answer to the philosophical discussion. It was not God that could be equated with nature (Baruch Spinoza's "Deus sive Natura") but rather man; here he is picking up the thread of Schopenhauer's instinct-driven view of nature "natura sive sexus" (nature synonymous with

instinct), as Wolfgang Riedel elaborates.[7] However, unlike Schopenhauer Nietzsche saw the soul simply as a component of the body. In the chapter titled "The Despisers of the Body" (in *Thus Spoke Zarathustra*, 1883–1885), he described the body as the self that rises up above the spirit (the I):

"'Body am I, and soul'—so says the child. And why should one not speak like children?

But the awakened and the knowing say: 'Body am I entirely, and nothing more; and the soul is only a word for something about the body. The body is a great intelligence.'"[8]

Nietzsche saw the spirit as the instrument of the body, since the instinct-driven body defines the spirit: "The creative body created spirit as a hand of its will." In order to escape the instinct-driven determination of the body, Nietzsche accorded the "self" a higher will, which helps man to go beyond himself and to seek the path to the "overman." Nietzsche admonished the "despisers of the body" to better serve their "self," instead of despising their body, since the latter would otherwise perish. He let Zarathustra end with the firm statement: "I will not follow you, you despisers of the body! For me you are not a bridge to the overman!"[9]

"Being body" (*Leibsein*) was essential for Nietzsche. He declared war on the European tradition of philosophy. "Naked nature" was for him the expression of a primal force, a pure, bare state, in which man is governed by "great passion," which he contrasted with the "masquerade of moral." The task of culture was to get a grip on the horrific in naked nature, by culture transforming nature into good through passion and not damning evil or trying to restrain it.[10] The instinct-driven body points a path toward knowledge, which is no longer based on the control of physical drives but on a living "passion" that finds pictorial expression in the whirling dance of the philosopher.

**The Veneration, Alienation, and Marketing of Nietzsche**

This philosophical backdrop was crucial for the revolutionary age of the fin-de-siècle, especially for the life reform movement, as well as for Expressionism and the emergent modernism. The body-accentuated experience of nature and modern dance were an expression of this radical renewal. Even if Nietzsche placed the body at the center of his philosophy, he was not interested in the nude body. On the contrary, for him nudity was, primarily for aesthetic reasons, an atrocity, as can be gleaned from his "Gay Science" (1882/1887):

"The naked man is generally an ignominious spectacle—I speak of us European males (and by no means of European females!). If the most joyous company at table suddenly found themselves stripped and divested of their garments through the trick of an enchanter, I believe that not only would the joyousness be gone and the strongest appetite lost; it seems that we Europeans cannot at all dispense with the masquerade that is called clothing."[11]

Irrespective of Nietzsche's basic repudiation of nudity, he went on to be marketed by various groups after his death. On an 1907 ex libris of the etcher Alfred Soder one can see the nude philosopher depicted in high mountain regions.[12] That his ideas were not faithfully rendered in diverse interpretations seems irrelevant; it was much more about co-opting him for one's own goals, purposes, and ideologies, whether they were revolutionary or *völkisch* (nationalistic). Even contemporary architects worshiped the deceased philosopher and interpreted him completely liberally. In 1898–1900 Fritz Schumacher made a design for a "Nietzsche monument."[13] Henry van de Velde, in 1910–1912, even designed a "Nietzsche temple" for Weimar that was to unify all followers of the philosopher in a two-part building complex so as to assuage their quarrels. A main building was planned—a small "temple of the spirit" for the intellectual elite—and, connected to this, a long stadium of enormous dimensions, modeled after antiquity, for the physical training of the masses, as can be seen in the exhibition catalog titled *Die Lebensreform: Entwürfe zur Neugestaltung von Leben und Kunst um 1900* (The Life Reform: Designs for a Reconfiguration of Life and Art around 1900).[14] The division into two classes would thus be an overly free interpretation of Nietzsche's intellectual legacy and not an idea that could be related to him. Concerning facts and interpretation Nietzsche had said, on the one hand, that there were "no facts, just interpretations," that is, numerous perspectives, while, on the other, he called for philological knowledge so as to be able to discern facts without falsifying them by interpretation.[15] This maxim received little attention.

Caspar David Friedrich, "Wanderer above the Sea of Fog," 1818, detail

## Philosophy of Life, Naturism, and *Wandervereine*

The spiritualization of the Enlightenment tradition—meanwhile no longer in fashion—after John Locke, David Hume, and Immanuel Kant was followed, antithetically as it were, by "life."[16] Shaftesbury had already turned against the purely rationalist perspective of his tutor Locke by making the case for analogies that could be traced in emotions and giving significant room to enthusiasm accentuated by feeling. The step from the Enlightenment to Romanticism, however, is a large one. Now, the feeling and imagining being was also one with a "will," which was to be integrated in the idea of "life." This concept marked a challenge to the purely scientific view of the world, as Thomas Rohkrämer aptly noted.[17]

Mechanization and materialism were seen as opposed by the simple and elementary, the creative, living, and the youthful. For it is the immediate personal experience that constitutes the reality of our existence, it is not to be objectified or analyzed. Here "life" was to be understood as a supra-temporal notion, as the origin of all forms, the symbol of the creative force of becoming, which was to be protected from falling into meaninglessness through self-reproduction.[18]
Ever since Schopenhauer and Nietzsche had espoused cyclical thought, as illustrated by their idea of the "eternal return," life had been grasped as an organic whole, as a dynamic equilibrium of body and mind, thought and feeling. Passion and an accentuation of corporeality in aspiring to a higher consciousness can be related to Nietzsche; the symbolic locus of this consciousness are the mountains, while the roaring ocean stands for stirring emotions and hidden instincts.

### Goals of Naturism

The central focus of life philosophy was the unmasked body whose nudity was expressive of the "true and beautiful." Nudity was to create a "pure" relationship to corporeality, at a remove from the erotic "veiling" and to not incite instinctual responses (*Triebhaftigkeit*). The various reform movements shared the goal of a liberated body but had differing intentions, depending on ideological and political orientation. What connected them was the search for a more "natural" way of life, the "free nature" of man.
The contrasting ideological orientations can be illustrated on the basis of naturism, which was practiced in the German-speaking region by several groups for different reasons. Since the life reformers who stemmed from the educated classes aspired to a unification of man and nature, they projected the possibility of a radical liberation from social constraints onto naturism. Those who were *völkisch* saw it as embodying an opportunity for "natural selection" that would allow for a "better" world to be constituted (which in their view was to be of a "pure race"), interpreting social Darwinism according to their ideology (healthy, nude German males would attract healthy nude German females). For the workers' movement, which had emerged as a political alternative to the bourgeois reform movements, nudity and hygiene offered a path to physical health, to strengthening the revolutionary body of the worker who was getting ready

for class struggle. The worker's movement was intent on building anti-capitalist social structures (based on a community of production and goods) and advocated emancipation, land reform, settlement projects, and regulated working conditions. This was a goal they shared with a number of bourgeois reform movements that also strove to improve the life conditions of the working class. The boundaries between the socially engaged and the theosophical groups might not be clear-cut, and often they overlapped, as in Monte Verità, which according to Harald Szeemann represented the "sum total of all ideologies."

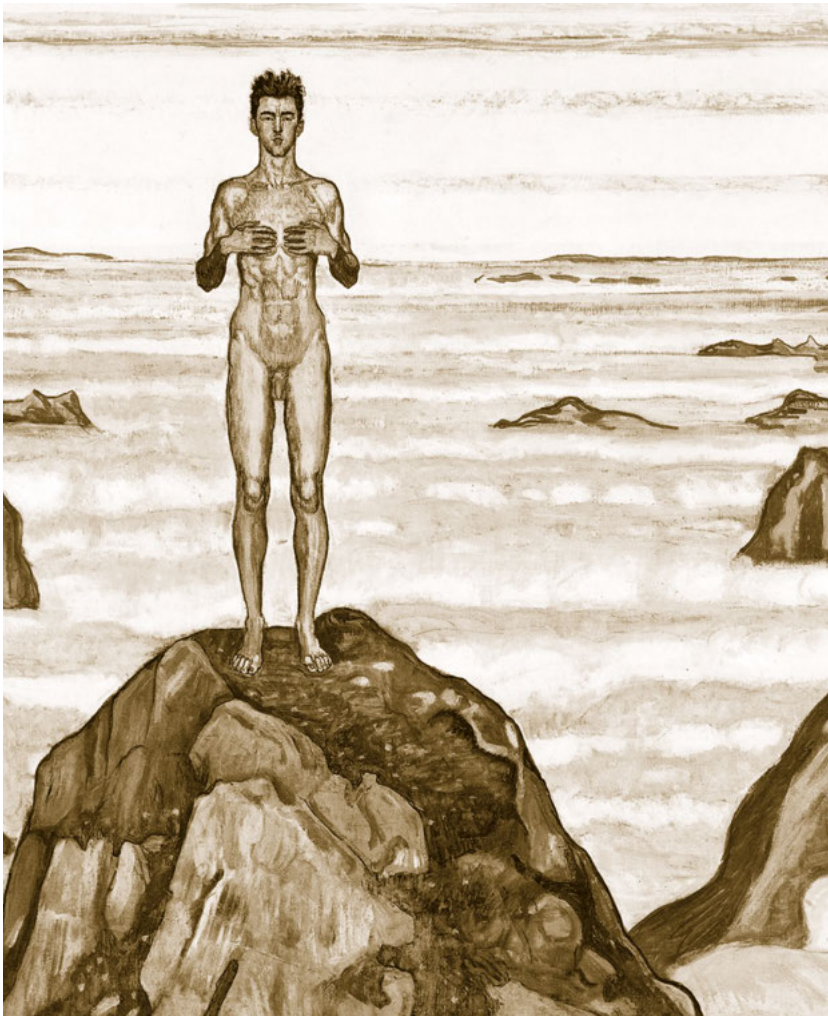
Practiced by all reform groups, nudism gradually conquered "wild nature" and thus also the Alps. The new physical freedom included sunbaths, nude swimming (skinny dipping), nude ball games, and exercises in the meadows, in the woods, and in the mountains.

**The Naked Wanderer above the Sea of Fog**

The radically different relationship between man and nature also had an impact on the way mountains were perceived, as the comparison of two paintings shows. Eighty-five years after Caspar David Friedrich's "Wanderer above the Sea of Fog,"[19] the empathetic figure of the wanderer is replaced in Ferdinand Hodler's painting "View to Infinity III" (1903–1906) by a completely naked young man, who invites the viewer to lose himself in the sublime feeling inspired by the eternity of the mountains. He no longer stands with his back turned but rather directs his eyes at the beholder; his hands do not cover, shamefully, his nudity, but allusively his chest, as in a gesture of deep emotion. Unlike Friedrich's centrally positioned wanderer, he stands in the left half of the painting. This way, the gaze is free to see the fog of sea in the background, on the one hand, while, on the other, a destabilizing asymmetry is created, evoking a vacillation, a possible tilting, which serves to highlight the fragility of the nude body. With its rigid pose, the body appears to be drifting on the rock tip in the clouds, between here and elsewhere. The confrontation with sublimity is expressed in Nietzsche's four-liner "The Wanderer," who is here confronted in his solitude and forlornness with the endless silence which crystallizes in the nudity of the young man in Hodler's painting.

"The path ends! Abyss and deathly silence loom!"
You wanted this! Your will strayed to its doom!

Ferdinand Hodler, "View to Infinity," 1903–1906, detail



Now, wanderer, stand! Be keen and cool as frost!
Believe in danger now and you—are lost."[20]

**Ideology and the Radicalization of the Wander Youth Movement**

The nude young man who replaced the wanderer in a frock coat reflects an upheaval, a deep-rooted change, which was particularly manifest in the youth culture that emerged toward the end of the 19th century. This culture was marked by the image of the "new man" in nature. A significant movement developed around youth— recently perceived as a separate group of people of a certain age and a certain situation. It had become the epitome of the revolution against obsolete, "dusty" forms of society.[21]

Young people organized themselves for the first time in groups outside of school, training, or work. They wanted to venture

out together, break out of everyday life and conquer the city and nature, in particular the Alps, which over the years had become a symbol for freedom and a liminal experience. Romantic notions such as "courage" and "virtue" drove young people on to seek out intense experiences. The much-propagated sublime (in the panoramas and dioramas, in painting, in book illustrations, in literature, and also, from the 1920s, in mountain films) offered an intense, shocking experience, which was joined by the transfigured notion of a possible fusion with nature. Between worshiping the sun and experiencing nature in a fundamental way, the young people were mainly in search of their own identity, albeit within a group whose various political and religious movements had a strong impact on their own way of thinking.

The youth culture was entirely driven by a radical idea of renewal. In the left-oriented groups, in addition to the generally shared goal of a natural style of life, abstinence from alcohol and drugs, reform of diet and clothing, and naturism, there was also emancipation and sexual liberation, as well as democratic self-organization and alternative agriculture.

In the *völkisch*-minded youth, racial hygiene and German nationalism came to the fore. In numerous groups sectarian, hierarchical structures soon brought the romantic longing for nature under their control, as the history of the *Wandervogel* shows. From a small group of pupils founded in Steglitz (today part of Berlin), the quickly growing youth movement soon oriented itself as *völkisch* under the sway of former militaries from 1911 on. In 1913, the Austrian *Wandervogel*, from the beginning German-oriented and anti-Slavic, adopted the "Aryan paragraph" introduced by Georg von Schönerer, which banned access to Jewish youth.

**Alpine Hiking Clubs and the Politics of Exclusion**

Even the alpine clubs, which emerged in a number of countries in the second half of the 19th century, showed noticeable signs of nationalism and anti-Semitism, accompanied, at the beginning of the 20th century, by an ever-growing politicization and radicalization. In the midst of the mountains, which in the 18th century had been praised by Rousseau as being an ideal world for the people of an enlightened world to grow up in, there was now all of a sudden a discussion on the question of whom the mountains belonged to—and did not belong to. Here inclusion and exclusion became the governing principles of alpine clubs.

The "co-optation" of the mountains had begun with nations competing over the first ascent of the highest peaks of the Alps and the young alpine clubs aiming to make the mountains accessible. In 1857 British alpinists established the first club for mountain climbers, the Alpine Club (the Ladies' Alpine Club was established in 1907). In 1862, The Austrian Alpine Club was founded and one year later the Swiss Alpine Club at the initiative of the Berne university professor Rudolf Simler, who had noted that the conquest of the Alps was not to be left to foreigners alone and that a Swiss mountain-climbing association would "no doubt be able to achieve something better, directly productive for the fatherland" (the Swiss Women's Alpine Club was founded in 1918). In Germany the Bildungsbürgerliche Bergsteigerverein (later known as Deutscher Alpenverein, the German Alpine Club) was founded in 1869 and four years later it merged with the Austrian Alpine Club. In 1874, the Club Alpin Français emerged, which was now to also take part in the touristic conquest of the Alps. As a result of the increasing politicization, and as an alternative to the bourgeois alpine club, the worker's movement founded its own hiking club—the Naturfreunde (Friends of Nature) in 1895. In the statutes they pledged their allegiance to democratic socialism and the goal of the mountains belonging to "everyone," that is to say, to the working masses too. The various clubs unleashed a veritable competition to co-opt the Alps: Who will build a hut for whom and where?

Around the turn of the century anti-Semitism became rampant in the German and Austrian Alpine Club (1873–1938), leading—earlier than in the *Wandervogel*—to exclusionary legal stipulations. Since its founding in 1889 only "German citizens

baptized as Christians" had access to the section Mark Brandenburg; the Vienna section, founded in 1905, accepted from the beginning only "Aryan" members and in 1907 it adopted the so-called Aryan paragraph (six years prior to the Austrian *Wandervogel*). When, in 1921, Eduard Pichl and further *völkisch*-minded members achieved a majority in the executive board of the Austrian section, Jewish and liberal members ousted from the club founded the Donauland section. When this section was excluded as well in 1924, it became an independent organization known as Alpenverein Donauland.

The increasing politicization and the realization that ideology was best disseminated through the education of young people resulted in the *Wanderverein* (hiking club) creating a separate youth organization in the interwar years. In 1925, the Naturfreundejugend (Friends of Nature Youth) was founded as a counter-movement to the then widespread bourgeois *Wandervogel*; two years later the Alpenverein founded the Jugend des Deutschen Alpenverein (Youth of the German Alpine Club). It was not just healthy development in nature that was important here but also political ideological education (as is explained in detail in the chapter "Contesting for the Child").

The history of the hiking clubs, youth movements, and various other reform groups shows how a "search for nature" became transformed into a "struggle for nature." Romantic aspirations became intermingled with nationalistic and racist ones, which led to exclusion—and this already before the Nazis seized power. The mountains—perhaps given their isolated location, far away from any authorities—were governed by their own set of rules. This did not just affect the hut policy (some of the club huts prohibited non-members access based on their religious or political affiliations) but also the acceptance conditions of the alpine clubs, which, depending on the section concerned, were able to freely decide who could be accepted as a member—and who not.

The "therapeutic landscape" of the Alps where German romanticism had clearly left its mark between the search for transcendence and nationalistic aspirations thus shows a dark side of history, where the danger that lies in merging both aspirations becomes clearly visible.

## Monte Verità, an Alternative World of Contradictions

Monte Verità is showcased as the most radical example of life reform in the Alpine region and described on the basis of its contradictory aspects, its pluralism. This gives a picture of the heterogeneous composition of the reform movement, which oscillated between sociopolitical aspirations and a mystic-religious veneration of nature. Toward the end of the 19th century a new view of nature had become accepted, finding expression through the synthesis of man and nature, on the one hand, and a cosmic aspiration for "purity" as reflected in the crystal, on the other.

Both approaches could be found in the reform colony Monte Verità, which had become established on a small wine-growing mountain near Ascona in Ticino (Project 18). This colony drew great attention with its radical vegetarianism and nudism and drew curious visitors from a number of countries. Here, it serves as an example of a radical health and social new beginning in the midst of the mountains. In the attempt to attain a healthier and more pure life, its founders were constantly searching for the truth, seeking, as Ida Hofmann writes in her memoirs, a "higher culture."

For financial reasons the founding members soon transformed the "vegetabile cooperative" as it was first known, into a *Naturheilanstalt*—or "sanatorium" as it was called in a publicity brochure in 1902, where it was auspiciously described as: "Founded by truth seekers, dedicated to truth seekers." The sanatorium was to provide a space for short-term recuperation and facilitate lasting recovery for long-term residents. Among the most important "purification rituals" one found a strict vegetarian diet as well as light, air, and sun baths (based on Arnold Rikli's model in Veldes—something Henri Oedenkoven and Ida Hofmann were familiar with from earlier cure stays); music, discussions, and lectures stimulated the development of the mind. Theory and experiment came together here, for there were not just numerous discussions—a great deal was also tested on one's own body.

In the afterword to Ida Hofmann's autobiography one can discern her holistic aspirations with an eye to a "higher life," where a prophetic, mystical trait certainly shone through: "Monte Verità is no sanatorium in an ordinary sense, but rather a school for higher life, a place for the development

J. A. Maisenbach, Rudolf von Laban (r) and his dancers, choreography on the shore of Lago Maggiore, Ascona, Monte Verità, 1914

and collection of extended insights and an expanded consciousness […], fertilized by the sun ray of the universal will that manifests itself in us."[22]

As aloof as these cosmically tinged ideals were, the actual daily routine was sobering. Food had to be grown on site, and a vegetarian diet was mandatory. There were usually soups and self-grown fruit and vegetables. Members who had not been confronted with physical labor beforehand had to adapt to more than just the radical plant-based diet. "In the mornings between 6 and 7 we left for work and returned in the evening completely exhausted between 5 and 7. Men as well as women, with a graver and hoe, dragged logs, sawed and planed. Only gradually did one notice that it was more difficult for someone mainly used to mental labor to convert his energy into physical performance than the other way around."[23]

The reform colony Monte Verità is also interesting because various ideological movements came together, between theosophy and anarchism, in part even communism. Seen from today's perspective contradictory tendencies, like the seemingly irreconcilable counterpoles nature and technology, were able to converge in the context of the time as Gernot Böhme accentuates.[24] The two founders, Oedenkoven and Hofmann, for all their radical attachment to nature, put technology in the service of man and were among the first in Ascona to have electric light and running water installed. Their outlook was marked not only by a theosophical early Christian approach but also by a sociopolitical mindset, which was reflected in a cooperatively structured form of settlement. Ida Hofmann placed "being human" (*Menschsein*) above any religion or national affiliation: "The child of coming generations will no longer be brought up as a Christian, Muslim, Buddhist, or Jew, as a Russian, Frenchman, Pole, or German. His first definition and mission is to be 'human' in the full sense of the word, then he is automatically equal to the most dignified of the followers of any religion."[25] "Being human" to her meant developing one's own life philosophy in an individual involvement with nature. The common denominator was to be the clothing and nutrition reform, but it was not an easy task to implement this in view of the differences in the diverse life philosophies.

Even though Ida Hofmann probably did not have a *völkisch* orientation, she cites "selective breeding" as the goal of modern man by referring to the process of "natural adaptation" (not selection), drawing on Darwin: "Never again can man become a brute, which he was—all the stages of development irrevocably separating him from the first stage of his existence. Today, the man striving for perfection is not 'natural man' but 'cultured man,' inasmuch as he is the product of selective breeding and all the refinements offered by discerning the laws of nature."[26]

She was thinking of adaptation in the sense of the "refinement" of man through nature, a "higher being" schooled by culture. The notion of a "higher race" was not linked to hereditary substance as in the *völkisch* view but to various levels of social consciousness; here she was referring to Ibsen's drama *Emperor and Galilean* which was translated into German in 1888. Ibsen distinguished between the empire of antiquity, which belonged to the past and the empire of Christianity, which we grow out of to move toward the "third empire" of truth and knowledge. He understood this concept as the synthesis of heathendom and Christianity. Ida Hofmann showed enthusiasm for this drama because it addressed the search for peace, with individual personal development and vegetarian nutrition assuming an important role: "The law of continuous development knows no exception: there are thus people and races of the lowest, lower, higher and highest level of development. The lower level corresponds to the killing of the animal for the purpose of enjoying meat, animal passions, socially absolute systems of government, a policy of conquest and wars; the higher and the highest levels developed by Ibsen in *Emperor and Galilean* in the sense of the 'third empire' corresponds to meatless and bloodless nutrition,

18 Reform Colony Monte Verità, Air Huts and Flat Roof, 1900–1924

Teahouse on Monte Verità (b)

Main house on Monte Verità (t)

the need for a more sublime moral life, the search for a freer administration within the state system, peaceful compensation between individuals and peoples, the gradual dissolution of the military setup, and the development of personality and individuality."[27] (From this it can be deduced that social Darwinism was also seen as a reference outside of *völkisch* circles.)

Rudolf von Laban, who had founded the Schule für Kunst on Monte Verità in 1913 (a kind of summer dance school which he ran until 1918), propagated the free dance movement guided by emotions and detached from social conventions (Dance Portrait 19). He nevertheless drew the angles of the limbs and their radiuses of movement in order to inscribe the dancer in a crystal, which served as a structural model for directions of movement. (The rational scientific approach of measuring and recording coexisted with the free, emotionally charged form of movement and the ecstatic sun dances.) He was striving for a more natural form of expression in dance movement, which he sought both in the crystalline and in the osmosis between man and nature and which was articulated in cultic dances and rituals. Laban saw dance as an expression of "body-soul-mind," with the emphasis on a harmonious mix: "[A dancer] is that new man who does not draw his awareness one-sidedly from the brutalities of thinking, feeling or will. He is that person who strives to interweave clear intellect, deep feeling and strong will into a harmoniously balanced and flexible whole whose parts are interrelated."[28] (Dance Portrait 19)

Here Nietzsche's words are echoed—in dance he saw the possibility of man becoming one with nature, which is expressed in the figure of the dancing, whirling philosopher. His ecstatic, Dionysian principle was taken up and implemented in expressive dance. The differences in the ideological orientation of the community and the continuing search is also expressed in the heterogeneity of the architectures—between simply air huts made of wood (but furnished with heating and running water), a temple-like central house in a curious form of Art Nouveau (Jugendstil), and the mysterious Casa Anatta, whose flat roof was used for sunbathing. All these buildings reflect the search for an adequate architectural form to cater to a new way of life in the midst of nature (Project 18).

After the colony disbanded, Eduard Freiherr von der Heydt bought Monte Verità and had a new hotel in a modernist

style built according to the plans of the German architect Emil Fahrenkamp, right next to the old main house. Of the latter, only the stone base remained, with its two-winged staircase. A new mundane life took hold: the new society presented itself in chic attire, in bathing suits, or even naked, showing that the freedom for which their predecessors had had to struggle had already been achieved by the 1920s (Project 20).

Rudolf von Laban, Sun Dance on Monte Verità, 1917

19

Martin Peikert, "Prevent – Heal – Rejuvenate – with Swiss spas," 1948


## Sun in the Service of Health

The health-promoting aspects of the sun were recognized in the first half of the 19th century—seventy years after Rousseau. Vincenz Prießnitz (1799–1851), a farmer and autodidactic natural healer from Austrian Silesia, began in 1830 to experiment with water cures and outdoor air baths. In 1854, in Veldes in Upper Carniola—the modern-day town of Bled in Slovenia—the Swiss dyeworks owner and natural healer Arnold Rikli (1823–1906) his first sanatorium based on light, air, and sun baths. In his self-published book "*Es werde Licht*" *und Es wird Licht!* ("Let There Be Light" and There Will Be Light) he noted that this paradisiacal state of spending time in the sun and air would lead to a "noticeably elevated mood" and "greater self-awareness" among all the patients.[29] Soon afterward, he opened further sanatoriums in Laibach, Trieste, and Gries near—and now incorporated into—Bolzano to treat serious illnesses with more and less success. Influenced by Prießnitz, Sebastian Kneipp, and Rikli, Adolf Just (1859–1936), a German bookseller by vocation, was convinced that longer stays in free nature could lead to recovery and erected "light-air-huts" in the woods. In his manuscript *Kehrt zur Natur zurück!* (Return to Nature!), published in 1896, he writes: "Especially for a man, who is the highest of the *light-and-air* creatures, light and air are the true life-elements. According to nature's design he ought to move in them naked, day and night, Winter and Summer."[30]

The sunbaths of the natural healers were only recognized by society when orthodox medicine was convinced that they had a curative effect. The German doctor Alexander Spengler, who traveled to Davos in 1853, observed that the symptoms of tuberculosis improved in persons who returned there, which prompted him, from 1868 on, to propagate the high-altitude mountain cure in Davos—a strategy that soon met with great success.[31] In 1882 the doctor Robert Koch discovered that infectious illnesses spread through bacteria. In 1905 the father of bacteriology received the Nobel prize "for his studies and discoveries in the field of tuberculosis." Koch perfected the microscopes that made pathogens visible, thus leading to significant changes on many levels. This breakthrough was followed by the discovery of X-rays in 1895.

The new medical insights had a great impact on the way people treated their own bodies. Intensive health campaigns raised awareness of the need for hygiene and clear, haze-free sunlight to help sick bodies recover. In 1889, the general practitioner Karl Turban opened the first closed high-mountain sanatorium in Davos and banked successfully on the healing force of the sun and Alpine climate in combination with a rest cure. Further specialized clinics were founded such as the Sonnenschein-Klinik (Sunshine Clinic) in Leysin by Auguste Rollier, doctor and developer of heliotherapy, who dedicated his efforts to treating patients with bone tuberculosis.[32]

The effect of the sun on the body's own production of vitamin D, which was discovered at the same time, was recognized in 1919, while searching for a successful treatment for rickets. This discovery helped pave the way for naturism—up until then practiced only by a few reform groups, which were often considered to be weird, and various youth organizations—to become socially recognized (especially in Germany and in Austria), since a tanned and athletic body stood for health. Uncovering the body, which had been looked down upon until then, could only be morally accepted when it was seen by orthodox medicine as serving the purpose of regaining one's health. In the 1930s, the grand hotels built outdoor swimming pools, so-called *Alpenstrandbäder,* for their new clientele. Thanks to the installation of "artificial suns" their use even on cloudy days could lead to the desired results (Project 22).

Sun worship found a visual expression in the famous androgynous figure of the naked young man with his arms raised to the sun. The motif of the "light prayer," which the painter Fidus designed in various forms, spread from 1890 as a result of being reproduced millions of times in Germany and Austria, appearing in numerous books and journals, on postcards and

20 Emil Fahrenkamp, Hotel Monte Verità – Demise and New Beginnings, 1927–1928

posters, and especially on flyers promoting the youth movements. The natural healing methods and practices of the reform movement also had aesthetic effects on orthodox medicine and its installations. It is interesting to note that even Swiss sanatoriums and thermal baths took up the motif of the figures worshipping the sun for advertising posters—a secularized version of the sun myth.

## The Architecture of Health

The reform groups and orthodox medicine developed different methods of treatment: while the former adhered to a holistic approach, venerating the sun as a cyclical element, the latter promoted its use as a source of therapeutic radiation. To gain exposure to the sun and mountain air, patients would lie for hours, in any weather conditions and in all seasons, on cure galleries that were specially created for this purpose. Corresponding to the ideas of the doctors and founders of sanatoriums, new architectural typologies were developed for the Alps, and over time improvements were made to optimize their effect.

The typological organization of the buildings designed for health purposes defined not only the form but also the aesthetics of architecture. Analogous to stripping the body of clothing, buildings, too, were liberated from "dusty" clothes and decorative attributes. Clear, pure forms that stood as a progressive symbol for hygiene were to replace the ornament, which until now had been a central element of architecture. With the façades, which were now opened toward the sun and expanded by adding cure galleries, a new typology emerged which, in its purist nakedness, became the epitome of modernism. Rudolf Gaberel's renovations of sanatoriums in the Swiss mountains are prime examples of this (Project 23). The utopian character of sanatorium architecture can also be seen in Juraj Neidhardt's non-realized projects for Davos (Project 21) as well as in the futurist sanatorium city Sondalo, which was erected in Mussolini's Italy and characterized by its impressive viaduct-style street architecture and a branched system of cable cars (Project 26). The typological innovations of Pol Abraham and Henry Jacques Le Même's project Plaine-Joux on the Plateau d'Assy in the French Alps is illustrative of the fact that the course of the sun played a crucial role in the development of new architectural typologies, since permanent exposure to the sun was required (Projects 24 and 25).


Martin Peikert, "San Rocco – Sanatorium for healing and rest – Lugano," 1948

Architecture was now enlisted in the service of medicine, it was considered, as neurologist Louis Landouzy put it in 1900, as a therapeutic "machine of hygiene" whose functioning was based on the interplay of sun, cold, and high-altitude air as a means to condition the body: "The sanatorium is a cure tool, a rational protective mechanism against tuberculosis […], a scientifically arranged building, a machine of therapeutic hygiene, serving, if I may say so, to treat certain categories of curable tuberculosis with maximum efficiency."[33]

Thomas Mann's *The Magic Mountain* (1912–1924) testifies to the intensity of a sanatorium cure, which he was very much familiar with, since his wife, Katia, had also spent six months at a Davos sanatorium. The novel illustrates how the patients gradually lose control of their own self and become increasingly absorbed until even a healthy body seems to mysteriously fall ill. He describes the hour-long resting times outdoors, under the blazing sun or in the icy cold, how the dead were discreetly removed at night, how life and death were managed in the "machine of hygiene."

Jean Saidman who ran the Institut d'actinologie (light-therapy institute) in Paris pursued a more radical approach. He developed a "rotating solarium for heliotherapy and actinotherapy" and in August 1929 submitted an application for a patent which was approved on January 17, 1930. For the site, he selected Aix-les-Bains, located in the Savoy Alps,

22 The Artificial Suns of Alpenstrandbad, Panhans, and Südbahnhotel, 1932–1933

24 Pol Abraham and Henry Jacques Le Même: Design of the Plaine-Joux Sanatorium, Plateau d'Assy, 1927–1929

25 Pol Abraham and Henry Jacques Le Même:, Children's Sanatorium Roc des Fiz, Plateau d'Assy, 1932

Jean Saidman in the solarium at Aix-les-Bains, during the irradiation of a patient, ca. 1930

and commissioned architect André Farde to construct the building. The solarium opened on July 26, 1930 (Project 27).

On the tip of a picturesque tower a futurist-looking metal wing turned, following the course of the sun. The patients rested, secured by belts to swiveling loungers, exposed to the rays that were intensified by huge glass lenses, at a stationary angle of 90 degrees. The human body was the subject of several types of measurement used to determine the maximum acceptable radiation time that could be tolerated without suffering burns.

The good reputation of the solarium led to the construction of two further solariums: one in Jamnagar, India, which stood on a simple base, and the other one in Vallauris near Cannes, which was installed on the roof of a new heliotherapeutic sanatorium (under the direction of Jean Saidmann). At the opening on February 10, 1935, Charles Haye, vice director of care and hygiene, compared it to a temple: "Standing in front of this magnificent temple dedicated to the god of the sun, one cannot refrain from admiring the wonderful art and speed with which the architect Pierre Souzy had the hospital ship rise up from the ground, which, as we hope, will enable a large number of sick persons to sail quickly toward good health."[34]

Jean Saidman, however, had envisioned a considerably larger project, which he gave the utopian sounding name "Aktinopolis" (city of sun rays): an international research center with tropical garden, where the growth of the plants was to be promoted by the sun rays bundled by glass lenses. The heliotherapeutic sanatorium and the solarium were part of a technological utopia and the "sun god" their raison d'être. His "temple" was not in the service of the body dancing in nature as in Monte Verità but dedicated rather to its perfect control. At the solarium, this "temple dedicated to the god of the sun," man lay like a futuristic offering on a steel bed facing the sun. The human body was the receptive object which "sailed toward health" under the bundled sunrays. In its futuristic modernity it had a special appeal and emanation, as a documentary film that was shot during the construction of the solarium shows. Dr. Saidman, the creator of this invention, stands in a white coat on top of the rotating wing of his solarium, with his back to the camera, "sailing," in a sublime pose, in a wide, slow pan over the mountain landscape. This is followed by shots of recumbent patients whose naked bodies are exposed to sunrays under enormous glass lenses. These scenes, with their dramatic tension, recall the futurist weather stations in Arnold Fanck's "Storms over Mont Blanc" (1930) or Fritz Lang's "The Testament of Dr. Mabuse" (1933).

This therapeutic method, which implied perfect machine control of the body, stood in stark contrast to the nature-oriented approach of the Monte Verità colony. Both conceptions of treatment were, however, based on a mythologizing "sublimation" of the sun. The former cultivated the radiation of the sun and its intensification for the body, presented to it in static form, while the latter venerated the dancing body, seeking to transcend its own confines through ecstatic dance in the sunlight. While the reform movement was marked by the idealistic, utopian notions of a "return to nature," the light therapy practiced by sanatoriums and solarium institutes reduced the sun to its solar radiation factor and the maximum usage thereof.

The various treatment methods all transformed "wild nature" into a "therapeutic landscape" in which the sun, operating on the body, played a central role. This led to a radical renewal, and even redefinition, of the relationship between man and nature, albeit in differing ways. While for the reformers the body wanted to merge with nature by freeing itself from all cultural attributes, including clothes, in the "machines of hygiene" the body was exposed to the sunrays no less radically. In both instances, the psychological, physical, and sensory boundaries were challenged and transgressed—a transgression that justified the vision of a profound renewal, based on the goal of a "healthy body." It is in this

21 Juraj Neidhardt, Designs for a Sanatorium in Davos, 1930

23 Rudolf Gaberel, Conversion of Sanatoriums in Davos: Deutsche Heilstätte, 1929, Heilstätte Du Midi, 1928–1939

26 Villaggio Sanatoriale di Sondalo, 1932–1940

27 André Farde, Pierre Souzy, Revolving Solarium by Jean Saidman, Aix-les-Bains 1930, Jamnagar 1934, Vallauris 1935

fundamental liminal experience that the "sublimity" of the therapeutic landscape resides.

Thanks to Alexander Fleming's discovery of the antibiotic effect of penicillin and the development of further antibiotics, it was possible to successfully treat tuberculosis and other infectious diseases. Industrial production of penicillin, discovered in 1928, did not, however, begin until after World War II, after a long research period. In 1944, a further effective antibiotic—streptomycin—was found for treating tuberculosis.[35]

Once medical doctor August Bier had proven that heliotherapy was not needed to cure tuberculosis, the sanatoriums were suddenly robbed of their function. Since then, they have either been used to heal allergies or been given a new function, or indeed fallen into disrepair.

Thermal baths, by contrast, which had experienced a heyday in the 19th century and also made inroads in the Alpine region, continued to be built. The Alps remained part of the popular consciousness—as a "therapeutic landscape" primarily enabling rest and relaxation. The thermal baths in Vals is an especially interesting example: architect Peter Zumthor strove to create an essential atmosphere that appealed to all of the senses. His phenomenological approach activates people's sensory perception, and through the architecture natural elements such as water and stone are perceived more intensively, since the light and the haptic material qualities generate a certain mood. Seeing, touching, feeling, and hearing, even the sense of taste, are strongly stimulated (Project 28). In light of the thermal architecture built in the 1980s, in many cases designed to create a kind of "theme park" as a form of amusement, this project can be seen as revolutionary, since it reflects a social reorientation that once again seeks an essential, "more archaic" relation to nature—and thus also to the "inner nature" of man.

Peter Zumthor, Vals Thermal Baths, 1990–1996 28

Southern aspect of the main house, Monte Verità

Southern aspect of Casa Anatta, Monte Verità

**18 Reform Colony Monte Verità, Air Huts and Flat Roof, 1900–1924**

Henri Oedenkoven, one of the founders of the reform colony along with Ida Hofmann and the Gräser brothers, bought a piece of land near Ascona on a small mountain, which, in line with the ambitions it harbored, was named *Monte Verità*, the Mountain of Truth. The former vineyard had to first be cleared and settled. Since the construction work, which was initially to be carried out by the founders themselves, progressed slowly, craftsmen and gardeners were hired and quickly turned the stony property into a handsome, fertile colony: "In April, the first dwelling stood as a simple wooden framework with a double timber wall on all four sides; the second followed soon afterward."[36]

The architecture of the small wooden huts was an expression of the new life in the midst of nature. They consisted of a single room, divided by a curtain into a living and a sleeping area. The floor was made of hardwood, without carpet, the furnishing Spartan: an iron standard bed, tube chairs, a vanity, and a secretary.[37] The only luxury was the electricity and water supply, which made it possible to prepare the vegetarian food in the steam cooker. Ida Hofmann proudly pointed out the progressive facilities: "All rooms are electrically lit and have water pipes and hygienic stoves."

Wooden terraces were constructed in front of the huts. Slightly elevated from the ground, they enabled a threshold-free transition to the outdoors. The showers and bathtubs were not located inside, but outside on the grass, because air and sun baths were part of the daily ritual of recovery. In the film "Ways to Strength and Beauty" by Wilhelm Prager (1925), a dance scene on Monte Verità that vividly depicts the community's attitude to life can be seen. A woman dressed in a short white blouse is dancing on the terrace in front of the air hut, hopping in the garden, and circling her arms dynamically around her body. This scene can be understood as a symbol of the new, liberated life they aspired to.

Two houses particularly stood out from the simple air huts: the main building and the Casa Anatta. Built in 1904, the former housed a restaurant, a library with a reading and writing room, and a music room. One striking feature is the quarry stone base with a terrace leading to a double-winged symmetrical outside staircase, whose handrail featured a theosophical symbol representing movement and tranquility. A baldachin-like canopy with a jagged edge, supported by classicistic-looking square columns, covered the spacious terrace. The house was reminiscent of Ottoman tents as well as Greek temples. Kept simple, the interior displayed colorful Art Nouveau elements; here the theosophical symbol also appeared in those places where light penetrated the room: in the upper part of the window and on the flat, circular lampshades of the ceiling lights.

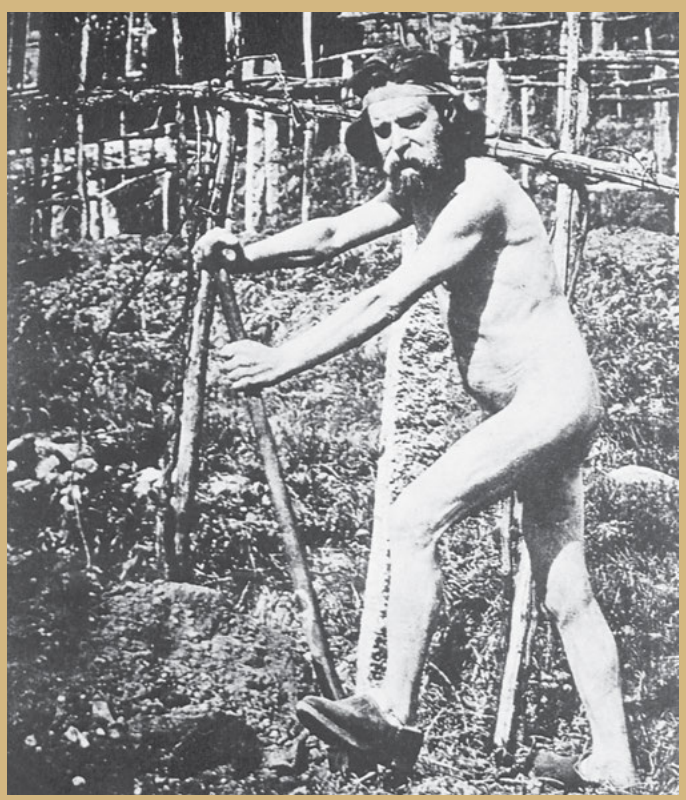
Built into the hillside as the second house to emerge, Casa Anatta is architecturally different: atop a quarry stone base sits a horizontally clad, double-shell wooden construction, which is set back on the upper floor to provide room for a spacious roof terrace. Similar to the main building, the windows

Outdoor work at Monte Verità

Circle dancing at Monte Verità, ca. 1910

were rounded off here and bordered in white frames, standing out from the dark wood paneling. The interior is covered with vertical timber slats, which make the rooms with their wooden vaulted ceilings look higher; the corners of the rooms are rounded. A centrally located open staircase in the main room with a dynamically curved shape was meant to draw people up to the considerably smaller second floor as if by suction. All these details contributed to a mysterious atmosphere, accentuated by the zenithal incident light on the upper floor, which casts an inviting glow onto the staircase.

Both houses were constructed with a flat roof, which was not yet common at the time. In his book *Liberated Dwelling*, published in 1929, Sigfried Giedion presented both buildings as vanguards of the flat roof with the following comment: "The Roof as Living Function: House in Ascona around 1900. Oedenkoven, founder of a colony for natural living, found a solution in this double-walled wooden house of the kind we require today: he made use of the roof!"[38] Oedenkoven used this technical achievement to make the roof accessible for sunbathing, ideally practiced on a daily basis.





Mary Wigman dancing, with Lago Maggiore in the background, Monte Verita

Johann Adam Meisenbach, photograph of Rudolf von Laban with his dance school at Monte Verità, 1914

**19 Rudolf von Laban, Sun Dance on Monte Verità, 1917**

At the end of the summer of 1917, the Anational Congress took place on Monte Verità, addressing the following topics: societies with no national distinctions, cooperatives, modern education, women's rights in the society of the future, mystic

Freemasonry, new social structures, and dancing as art, ritual, and religion. It was convened by Theodor Reuss, Master of the Order of the Templars of the Orient—a dubious figure who had settled on Monte Verità in 1917 and proclaimed a "white sexual magic."[39] The climax was the three-part dance drama "Song to the Sun" (based on the poetry of Otto Borngräber), directed by Rudolf von Laban and performed by his students, including Mary Wigman, Katja Wulff, Sophie Taeuber, and Suzanne Perrottet.

Rudolf von Laban had set up an open-air stage for this purpose and celebrated the solar cycle for seven days with dance, spoken word, and choral singing. The festival started with the scene "Dance of the Setting Sun," where Laban included not only dance but also nature in the staging. While the audience sat on three large stones under a group of trees, he had a fireplace built out of field stones. After the solemn dance around the fire, a "speaker" came up the slope, followed by attendants. "The moment when his head rose above the edge of the bank was exactly timed so that behind him the lower rim of the setting sun was just touching the horizon. Standing there he spoke the first lines of his poem to the sinking sun," Laban wrote in *A Life for Dance*.[40]

At midnight, the second part of the performance, titled "The Demons of the Night," took place: a group of dancers with drums and flutes lured the audience; torches and lanterns illuminated the way to a mountain peak; bizarrely shaped rocks looked down a circular meadow. Five blazing fires were lit, and a group of kobolds performed leaping dances around and through them. "Then a group of masked dancers approached. The huge masks, made of twigs and grass, covered their whole bodies. Behind these diverse squatting, towering, angular and spiky shapes hid witches and fiends. Creeping up, they stripped off the disguises of the dancers in a wild scene and burned them."[41] Through the unmasking, the body was transferred to its bare "primal state"—a symbolic act of liberation from cultural attributes. Accompanied by drums and choirs, it was to "reunite" with nature.

"The spectators who came to us from all over the world [...] had to come back at six o'clock in the morning," said Laban, because at dawn the morning dance began, and "a group of women dressed in loose cloaks of colored silks rushed up the hill. On the horizon the disc of the rising sun appeared and glowed through the dancers' garments. In a *Reigen* to the awakening day, the night spook was dispelled by wave upon wave of people surging onwards, moving joyfully, as a symbol of the ever-returning day star."[42]

Through dance and rudimentary props, Laban succeeded in staging the landscape: "A stone altar was erected and towered into the western sky, which stretched in clarity and longing across the darkening lake." Jakob Flach conducted the choir and banged the big drum. The puppet player and painter described the event, in which he ecstatically participated, as follows: "Barefoot and shirtless, almost a Bantu, with nothing in my head except rhythm and ecstasy, I fired and drove the subterranean beings to the highest, to the ultimate, tore a brand from the embers, and danced madly around the flames—until a final murderous cry from the boy Totimo broke the madness into death-like silence."[43]

Dance scene at Monte Verità

This scene is reminiscent of Nietzsche's Dionysian dancer, who sinks into the grass away from the singing choirs and becomes aware of his Apollonian loneliness—and thus of his existence. Something similar also seemed to play out here: the ecstasy culminated in a piercing primal scream—then deathly silence, before life began again cyclically. The audience was spellbound by the action, Laban's staging, and the ecstasy of the dancers and musicians. Nature was not only used as a background for the dance scenes but in its day and night cycle became a moving spectacle in itself. The sun acted as an instrument to heighten the tension.

The peculiar mixture of transcendence, archaism, and a utopian desire for renewal was characteristic of Expressionism. Choreographed in 1917, in the middle of World War I, the dance performed during the sunrise, "The Victorious Sun," can also be understood as a symbol for overcoming the war as well as for the utopian—albeit mystically transfigured—"higher development" of humanity.

When Laban returned to Germany after the end of World War I and founded the Tanzbühne Laban in Hamburg during the Weimar Republic in 1922 (and the Laban School in 1923), expressive dance achieved a social breakthrough and broad impact. Dance became the means of expression of the new body awareness propagated by the numerous emerging reform movements.

But the National Socialists were interested in dance and body worship as well. Like many artists, Laban let himself be co-opted for their propaganda events. Goebbels ultimately commissioned him to create the introductory dance for the 1936 Olympic Games, although Albert Speer's choreography, which was more machine-like than that of Laban, was eventually performed. The Nazi regime categorized his design as "too intellectual."[44] Soon thereafter, he was accused of homosexuality and Freemasonry, prompting him to wisely leave Germany in 1937 and emigrate to England.

Hotel Monte Verità, designed by Emil Fahrenkamp, 1927–1928

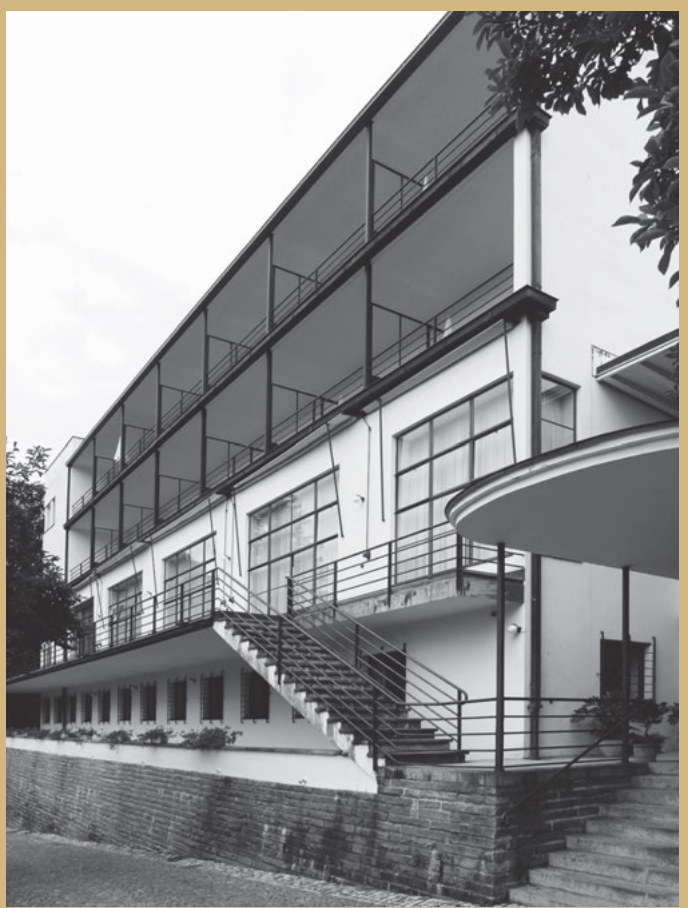
20 **Emil Fahrenkamp, Hotel Monte Verità – Demise and New Beginnings, 1927–1928**

The demise of the reform colony on Monte Verità led to the sale of the property. Henri Oedenkoven and Ida Hofmann emigrated to Brazil in 1920 to found a new colony. The architecture they initiated on Monte Verità was an expression of their alternative way of life, reduced to the essential. Among the architectural remnants of the society, which was considered eccentric at that time, are scattered air huts and the Casa Anatta; the now rusty outdoor showers and the overgrown stone bathtubs recall their deep relationship with nature.

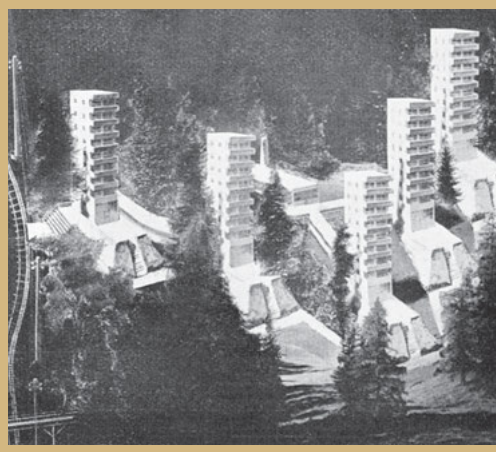
When Eduard von der Heydt acquired Monte Verità in 1926, he gave the place a new lease of life, which manifested in turn in its architecture. The temple-like main building was demolished; a modernist hotel was erected right next to it from 1927 to 1928 according to plans by Emil Fahrenkamp. Only the terrace lying on the base remained, with the symmetrically curved outdoor staircase leading to the garden.

The white structure elegantly and dynamically lies west of the entrance, which is located next to a lower side wing built on the site of the former central building. A dynamically rounded canopy on thin, tubular steel props covered the new access. The edifice is enthroned like a docked ship on top of the former "Mountain of Truth." Large French windows on the first floor (located above a utility floor) open to a long balcony. This ends at an external staircase, which leads along the façade directly to the hotel entrance. On the upper floors, the façade is set back to provide space for a two-story loggia placed in front of the rooms, inviting guests to sunbathe. The inner staircase ascends to the roof terrace, which offers a wide view over the lake. Appointed with designer tubular steel furniture and delicate colors (pink, light blue, and brown tones), the interior underlines the avant-garde flair of modernism.

The icons of the founding phase were replaced: the temple was supplanted by a functionally designed hotel; its pure, dynamic lines confirm the breakthrough of modernity, which had meanwhile been accomplished socially. After the departure of the life reformers, a sophisticated urban bohemia settled down, knowing how to enjoy the liberties of the reformed life. Depending on one's mood, one could wear elegant clothes, loose linen garments, or nothing at all; alcohol, tobacco, and good food were by all means welcome.



Juraj Neidhardt, design I: "Building pylons" in the walkway system for a sanatorium in Davos, 1930



## 21 Juraj Neidhardt, Designs for a Sanatorium in Davos, 1930

Juraj Neidhardt, originally from Zagreb, Croatia (then Agram and part of the Austro-Hungarian Monarchy) studied architecture with Peter Behrens at the Vienna Academy of Fine Arts. He worked for some time in Zagreb, before he took on a job at the Berlin office of his former teacher in 1930. Two years later he worked for Le Corbusier in Paris. As a young graduate, he prepared a study of new sanatorium typologies for the physician Paul Wolfer in Davos, which was published by the Swiss journal *Das Werk: Architektur und Kunst.*[45] Neidhardt proposed three different types, which he connected directly to the middle station of the Schatzalpbahn funicular.

### Building Pylons

The first utopian Expressionist design consists of five nine-story towers called "building pylons" arranged in a semicircle in a fir forest on steep terrain. Their slim dimensions are based on the size of the patients' rooms, as each tower houses a staircase on the north side, accessing two rooms (with private bathrooms) per floor. These open on the south side to a balcony overlooking the valley. The towers stand on story-high bases that form a powerful ensemble in their Expressionist-Cubist shape. They offer spacious open terraces and can be accessed from a lower path via stairs that follow the inclination of the bases. A curved, covered, but laterally open walkway connects the five towers and attaches them to a lower central building housing the community facilities and the administration wing. The original feature of this typological concept is the decentralization and, above all, the "individualization" of the patients: instead of lying on a communal balcony, they have their privacy on their own balconies, while the walkway facilitates communication and encourages patients to move.

### Pavilions

The second design is more conventional and based on the usual corridor system: an internal corridor leads to the patients' rooms equipped with south-facing balconies. Five structures, containing thirteen south-facing rooms per floor, are arranged to the left and right side of the funicular. " Neutralization in construction and lifestyle," is the characteristic catchword of this system.

### Round Tower

The third type consists of a round tower in which the wedge-shaped rooms are accessed via a central, circular hall intended to promote communication. The balconies form rings with different orientation to the sun.

### Criticism

The Swiss magazine *Das Werk: Architektur und Kunst* criticized the projects for being too formalistic and impractical. The downhill orientation of the staircases built along the bases were said to create dizziness when descending and difficulty when ascending. The "building pylons" were uneconomical and isolated the inhabitants too much; there would be "a lack of contact with the ground and one's neighbors. […] More than in the French sanatorium buildings, formal and perhaps ideological considerations seem to have influenced and clouded architectural reflection,"[46] according to the criticism, which alluded to the Expressionist design vocabulary. The round tower was rejected, because the same orientation to the south was not guaranteed for all rooms. The only design that the editors considered "conceivable" was the more conventional type of pavilion, but the dissection into ten separate buildings was criticized on account of the tedious access to the pavilions located at various altitudes. Innovation was not easy in the context of strict medical regulations and economic requirements.

Atelier Muchsel-Fuchs, "Semmering Alpine Beach – Directly adjacent to the Panhans Grand Hotel," poster, 1933


## 22 The Artificial Suns of Alpenstrandbad, Panhans, and Südbahnhotel, 1932–1933

"Semmering is the Alpine paradise of the Viennese!" was an advertising slogan from 1932. A glowing yellow-blue poster praised the "Alpenstrand Semmering – Directly adjacent to the Panhans Grand Hotel," whose two-color design symbolized the new "Alpine paradise," because the "Alpenstrand"[47] offered mountains and beach all in one. Hard hit by the stock market crash and the economic crisis, the grand hotels endeavored to attract a new, middle-class public, because the nobility and the grand bourgeoisie were no longer so wealthy. The dusty grand hotel of the fin de siècle was ready to adapt to the spirit of the times. The new owner of the Panhans Grand Hotel, the international businessman William Zimdin (1880–1951), succeeded in making this switchover. A newspaper commentator from the *Neues Wiener Journal* fêted him as the "savior of Semmering."[48]

Under Zimdin, the existing building received a facelift through a few conversions by the architects Anton Liebe and Ludwig Stigler: a modern façade, a round dance hall, a bar, a Moorish bath, and a glazed indoor pool, which a reporter from the *Semmeringer Nachrichten* wrote enthusiastically about:

"The large indoor swimming pool, which has ceiling-high glass walls looking to the south and west that open onto the beautiful green landscape, contains an ivory-white pool 25 meters long and 11 meters wide. [...] The azure blue color reflects the fresh spring water in the pool and creates wonderful mixed color tones on the orange-tinted solid walls."[49]

The water was heated, filtered, and sterilized according to hygienic requirements. In the summer, the glazing could be fully opened, while a "district heating system supplied by steam" tempered the indoor pool pleasantly in winter: "Artificial sunlamps on the ceiling of the indoor swimming pool provide a substitute for natural sunshine that is lacking at times."[50] Another article touted the new pool as "Semmering Lido Magic," while also mentioning the frequent bad weather—"However, it does not rain anywhere else as comfortably as it does on Semmering," it said humorously—and praising the new invention:

"One does not look indignantly at the bad weather here, but lets the hotelier do a better job. On this magic mountain, country rain is no obstacle to acquiring a Lake Wörthersee Riviera complexion on any weekend. You simply take the elevator from the bridge table or the foxtrot down to the beach. Whether beautiful or rainy, everything works quite magically according to the wishes of the *pleno titulo* hotel guest. Sun is definitely there. If it does not shine outside, the bath attendant simply switches on some of his mysteriously shining quartz miracle lamps. The wave flickers bluishly and nestles around the shorts and rowing shirts of our beautiful people. A heated, red or yellow tiled beach, chemically cleaned much better than the simple beach of an original Lido, warms the soles of the feet. One gets a tan just like on the Mediterranean. Only they have a sun there, and on Semmering they hang up as many as we have ordered.


Anonymous, "Semmering – Austria – 1000 m," poster, 1928

It's not magic, but rather a little bit of *corriger la nature*. In this way, unreliable nature may with time perhaps be weaned from its season disturbing moods."[51]

Things ran similarly at the nearby Südbahnhotel, which the Panhans Grand Hotel was in constant competition with. At the same time, Otto Schönthal and Emil Hoppe had a generously glazed indoor swimming pool built and decorated with striped tiles in the basic colors of red, blue, green, and yellow.

New technical achievements tried to battle the influence of the changeable mountain climate by artificial means; one wanted to correct nature (*corriger la nature*), in order to increase human comfort even more. The *Semmeringer Nachrichten* welcomed the new, sophisticated lifestyle of the heliotherapeutic cure house: "In the grand hotels and the fairytale-like Strandbad, there is a life and activity that the Semmering has never seen before."[52] Wine tavern evenings, Hungarian evenings, dance tournaments, golf weeks, tennis tournaments, the famous Semmering Race in September, and, above all, the "election of the Alpenstrand queen and her princesses" arranged at the lido were among the most popular events.[53]

The pools also lived up to the new body awareness: freed from the corset, the guests sunbathed in swimsuits at the "Alpine Lido." Jazz music and "wild dancing" outdoors were part of the experience. The dancing, bathing, half-naked body in the sun was an expression of the liberated sense of life of the "new human being."

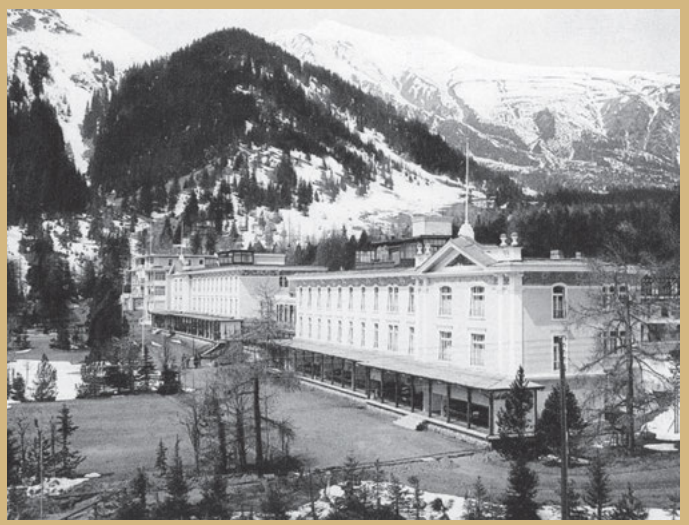
Photo of the German Sanatorium (Deustche Heilstätte) prior to reconstruction

Photo of the German Sanatorium after reconstruction work by Rudolf Gaberel, 1929

**23 Rudolf Gaberel, Conversion of Sanatoriums in Davos: Deutsche Heilstätte, 1929; Heilstätte Du Midi, 1928–1939**

When Rudolf Gaberel was commissioned with the conversion of the Deutsche Heilstätte, the existing heterogeneous building consisted of three parts: the oldest part—a Historicist, three-story edifice with a symmetrical outside staircase in front of it and crowned by a picturesque tower—had been aggrandized by adding two Neoclassical side wings with higher room heights which towered over the smaller main building. Gaberel connected the three different structures with a uniform, front-mounted façade of cure galleries.

The conversion could be carried out with full occupancy of the upper floors of the existing building, thanks to an independent reinforced concrete structure placed in front of it.



An article published in 1930 in the Swiss journal *Das Werk: Architektur und Kunst* welcomed this innovation, since, through an intelligent cantilever design principle, the independent layer of cure galleries did not need outer columns that would have caused shadow cones: "The whole load-bearing structure [was] treated like a bookshelf, which was placed in front of the house as an independent building. ely speaking, if the house collapsed, the galleries would stand alone. They are supported by 35–40 cm thick monolithic iron concrete slats, which are about 1.30 m deep in the ground."[54]

The galleries were not divided into individual compartments but subdivided by means of translucent raw glass panels "spaced about 75 cm from the railing to allow the physician to pass through." Not only did these walls protect against lateral wind currents, they also served a psychological purpose: "Because an unpleasant, claustrophobic feeling easily befalls the patient, he is driven out of the peaceful room into an endless, open corridor, where he lies defenseless and abandoned as if on a train station platform."[55]

The disadvantage was the shading of the rooms by deep cure galleries. Compared to the previous building, the sunbeams only penetrated a small part of the room in the summer, but there was hardly any difference in the winter: "This whole question is, however, of rather secondary importance in light of a rest cure regulation that requires the patient to at least spend the sunshine hours on the balcony." The article ends by enthusiastically stylizing the conversion into a salutary symbol of humanity: "With its straight, continuous horizontal lines, the strong blue of the railings, which gives the yellowish hue of the walls a cheerful tone, and its naturally self-evident position, [the building shows] a dignified and openly sympathetic face. In a mountainous landscape of serious size, it is a friendly symbol of human concern for suffering life."[56]

Aesthetics and pathos blended together to convince followers of the old style, who clung to the ornament, of the need for modern hygiene. Doctors decided on typological renewal, and architects developed corresponding designs; but the rest cure guest paid for and chose a sanatorium according to subjective criteria. Modernity prevailed finally owing to the

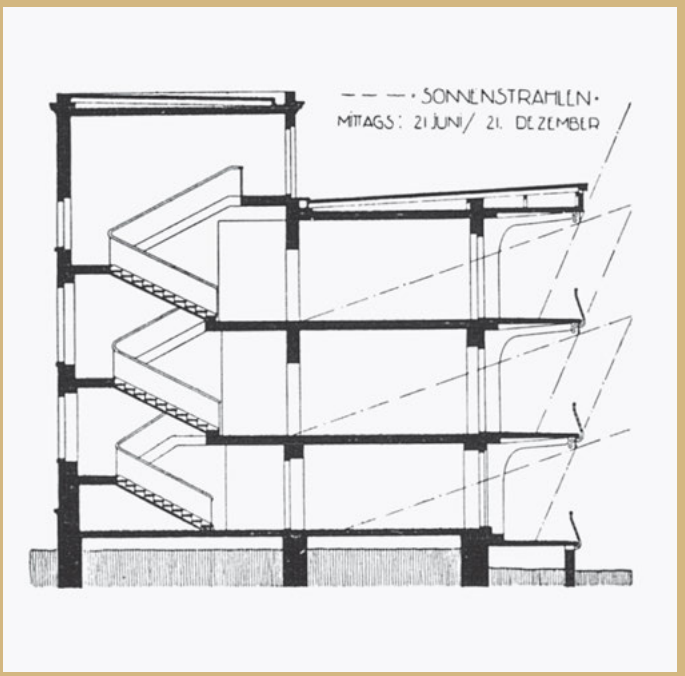
Rudolf Gaberel, German Sanatorium with cure galleries on three stories, after reconstruction

Rudolf Gaberel, section drawing of the German Sanatorium after reconstruction, fronted by individual cure galleries

fact that, after all, the celebrity status of a doctor was decisive for the patient, as the author of the article confidently stated, and not the style and comfort of an institution.

The structural transformations of the two sanatoriums in Davos illustrate how "pure forms" could replace ornament in a radical way. The fact that an enthusiasm for simplicity emerged that was every bit as fervent as the previous passion for ornament is to be gleaned from the following article, which appeared in 1944 in *Das Werk: Architektur und Kunst,* dealing with Gaberel's conversion of the Heilstätte Du Midi: "Out of extremely awkward buildings, disintegrating into innumerable details and unacceptable in terms of taste, which were not only destroying the landscape, but suffered as well from an untenable structural condition, the architect has created simple, pure buildings with a unified, fresh architecture."[57]

Thus, the pure lines of modernity replaced the ornament; the purification of the original "architectural sin" (or "crime," expressed in Adolf Loos's words) was celebrated as the new "truth": "with a flat roof and with balconies systematically placed in front of all patients' rooms, the architectural sins of the original state have been obscured or rather thoroughly eradicated," it was triumphantly declared.[58] The functionalist style, whose ringing catchphrase was "eradicating architectural sins," had already broken through in 1944.




R. Soubie, sketch for the Plaine-Joux sanatorium by Pol Abraham and Henry Jacques Le Même, 1929

**24 Pol Abraham and Henry Jacques Le Même, Design of the Plaine-Joux Sanatorium, Plateau d'Assy, 1927–1929**

In 1925, physician Alexandre Bruno commissioned Henry Jacques Le Même to build a new private sanatorium for French officers on Plateau d'Assy opposite Mont Blanc. In contrast to the Praz-Coutant sanatorium—which was built in the immediate vicinity under the supervision of architect Aristide Daniel on behalf of Dr. Paul Émile Davys in 1926, according to an American pavilion type based on the Savoyard style (Lucien Bechmann and Henry Jacques Le Même, who collaborated with Pol Abraham, were commissioned with the extension)—Le Même and Abraham wanted to develop a progressive architecture for the Plaine-Joux sanatorium.

Of primary importance for the choice of location was its remoteness and altitude—the sanatorium was supposed to be situated 300 meters above the village of Assy—as well as the intense sunshine it received. From the train station, a 3-kilometer-long cable railway was to overcome the 800 meter difference in elevation to the sanatorium. The isolated location promised a dust- and smoke-free atmosphere, as well as absolute peace.

The starting point for the planning was the optimal ventilation and the sunshine exposure of the rooms, as the journal *L'Architecte* 1929 commented: "Dr. Bruno had been very concerned with the best possible alignment of the balconies. These should be arranged so as not to hinder the incoming sunlight and the ventilation of the rooms, a fact which occurs in even the newest sanatoriums."[59]

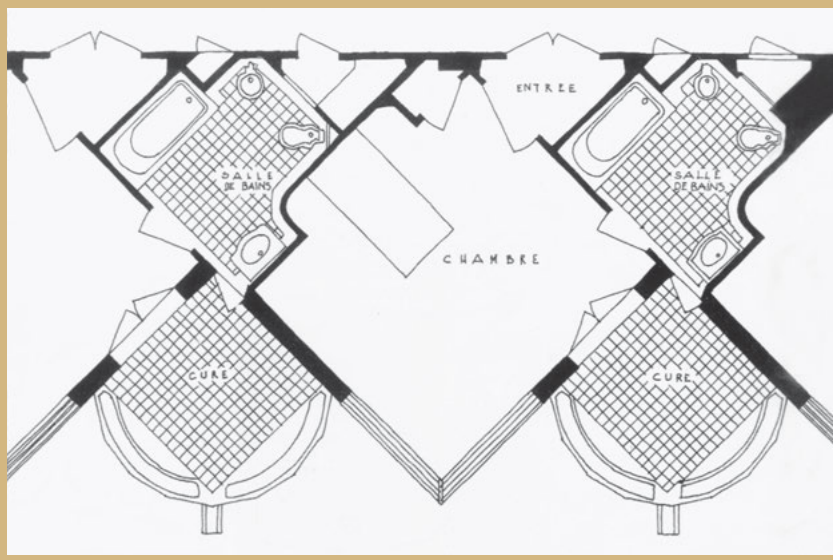
In the sanatorium types that were common at the time, the cure galleries placed in front of the façades prevented the sunrays from coming directly into the patient's room. Furthermore, in order to accommodate as many rooms as possible, increasingly narrow building grids—which prevented light from penetrating into the depths of the rooms and also limited the view—had been developed.

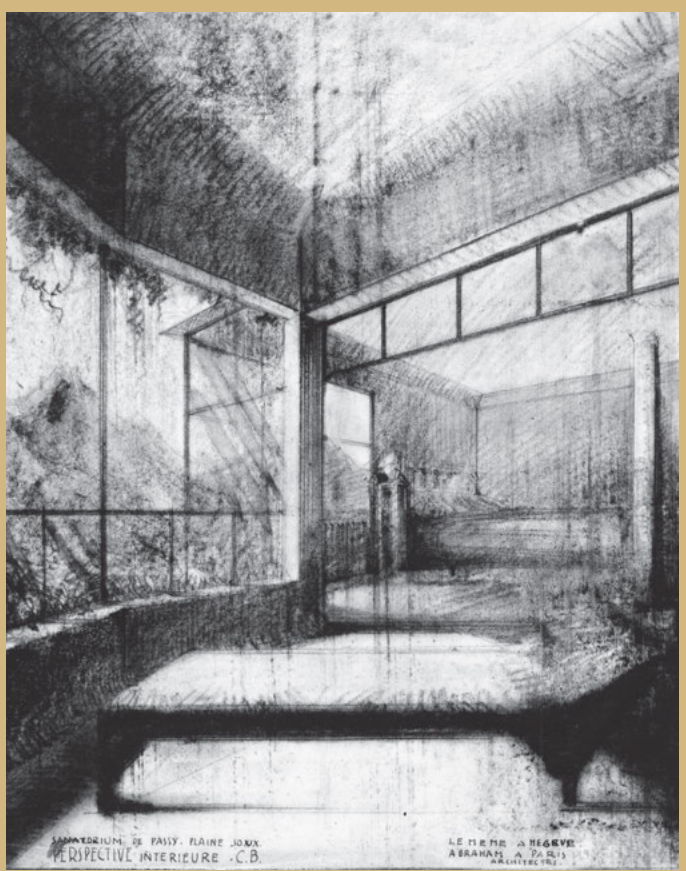
What made Abraham and Le Même's design typologically original was the idea of turning the rooms 45 degrees to ensure permanent sun exposure. Semicircular balconies were inscribed into the glazed corners of the rooms, which sprang out of the façade. Such a corner has the advantage that the sunrays illuminate the room from morning to evening. While one of the two sides could be regulated by an awning, the other side continued to provide a view. The rounded balconies did not prevent sunlight from coming into the rooms and, thanks to their location between the glass corners, were also sheltered from the wind.

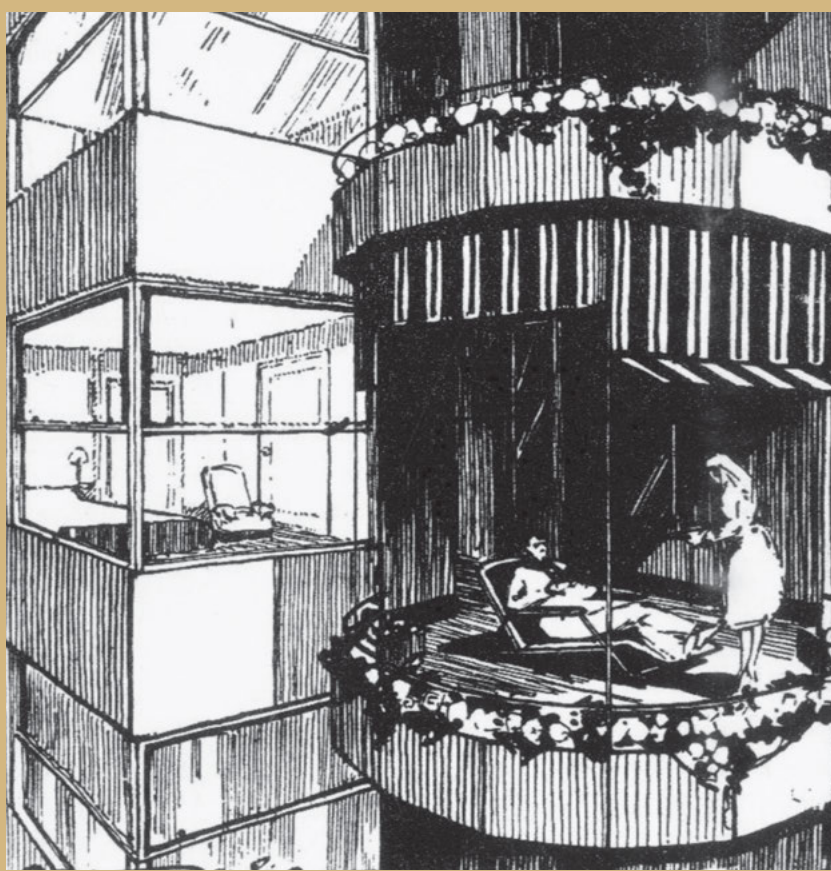
Pol Abraham and Henry Jacques Le Même, interior perspective of a rounded balcony with room in the background

Floor plan of a room unit with balcony and bath at the Plaine-Joux sanatorium, 1931

Although this ingenious design never progressed beyond the foundations owing to the global depression (and the withdrawal of American shareholders), the architects were soon able to build four more sanatoriums on Plateau d'Assy, two of which still exist today. However, the innovative typology with the glazed corner was not feasible for cost reasons. Because of its emblematic shape, this project has nevertheless become an architectural icon of Modernism.





External view of a rounded cure balcony with corner of room, 1929

Southeastern aspect of the Roc des Fiz sanatorium, from the roof of a pavilion, with connecting gallery leading to the main building, 1930

**25 Pol Abraham and Henry Jacques Le Même, Roc des Fiz Children's Sanatorium, Plateau d'Assy, 1932**

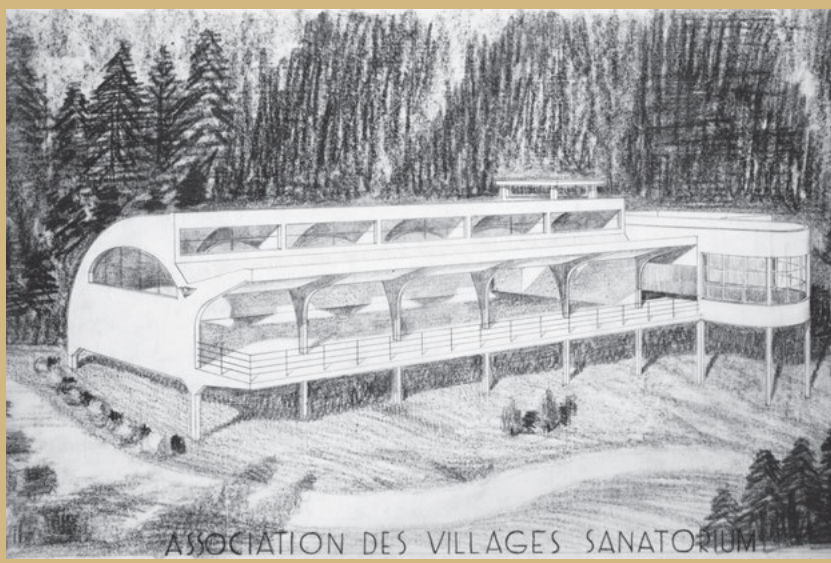
Three years after the suspension of the construction of the Plaine-Joux sanatorium, Pol Abraham and Henry Jacques Le Même received the commission to design the Roc des Fiz children's sanatorium.

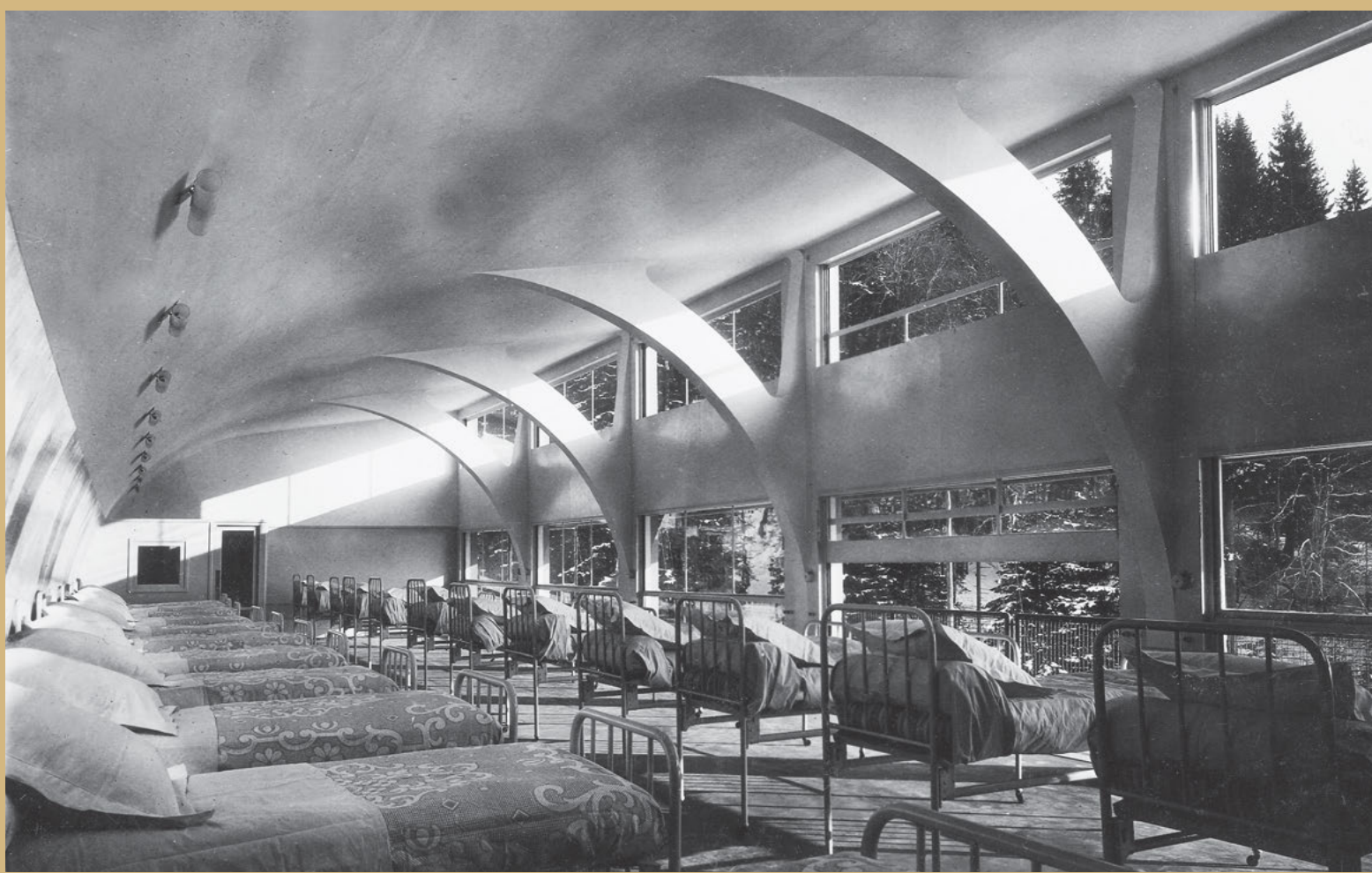
The ambitious predecessor project had opened up new possibilities for further innovative planning. For the children's sanatorium, the team of architects also developed an original floor plan typology, which had completely different organizational principles than the compact pioneering project, being based on a ramified system of individual buildings: the main edifice contained the dining room, the medical facilities, and two dormitories, where a third of all the children slept. The others were distributed among four individual pavilions, each one offering accommodation for thirty beds. They were connected to the central edifice by glazed and heated galleries to ensure a constant climate. In this way, an interconnected ground-level system was created, providing the children an immediate relation to the outside and yet offering protected paths to the main edifice. Each pavilion docked at one end to the gallery system, while the other, rounded end housed a playroom. The semicircular shape of a pavilion captured the sunrays all day long and lent it a dynamic character. Structurally, the pavilions consisted of semi-arched, reinforced concrete frame elements, which forked to the front glazed area in order to support the cantilevered pent roof. It opened toward the south, so that the room was flooded with light.

Interior photo of a pavilion at the Roc des Fiz children's sanatorium, 1930

Pol Abraham and Henry Jacques Le Même, perspective sketch of the Roc des Fiz children's sanatorium, Plateau d'Assy, Passy, 1930

While the upper windows let the sun's rays penetrate deep into the room, the lower ones provided a view of the landscape and direct access to an elevated terrace that led to the meadow via stairs. In 1970, an avalanche hit the children's sanatorium and caused the death of fifty-six children and fifteen caretakers; it was demolished thereafter.



Villaggio Sanatoriale di Sondalo, viaducts with patient pavilion, 2015

**26 Villaggio Sanatoriale di Sondalo, 1932–1940**

Located in Lombardy, Sondalo can be regarded as a constructed utopia of a hermetically self-contained sanatorium city in the middle of the Alps, which functions like a perfect machine. On behalf of the Istituto Nazionale Fascista per la Previdenza Sociale, the Valtellina pulmonologist Eugenio Morelli began in 1928 to look for a suitable place to cure tuberculosis and chose the sunny village of Sondalo at an

altitude of 1,000 meters. The social insurance agency commissioned renowned architects and engineers from Rome with the construction of the facility, in the style of Razionalismo. Mussolini specifically wanted to build a monumental facility representative of Italy's health policy and expressed the wish to design one of the pavilions in an elongated shape with dynamic curves, like a white cruise ship. The foundations and viaducts were begun in 1932, presumably under the direction of the Roman architect Mario Loreti and the engineer Raffaello Mattiangeli (CNAS engineering office), and the general contractor Daniele Castiglioni.[60] However, the commissioning of the facility, completed in 1940, did not start until after the end of the war, in 1946. The desired iconic effect of the futuristic "Alpine Atlantis" attracted international attention as early as 1939, especially in Switzerland. In the *Schweizerische Bauzeitung* dated March 2, 1940,[61] an article about the sanatorium, still under construction then, was published.

Towering futuristically above the Valtelline village of Sondalo, the complex plants itself into the steep, woody mountainside at the southern foothills of the Western Rhaetian Alps with gigantic infrastructural construction measures. High stone walls support the roadways, which—as in ancient Rome—are built on brick terraces and viaducts to overcome the unevenness of the terrain. The winding roads that jut far beyond the natural terrain lead up the steep slope in maneuverable curves and are bordered by boulevard-like rows of trees that provide shade to the pedestrians. They are accompanied by rotundas, terraced gardens, and wooded parks that invite people to stroll. The nocturnal lighting of countless lamps lends them an urban character.

Made of porphyry blocks, the plinth and the terraces form a material unit with the viaducts, while the colorfully plastered buildings contrast the massive plinth landscape with ocher reds and yellows. The pavilions feature long, overhanging balconies, shaded by curved wooden lamellas that stand out from the landscape—reminiscent of ships at sea.

The sanatorium city was a microcosm functioning independently of the outside world with its own power plant and autonomous water supply. It had a church, shops, a cinema, an amphitheater, thermal baths, a weather station, and even a private radio antenna. The medical and administrative staff enjoyed their own swimming pool, bocce court, and tennis court. Erected like the administration building in red brick, the power station visually stands out from the ensemble; tall and slender windows give it a vertical character. It spans the arch to the church, which resembles a ship with its round windows and its cubic composition of brick and white travertine.

An all-encompassing aerial cableway system that made fast delivery possible also communicated a sense of dynamics. From the roof terrace of the central building, small cable cars headed directly to the rooftops of the nine sanatorium pavilions, where freight elevators took over the vertical distribution. This innovative and efficient system contributed to the futuristic character of the complex. Its micro-urban structure is reminiscent of the futuristic city visions of Antonio Sant'Elia, the omnipresent arcade motif of Giorgio de

Viaducts with main building (r) and church in the background

Chirico's metaphysical silence, and the dynamism of the streets on Mario Sironi's diagonal image structure. In 1952, a journalist of the *Corriere della Sera* described the nighttime atmosphere from the perspective of someone passing through: "To anyone travelling in the night along the road from Tirano to Bormio it looks at first like some sort of weird laboratory or secret factory. On the left, where the mountain slopes that form the valley open slightly, thousands of tiny pricks of light suddenly appear against the velvety black backdrop of the fir and pine forests […]. Anyone who finds himself observing this spectacle cannot but imagine a mysterious futuristic city; cannot help, even if for only a single second, imagine having happened into the guarded confines of an atomic city."[62]

Today, the complex is still used as a hospital town (Ospedale Eugenio Morelli); some of the pavilions are empty and dilapidated. The cable car remains inoperative for patent law reasons; it was replaced in the 1980s by a far less elegant connecting tube network.

Jean Saidman, irradiation of a patient in the Aix-les-Bains solarium, 1930

**27 André Farde and Pierre Souzy, Revolving Solarium by Jean Saidman, Aix-les-Bains, 1930; Jamnagar, 1934; Vallauris, 1935**

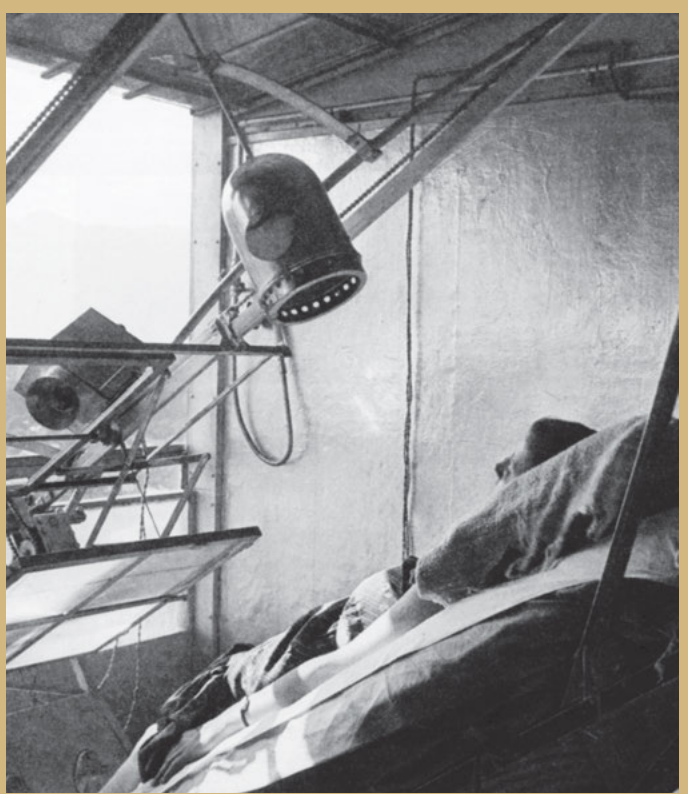
Jean Saidman, a specialist in actinology (radiation research), developed novel radiation therapies, which he first tested in his Parisian practice. He treated children with the UV light of specifically designed lamps to prevent rickets. In the basement of his surgery, he had an artificial sand beach created to playfully occupy the children while he irradiated them.

Inspired by a Davos prototype, he designed (with the help of the engineers Carsalade & Regimbeau) a revolving solarium, which he presented with a cardboard model in August 1929 at the Grand Palais; shortly thereafter, he filed an application with the patent office, which was approved on January 17, 1930. He chose the cure town of Aix-les-Bains, situated in the French Alps, as the site for the realization of his invention and commissioned the local architect André Farde with the building application, which was submitted on July 4, 1929. Construction began in mid-April 1930, and the facility opened on July 26. Jean Saidman described the first prototype as follows:

"The elevated terrace has two lateral wings, on which small cabins are built in lightweight construction. Patients lying on sun loungers or other suitable bedding are exposed to the sun's rays. Access to the radiation therapy cabins is provided via a central building core with a staircase and an elevator. The ground floor and the other floors of the tower can be used in a variety of ways—e.g., as control rooms, shops, buffets, etc."[63]

As the base and support of the revolving part, architect André Farde commissioned the construction of a picturesque hexagonal tower, which formed a stark contrast in stylistic terms to the futuristic-looking top section. Treatment was carried out by filtered sunrays, as well as UV and infrared lamps operated by a central control system, in order to increase the effect. Because of the risk of infection, tuberculosis was not treated. "Mainly women of the wealthy upper class," who "suffered from neuralgic diseases,"[64] visited the solarium (since the Belle Époque, Aix-les-Bains had been popular with international aristocratic and bourgeois spa guests). Three months after its opening, the revolving solarium had already chalked up impressive numbers: by October 14, 1930, there were 4,000 visitors, including 500 physicians.[65] In 1932, as part of an extension to the thermal complex, the revolving part was to be moved to its roof, closer to the clientele for the heliotherapeutic sanatorium and thermal baths, but this plan could not be realized for administrative reasons.

Jean Saidman quickly achieved international success and even exported this prototype to India, where it was inaugurated in 1934 in Jamnagar. He envisioned the establishment of a large "heliotherapeutic sanatorium" in Vallauris in southern France, giving it the utopian-sounding name "Aktinopolis." Managing to convince the government of this project, he obtained the necessary funding. He commissioned the architect Pierre Souzy with the construction, and it was opened on February 10, 1935. Although not as big as originally planned, another rotating solarium was installed on the roof of the "heliotheraputic solarium," which Jean Saidman was chosen to head.

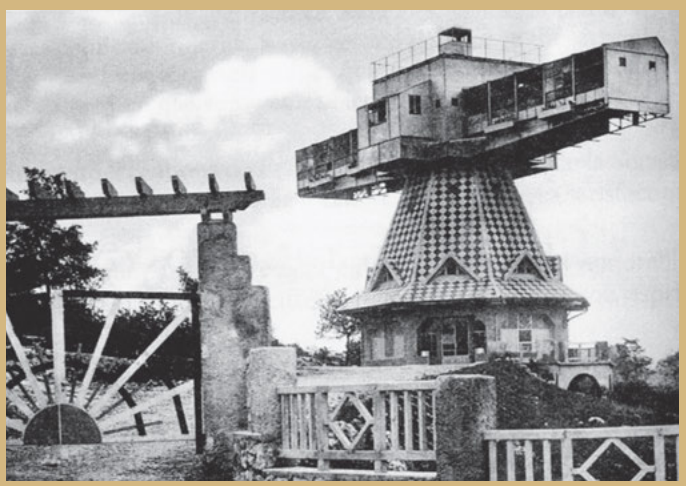


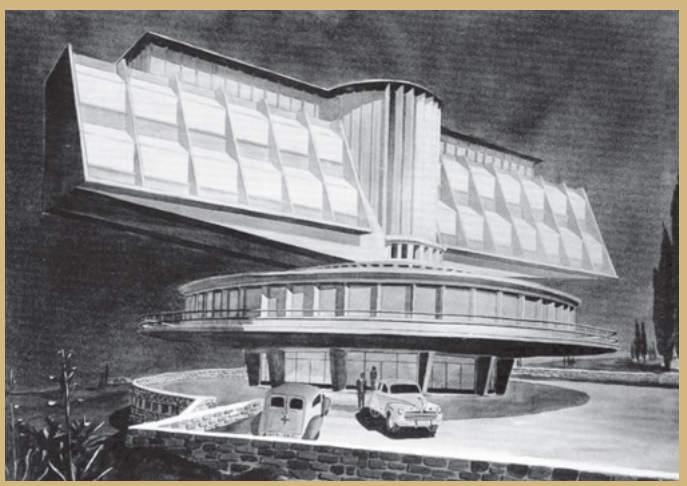
Jean Saidman, revolving solarium in Aix-les-Bains, 1930

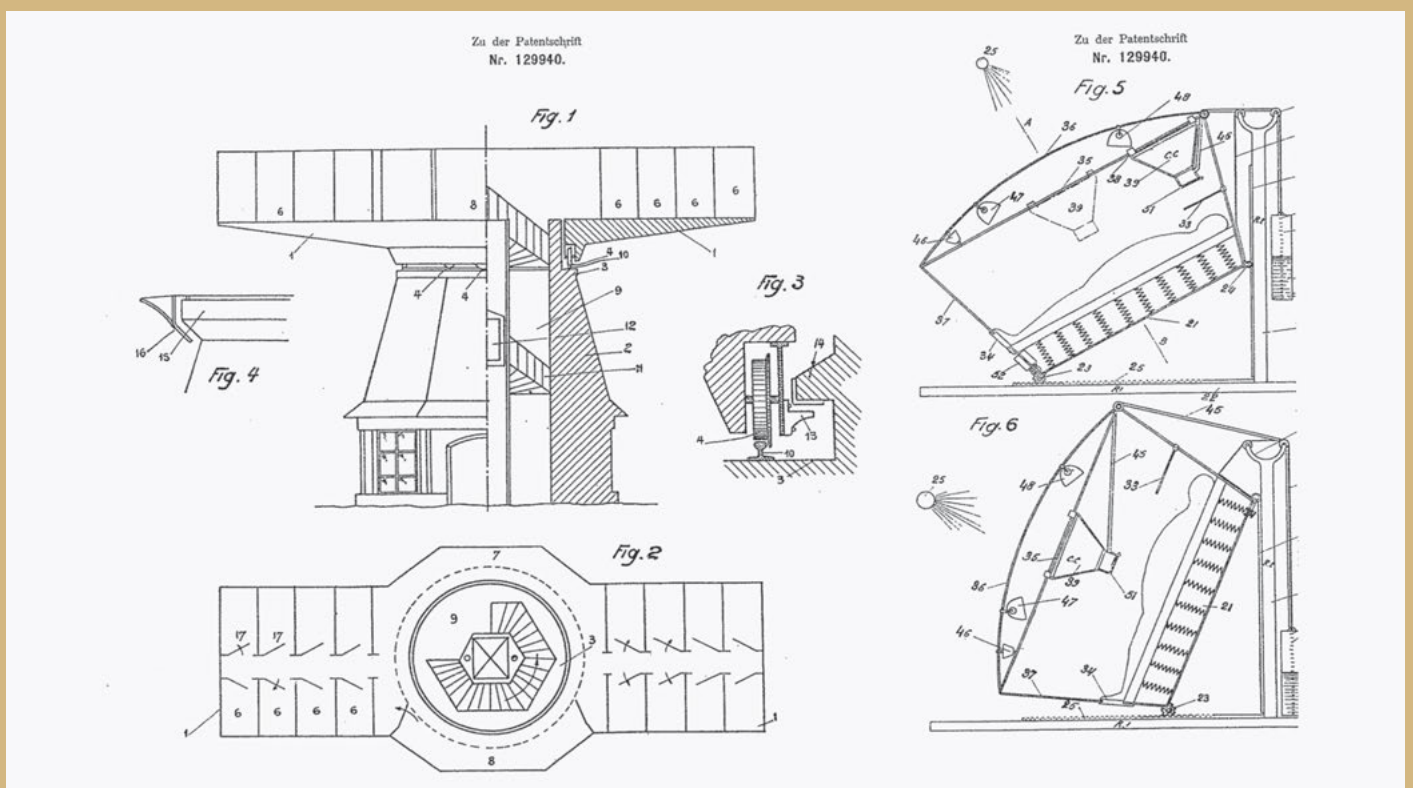
Fernand Ottin, design for a follow-up project for the revolving solarium in Vallauris, 1946

Due to serious financial difficulties, which were combined with an anti-Semitic plot, this solarium had to be closed in November 1937. The outbreak of World War II ended the ensuing lengthy court battle; the sanatorium then served the military as a hospital. The solarium in Aix-les-Bains was occupied at the end of 1943 by the National Socialists, who ultimately plundered and destroyed it.

In 1946, Fernand Ottin—then a graduate student at the École des Beaux-Arts in Paris—designed a new solarium in Vallauris as an independent building for Jean Saidman. His construction was, however, vetoed by the solarium management at that time. Saidman died of a heart attack in 1949. The solarium in Jamnagar still exists today and can be visited. In Aix-les-Bains, the revolving section was demolished in 1965; the base was the only part preserved.








Jean Saidman, patent plans for a revolving solarium, 1929

Peter Zumthor, thermal baths in Vals, Graubünden, 1996

28 **Peter Zumthor, Vals Thermal Baths, 1990–1996**

In the Valsertal Valley of the Swiss canton of Graubünden, a bathing facility with a hotel, bathing cabins, showers, and a small open-air pool had existed since 1893, but gradually lost its public in the 1930s. Around 1960, a new complex with a simple thermal bath was built, but became obsolete in 1990. On behalf of the community of Vals, architect Peter Zumthor planned a new thermal spa by taking particular considerations into account: he did not want to refer to the structural context, but sought "a special relationship to the mountain landscape, its natural power, geological substance and impressive topography."[66] The idea "that the new building should communicate the feeling of being older than its existing neighbor, of always having been in the landscape"[67] pleased him. The archaic dimension of the "mystical nature for a world of stone inside the mountain, for darkness and light, for the reflection of light upon water [...], for warm stone and naked skin, for the ritual of bathing"[68] inspired his initial design notions, which gave the building shape and determined its materiality.

When viewed from the mountain, the building seems to grow out of the hillside. The structure is given a geometric shape by fine lines and points of glass, which interweave the greened roof surface to bring light into the thermal baths. Seen from the valley, the spa resembles a massive protruding rock with large holes that provide a view through the building to the mountain slopes, as well as into the bathing landscape, while smaller openings bring rhythm to the mass.

The spa can be entered from the side, with direct accessibility from the hotel. Visitors enter through a dimly lit corridor, which tunes them into the insulated atmosphere inside and leads to the changing rooms. The thermal landscape is structured by oversized blocks of stone, which open up more and more the further they project out from the slope. Zenithal grazing light penetrates into the room through white, narrow strips in the ceiling. It visually emphasizes the rough surface of the stone walls, while blue glowing points bring the atmosphere of water into play. The materiality of Vals quartzite determines the entire space, horizontally and vertically. The transition into the water is very smooth, like gliding into a mountain lake. The inside and outside are seamlessly interwoven, again without any dividing thresholds. Placed within the large blocks of stone are smaller pools with different themes that stimulate the sense of smell through flowers, the sense of hearing through meditative tones, the sense of taste through drinking water in copper cups, and the sense of touch through different water temperatures. Sensual stimulation creates suspense, supported by architecture and light as well as by the materiality of the stone and the water.

It is interesting that Peter Zumthor compares the tension that lies in an architectural body with the living tensions of nature: "I think that the hidden structures and constructions of a house should be organized in such a way that they endow the body of the building with a quality of inner tension and vibration. This is how violins are made. They remind us of the living bodies of nature."[69]

**1** Jean-Jacques Rousseau, *Julia, or the New Eloisia: A Series of Original Letters, etc. (1761)*, 3 vols. (Edinburgh: J. Bell, J. Dickson, and C. Elliot, 1773) [=Rousseau (1761) 1773], vol. 1, 68.
**2** Jean-Jacques Rousseau, "Émile and Sophie: Or the Solitaires," in *Émile, or Education (Includes Émile and Sophie, or the Solitaires)*, trans. and ed. Christopher Kelly and Allan Bloom (Hanover and London: University Press of New England, 2010), 706.
**3** Rousseau (1761) 1773, 68.
**4** See Kai Buchholz, "Begriffliche Leitmotive der Lebensreform," in Kai Buchholz et al., eds., *Die Lebensreform, Entwürfe zur Neugestaltung von Leben und Kunst um 1900,* exh. cat. (Darmstadt: häussermedia, 2001), 2 vols. [=Buchholz 2001], vol. 1, 41ff.
**5** Schopenhauer (1819) 2016, vol. 1, chap. 20, §18.
**6** See Gernot Böhme, "Anfänge der Leibphilosophie vom 19. Jahrhundert" [=Böhme 2001], in Buchholz 2001, vol. 1, 149ff.
**7** See Wolfgang Riedel, "Homo Natura: Zum Menschenbild der Jahrhundertwende," in Buchholz 2001, vol. 1, 105.
**8** Friedrich Nietzsche, "The Despisers of the Body," in *Thus Spoke Zarathustra* (1885), in Bill Chapko, ed., *Nietzsche's Best 8 Books*, Nietzsche Love of Fate Series, version 4.67, March 1, 2010, e-book [=Nietzsche (1885) 2010], 340. | **9** Ibid., 341.
**10** Friedrich Nietzsche, "Posthumous Fragments" (1887), www.nietzschesource.org, 2009, NF-1887, 9[75], 54.
**11** Friedrich Nietzsche, *The Gay Science: With a Prelude in German Rhymes and an Appendix of Songs* (1882/1887), in *Nietzsche's Best 8 Books* [=Nietzsche (1882/1887) 2010] , no. 352, "Why We Can Hardly Dispense with Morality," 193.
**12** Alfred Soder had produced it in 1907 for Friedrich Berthold Sutter.
**13** Rolf Wiggershaus, "Philosophie der Jahrhundertwende in ihrem Verhältnis zur Lebensreform: Von der Diskrepanz zwischen objektiver und subjektiver Kultur" [=Wiggershaus 2001] in Buchholz 2001, vol. 2, 31ff.
**14** Ibid.
**15** Christian Benne, *Nietzsche und die historisch kritische Philologie*, Monographien und Texte zur Nietzsche-Forschung 49 (Berlin: De Gruyter, 2005), 8.
**16** Wiggershaus 2001, 146.
**17** Thomas Rohkrämer, "Natur und Leben als Maßstäbe für die Reform der Industriegesellschaft," in Buchholz 2001, vol. 1, 80f.
**18** Ibid.
**19** See Klaus Wolbert, "Deutsche Innerlichkeit. Die Wiederentdeckung Caspar David Friedrichs um 1900 und die Verbildlichung des reformerischen Naturverhältnisses," in Buchholz 2001, vol. 2, 192.
**20** Friedrich Nietzsche, "Joke, Cunning and Revenge: Prelude in German Rhymes," in Nietzsche (1882/1887) 2010, no. 27, "The Wanderer," 16.
**21** See Winfried Mogge,"Jugendbewegung und Wandervogel," in Buchholz 2001, vol. 2, 307.
**22** Ida Hofmann, *Monte Verità – Wahrheit ohne Dichtung: Aus dem Leben erzählt* (Lorch: Verlag Karl Rohm, 1906) [=Hofmann 1906], 95.
**23** Ibid., 23. | **24** Böhme 2001, 473.
**25** Hofmann 1906, 70. | **26** Ibid., 46f.
**27** Ibid., 71.
**28** Laban 1920, 3. Cited in McCaw 2011, 45.
**29** Arnold Rikli, *"Es werde Licht" und Es wird Licht! Oder die atmosphärische Cur: Ein Beitrag zur natürlichen Gesundheitslehre* (4th repr., Leipzig: Verlag Arnold Rikli, 1894), 21.
**30** Adolf Just, *Return to Nature!*, trans. Benedict Lust (New York: B. Lust, 1904; repr. Pomeroy, WA: Health Research, 1996), 59.
**31** Frederik Jötten, "Fehldiagnosen in Davos," *Neue Zürcher Zeitung*, June 10, 2012 [=Jötten 2012].
**32** Vincent Barras, "Auguste Rollier" (December 2, 2011), in *Historisches Lexikon der Schweiz,* http://www.hls-dhs-dss.ch.
**33** Louis Landouzy (ca. 1900). Cited in Philippe Grandvoinnet, *Architecture Thérapeutique, Histoire des sanatoriums en France*, 1900–1945 (Les Acacias: Metiss Presses, 2014) [=Grandvoinnet 2014], 13.
**34** Charles Haye, deputy director of care and hygiene at the Ministry of Public Health, cited in Jean-Bernard Cremnitzer, *Architecture de la santé: Le Temps du sanatorium en France et en Europe* (Paris: Picard, 2005), 112.
**35** Jötten 2012. | **36** Hofmann 1906, 23.
**37** Harald Szeemann, *Monte Verità, Berg der Wahrheit, lokale Anthropologie als Beitrag zur Wiederentdeckung einer neuzeitlichen sakralen Topographie*, exh. cat. (Milan: Electa, 1978) [=Szeemann 1978], 121.
**38** Sigfried Giedion, *Befreites Wohnen*, ed. Emil Schaeffer (Zurich: Orell Füssli, 1929), 67f.
**39** Ulrike Voswinckel, *Freie Liebe und Anarchie: Schwabing – Monte Verità: Entwürfe gegen das etablierte Leben* (Munich: Alitera, 2009), 122ff.
**40** Rudolf von Laban, *Ein Leben für den Tanz* (Dresden: Reißner, 1935), 195ff. Cited in McCaw 2011, 33f.
**41** Ibid.
**42** Rudolf von Laban, in Szeemann 1978, 129f. Translation cited in Susan Manning, *Ecstasy and the Demon: The Dances of Mary Wigman* (Minneapolis: University of Minnesota Press, 2006), 78.
**43** Ibid. | **44** Lilian Karina and Marion Kant, *Hitler's Dancers: German Modern Dance and the Third Reich* (New York, Oxford: Berghahn Books, 2003).
**45** Peter Meyer, "Sanatorium-Entwürfe für Davos: Architekt Juraj Neidhardt," *Das Werk: Architektur und Kunst,* vol. 17, no. 4 (1930), 118–120. | **46** Ibid.
**47** Carl Marilaun, "Semmeringer Lidozauber," *Semmeringer Nachrichten*, no. 18 (1932), 2 [=S. N. 1932b]. | **48** Ibid.
**49** "Schwimm- und Strandbad-Eröffnung des Grand-Hotels Panhans am Semmering," *Semmeringer Nachrichten*, no. 16, 4 [=S. N. 1932a].
**50** Ibid. | **51** S. N. 1932b.
**52** S. N. 1932a, 4.
**53** Ibid., 62.
**54** Erwin Poeschel, "Terrassenbau der Deutschen Heilstätte in Davos-Wolfgang: Architekt Rudolf Gaberel," *Das Werk: Architektur und Kunst*, vol. 17, no. 4 (1930), 115f.
**55** Ibid. | **56** Ibid.
**57** A.R., "Bauliche Sanierung der Heilstätte 'Du Midi' in Davos des Schweizerischen Betriebskrankenkassen-Verbandes Winterthur: nach den Plänen von Rudolf Gaberel, Architekt BSA, Davos," *Das Werk: Architektur und Kunst,* vol. 31, no. 3 (1944). | **58** Ibid.
**59** Victor Berger, "Le sanatorium de Plaine-Joux-Mont-Blanc à Passy (Haute-Savoie)," *L'Architecte,* no. 8 (August 1929), 57–67.
**60** See Davide del Curto, "La costruzione della rete sanatoriale italiana," in Luisa Bonesio, Davide del Curto, eds., *Il Villaggio Morelli di Sondalo. Identità paesaggistica e patrimonio monumentale* (Parma: Edizioni Diabasis, 2011), 211f.
**61** *Schweizerische Bauzeitung*, vol. 115/116, no. 9 (March 2, 1940), 105.
**62** Egisto Corradi, "Sondalo, Alta Valtellina," *Corriere della Sera*, January 3, 1952. Cited in Luisa Bonesio, "The Morelli Village of Sondalo," in "Il bello che cura: L'architettura dei dispensari antitubercolari e dei sanatori in Italia tra le due guerre," ed. Cristiano Rosponi, supplement, *CE.S.A.R.*, no. 2/3 (2008), 23–30).
**63** Thierry Lefebvre and Cécile Raynal, *Les Solariums tournants du Dr. Jean Saidman, Aix-les-Bains, Jamnagar, Vallauris* (Paris: Glyphe, 2010).
**64** Ibid. | **65** Ibid., 112.
**66** Peter Zumthor, *A+U Special Edition* (Tokyo, February 1998), 138f.
**67** Ibid. | **68** Ibid. | **69** Ibid., 17f.

Vittorio Bonadé Bottino, Colonia montana Tina Nasi Agnelli, Fiat, Sauze d'Oulx, 1937

# 4 Contesting for the Child

*Build schools in the countryside, next to the barn, next to the dung heap, teach the children to value the sun not only aesthetically but to revere it as life-giver […]. This would then produce human beings who, rather than being thrown off track, would be cultivated people who lived in security wherever they were obliged to live.*

*Baut Schulen auf dem Land, neben dem Stall, neben dem Misthaufen, lehrt die Kinder die Sonne nicht nur ästhetisch zu bewerten, sondern sie als Lebensspenderin zu achten […]. Das gäbe dann Menschen, die nicht aus dem Geleise geworfen wären, sondern Kultivierte, die in Sicherheit lebten, wo immer sie leben müssten.*[1]

**Adolf Loos, Stadt und Land, *Neues 8 Uhr-Blatt*, 1918**

Jean-Jacques Rousseau had seen the Alps as the ideal location for bringing up young people. As industrialization progressed, it went hand in hand with the realization that children needed to be sent to the mountains not merely for the ethical reasons originally postulated but also for their health, so that they might escape, at least temporarily, from the polluted city. The concept of the children's colony originated in Switzerland; the first were founded in the Swiss Alps in the last quarter of the 19th century. In the early 20th century the number of charitable activities generally increased, while at the same time the political and ideological dimension became more and more pronounced— because, as people realized, the future depended on the upbringing of children. The Alps became the arena for a religious and political contest over education, which manifested different characteristics in different countries: Protestants, Catholics, reform educationalists, socialists, communists, and not least fascists, all endeavored to set up children's colonies, and children's homes and hostels, not only to care for their health but also to provide an ideological education on their own terms, far away from the family home.

This chapter ranges from the Enlightenment to fascism and investigates many examples of children's colonies and children's homes in the Alps built before World War II in Italy, France, Austria, Germany, and Switzerland. If we compare the architecture of children's homes in these countries, their differences are striking and go far beyond questions of style: the interior spatial arrangement alone reflects the ideological and political attitude to education. The focus of attention is on the highly political period between the wars, because the diverse educational concepts—between reform and dictatorship—were most conspicuously manifest in architecture.

The chapter examines how far the educational dimension was articulated in building form and typology and exercised an influence on the children. Architecture took the stage as an "education machine," as the spatial embodiment of different ideologies: whether avant-garde, reactionary or totalitarian, architecture is an expression not only of its age but also of the particular political system. The philosophical and pedagogical background will be given as much emphasis as the architecture, while light will also be cast on the relationship to the sublime. The first key topic is Rousseau's teaching and the reform of education it inspired; the second is fascism, which put an abrupt end to educational reform.

While the sublime in the Enlightenment was associated with a concept of freedom (symbolically embodied in the Swiss mountains, as Addison's writings imply), during the Romantic era the emotive aspect prevailed. The emotional basis so

Anonymous contemporary illustration of *Émile, or On Education* by Jean-Jacques Rousseau

created (which continued to find ideal expression in the "wild mountains") was reversed with the dawn of the modern age: nature was no longer regarded as "sublime," but rather the "New Man" and his technology, which subjugated nature under the aegis of progress. Fascism instrumentalized his fascination for technology and power; it endeavored to exploit the "sublime" for its ideological and political purposes, which had an impact in the field of children's education as well. In this context, and before and after the sections on Italy and Germany, the chapter deals in depth with the relationship between the "sublime" and totalitarian politics (in the subsections "Docile Bodies" and "Power and Fear: Criteria of the Sublime?").

**Jean-Jacques Rousseau, *Émile* and the Contemplation of Nature, 1762**

Albrecht von Haller (1708–1777) and Jean-Jacques Rousseau (1712–1778) can be regarded as the intellectual pioneers of education in nature. Rousseau's philosophical writings on education, in particular, had great international resonance and led to a revolution in ideas: critical questioning, independent thought, learning through contemplating nature, and the discovery of one's own "inner nature" (instead of following a prescribed moral system). His wide-ranging concept of nature encompassed outer and inner nature to the same extent, its striving for harmony and intellectual freedom. It was associated with the Creation, which Rousseau saw as good because it established a harmonious balance, while man de-natured everything, including himself. According to the first sentences in *Émile ou De l'éducation* (1762).

"God makes all things good; man meddles with them and they become evil. He forces one soil to yield the products of another, one tree to bear another's fruit. He confuses and confounds time, place, and natural conditions. […] He will have nothing as nature made it, not even man himself, who must learn his paces like a saddle-horse and be shaped to his master's taste like the trees in his garden."[2]

Rousseau formulated a concept contrary to human dressage in his educational, philosophical, and political ideas, ostensibly in the form of a novel which describes Émile's life, who is to be educated in the spirit of nature. Rousseau described education as "the art of forming the human being" (*l'art de former des hommes*), which in his time he thought was greatly neglected. He ties in here with John Locke's theories stating that the "empty human mind" is a *tabula rasa*, a "blank slate," that follows no inborn plan, but is "filled" with experience: "I considered only as white Paper, or Wax, to be molded and fashioned as one pleases."[3] In education based on Plato's teachings, the development of a healthy body and virtuous character is essential, just as is the choice of a suitable course of study, according to Locke.

Rousseau built on his theories but placed nature (in the broad sense) in the center of his educational theory: Émile should learn until his twelfth year by contemplating nature and not by reading books (apart from Daniel Defoe's *Robinson Crusoe*, 1719). Before Émile grew up he should travel and get a picture of the world for himself, with priority given to philosophical reflections and scientific research: "To travel on foot is to travel in the fashion of Thales, Plato, and Pythagoras," he wrote in the fifth book of *Émile*. A philosopher must observe everything he encounters, take an interest in the climate and agriculture, in science, in the stones, and in botany: "Your town-bred scientists study natural history in cabinets; they have small specimens; they know their names but nothing of their nature. Émile's museum is richer than that of kings; it is the whole world."[4]

On his travels Émile should get to know the customs and morals of other peoples and form a judgement of different forms of government. This comparative world view might motivate him to reflect upon the *Contrat social* (Social Contract). But since Émile is confronted everywhere he goes with the destructive abuse of power and private interests, he retreats to the countryside where he was born in order to live as his own nature dictates. Rousseau warns his Émile that he should not forget his duty: "Remember the Romans sometimes left the plough to become consul. If the prince or the state calls you to the service of your country, leave all to fulfil the honourable duties of a citizen in the post assigned to you. […] Moreover, you need not fear the difficulties of such a test, while there are men of our own time, they will not summon you to serve the state."[5]

He spoke in wise presentiment of the fact that his *Émile* and the *Contrat social* were burned in Paris and Geneva, a warrant was issued for his arrest, and he had to flee. His body of thought first flowed into politics in the course of French Revolution, which, however, he did not live to see (he died in 1778).

In *Émile*, Rousseau stressed the importance of personal development according to one's "own nature," while in *Contrat social ou Principes du droit politique* (1780–1789), which was to become an important reference work for the French Revolution, he put *la volonté générale* (the general will) to the fore. He saw the personal development of the growing human being as the basis of a healthy state—an idea that was to take hold in the course of the 18th and 19th centuries.

## France: In the Direct Sight of the *Être suprême*

With the Revolution of 1789 the debate on education and school in France, motivated in the 1760s by Rousseau's *Émile*, gained in intensity,[6] since it was imperative to take the responsibility out of the Church's hands. Starting in 1792, several members of the Convention Nationale pleaded for primary school education for six- to eleven-year-olds that was general, compulsory, secular (thus state), and free of charge; on December 19 (*le 29 frimaire an II*) the law proposed by Gabriel Bouquier (1739–1810) was passed. Louis-François Portiez (1765–1810), a member of the National Assembly, pleaded in 1794 for the introduction of school excursions at secondary school level (*collège*), thus complying with Rousseau's ideas: "Travel allows the imagination to soar; it hones the spirit while lending vigor to the soul, strength and flexibility to the body; […] it expands one's horizons, develops his understanding, and destroys received ideas. […] Citizens, you can all appreciate the potential in a school that, with the arrival of fine weather, moves out into the countryside, and there, in the immediate presence of the Supreme Being hears the lessons of virtue and love of nation, delivered in the shelter of a rocky escarpment, or from the bottom of a valley, in the lush depths of the woods."[7]

He pleaded for a school excursion through which the *jeunes gens* would acquire wider knowledge by contemplating nature, the countries, their customs and habits, guided by a *conducteur.* Portiez, in consensus with Rousseau's novel, thought the role of this educator so important, because he must be capable of teaching children to think independently and critically in order to become good citizens. He placed great value on an equilibrium between physical, intellectual, and moral training and stressed the importance of "long nocturnal marches in the forest": cold temperatures would harden the body against illness and strengthen the mind against "the domain of prejudices." Plain food would give them a "taste for the simple and pure" and their "passions" would change. Nature would play a prominent role in this desired process of change (which, in view of the political context, he designated the "sole ally of France"—*la seule alliée de la France est la Nature*"[8]): "On their journey our young people will be impressed by nature's drama, which is played out before their eyes in many different ways. Spring is manifest in the valley that is sheltered from the blasts of perilous winds by this mountain chain, its peaks covered with snow. The fields remain infertile when the indolent farmer does not plough them."[9]

Analogous to *Émile*, schoolchildren on their travels through various countries of Europe should also be encouraged to ask the local population about their opinions on political, administrative, and judicial institutions: "Having traveled [the diverse lands of Europe], how much more the young Frenchman will cherish the constitution of his native land!"[10]

While Rousseau's *Émile* was still waiting to be called in order to take an active part as a *citoyen* in state politics, he was much cited during the revolutionary period. The retreat to

the recommended "idyllic country life" was thus no longer possible for a young man; he was now needed as a thinking, free citizen. Nevertheless, the education he required to become a good *citoyen* first of all had to be institutionally organized. Because of political events, the realization of Portiez's vision of school travel was postponed for another century. General compulsory primary education was repealed again less than a year later in the *Réaction thermidorienne* (1794–1795); only in the Third Republic did Jules Ferry (1832–1893), Minister of Public Education, first manage to re-introduce general compulsory primary school education in 1882. The first organized school excursions were soon followed by the founding of the first children's colonies.

**Ideological Disputes about the Children's Colonies**

The first *colonies de vacances* in France were organized by the Protestant ecclesial communities. In 1880 Pastor Théodore Lorriaux and his wife Suzanne had heard about the children's colonies organized by the Zurich pastor Hermann Walter Bion[11] (1830–1909; see the Switzerland section), whereupon they set up a similar model in 1881 for poor children in Paris (in 1882 there were 79 children, by 1897 already 1,134)[12]. This was the first step made in France in the direction of a social education network under Protestant supervision. As Laura Lee Downs describes in depth in her book on French children's colonies, this motivated state and Catholic institutions to become interested in this concept;[13] in the early 20th century socialist and communist institutions joined them. Besides the aspects of health improvement, they all recognized the educational potential of the holiday colonies, since children are easier to influence when far from their parents and their homes.

On the side of the state, Edmond Cottinet (1824–1895), chairman of the *Caisse des écoles* (school administration) in the 9th arrondissement of Paris, worked intensively to ensure that children—and especially those from a poor background—should get fresh air; they often suffered from rickets and tuberculosis. In 1883, with the help of public funding, he enabled nine girls and nine boys to spend the summer in the country, whereupon he noted with pride: "In forty days they have gained seven kilos in weight." Four years later, this number had increased to 315 children,[14] who were accommodated with farmers' families for three weeks. As of 1887, the number of state-funded school colonies rapidly increased. In response, the Catholic Church, too, endeavored to take charge of children's education in the guise of caring for their welfare, which had been snatched out of their hands by the French Revolution. In contrast to the state and Protestant and liberal organizations, which primarily aspired to the improvement of the children's health, the Church had the intention of caring first and foremost for the moral education of the "lost souls." So, toward the end of the 19th century, a genuine battle was being fought for the children, at a time when the political situation was escalating in the wake of the Dreyfus affair.[15] In 1902 Abbé Bruneau protested violently against the state, as well as against socialist and Protestant organizations: "The state does its all here [for the *colonies scolaires*], while the Socialists and Protestants have organized their 'Voyages à la Montagne' on a grand scale. […] It is important to realize […] what our enemies are doing in order to de-Christianize the souls of our children. […] Given the rapid spread of the 'colonies scolaires' organized by the enemies of religion, it is our duty […] to counter these secular works with competing works of our own."[16]

To win the children's trust it was necessary to pay attention to their weaknesses, he wrote, for this is the easiest way to influence them, especially in the evenings, before sleep. The Catholic concept of education should therefore be based on "empathy and trust," as is set out in the brochure published in 1905 *Comment organiser une colonie de vacances* (How to Organize a Holiday Colony), in order to put them on the "right path."

**Congresses for Holiday Colonies—Attempts at Agreement**

In view of the sensitive inter-religious situation, Pastor Louis Comte (1857–1926) endeavored to organize a joint congress, which was initially a failure because of disputes with the Catholic institutions. At the fourth *Congrès national des colonies de vacances* (National Congress for Organizing Holiday Colonies) in Paris in 1910 the following statistics were published: in the years since 1900 the number of children taking part had increased tenfold, from 8,200 to 72,866.[17] In comparison with some other countries far fewer French schoolchildren were taken charge of by state organizations: only 5 percent, whereas in Denmark 40 percent of all children were able to spend five or six weeks on a farm.[18] "Let's do it like

SNCF children's holiday camp in Méribel-les-Allues, ca. 1956

Denmark!" was the ambitious response to this. After World War I the situation improved: in summer 1913 100,000 children stayed in colonies; by 1932 it was more than 320,000.[19] Nevertheless, the Danish percentage was never reached in France. There was constant discussion as to whether it was better to accommodate children with farmers (which wasn't always a success because some host families accepted children only for financial reasons, for a small daily allowance), or to set up independent colonies. At first the buildings were usually schools and other empty public buildings adapted for the purpose. Only in the years between the wars were appropriate buildings erected, based on models such as cost-efficient war barracks or other existing building types such as sanatoriums and heliotherapeutic cure houses.

In 1937 the III[e] Congrès international des colonies de vacances (3rd Holiday Colonies Congress) took place. This time there was no delegation from Italy taking part, despite considerable investment in this sector: in 1938 official statistics mention 4,906 colonies for 772,000 children.[20] Downs suggests that Mussolini and his fascist regime may have wanted to celebrate this accomplishment as a national achievement and did not send a representative so as to avoid being exposed to criticism—they deliberately subordinated education to political aims and were not at all interested in having to listen to instructions and advice on the separation of politics and education. At the congress, criticism was indeed voiced about the political orientation of the holiday colonies, accompanied by the warning that quality rather than quantity should be kept in mind. For the first time hygiene and health were no longer given priority in the debate, but rather the role of the educator and the safeguarding of the children's individuality (while Italian institutions practiced enforced conformity).

**Socialist Children's Republic**

The socialists had their own competing ambitions in the field of education. In France the Red Falcons were founded in 1930 following the Austrian model, and as of 1932 they organized children's holiday colonies in the country and in the mountains, supported by the Protestant boy scouts. Because of numerous repressive measures by the SA, the socialist politician Kurt Löwenstein (1885–1939), who was active in German educational politics, had to emigrate to France, where he continued his agenda. He introduced the educational model of the children's republic: these republics should take a playful approach to dealing with actual situations of oppression caused by power structures and contrive strategies to free themselves through group dynamics. The children voted for their representatives as in a real republic. He also organized international Falcon camps (in tents) in order to propagate an education and upbringing based on democracy and freedom. Les Faucons rouges had relatively few members, however—only 2,000 under the *Front populaire*, the French leftist government of Léon Blum (1936–1937). Nor did the *Pionniers communists* boast much appeal: in 1935 they had no more than 1,000 children.[21]

**Children's Recreational and Convalescent Homes in the French Alps**

In the French Alps there were several strongholds for children's recreational and convalescent homes and holiday colonies; among the most important locations were Villard-de-Lans on the Plateau du Vercors and Haute-Savoie, especially the townships of Saint-Gervais and Megève at the foot of Mont Blanc. Mostly occasioned by the incremental establishment of heliotherapeutic cure houses, sanatoriums, and children's guesthouses, these places were "occupied" one after another. The emerging health movement and the accompanying search for high-altitude fresh air and sun fostered the development of winter sports. There was a significant overlap here, which did not always end happily. It triggered a conflict of interests, leading to a stark separation of the healthy from the ill.

In 1928 the hygiene commission of Villard-de-Lans (which was linked by a direct tram to the industrial city of Grenoble) issued a decree against tuberculosis in order not to "endanger" the "good reputation" of the heliotherapeutic "cure village." Four years later on October 24,1932, an article promoting the cure village appeared in a local paper. Entitled "The Dictatorship of Health," it began with the rhetorical question "How can Villard-de-Lans, a cure village for children without tuberculosis, protect itself against the tubercle bacillus?"

It was followed by a description of how infected patients were to be kept away: through medical checks of guests and by threatening hoteliers with turning off the water mains if a case of tuberculosis was discovered on their premises. This decree of exclusion was, it stated, the "most excellent initiative known to us in the fight against that plague of mankind: tuberculosis."[22]

The cure village Saint-Gervais developed an efficient system for endangered children of patients who were cured in sanatoria located on the opposite side of the valley, on the Plateau d'Assy: as a preventive measure, the children would be accommodated systematically with families in the town. Here, too, a decree was issued according to which children suffering from tuberculosis or other infectious diseases were not accepted. However, the exclusion measures went far beyond the hygiene and health argument: in order not to compromise the image of the upcoming winter sports region, even those with physical or mental disabilities were refused permission to stay because they were "not compatible with the spirit of Saint-Gervais."[23]

At the start, children's homes were accommodated in existing buildings and usually run by families; only toward the late 1920s were specially designed buildings first set up in the French Alps. They were influenced in their design by traditional building styles with protruding saddle roofs but were equipped with generous south-facing cure galleries. As in Switzerland, these buildings manifested a trend toward regionalism, possibly to differentiate them from the "hygiene machines" feared throughout the region.This can be illustrated in three buildings by Henry Jacques Le Même, who built serveral children's guesthouses in Megève in the 1920s and 1930s. For the Chez Nous children's house (Project 30) he modernized the traditional building style and formal language by adapting his popular "chalet style," which had been developed for winter sports tourism. By contrast, he planned the high-altitude school Le Hameau in the modernist style as an L-shaped building block with a flat roof and a dynamic curve protruding over the slope (Project 31). The Roc des Fiz children's sanatorium on the Plateau d'Assy, which he built in 1932 with Pol Abraham, featured an innovative typology and a modern formal language (Project 25, in chapter 3).

30 Henry Jacques Le Même, Chez Nous Children's Guesthouse, Megève, Haute-Savoie, 1935

31 Henry Jacques Le Même, Mountain Boarding School Le Hameau, Megève, 1933–1935

The choice of these three projects suggests that a regional style was deliberately chosen for children's homes, while the modernist style seemed more appropriate for institutional buildings such as schools and sanatoriums. The stylistic plurality demonstrated by one and the same architect (within one region and the same period) illustrates that various stylistic ideas and requirements existed relative to program.

Rousseau's basic principle—borne aloft by revolutionary France—of letting children grow up in nature in order to establish, through their personal development, a good basis for a healthy nation had finally prevailed, 140 years later. After many fights about the ideological orientation of future *citoyens,* it was now to guarantee the physical health of the "New Man."

## Switzerland: Ye Sons of Nature, Still with You Abide Those Goodly Days!

Albrecht von Haller's (1708–1777) famous poem "The Alps" (1729) contributed to the idealization of the mountains as a place for education and study. His concept of nature manifested here implies a concept of freedom: Haller elevated nature over schooling, the heart over the mind, since the things that could be learned in the mountains by far transcended academic knowledge. "Ye sons of Nature, still with you abide those goodly days!"[24] he wrote, glorifying the rural life of peasants, and challenging stale academic knowledge with the simple life based on contemplating nature. "What Epictetus did, and Seneca wrote, this we see here, and done untaught and unconstrained."[25] His poem made a permanent contribution to the formation of Swiss identity and thus its national consciousness,[26] where the honest rural life and the mountains become manifest as the quintessence of free Switzerland (see Addison, chapter 1).

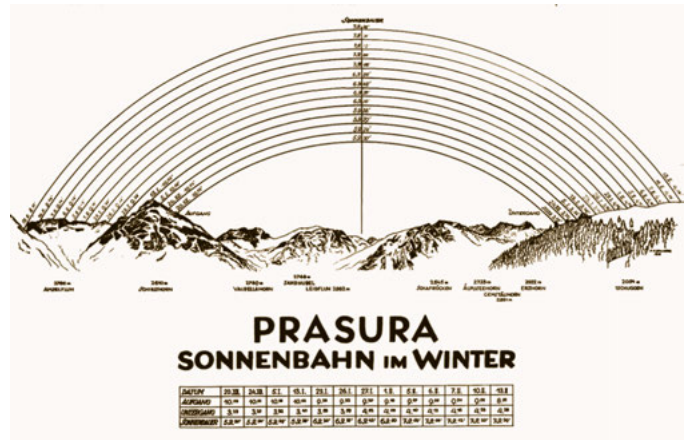
Rousseau's enlightened educational treatise was of great importance, too, since it became the model of all educational theories that evolved unremittingly from the Enlightenment until into the 20th century. Johann Heinrich Pestalozzi (1746–1827) of Zurich, who had read *Émile* immediately after its publication, first put Rousseau's theoretical ideas into practice in the education of his son, born in 1770, while Rousseau concentrated on theoretical writings and entrusted

Diagram of the path of the sun in winter in Arosa: "Prasura, Sonnenbahn im Winter"

his children to the children's office. Pestalozzi is famous as a pioneer of *Anschauungspädagogik*—"scientific pedagogy" based on sensory perception—and of the resulting "reform movement" that formed the discourse toward the end of the 19th century. Although he failed miserably in the attempt to educate his son according to Rousseau's novel (because of his great paternal expectations), he did not allow himself to be discouraged in his educational ambitions. He accordingly founded a poorhouse at the Neuhof (1774–1780), followed soon afterward by an orphanage in Stans (1799), and finally two educational institutes in Burgdorf (1800–1804) and Yverdon/Iferten (1804–1825). He aspired to foster the children's intellectual, moral, and religious energies and handicraft skills in an all-embracing and harmonious way; in 1801 he published his first work on education: *Wie Gertrud ihre Kinder lehrt* (How Gertrude Teaches Her Children). His objective was the holistic approach to general education, aiming to teach people an independent and cooperative existence within a democratic society. This new style of education, which, unlike the predominant educational methods, was not based on authority and discipline but on the personal development of the child, triggered a radical change in educational politics.

**Pastor Bion's Children's Colonies as "Utopian Settlements" in the Mountains**

In the course of advancing industrialization and the alarming rate at which poverty was growing among factory workers, people probably wistfully recalled Albrecht von Haller's poem, since industrialization threatened to undermine the very thing that had slowly been cultivated in previous centuries, namely Swiss national consciousness founded on the idyll of nature. Confronted by increasing misery and menacing illnesses, the waning idyll ought to be made accessible at least temporarily to poverty-stricken, sickly urban children, so that they could regain health and strength in the countryside. The Zurich pastor Hermann Walter Bion (1830–1909) initiated the first children's colonies in the Swiss Alps, which came to be a model for other countries (for example, France and Austria). He used the name "colony" to signal it as a utopian settlement project. In 1867 he sent sixty-eight Zurich children to spend three weeks with farmers in the Appenzell region. Collective games were organized three times a week to




ensure the children were not exploited for daily work in the fields, which was too hard for their frail bodies. The number of children's colonies increased rapidly. On the socialist side there were two foundations: the Kinderfreunde by Albert Hofer in 1922 in Biel, which in its heyday was in charge of 3,000 children, and the first Swiss Red Falcons, initiated by the Zöbeli family in 1929 in Zurich. Hardly any new buildings were erected for children's colonies in Switzerland: most existing buildings were adapted or sojourns with farm families were organized in order to avoid an institutional atmosphere and prevent homesickness. Haller's maxim of intimating nature's teachings with the heart might also have applied to the "colonized" children, as they were called, whom the organizers endeavored to integrate into rural life (seen by Haller as idyllic).In the 1920s the first children's convalescent homes were set up in the Swiss Alps, usually not in the modernist style but in the far more "appeasing" *Heimatstil*, the traditional local style. Even in the case of medicinal foster homes and sanatoriums for children, modernism had little chance. Despite the strict medicinal hygienic requirements (which, seen architecturally, were generally expressed in the radically unadorned austerity of the heliotherapeutic cure buildings and sanatoriums, as is illustrated in the projects of R. Gaberel in chapter 3), in Switzerland's regional building styles continued nevertheless to be used for children's foster homes. However, these had to be adapted to the standards of new usage and medicinal requirements, which encouraged the building of idiosyncratic, overdimensional "farmhouses" with saddle roofs as seen in the youth cure house Prasura in Arosa, which was given balcony balustrades made of glass bricks to provide maximum lighting (Project 32).

Adolf Loos (1870–1933), ca. 1920

Eugenie Schwarzwald (1878–1940), 1923

The 1930s were marked by occasional exceptions like the children's convalescent home Heimeli in Unterägeri, Canton of Zug, by Dagobert Keiser, and the children's home Mümliswil in Jura by Hannes Meyer (Project 33). With regard to the form of the buildings, the architects geared their designs to the modernist style (with flat roofs) but set up a reference to the forest surroundings by using wood (primarily for economic reasons). The Mümiswil children's home clearly reflects the connection between ideology and form; according to Bernhard Jäggi, founder of the children's home and leader for many years of the Coop (a consumer goods cooperative set up at that time), the complex "was to have an educational effect in a cooperative spirit on the children."[27] The architect Hannes Meyer translated the program into a corresponding spatial arrangement and generated a form complying with the ideological ideas of the client by putting a round table in a round room, offering everyone an equal position in which to enjoy the view of nature.

It is interesting that here a democratic principle was expressly intended to have a formative influence on the room, which gave priority to the view of nature as seen from a glazed rotunda.

To be within nature and to observe it at the same time was part of the program, which Hannes Meyer illustrated in diagrams of the prospect and usage. We already find the mixture of nature with democratic freedom, here interpreted spatially, in Haller's Alpine poem, which states: "Impartial liberty on all bestows / With equal hand, contentment, toil, and rest," and a couple of lines later goes on to expound learning through nature: "She chains not reason in scholastic lore, / Nor teaches planets in their orb to roll."[28]

## Austria: Build in the Countryside, Next to the Barn, Next to the Dung Heap

Rousseau's maxim that children should grow up in nature in order to learn from it is also reflected in the words of Adolf Loos: "Be true! Nature responds only to the truth."[29] In his view, the plain and simple, the rational and the progressive should be superior to the picturesque and to ornament. He rejected the aestheticization of nature; children should learn not to perceive things aesthetically but to live in nature and learn from its cyclic processes of creation. In 1912 Loos produced a design for Eugenie Schwarzwald's school project on Semmering (Project 29), which he promoted in his lecture "Town and Country," given on October 12, 1918, shortly before the end of World War I as part of the lecture cycle "Aeußere Kultur im 20. Jahrhundert" (External Culture in the 20th Century): "Build schools in the countryside, next to the barn, next to the dung heap, teach the children to value the sun not only aesthetically but to revere it as life-giver. Children should live in the country all the year round, in inner communion with the seasons, in the field, in the forest and on the meadow. This would then produce human beings who, rather than being thrown off track, would be cultivated people who lived in security wherever they were obliged to live."[30]

The ambitious project was initiated by Eugenie Schwarzwald, who in 1911 opened the first grammar school (*Gymnasium*) for girls in Vienna. She also worked energetically for the health of sickly, big-city children and organized holidays with the farming community in the country, according to the Swiss model. In order to ensure that the children benefitted from a healthy country life over the long term, in 1911 she planned to set up a school for 200 children on Semmering and commissioned Adolf Loos to design it. During the school year it would be used as a boarding school and the rest of the time as a convalescent home. In 1912 the Semmering Schul-Gesellschaft was founded with the aim of "establishing and

32 Alfons Rocco and Jakob Licht, Convalescent Home for Youth, Prasura, Arosa, 1928

33 Hannes Meyer, Mümliswil Children's Home, Jura, 1938–1939

organizing schools […] and boarding schools for boys and girls on Semmering, according to the regulations and laws applicable to school education."[31] However, they received little public support, prompting Loos to protest in 1918: "Less money was available for the boarding school on Semmering before the war than for every bad variety theater, for every superfluous café."[32]

When the project was already at an advanced stage and Loos's plans finished but the necessary funds still lacking to start building, Schwarzwald turned to her entire circle of acquaintances, pleading for private support. Even her pupils invested their pocket money as loans until, in 1914, the first sod was finally cut. The sudden outbreak of World War I put an abrupt end to the project.

In the war years, in view of the great poverty of the urban population, Eugenie Schwarzwald initiated the charity action Wiener Kinder aufs Land (which saw Viennese children being sent off to the country). Two children's homes were set up on Semmering (in Küb and on the Wolfsbergkogel), one in Reichenau an der Rax, and others in Mödling, Bad Ischl, Bad Fischau, Waidhofen an der Ybbs, and in Bad Topolschitz (Topolšica, a district of Šoštanj/Schönstein, in what is now Slovenia). By 1916 around 4,000 children were already profiting from the holiday colonies (among them the future philosopher Karl Popper and the theater director Joseph Glücksmann, dramaturge at the Volkstheater since 1949 and at the Burgtheater since 1953). The Harthof estate near Gloggnitz was used at first only during the summer holidays, and then permanently, as of 1912, as a *Landschule*—a rural school—for young people aged twelve to eighteen. As of 1933 Schwarzwald helped Jewish refugees from Germany; in 1938 she herself had to emigrate, to Switzerland. Her property was Aryanized and the schools were closed. Most of her pupils also had to flee or were murdered during the Nazi regime.

The Kinderfreunde, founded in 1908, were likewise committed to the convalescence of working-class children and sent them to the country for this purpose. Thus, in 1915, in the middle of the war, the first children's convalescent home was established on the Schafberg in Vienna. By the end of the war, the Kinderfreunde had around 10,000 members, and 55,000 by the early 1920s. In 1919 Otto Felix Kanitz took over as head of the progressive Erzieherschule (educationalist school) in Schönbrunn Palace, with boarding school and children's home. The Kinderfreunde fused in 1925 with the Freie Schule (Free School) association, which had already worked for the reform of the school system in 1905 under the slogan "More light into the heads and into the classrooms." Likewise in 1925 the Red Falcons were founded, a special association for twelve- to fifteen-year-olds, who organized camping holidays and built up an international network. Since the elimination of the Austrian Parliament in March 1933, the Christian Social Federal Chancellor Engelbert Dollfuss ruled dictatorially and sealed the Austro-Fascist *Ständestaat* (corporative state) with the so-called May Constitution of 1934. Following the prohibition of the Social Democrat Workers Party at the start of the February uprising in 1934, all Austrian socialist youth organizations were dissolved and their property confiscated. At this point in time the Kinderfreunde had 122,000 children in their charge, while the Red Falcons comprised 15,000 young people. The communists had founded the Communist Youth in 1918, which was committed in particular to the fight against fascism in the interwar years. This was also forced to dissolve in 1934; 250 of its members fought in the Spanish Civil War or as partisans. Not until after World War II could the socialist and communist youth associations continue their activities. So, after a short heyday the reform aspirations that had blossomed around the turn of the century and were seeking a new path to civilization and free education through a more natural form of life, were crushed in one fell swoop. Loos's vision that the "truth" of nature brought forth "people who, rather than bein thrown off track, would be cultivated people who lived in security wherever they were obliged to live,"[33] could not thrive in this political context. It was far more the case that a contest over nature was being waged between the different political groupings in the endeavor to exploit it as an environment for educating young people.

## Docile Bodies

After having addressed in detail the ideological battle for the child between state and church, Protestants and Catholics and, later, socialists in the "France" section of this chapter, the following section deals with fascist educational policies. Here, too, the Alps played an important role, namely as educational "uncharted territory."

Adolf Loos, Schwarzwald School on Semmering Mountain, 1911–1912

Children of the Italian youth organization Balilla at a welcome ceremony on the occasion of an official state visit

In the early 18th century the "wild mountains" served as a visual image of a Neoplatonic world view and were seen as a symbol of enlightened education (presenting itself accordingly to Rousseau as an ideal choice of location for bringing up Émile). In the Romantic era, a dualist view superseded the unifying, conciliatory perception of the Enlightenment. In the 19th century terrifying elements characterized the sublime; an ideal image of this was found in steep precipices (death and the devil) and most successfully expressed in art and music.

In the early 20th century there was a break, and nature, once sublime and wild, was exalted as the ideal environment for the healthy, sport-trained body of the "New Man," since nature was able to "sublimate" him (in the sense of elevating him to a "higher" level). Against this background, in the 1920s fascism succeeded in exploiting the upcoming cult of the body for ideological purposes. It accentuated the dualist view, in which the sublime, which had created an emotional basis for ecstatic feelings, was instrumentalized for purposes of power: totalitarian politics were designated as "sublime" and so was the architecture influenced by it, as were the visual and performing arts: for instance, the mass choreographies celebrating the power of the so-called Führer. This aspiration is occasionally expressed in education politics: if, for instance at the time of the Enlightenment, the "New Man" was to be motivated to cultivate meditative and critical musings by contemplating and observing nature, he was now obliged to put himself in the service of politics (the authoritarian system), which demanded he gave up his individuality in favor of the unified mass. The fascist "sublime" can thus be regarded as a "perversion" of the enlightened sublime, which was still shaped by a conciliatory attitude and intellectual freedom. How it came to the break between reform pedagogy and fascism is illustrated first of all in the example of Italy.

Balilla children in front of the tower of the Fiat children's vacation colony in Marina di Massa

## Italy: "Sublime Politics of Peace"

In Italy, the educational concept of Maria Montessori (1870–1952) played a key part in arousing interest in reform education around 1900. Influenced by the models of Jean-Jacques Rousseau, Johann Heinrich Pestalozzi, and Friedrich Fröbel, she managed to propagate her method far beyond the Italian border to the rest of Europe and to America, and soon throughout the whole world. After Mussolini's seizure of power in 1922, the pedagogue Maria Montessori, who at the time was living in Barcelona, visited Italy in the hope of receiving support for her schools from the new government. She managed to win over Mussolini, who promised to introduce her method as the pedagogical foundation for Italian elementary schools, hoping for the fast propagation of literacy. For her part, Montessori was attracted by Italy's "new life" (as she described Mussolini's achievements in 1928 in a letter addressed to him), also because of its social policies for workers, women, and children.

Mussolini—particularly at the beginning of his time in office—aspired to create an image of progressiveness by encouraging

Children learning didactically at a Montessori school

avant-garde pedagogues, architects, artists, and filmmakers, but eventually headed more and more toward war, as the ultimate goal of his power politics. His discourse sharpened with his attack on Abyssinia (1935–1936, in the territory which is now Ethiopia and Eritrea). Eventually, the fascist government's increasingly militaristic interference in Montessori's educational work caused a split, and in 1934 she turned her back on Italy. Prior to his military invasion Mussolini had described the Italian nation state as "sublime": "My politics is a politics of freedom. It is not based on words, gestures, and mere paper transactions, but on sublime national prestige and a whole network of agreements and contracts creating harmony between human beings."[34] Mussolini's use of the word "sublime," which at the beginning of his period of government still stood for the "national prestige" of a "politics of peace," was transposed in 1935 onto war in order to glorify the attack on Abyssinia. He exploited architecture and art in order to generate "sublime national prestige" through modern aesthetics, in which the human body played an important role. For the celebration of the twelfth anniversary of the Mussolini regime in 1934, a parade took place with 15,000 athletes, presenting young people as a component part of a uniform mass. Placed to the fore was the collective body of disciplined youth, who were groomed in the course of Italy's increasing militarization into docile and obedient soldiers.

Gymnastic exercises at an Italian vacation colony—children as part of an ornamental mass

**Ephemeral Cities**

Mussolini operated a massive building program, which planned not only educational and health facilities but also many examples of urban remodeling and the founding of twelve *città nuove* (New Cities). He associated his health politics with ideological objectives and exploited them for propaganda purposes. These included the establishment of children's colonies, which, because of the temporary nature of their usage, were called *città dell'effimero* (ephemeral cities). He ordered them to be built not only for health but also for political reasons, because youth education was a crucial ingredient in the country's future. Mussolini was convinced of the importance of education for the "proper functioning" of the fascist state. Through the diverse children's organizations of all age levels he wanted to groom the *uomo nuovo* (New Man) according to his ideological and health-conscious ideas. The first point of the "Decalogo" (Decalogue, 1935) of the fascist youth organization Piccola Italiana (a subgroup, specifically for girls, of the general Opera Nazionale Balilla, ONB, founded in 1926) states: "Pray and work for peace but prepare your heart for war."[35] The children and young people between six and seventeen years of age wore black uniforms in the style of the Black Shirts (*camicie nere*), greeted each other with the *saluto romano* (Roman salute), and organized large-scale marches and gymnastic performances in honor of Il Duce.

He proclaimed: "Fascist education is moral, physical, and military: it aims to produce the harmoniously complete—which is to say fascist—human being, just as we want him to be."[36] In a regime propaganda film of 1937 the voice-over stresses the children's health and hygiene, discipline and gratitude: "After the morning wash the children wait, clean and proud, in perfectly disciplined rows for the ceremony of the *alza bandiera* [hoisting the flag], and in order to proclaim and shout their love and gratitude to Il Duce."[37]

Vittorio Bonadé Bottino, Colonia montana Tina Nasi Agnelli: doors to the dining hall with Mussolini's slogan "Believe, Obey, Fight"


The young people played with wooden guns; as soon as they reached military service age these were replaced with real weapons. Italy's militarization increased with the country's war in Abyssinia, as witnessed among other things in the Balilla posters. In 1937 this was superseded by the Gioventù Italiana del Littorio (GIL), a section of the Fascist Party, which was now responsible inter alia for the task of founding, organizing, and controlling the children's colonies. The education of the "fascists of tomorrow" now came to the fore as a counterpole to the schools, which were still influenced by the Church (Concordat). It acted as a paramilitary group to support the training and education of young people up to the age of twenty-one for future interventions, for example in the colonies. From this time on, participation was compulsory for all children. In 1937 the propagandist *Mostra nazionale delle colonie estive e dell'assistenza all'infanzia* (National Exhibition on Summer Vacation Colonies and Youth Welfare) in the Circus Maximus in Rome provided insight into the children's welfare facilities and the intensive building program of the children's colonies. The explicit focus was directed onto the "government activities for maintaining the health of the race."[38] The façade of the largest exhibition pavilion was a hundred meters long and was devoted to the summer colonies. In the adjoining interior courtyard, just as long, a sports ground and an open-air swimming pool had been installed, flanked by a row of flags. In order to recreate the "lively atmosphere" of a children's colony, a day colony was instituted here for the duration of the exhibition. Hundreds of children enlivened the scene and, before the curious eyes of the visitors, illustrated the everyday routine in these establishments, with its daily collective gymnastics, the "physical exercises"' in the pool, or sunbathing. Inside the building the 3,281 colonies for 700,000 children were localized on a map—a program that could not be beaten on this scale.

**Architecture Icons**

The architecture of the children's colonies built under the aegis of *razionalismo* had an iconic character. The modernity and radicality of the Italian buildings aimed to stand symbolically for the "revolutionary" character of the political system and exercise a sustained influence on the children. Besides the mass parades, architecture was one of Mussolini's favorite propaganda instruments, not only as a scenic backdrop for ceremonies, but also because it appeals to people emotionally on another level and hence has a permanent influence on them. This potential was deliberately exploited in the case of the children's colonies, as is expressed in an article by Mario Labò and Attilio Podestà, appearing in 1941 in the journal *Casabella*. They recognized for instance specific typological properties in the buildings and recurring details. Thus they emphasized that the abstract white lines of the colonies that "contoured communal life" would stimulate their sense of good taste and be stamped on the children's minds: "Everything in them, from their ground plans, which trace the itineraries of life in common, from the breadth and type of door and window frames to the design of railings, from plasterings to floorings, colours and materials—everything combines […] to make up the plastic form and visual image with which, for ever, these children will identify the memories of periods spent in school colonies. Having come from hovels or very modest homes the majority of these boys and girls […] will feel disposed here, for the first time, to accept the influence of a taste; they will be stimulated for the first time to appreciate architectural form seen not just from the outside, but adopted for living within. This is the real point."[39]
It was not only functional factors that determined the program, but also emotional ones. Space was subjected to a planned scenario in order to conjure up the desired effects, with certain recurring elements: symmetrically constructed buildings, never-ending atriums, gigantic dimensions, pure lines, towers, spirals, and ramps silhouetted in backlight. These architectural strategies aimed to ease the flow of movement for the masses, and above all to enhance them dramatically in their visual effect. All these elements belonged to the architects' repertoire, who operated skillfully with light, dynamics, and visual axes in order to lend a spatial expression to the fascist ideology aimed at permanently impressing the children, as Katharina Torkler describes in depth in her thesis.[40]

34 Vittorio Bonadé Bottino, Colonia montana Tina Nasi Agnelli, Fiat, Sauze d'Oulx, 1937

Plinio Codognato, advertising poster for the Fiat "508 Balilla," 1932


The hierarchic arrangement of the room system glorified the political system, its proclaimed objective being "health, hygiene, energy, and discipline." The interplay of ideology and architecture was questioned by Gino Levi-Montalcini; he published his views in an article on the architectural guidelines of vacation colonies and put them simultaneously into practice (Project 35).

**Panorama vs. Panopticon**

For their ceremonies and for the purposes of propaganda, fascist disciplinary societies exploited the "docile" bodies of children. The French philosopher Michel Foucault coined this expression; he defined it as follows in *Surveiller et punir: Naissance de la prison* (1975): "A body is docile that may be subjected, used, transformed and improved."[41] He analyzed the effects of outer and inner disciplinary procedures on the mind and body of a person who imagines he is being permanently controlled and is consequently self-disciplined; he also made a special study of Jeremy Bentham's Panopticon (1791).

A typical feature of the children's colonies, "Torre Balilla" was the name given to the towers that, in the years 1933 and 1937, the Fiat company commissioned to be built for them in the form of cylindrical buildings with a central atrium. Here, for reasons already mentioned, the panoptic typology replaced the panorama typology that was common in the mountains at this time: the view of the inhabitants should not be oriented out toward the landscape (as in the progressive Mümliswil children's home designed by Hannes Meyer, for instance), but inward, to the central atrium—allowing the children to be acoustically monitored (Project 34). Here, regime representatives would stand for special occasions and ceremonies and were greeted with the *saluto romano* of the children, who were arranged in rows on a spiral ramp. The rehearsed and orchestrated movements of the children in the architectural space made the landscape disappear from the field of vision. It was only seen in sections through relatively small outside windows along the ramp, like a pixelated, ungraspable totality. The sublime was no longer sought outside in the mountains, but inside, in the center of the cylindrical tower. Nature was not sublime, but the triumphant "New Man" and his technology.

## Germany: Fracture in "German Art"

Germany's health policies in the 1920s were characterized by the reform movement, which emphasized free movement in nature. In the course of the all-embracing health reform, numerous new children's homes were built in the country and in the mountains, so that sickly children could recuperate in an ideal environment. They were under the supervision of physicians and also had school lessons.

The architect Lois Welzenbacher, who was born in Munich and based in Tyrol, planned the Ehlert children's home (1931–1933) in Hindelang in the Bavarian Allgäu and may be cited as an example in our comparative study of children's homes in the Alps, not only because it was of great architectural quality but also because it embodies the nature-oriented educational concept of that era (Project 36). This is expressed

Gino Levi-Montalcini, Colonia montana IX Maggio, Bardonecchia, 1937

in the aesthetic architectural idiom and a spatial typology based on its usage. In contrast to the almost simultaneously conceived towers in the Fiat children's homes, the planners kept to an entirely different principle from a psychological point of view: the children's eyes should not be turned to the interior, but outside, toward the landscape. Inside and outside fused here into a seamless unity: nature was neither framed (like the panorama windows of grand hotels for instance), nor marginalized (like the effect of the relatively small window openings of the Fiat towers), but virtually drawn into the interior, thanks to the smooth transition to the adjoining wooden terrace. The architectural accent was placed outside, in the open air, to underline the association with nature.

The Ehlert home is particularly interesting, because its extension—conceived by Lois Welzenbacher only one year later—was placed under a different political aegis. With the Nazis' seizure of power, architecture changed as abruptly as educational policies. In order to better understand Welzenbacher's design of the three small pavilions with curving roof (design sketch 1934, opened in 1936), which differed distinctly from the main building, we must take into account that the building laws of the Nazi authorities had to be complied with: the functionalist style was reserved for industrial and motorway constructions, prestige buildings were characterized by the neoclassical style, while minor civil building projects in the country had to be geared to the respective regional style. This approach is reflected in the hostels built by the Nazi regime for its youth organizations: despite always showing the same ground plan arrangement in the interior, they complied on the outside with the regional architectural styles. In comparison with Mussolini's Italy, the number of youth homes and hostels built in Nazi Germany was minimal to non-existent: only 650 of the proclaimed 50,000 youth hostels were completed by 1941.[42] The ruins of 429 hostels petrified at the stage of shell construction are an expression of the fact that the maneuvers of World War II killed off the ambitious Nazi educational program.

The saying "art is a sublime mission obligating fanaticism," which Hitler commissioned to be engraved on the Haus der deutschen Kunst (the House of German Art, which subsequently dropped the word "German" from its name) in Munich, was proclaimed by him at the Reich Party Conference in 1922. He had added: "National Socialist Germany, however, wants 'German Art' again and this shall and will be an immortal art like all creative values of a people."[43] Political emotionalism, elitist self-assertion, and megalomania went hand in hand with racism, persecution, and murder. He understood "fanaticism" as a "ruthless […] subjective, inherently one-sided position,"[44] which says it all: pluralism was outlawed; there was only one way, which declared and destroyed everything else as "degenerate." And incidentally, with Hitler's seizure of power all other existing youth organizations were either forcibly integrated into the Hitler Youth movement, or dissolved.

## Power and Fear: Criteria of the Sublime?

At this point it is necessary to cast some light on the relation between politics and the concept of the sublime that derives from aesthetics. The striving of a political regime to instrumentalize aesthetics for its purpose is a phenomenon that constantly crops up in diverse forms in the course of history, be it in a positive or negative aspect. Aesthetics comprehends everything we perceive with our senses; it affects our inner being. The experience of the sublime is a passive principle, an unfathomable feeling that suddenly grips and moves us to the depths of our being. The attempt to "exploit" the sublime, however, is an active principle, based on the deliberate deployment of an aesthetic category—an attempt that quickly ends in pomposity and has nothing to do with the sublime. The reversion from a random principle to one of order usually makes it impossible for the desired effect to be achieved. As the French philosopher Baldine Saint Grions underlines, the sublime awakens intellectual aspirations;[45] should the resonance of the ideas be lost, the sublime is also lost and becomes grotesque: "What follows then is a distortion of the moral, a subjugation to an ideal that is no longer human but inhuman. In this case, we must ask what this drifting into the grotesque consists in."[46] In fascism, it lies in the totalitarian aesthetic, which arouses not only awe and fear but also enthusiasm. How the transfer of an aesthetic category onto power politics is possible becomes clear in Edmund Burke's analysis of the sublime.

In his treatise on the sublime written in the 18th century, Burke had placed emphasis inter alia on the factors of "terror" and "fear," because they involve "power, danger,

36 Robert Barker's Panorama, Architect Robert Mitchell, London, 1793(–1864)

Lois Welzenbacher, design sketch for three pavilions as extensions to the Ehlert children's home, 1934

Children sitting on the parapet of the terrace of the Ehlert children's home built by Lois Welzenbacher, Vorderhindelang, 1933

and pain" and thus release extreme emotions. "No passion so effectually robs the mind of all its powers of acting and reasoning as fear. For fear being an apprehension of pain or death, it operates in a manner that resembles actual pain."[47] Burke was convinced that these factors were the determining principles of the sublime, by which he understood a maximum of emotions. As the cause of fear, he mentioned not only terrifying objects and dangerous animals but also people, especially those in power, who summon up awe and fear. He asked himself what feelings a human being or other living creature of extraordinary strength arouses: whether there is a direct leap to the idea that "this strength will be subservient to you, to your ease, to your pleasure, to your interest in any sense." He came to the following conclusion, "No; the emotion you feel is, lest this enormous strength be employed to the purposes of rapine and destruction," from which he drew this hypothesis: "That power derives all its sublimity from the terror with which it is generally accompanied, will appear evidently from its effect in the very few cases, in which it may be possible to strip a considerable degree of strength of its ability to hurt. When you do this, you spoil it of every thing sublime, and it immediately becomes contemptible."[48]

He illustrated this with the following examples: the bull is experienced as sublime because we fear him (in contrast, the ox is merely useful): he made a similar comparison between a horse as a useful beast and a wild stallion. Consequently, in a few cases strength and destructiveness can have a rousing effect, involving fear and danger. When "enormous size" is added to this (likewise a factor of the sublime according to Burke), which in the case of our theme is generated through architecture or geometrically organized masses of people, then we understand what a significant role the staging of power assumes in the evolution of a fascist "sublimity," its final consummation being war. In his text "The Work of Art in the Age of Mechanical Reproduction," written in French exile in 1935/1936, Walter Benjamin explores the theme of the aestheticization of politics: "The logical result of fascism is the introduction of aesthetics into political life. The violation of the masses, whom Fascism, with its *Führer* cult, forces to their knees, has its counterpart in the violation of an apparatus which is pressed into the production of ritual values. All efforts to render politics aesthetic culminate in one thing: war."[49]

In the process he referred to a text published in 1935 by Filippo Tommas-Marinetti, the leading brain of the Futurists, which glorified the Italian-Ethiopian colonial war: "For twenty-seven years we Futurists have rebelled against the branding of war as antiaesthetic […]. Accordingly, we state: […] War is beautiful because it initiates the dreamt-of metallization of the human body. […] War is beautiful because it creates new architecture, like that of the big tanks, the geometric formation flights, the smoke spirals from burning villages, and many others."[50]

Marinetti aestheticized war (which he had already described in his 1909 Futurist Manifesto as "the only cure for the world"[51]) and terror all the way to total destruction. His cynical guiding principle of *fiat ars, pereat mundus* (let it be art, though the world perish by it) placed art at the center of the Apocalypse (the original sentence is: *fiat justitia et pereat mundus*). Benjamin's comment on this maxim was as follows: "Fascism, […] as Marinetti admits, expects war to supply the artistic gratification of a sense perception that has been changed by technology. This is evidently the consummation of *l'art pour l'art*." The self-alienation of humanity has, according to Benjamin, reached "such a degree that it can experience its own destruction as an aesthetic pleasure of the first order. This is the situation of politics which fascism is rendering aesthetic."[52]

After World War II it was Theodor W. Adorno who stressed that the political instrumentalization of the sublime aesthetic would inevitably lead to fascism.[53] To quote Jean-François

Lyotard, however, there can be no politics of the sublime, because terror derives from privation (privation of light, terror of darkness; privation of life, terror of death): what terrifies us is something that's not happening, as he emphasizes in "The Sublime and the Avant-Garde."[54] He mused on the limbo state of the sublime, on the non-appearance of a feared event, the tense wait as to whether a "fabulous 'subject' comes along (Is a pure people happening? Is the Führer happening? Is Siegfried coming?)." Non-appearance generates fear: in the Terror of Nazism, for example, the spectator is struck with astonishment, is rendered "dumb, immobilized, [and] as good as dead."[55] From this he concluded that "the aesthetics of the sublime, thus neutralized and converted into a politics of myth, was able to come and build its architectures of human 'formations' on the Zeppelin Feld in Nürnberg."[56]

This destructive sublimity grounded on fear (transformed into a political myth) is the opposite of the enlightened sublime in which, as Baldine Saint Girons underlines, a "higher, useful element" fights against the damaging and destructive. She speaks for the hypothesis that the sublime is closely related to a "profoundly useful quality," which she describes in an essential and existential way. If in the discussion about aesthetics the sublime in the 18th century "became alienated from both the useful and the beautiful," she argues, then only "in order to contend better with the truly non-useful, in other words, with damaging forces and diverse forms of ugliness and mediocrity."[57] Therefore, in order to understand the "profoundly useful," we must observe the opponent we are fighting more closely. She sees the problem of damaging forces as a political problem and refers to Roger Caillois, who in 1950 demonstrated how easily democracies can slip into totalitarianism if they do not acknowledge the power of the aggressive drive and do not undertake everything possible to channel violence and to avoid total war.[58]

Postage stamps, printed for the children's colony exhibition "Colonie estive" (Summer Colonies)

Adolf Loos, model of the winter sports hotel on Semmering, exhibited at the Salon d'Automne in Paris, 1920

**29 Adolf Loos, Schwarzwald School on Semmering Mountain, 1911–1912**

Eugenie Schwarzwald and Adolf Loos had chosen a site on the slope of the Pinkenkogel Mountain as a location for the "mountain school," in the immediate vicinity of the Südbahn-

hotel. At this spot, the slope featured a curved ledge emerging from the edge of the terrain, offering a panoramic view of the valley and the mountain landscape. For this reason, Loos first planned a semicircular, convex structure, which was soon replaced by a rectangular U-shape with broken edges (at a 45-degree angle), which opened to the slope. Successive terraces constituting the schoolyard completed the rectangular shape in the ground plan, creating a self-contained, protected spatial impression despite the opening of the building mass to the south on the slope side.

Located on the ground floor, the classrooms were oriented toward the south and east side of the mountain, while the art room was positioned in the flattened corner on the north side. Extending from the ground floor to the third floor, the bedrooms opened to the south and east side; collective dormitories were situated at the corner and end points. No rooms were orientated toward the north side with a vista; instead, the generous view of the landscape could be enjoyed from the corridor on each floor.

The design of the base stands out, because Loos took advantage of the steep slope to accommodate the common areas on the north-facing side looking out over the valley. Accordingly, he placed the dining room and the theater hall in the first and second lower basement, in a two-story volume with a circulating gallery, overlooking the mountain panorama. Because it was designed for common use, the base was made wider than the floors above; the continuous pillars of the upper stories, which supported a gallery, were cleverly integrated into the space.

Loos created a *cour anglaise* in the central staircase area on the slope side, which not only brought additional light into the lower basement, but also enabled cross-ventilation. In the lowest two basement levels, the servants' quarters were located on the north-facing, valley side and the building services in the dark rooms on the side looking up the slope.

The school's cubic shape, flat roof, and façade—free of ornament—were radically different from the *Heimatstil* (traditional regional style) of the surrounding grand hotels and villas. The unembellished, "pure" architecture went hand in hand with Loos's principle of educating children in nature, which he equated with "truth." In "Regeln für den, der in den Bergen baut" (Rules for Those Building in the Mountains), he opposed any form of masquerade concerning architecture, as well as clothing: "Do not build in a picturesque manner. Leave that to walls, mountains, and sun. A person who dresses picturesquely is not picturesque, but a clown."[59]

Interestingly enough, the design created in 1913 for a winter sports hotel on Semmering Mountain was similar to that of the Schwarzwald School, because for Loos the typological principles of school construction may have been transferable to the hotel type. This design though, was not executed either, but was exhibited at the Salon d'Automne in Paris (1920).

Photo on the Aiguilles de Varan, with the Chez Nous children's guesthouse in the background, 1938

Henry Jacques Le Même, Chez Nous children's guesthouse, Megève, 1935

**30 Henry Jacques Le Même, Chez Nous Children's Guesthouse, Megève, Haute-Savoie, 1935**

In the French mountain village of Megève (1,113 m), two chalets were rented in 1926 on the initiative of the priest Jules Bernard to give children who were susceptible to

tuberculosis a chance to recover; shortly afterward, three cure buildings were built: Le Christomet (1926), Saint-André (1928), and Sainte-Geneviève (1933). The two ladies Andrée and Michèle Leroux also supported at-risk children and commissioned Henry Jacques Le Même with the construction of the Chez Nous children's guesthouse, which was to accommodate forty children.

Similar to the design for the ski chalets, the architecture of the guesthouse was based on the free interpretation of a regional building type, which the architect adapted to new needs, integrating modernist stylistic elements into it: a ribbon window stretched across the entire south façade, extending beyond two building edges and optically dissolving them. This assured that as much light and sun as possible came into the children's recreation room behind the ribbon window. A specific design language, which generated its own style, developed out of the functional requirements. The special window design illustrates this fact: since the ribbon window was considered a feature of the modern chalet, Le Même visually combined the punched windows of the rooms on the upper floors through a series of painted horizontal lines to form an apparent ribbon window, skillfully bridging the intermediate wall surfaces in a graphic way. He deployed this design element even on the second floor in the gable area, creating a visual interleaving between the lower plastered section and the upper wood-paneled one. The uppermost room in the south-facing gable triangle features a wooden balcony.

The children's guesthouse stood in a self-confident, yet assimilated manner in the landscape, in the loose framework of the surrounding farms and barns. Henry Jacques Le Même built a total of fourteen chalet-style children's guesthouses. At the same time he worked with different styles: parallel to the conception of modern schools and sanatoriums with flat roofs, he constructed children's homes with saddle roofs supported by wooden struts, beneath which a modernist flair conspicuously shows through.

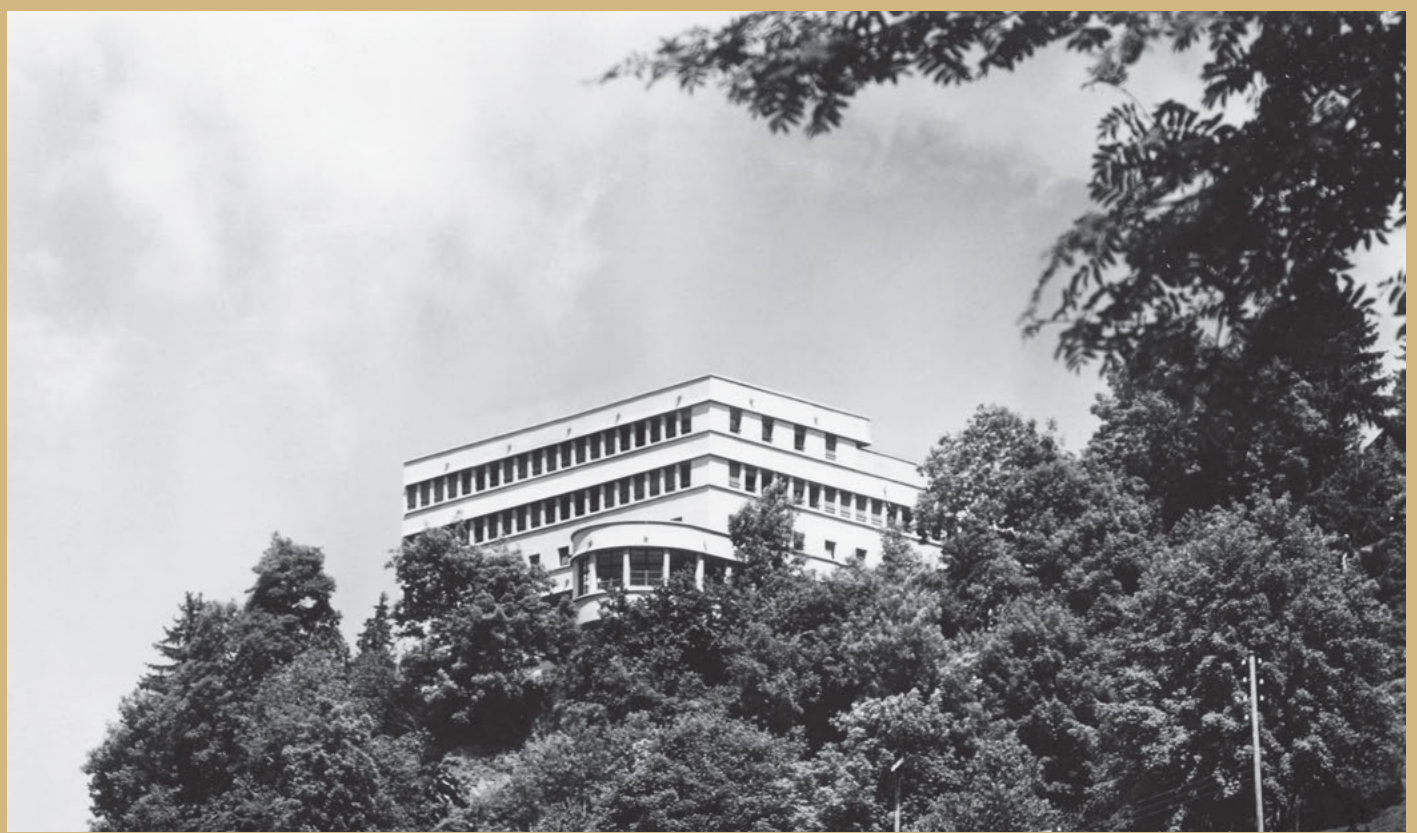
Henry Jacques Le Même, Le Hameau boarding school in Megève, view from the southwest

**31 Henry Jacques Le Même, Le Hameau Mountain Boarding School, Megève, 1933**

Shortly after Henry Jacques Le Même had conceived the Chez Nous children's guest house in a "chalet style," he built the Le Hameau private school in Megève in the modernist style. It was the first French mountain boarding school intended for eleven- to fourteen-year-olds in a weak state of health. In 1931, Mme. Veuve Ménard commissioned Le Même with the extension of the institute, which had been housed in three old chalets on a hill above Megève since 1929. Rejecting all variants that proposed a union of the two chalets, the decision was made in 1933 in favor of a modern new building, which was to be located in a slightly secluded spot directly on the edge of the steep slope.

The rationalist L-shaped building consists of a reinforced concrete skeleton with brick walls. A one-story volume juts out of the square, smooth-plastered, pinkish-colored building along a side wall, protruding dynamically over the slope in a semicircular shape. At that time, the dining room, the kitchen, and an office occupied the ground floor of the south side sloping toward the valley, while a play room, a salon, and a library were arranged in a continuous sequence of rooms in the cantilevered part. On the first and second floors were the bedrooms of the seventy children; the underlying projection offered them a terrace. Seven classrooms were situated on the top floor, directly connected with the roof terrace, which allowed for open-air lessons. The entrances, stairs, corridors, and ancillary rooms were situated in the north-facing inner side.

The existence of the mountain school made it possible for the children to receive lessons during their cure stay, and led to the construction of many other children's guest houses in Megève. Between 1929 and 1935, the number rose from four to thirteen, which increased the capacity from 90 to 320 beds. The school was recently restored and now serves as a vacation center.

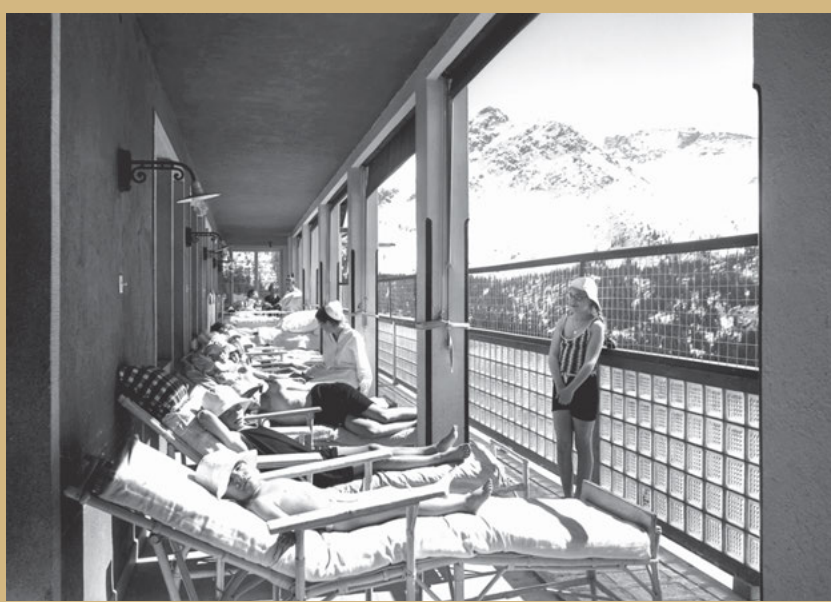


Prasura Convalescent Home for Youth, children on the sunning terrace with glass block balustrade, 1928

Alfons Rocco and Jakob Licht, Prasura Convalescent Home for Youth with projecting bay windows, 1928

**32 Alfons Rocco and Jakob Licht, Prasura Convalescent Home for Youth, Arosa, 1928**

Although Switzerland had historically taken the lead with the health policy measure "Children out to the Countryside," only a few buildings were built in the 1930s in the child-care field, most of them only somewhat modern. Even in Arosa, where modernism prevailed in the 1920s not only in sanatoriums but also in hotel buildings and private houses, the 1928 Prasura Convalescent Home for Youth was planned in a traditional style: "On a site above Lake Obersee, architect Alfons Rocco designed an enormous mountain house with a pitched roof for Dr. Fritz Lichtenhahn," wrote Marcel Just in *Arosa: Die Moderne in den Bergen* (Arosa: Modernism in the Mountains).[60] However, the design was modernized by Jakob Licht prior to construction to meet the medical requirements for exposure to light and sunlight. Designed to be closed, the arcades were transformed into cure galleries with a glass-block parapet to ensure full security with as much translucence as possible. Glazed on two sides, the spacious oriels at the corners provided an optimal incidence of light and a view. Despite numerous modifications, the pitched roof and the quarry stone masonry in the base area were executed according to the original design, so that the structure was characterized by two formal languages: on the one hand, it is marked by the traditional elements of regional construction; on the other, the balcony strips with glazed oriels point to the sanitary demands and necessities of a modernist convalescent facility, "lending only a slightly modernist look to the first large modern building in Arosa with approximately 100 rooms." In contrast, modern materials were used on the inside, leading to a collision of different styles, "such as Art Deco wallpaper with door fittings according to designs by Walter Gropius or simple, white-painted children's furniture with heavy rattan furniture."[61] The space allocation plan consisted of a medical section (a surgery with speech therapy, X-ray, and operating rooms, and a laboratory) and an educational area (dining room, school room, gym). The rooms were on the upper floors; the doctor had his own apartment. Utility rooms (including a kitchen, laundry, workshop, and heating plant) were located in the basement. A wide staircase, a bed elevator, and a dumbwaiter provided access. To meet the hygienic requirements, the house was equipped with washable stair and wall coverings and linoleum floors. The company magazine of the linoleum factory wrote: "Everything sparkles with cleanliness; the clean, elastic surface of the linoleum even allows the children's games to be laid on the floor."[62]



Hannes Meyer, Mümliswil children's home, connecting rotunda viewed from the south, 1939

## 33 Hannes Meyer, Mümliswil Children's Home, Jura, 1938–1939

Bernhard Jäggi, a politician and long-time director of the Association of Swiss Consumer Cooperatives (Coop), and his wife Pauline founded a cooperative children's home in Mümliswil. Having already built cooperative housing projects

as well as education and training facilities, he wanted to erect a home for physically enfeebled children from all levels of society in the Solothurn Jura region, to allow them to convalesce in the countryside—for a modest meal allowance. The founders paid particular attention to a progressive form of living and a proper diet, whereby the children were to recover through sports training and playful exercise in the mountain landscape.

Hannes Meyer (1889–1954), an architect from Basel, was commissioned with the construction. Raised in a children's home in Basel, he had completed an apprenticeship as a mason before becoming a structural draftsman and architect. At the behest of Jäggi, he had already built the Freidorf cooperative garden-city development in Muttenz near Basel for Coop from 1919 to 1921. Involved in major projects in Germany as well, Meyer had been head of the construction department at the Bauhaus in Dessau since 1927 and its director since 1928. When he had to leave the Bauhaus in 1930 after being accused of "communist machinations," he went to Moscow, where he taught until 1936 and worked on housing projects. When he returned to Switzerland he had no work, so Jäggi's commission for a children's home came at the right moment.

The construction site, the southern slope of the Passwang Mountain Chain, was ten minutes away from the old village center. At the special request of the client, the aim was for the new building to support the local construction industry in the critical year of 1938/1939. So Meyer opted for a "mixed timber and masonry building" that made reference to local craft and architectural traditions. Standardized components were cleverly combined with traditional craftsmanship, taking into account standardized dimensions in order to build quickly and cheaply. After half a year, the children's home was opened.

Located below the walkway, the building was accessed on the north side via a play area enclosed on two sides. With the row of poplar trees (which serves as lightning protection) set in front of it and its shaded, partially covered courtyard, it recalled a traditional Jura farmstead. The recessed, weather-protected entrance provided access to the west wing, while the east wing extended over the grounds to provide a covered outdoor playing area. The two-story structure was composed of an angle articulated at the pivot point by a single- story rotunda.

The children slept in the dormitories in the east-facing wing of the building, while the staff quarters and the guestroom were found in the south-facing wing. A terrace on which the morning exercise took place was situated on the upper floor of the connecting rotunda. A round hall lay on the ground floor, featuring a large table in the shape of a circular segment. Bordering it on one side were the pantry and the kitchen, and on the other side was a play room. The progressive educational concept of the children's home was highlighted in an article by a certain H. M. (Hannes Meyer?) in the Swiss architecture magazine *Das Werk*: "Following the principles advocated in the 'Freidorf Cooperative Seminar,' the new children's home is to also have an educational effect, under the direction of a housemother along the lines of Pestalozzi's

Hannes Meyer, diagrammatic plan of the Mümliswil children's home, with visual axes and view motifs, 1937

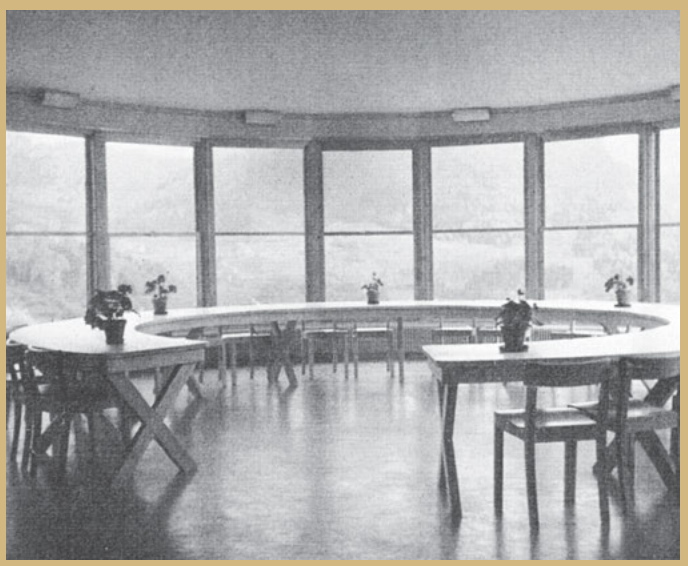
Hannes Meyer, Mümliswil children's home, round community room with circular table, 1939

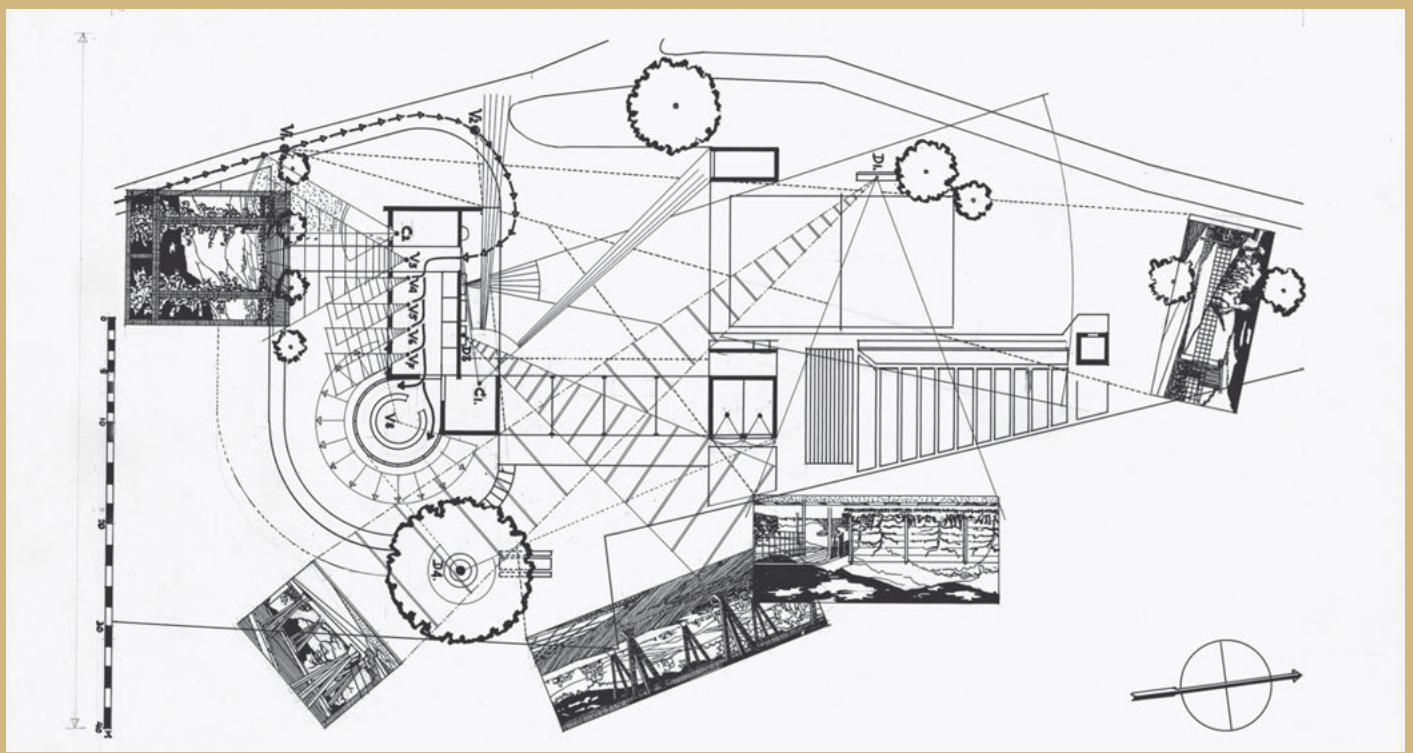
*Lienhard and Gertrud*, on the cooperative spirit of the children during their stay."[63]

According to Pestalozzi's three-circle model, the home was intended as a temporary or permanent replacement for the parental house. It is worth noting that the composition of the building essentially emerged from the pedagogical concept and the resulting spatial plan.

"While the participants sit at the outer side of the round table when they eat, and everyone partakes in the view into the distance in this democratic order, the distribution of the food can take place from the inner circle. But on social occasions, this inner circle can become the action center of the children's community (when they recite or sing)."[64]

The spatial implementation of the pedagogical concept in the spatial allocation plan was explained as follows: "The construction program of the children's home thus deliberately separates the functional zones of the individual child and the community at times, and enables the natural balance between the two parts. The child's 'inner retreat within himself' should be maintained while living together with twenty to twenty-five of his fellows from the educational circle. He should be able to keep his belongings in a closet of his own and write a letter to his parents in a quiet corner."[65] To use Hannes Meyer's words, the children's home was a "principle made of stone and space"[66] which reflected the pedagogical and progressive cooperative thinking of the clients and their architect.





Vittorio Bonadé Bottino, western aspect of the Colonia montana Tina Nasi Agnelli, Fiat, Sauze d'Oulx, 1937

Atrium of the tower of the Colonia Tina Nasi Agnelli, with spiral ramp system and saluting children, 1938

**34 Vittorio Bonadé Bottino, Colonia montana Tina Nasi Agnelli, Fiat, Sauze d'Oulx, 1937**

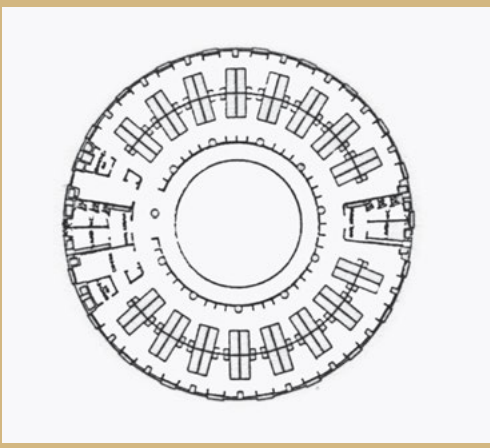
Under Mussolini's regime, Fiat, in line with expectations placed at that time on major industrialists, pursued an active social policy for its workers and employees, with numerous health, sporting, and cultural facilities. In addition to the construction of two children's colonies and a ski resort in Sestriere, this included the founding of the after-work organization Dopolavoro Fiat, in-house medical care, and workers' welfare, as well as numerous vocational schools and libraries.

The automobile company had already built two hotel towers in Sestriere (completed in 1932 and 1933, see chapter 6), and another tower of the same type was built in 1933 in Marina di Massa for a children's vacation colony on the beach. This fourteen-story ramp tower, structured around an open atrium, consists of a prefabricated, reinforced concrete skeleton with an integrated ramp; pilaster-like, semicircular pillars structure the white concrete façade and accentuate the verticality, appearing like load-bearing flutes on a gigantic pillar. Construction only took 100 days, since this type had already existed as a prototype and was cost-effective to implement.

At Sauze d'Oulz (called Salice d'Ulzio after the Italianization of the Occitan region), located in Piedmont in the Italian Alps, the construction of another tower for a children's vacation colony took place in 1937. Unlike the one in Marina di Massa, it is bricked with exposed clinker bricks in the façade area (like the hotel tower Albergo Torre di Sestriere) and has only eight floors.

Built on a mountainside, the tower stands on a half-protruding, round concrete slab, lending it a floating, slightly elevated look. Below this disc is a broader basement that is anchored in the terrain. The ground floor is glazed, which makes the supporting white columns visible. A spiral-shaped ramp twists upward around a central atrium, on which the children's beds were lined up (with two legs each being sawed off so that they stood straight). The sleeping areas were separated from one another only by half-height walls, so that a good overview could be maintained. A glass roof covered the atrium and supplied the interior with daylight, while the relatively small windows of the façade were principally designed to provide light and ventilation. The repetitive arrangement of the window openings, following the movement of the spiral, meant that the view of the mountain landscape bordered on the trite,

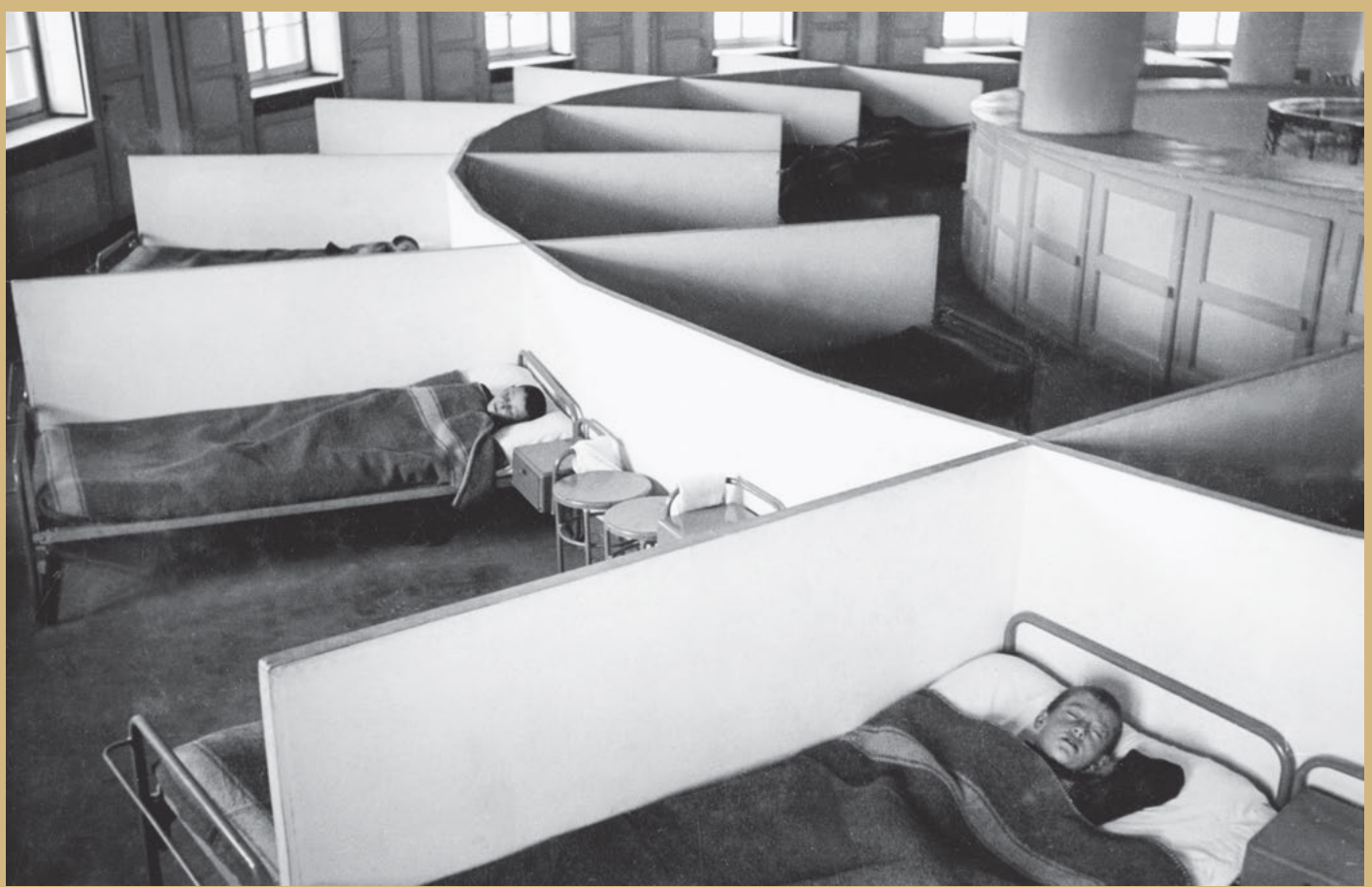
Vittorio Bonadé Bottino, plan of one of the ramped floors in the Colonia Tina Nasi Agnelli, with 64 beds per floor, 1937



whereas the atrium was given an almost sacred character by the zenithal light, suggesting, as in a church, a "higher authority." Mussolini's maxim *Credere, obbidere, combattere* (Believe, Obey, Fight) stood above the entrance of the dining room, reminding the children of the "higher duty."

A total of 494 children could be accommodated in this holiday colony (one-third fewer than in the tower of Marina di Massa). The built-up volume comprised 28,000 cubic meters, the cylinder diameter was 30 meters, the height of the tower 35 meters, the spiral ramp was 7.5 meters wide.

Designed as standard types, the towers fit into the environment to a limited extent and were placed as icons in the landscape, to signalize the regime's educational ambitions—and to promote Fiat: FIAT was emblazoned in large chrome letters on the façade of the children's colony in Marina di Massa, thus making it an advertising vehicle (on the design sketch the letters had been enthroned on the roof).

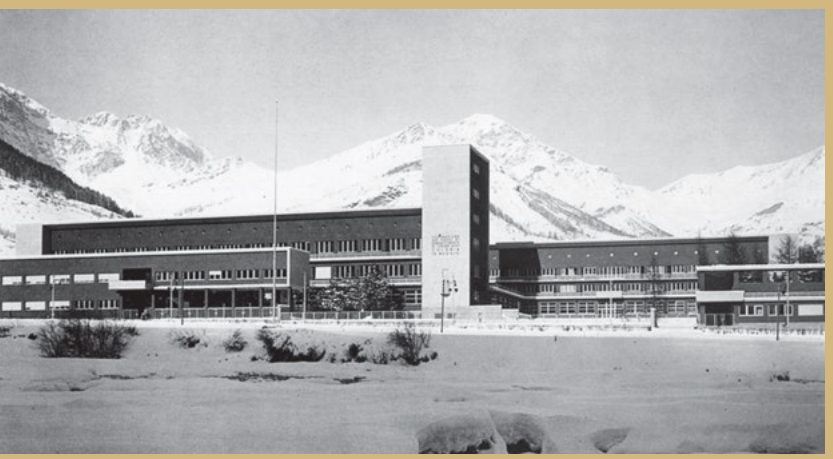




Dormitory in the Colonia Tina Nasi Agnelli, consisting of an eight-story ramp with low partitions, 1937

Gino Levi-Montalcini, Colonia montana IX Maggio, southern aspect with entrance (t) and dormitory wing with balconies (b), Bardonecchia, 1937

**35 Gino Levi-Montalcini, Colonia montana IX Maggio, Bardonecchia, 1937**

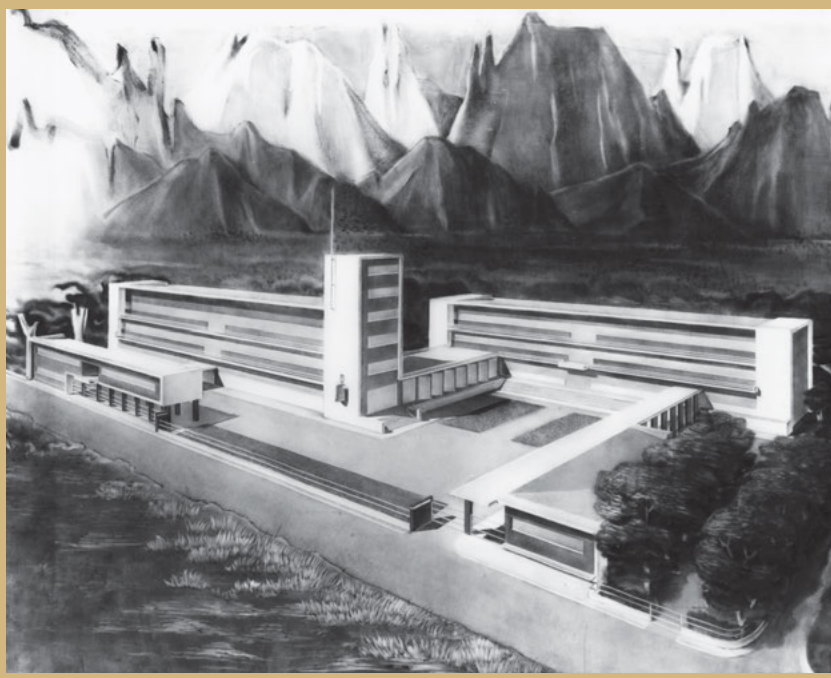


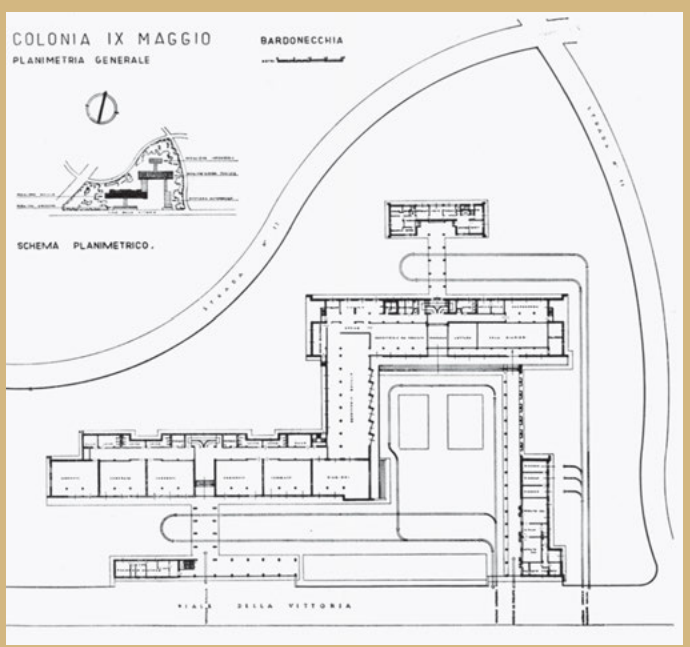
Gino Levi-Montalcini, architect of the Colonia montana IX Maggio in Bardonecchia, examined the premises underlying the construction of colonies in a study published in 1939 in the French journal *L'Architecture d'aujourd'hui*. He stressed the symbolic effect, because it allows conclusions to be drawn about today's civilization, since architecture is an expression of social change: "From the shapes we deduce the mind—in contrast to the process where the designing mind determines the shapes of the buildings. But can we really draw conclusions on the mind from the shape? Is that right? Does that make sense in this order?"[67] He pointed to the interaction between the architectonic form and the designer's "mind" and at the same time questioned in how far architecture could be regarded as the expression of an ideology, or how ideology could influence architecture at all, for it "drew upon countless resources." In any case, architecture has a "great influence on the style of our century," he wrote and then presented the general planning principles of a colony: "The landscape offers an ideal setting, the space is almost always limitless, the orientation results solely from the sunshine; the expenditures on luxury materials are limited; but hygiene, site development, and the design of the surroundings are never skimped upon."[68] The "new program" is to be solved rationally," the "resources of nature" must be respected; the youth enjoy a "stirring aesthetic."

Montalcini's text not only sheds light on the general construction program of the Italian colonies, but also on his personal approach, which was expressed in the colony IX Maggio: In contrast to the bright white concrete buildings on the coasts, which were characteristic of the Italian colonies, he adapted the Alpine colony in Bardonecchia to the local colors (off-white and fir green), although he also used regional elements, such as quarry stone masonry in the base area. Unlike French architects, he did not seek to interpret a regional design language, but combined regional materials with modern shapes, according to the program. He arranged the horizontal buildings so that a complex, three-dimensional spatial composition was created, with a small tower setting a vertical accent. White concrete frames enclose the buildings, making them stand out from the mountain landscape, while the pine-green plaster façades recede behind the frames and white-painted railings. The accentuated chiaroscuro of the

Gino Levi-Montalcini, perspective sketch of the Colonia montana IX Maggio, 1937

structures lends them a certain form of abstraction that sets them apart from the landscape. Nevertheless, they are anchored in it, not only because of the materiality and colors that were chosen but also on account of their spatial arrangement. Coming from the entrance, the location of the tower corresponds with the elevation of mountain in the background; open arcades not only enable a dry connection between the buildings but also offer a vista of the surrounding landscape. Outside and inside are interwoven. Montalcini's theoretical principle was architecturally implemented here: "The landscape offers an ideal setting, the space is almost always limitless."[69]








Gino Levi-Montalcini, 1st floor plan of the Colonia montana IX Maggio, 1937

East side of the Colonia montana IX Maggio with corner tower giving a vertical accent to the three-sided courtyard, 1937

Lois Welzenbacher, Ehlert children's home, western aspect with slatted wooden façade, Vorderhindelang, 1933

Children playing circle games on the terrace of the Ehlert children's home, 1933

**36 Lois Welzenbacher, Ehlert Children's Home, 1931–1932**

The long, horizontal, flat-roofed building blended into the landscape along a hillside. It was completed by a semicircular terrace that opens to the mountain panorama, allowing the

children to enjoy the view while sunbathing, exercising, and playing. Two steps led from the terrace directly to the meadow, thereby strengthening the proximity to nature. The building consisted of three floors, each of which corresponded to a specific use. Above a base that housed the ancillary rooms was the main floor, which stood out from the rest of the building by virtue of its terrace and protruding canopy. The common rooms and classrooms were located here, opening with floor-to-ceiling glass windows to the wooden terrace and thus creating a fluid space continuum. On the floor above were the children's bedrooms. While the south side of the main floor and basement was plastered white, the upper floor consisted of a wooden slat façade that extended over the remaining façade surfaces. It formed a single material entity with the asymmetrical stair tower on the west side, which led to the roof terrace.

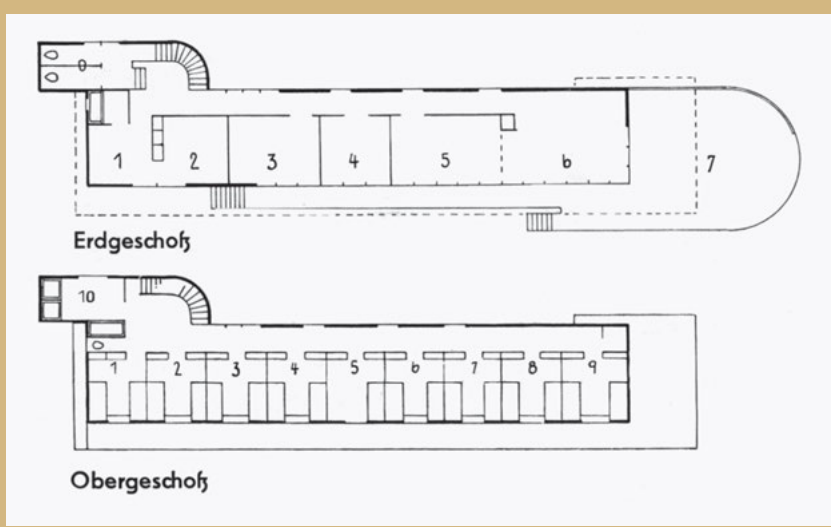
Welzenbacher's structures were characteristic of "landscape-based" building (as it was called back then), which he combined in his own way with the modernist style; they were simultaneously regional and timelessly modern. The Ehlert Children's Home is an expression of this mixture: its façade consisted partly of wood, partly of white plaster. The dynamic semicircle of the terrace, the flat roof, the protruding canopy, and the building's ship-like shape were consistent with the formal language of modernism, but the building was so firmly anchored in the landscape (also because of its use of the local building material, wood) that it did not seem like a foreign body. (Welzenbacher was the only Austrian architect invited to take part in the "International Style" exhibition in New York in 1932.)

In contrast to the educational program of the Italian children's colonies, which was primarily geared toward discipline, the Ehlert children's home seems to have pursued other goals, as can be seen from an advertising brochure of its early days: in the photos, children are leapfrogging over their comrades, relaxing on the terrace parapet, or building models of village houses. Other pictures show the children playing games in a circle while sitting on the terrace floor and playing or resting on sun loungers outdoors. Welzenbacher began planning the children's home in 1931; it was completed in the summer of 1933.

View of the semicircular terrace on the east side of the Ehlert children's home, with fly roof and view of the mountains, 1932

**Extension**

Soon after the children's home started operations, plans were made for an extension to be built. Welzenbacher's design from 1934 for three small pavilions contrasted sharply with the clear lines of the original building. They had organically shaped roofs and were built, slightly offset from one another, into the slope. The stylistic breach is noticeable: in order to comply with the stylistic regulations of the National Socialist building authorities, the modern design language of the children's home had to give way to a regionalist *Heimatstil*, which Welzenbacher interpreted in his own organic manner. This change is also visible in the Alpine and rural private houses he built during the National Socialist era. Unlike his Nazi period designs for industrial buildings and gas stations characterized by a modernist style, the country houses with dominant arched roofs echo a regionalism that had already been adopted by the predominantly ethno-nationalistic *Heimatschutz* movement at the beginning of the century. The children's home was torn down in the 1970s.






Community room with smooth transition to the terrace, where children are playing, 1933

Lois Welzenbacher, Ehlert children's home, plan of 1st and 2nd floors, 1931

**1** Adolf Loos, "Stadt und Land: Aus dem Vortragszyklus 'Aeußere Kultur im 20. Jahrhundert'; 'Neues 8 Uhr-Blatt', 12. Oktober 1918," in *Die Potemkin'sche Stadt: Verschollene Schriften 1897–1933,* ed. Adolf Opel (Vienna: Prachner, 1983) [=Loos (1918) 1983], 140.
**2** Jean-Jacques Rousseau, *Émile, or Education,* trans. Barbara Foxley (London & Toronto: J.M. Dent and Sons, 1921; New York: E.P. Dutton, 1921) [=Rousseau (1762) 1921], bk. 1, n.p.
**3** John Locke, *Some Thoughts Concerning Education* (London: printed for A. and J. Churchill, 1693), 261.
**4** Rousseau (1762) 1921, "The Creed of a Savoyard Priest," n.p.
**5** Rousseau (1762) 1921, "Of Travel," n.p.
**6** See Pierre-Claude-François Daunou, "Lettres sur l'éducation" (1789, 1790), in *Plan d'éducation présenté a l'Assemblée nationale …* (1790), and René Grevet, "Daunou, l'organisateur de l'instruction publique (1789–1797)," *Revue du Nord,* June–December 1989, 963–977. See also publications of individual members of the Cercle social (1790–1800), *La Feuille villageoise* (1790–1796), and Condorcet, *Cinq mémoires sur l'instruction publique* (1791).
**7** Louis François Portiez, *Des voyages, de leur utilité dans l'éducation: Par Louis Portiez, député de l'Oise,* printed on behalf of the Convention nationale, n.p., n.d. [Paris, 1794] [=Portiez 1794], 2–3. This speech was probably published on July 8 or 9, 1794 (*20 ou 21 messidor an II*), according to Gabor Gelleri, "Voyager: Un programme républicain," in Gilles Bertrand, Pierre Serna, eds., *La République en voyage* (Rennes: Presses universitaires de Rennes, 2013), 221–232 [=Gelleri 2013]. Translated in Laura Lee Downs, *Childhood in the Promised Land: Working-Class Movements and the Colonies de Vacances in France 1880–1960* (Durham, London: Duke Univ. Press, 2002) [=Downs 2002], 16.
**8** Portiez 1794, 11; see Gelleri 2013, 362.
**9** Laura Lee Downs, *Histoire des Colonies de vacances de 1800 à nos jours* (Paris: Perrin, 2009) [=Downs 2009], 38.
**10** Ibid.
**11** Many people call him Wilhelm, which was his father's name. According to the *Historical Dictionary of Switzerland* he was called Hermann Walter Bion: see Hans-Ulrich Grundner, "Ferienkolonien" (August 9, 2012), in *Historisches Lexikon der Schweiz,* http://www.hls-dhs-dss.ch/.
**12** Downs 2002, 23.
**13** Ibid.
**14** Ibid., 44.
**15** Unfortunately, I was unable to determine when the Jewish community ran children's colonies. I found very little information on this topic. The organization Éclaireuses et Éclaireurs israélites de France was founded in 1922.
**16** Abbé Bruneau, "L'Œuvre des saines vacances (Douvaine)," *Bulletin de L'association des Anciens Elèves de Saint-Sulpice*, 1902. Translated in Downs 2002, 90.
**17** Report of the Congrès national des colonies de vacances, 1910. Cited in Downs 2009, 65.
**18** In Denmark 7,000 children had already been sent off to the country in 1882, in 1900 14,000, and in 1906 18,000, 40 percent of a total of 45,000 schoolchildren.
**19** Jean Houssaye, *Le Livre des colos: Histoire et évolution des centres de vacances pour enfants* (Paris: Documentation Française, 1989), 37ff. Cited in Downs 2002, 195, 356.
**20** Downs 2002, 356. In France, by comparison, there were colonies for 420,000 children in 1936, and for 700,000 in 1939.
**21** Downs 2002, 198.
**22** "La Dictature de la santé," *Le Matin,* October 24, 1932, 2
**23** "Le Mont-Blanc côté santé: L'Aventure des maisons d'enfant," *En Coutère*, no. 21 (2000), 14ff.
**24** Albrecht von Haller, *Die Alpen* (1729). Translated in Edward Hamley, *Poems of Various Kinds* (London: printed by J. W. Myers, for T. Cadell and W. Davies; and J. Cooke, Oxford, 1795) [=Haller (1729) 1795], n.p.
**25** Albrecht von Haller, *Die Alpen* (1729). Translated in Christopher Thacker, *The Wildness Pleases: The Origins of Romanticism,* Routledge Revivals (New York: Routledge, 2016), 28.
**26** Ernst Wangermann, "The Conditions of National Consciousness in the Epoch of Enlightenment," in *Seventh International Congress on the Enlightenment,* July 26 – August 2, 1987 (Oxford: Voltaire Foundation, 1989), 246ff.
**27** *Das Werk: Architektur und Kunst*, vol. 40, no. 7 (1953) [=*Das Werk* 1953], 216.
**28** Haller (1729) 1795, n.p.
**29** Adolf Loos, "Regeln für den, der in den Bergen baut" (1913), in *Adolf Loos: Sämtliche Schriften in zwei Bänden – erster Band,* ed. Franz Glück (Vienna, Munich: Herold, 1962) [=Loos (1913) 1962], 330. Technology according to Loos went hand in hand with nature's principle of truth, because, in contrast to the ornamental style of the then conventional *Heimatstil* (local traditional), it was contemporary.
**30** Loos (1918) 1983, 139.
**31** See Deborah Holmes, *Langeweile ist Gift: Das Leben der Eugenie Schwarzwald* (St. Pölten: Residenz Verlag, 2012) [=Holmes 2012], 153–173.
**32** Loos (1918) 1983, 140.
**33** See Holmes 2012.
**34** Frans de Waal, *Wilde Diplomaten: Versöhnung und Entspannung bei Affen und Menschen* (Munich: Hanser, 1989), 17.
**35** See "Decalogo balilla e piccola italiana," docsity, accessed August 10, 2018, https://www.docsity.com/it/decalogo-balilla-e-piccola-italiana/720635/.
**36** See Alberto Salza and Elena Bissaca, *Eliminazioni di massa* (Milan: Sperling & Kupfer, 2012), 158.
**37** Footage from the documentary film "Il Principe di Piemonte visita Salice d'Ulzio, la colonia estiva della mutua operai Fiat e passa in rassegna il battaglione Val Fassa," *Giornale Luce*, no. C007303, September 9, 1940, 1'23".
**38** Alex Wall, "La città dell'infanzia," in Stefano de Martino, Alex Wall, eds., *Cities of Childhood, Italian Colonie of the 1930s*, exh. cat. (London: Architectural Association, 1988), 62f.
**39** Mario Labò, "L'architettura delle colonie marine italiane," in Mario Labò and Attilio Podestà, *Colonie marine, montane, elioterapiche* (Milan: Editoriale Domus, 1942). Translated in Fulvio Irace, "Building for a New Era: Health Services in the '30s," *Domus* 659 (March 1985), 3. Originally published in *Costruzioni Casabella*, no. 167 (1941), 2–6.
**40** See Katharina Torkler, *Ferienkolonien von Industrieunternehmen zur Zeit des Faschismus in Italien* (PhD diss., Freie Universität, Berlin, 2001) [=Torkler 2001].
**41** Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sheridon (Penguin Books, 1977; repr. New York: Vintage Books, 1995), 136.

**42** The specifications derive from a communiqué of the Reich Youth Leadership: 429 youth hostels were stopped at the shell construction stage, 241 were started, 660 were in planning and given building permits, 800 others were planned. In toto that would have been 2,780 homes across the Reich, but with half not even having reached a tangible stage of building. See Helmut Weihsmann, *Bauen unterm Hakenkreuz* (Vienna: Promedia, 1998), 81.
**43** See Willibald Sauerländer, "75 Jahre 'Haus der Kunst' in München: Traumatischer Hass auf die Entarteten," *Süddeutsche Zeitung*, July 18, 2012.
**44** Ibid.
**45** Baldine Saint Girons in an intwerview with the author. See Baldine Saint Girons, "Le Sublime et l'esprit du classicisme," in *Art et science à l'âge classique* (Paris X, Nanterre: Université Paris Ouest, 2000).
**46** Baldine Saint Girons, "Du Grotesque comme risque du sublime: Combat, alliance, fusion intime," in Jan Miernowski, ed., *Le Sublime et le grotesque* (Paris: Droz, 2014) [=Girons 2014], 41–63.
**47** Burke (1757) 1824, "Terror," 98.
**48** Ibid., "Power," 112.
**49** Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction" (1935/1936) in Walter Benjamin, *Illuminations: Essays and Reflections,* ed. Hannah Arendt, trans. Harry Zohn (1968; repr., New York: Schocken Books, 2007) [=Benjamin (1935/1936) 2007], 241.
**50** Cited in Benjamin (1935/1936) 2007, epilogue, 242. As the source for Marinetti's manifesto on the Ethiopian colonial war, Benjamin mentions *La Stampa,* the Turin-based daily newspaper. This text, titled "Estetica Futurista della Guerra," was printed in 1935 in the form of a pamphlet in *Stile Futurista,* vol. 2, no. 13–14 (1935).
Meanwhile, Domenico Cammarota indicates the *Gazetta del Popolo,* October 27, 1935, as the source: Domenico Cammarota, *Filippo Tommaso Marinetti: Bibliographia* (Milan: Skira, 2002), 128.
In 1937 it was published in Filippo Tommasi Marinetti, *Il Poema Africano, della Divisione "28 Ottobre"* (Milan: Mondadori, 1937), 27f.
**51** Filippo Tommaso Marinetti, "Manifeste du Futurisme," *Le Figaro,* February 20, 1909. Translated as "The Futurist Manifesto" in James Joll, *Three Intellectuals in Politics* (New York: Pantheon, 1960) [= Marinetti (1909) 1960], 179–184, here: 182.
**52** Benjamin (1935/1936) 2007, 242.
**53** Theodor W. Adorno, *Ästhetische Theorie* (1970; Frankfurt am Main: Suhrkamp, 2003).
**54** Jean-François Lyotard, "The Sublime and the Avant-Garde" (1983), in *The Inhuman: Reflections on Time*, trans. Geoffrey Bennington and Rachel Bowlby (Stanford, CA: Stanford University Press, 1991) [=Lyotard (1983) 1991], 89–107.
**55** Ibid., 100.
**56** Ibid., 104.
**57** Baldine Saint Girons, "Le Beau et le laid, y a-t-il un sublime de l'utile? Les Pouvoirs de l'architecture et 'la minute du sublime,'" unpublished conference paper at SFA, Paris 2016.
**58** Ibid. See also Roger Caillois, *Bellone ou La Pente de la guerre* (1950) (Paris: Flammarion, 2012).
**59** Loos (1913) 1962, 329.
**60** Marcel Just, Christoph Kübler, Matthias Noell and Renzo Semadeni, eds., *Arosa: Die Moderne in den Bergen,* exh. cat. (Zurich: GTA Verlag, 2007) [=Just et al. 2007], 103.
**61** Ibid.
**62** Ibid.
**63** H.M. (possibly Hannes Meyer himself), "Kinderheim Mümiswil: Hannes Meyer, Architekt, Basel-Lugano," *Das Werk,* vol. 40, no. 7 (1953), 213.
**64** Ibid., 216.
**65** Ibid.
**66** Hannes Meyer, "Die Siedlung Freidorf," *Das Werk,* vol. 12, no. 2 (1925), 40–51.
**67** Levi Montalcini, "Les Colonies de vacances en Italie," in "Vacances et loisirs," *L'Architecture d'aujourd'hui (July* 1939), 88.
**68** Ibid.
**69** Ibid.

Arnold Fanck, "The Wonder of the Snowshoe" (Das Wunder des Schneeschuhs), 1920

# 5 Motion, Exhilaration, and Vertigo

*Motion […] has become a kind of vertical disorder, made of contractions, black-outs, terrors and faints. It is no longer a gliding, but an inner devastation, an unnatural perturbation, a motionless crisis of bodily consciousness.*[1]

*Le mouvement […] est devenu une sorte de trouble vertical, fait de contractions, d'obscurcissements, de terreurs et d'évanouissements ; il n'est plus glissement mais ravage intérieur, trouble monstrueux, crise immobile de la conscience corporelle.*

**Roland Barthes, L'Homme-jet, *Mythologies*, 1957**

In the 1920s and 1930s the body began to attract the interest of society, making it possible for the sublime to be experienced in a different way. The body conveyed the exhilarating experience of levitation, which is one of the essential characteristics of the sublime. The physical exhilaration produced by speed and vertigo triggers a liminal experience between fright and fascination. Whereas during the Enlightenment the unfathomability of unbounded nature was one of the main factors in experiencing the sublime, in the Romantic Age, as man became rationally aware of the world, this was joined by a numinous, exhilarating form of self-transcendence. At the beginning of the 20th century, the bodily experience of a shudder, unleashed by motion, speed, and vertigo was foregrounded, radically changing the mental conception of the sublime. It was no longer about an intellectual act of raising oneself up above the force of nature (as in Kant's dynamically sublime), nor was it a confrontation with an unfathomable quantitative entity (as in Kant's mathematically sublime). And it was not, as in Burke, a psychological experience, triggered by visual, sensory, or auditory factors (boundlessness, light-dark, screeching animals) that unleashed strong emotions (fear, surprise, enthusiasm). Now it was more about a Dionysian state of frenzy leading to self-transcendence.

The body became an important instrument for generating "maximum tension," which Uvedale Price had interpreted as being a sublime state, "stretching the fibres beyond their natural tone."[2] This is an interesting and ultimately quite modern view, since aesthetics is inseparably linked with psychological and physiological effects, measured on a gradual scale of tension.

The emergence of the philosophy of the body, which was also spearheaded by Friedrich Nietzsche (the body *is* the mind), led to a societal reorientation. If mind and body are seen as one, together leading to a (transcendental) self-awareness, then the body also plays a different role in the experience of the sublime. The transcendence of our confines then no longer takes place solely through the rational mind, but in inseparable connection with the body, which has its own means. Instead of contemplating sublime nature, the focus was now on challenging the "naked nature" of the Dionysian man who was set in motion. Both modes of experience were, however, based on a sense of exhilaration, albeit in different ways. In Nietzsche's 1898 late work *Twilight of the Idols, or, How to Philosophize with a Hammer,* both the Apollonian and the Dionysian principle are defined as types of frenzy: "What is the meaning of the conceptual opposites which I have

Photo of Carlo Mollino testing new high-speed skiing techniques here with a "flying cape" for jumping, 1939–1944

introduced into aesthetics, Apollonian and Dionysian, both conceived as kinds of frenzy? The Apollonian frenzy excites the eye above all, so that it gains the power of vision. The painter, the sculptor, the epic poet are visionaries par excellence. In the Dionysian state, by contrast, the whole affective system is excited and enhanced so that it discharges all of its means of expression at once and drives forth simultaneously the power of representation, imitation, transfiguration, transformation, and every kind of mimicking and acting."[3]

The body-driven Dionysus, acting out of emotion and rhythmically dancing, defeated the static Apollo in the 1920s, with exhilarating whirling replacing the contemplative gaze. The new sublime was to be found in the exhilaration of motion, in the unforeseen, in an uncontrollable body experience.

In *Vertigo: Schwindel der modernen Kunst*,[4] Jeannot Simmen vividly described the radical change triggered by Nietzsche's philosophy: "It is not the spectacle of nature that is interesting but rather the human drama of inner acceleration along with a capricious somersault."[5]

In his critique of Christian religion ("God is dead! God remains dead! And we have killed him! […] There never was a greater event")[6] Nietzsche saw falling as an enormous feat of liberation because it leads to autonomous thinking: "Whither do we move? Away from all suns? Do we not dash on unceasingly? Backwards, sideways, forewards, in all directions? Is there still an above and below? Do we not stray, as through infinite nothingness?"[7]

For him the mastery of losing one's footing in movement was to be found in the whirling movement of Dionysian dance. The terrifying "nothing" becomes a field of possibilities. Movement now advanced to a new paradigm, which in Nietzsche's time was still accompanied by a search for higher awareness. This changed with the decline of the Old World.

Influenced not only by Nietzsche but also by Guillaume Apollinaire, Joris-Karl Huysmans, and Stéphane Mallarmé, the young Filippo Tommaso Marinetti, who at the age of seventeen lived in Paris and frequented artists' circles, published his "Manifesto of Futurism" in 1909 in the *Figaro*. He exalted the "movements of aggression, feverish sleeplessness, the double march, the perilous leap, the slap and the blow with the fist," as diametrically opposed to the "pensive immobility, ecstasy and slumber"[8] of earlier times. He saw motion, speed, and technology as the epitome of revolutionary modernity:

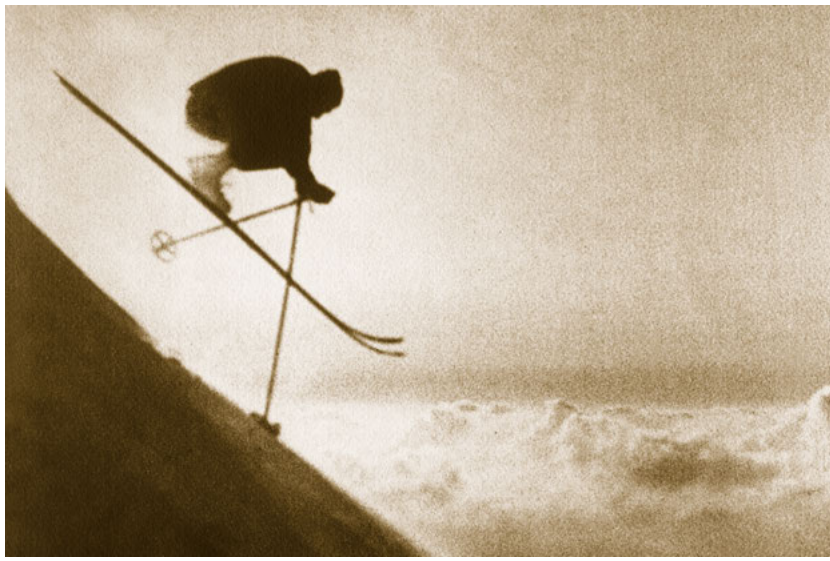
"4. We declare that the splendour of the world has been enriched by a new beauty: the beauty of speed. A racing automobile with its bonnet adorned with great tubes like serpents with explosive breath … a roaring motor car which seems to run on machine-gun fire, is more beautiful than the Victory of Samothrace.

5. We want to sing the man at the wheel, the ideal axis of which crosses the earth, itself hurled along its orbit. […]

8. We are on the extreme promontory of the centuries! What is the use of looking behind at the moment when we must open the mysterious shutters of the impossible? Time and Space died yesterday. We are already living in the absolute, since we have already created eternal, omnipresent speed."[9]

At the beginning of the 20th century, the philosophical, social, and technical revolution was joined by a physical one. Einstein's theory of relativity (1917) not only rocked the foundations of the mechanical laws of physics but also shook mankind, since the previous conception of space and time, along with the physical laws, was suddenly completely called into question. The new definition of energy ($E=mc^2$), which was based on the direct connection between the mass and speed of all bodies, led, as Simmen claims, to motion becoming a symbol of the modern age. There must have been a similar sense of awe in Newton's time when mankind was confronted with the infinity of the cosmos through the laws of gravitation. The shudder experienced in the face of a threatening nothingness could still be overcome in the Age of Enlightenment by the metaphor of floating, as Simmen elaborates in his book, but without creating any reference to the sublime, which in my view should not be neglected. In the Enlightenment, the idea of floating appeared in a number of writings on the sublime, especially in connection with

Arnold Fanck, "The Wonder of the Snowshoe" (Das Wunder des Schneeschuhs), 1920



mountains, as I showed in the first chapter in relation to Burnet's, Shaftesbury's, and Addison's allegories of flight. The threat of nothingness could be overcome by the sublime, the rational mind rising up over fear; the terrifying aspects were integrated into a positive, cosmic conception of the world.

Coming to grips with Einstein's revolutionary discovery no longer meant rationally rising up above an unfathomable nature (now it was possible to calculate its cosmic dimensions, including the speed of light), but rather facing the temptation to dissolve one's own mass through speed in energy, to paraphrase Simmen. The excessive sublime, which transcended all confines, was no longer experienced by a thinking-feeling being but by an accelerated individual. Even if the new kind of liminal experience had different mechanisms than the mental one, man was still confronted with his innermost essence, that is, in a corporeal ecstatic way. The exhilaration of the modern age was seen by Simmen as an act of liberation and transformation, which symbolically articulates itself in a "leap into the void."[10] Only thus does "levitation" become possible: "Modern exhilaration, unlike the collective or divine-religious experiences which open up visions, do not refer to a paradisiacal other world but to a changed here and now."[11]

## The Alps as a Testing Ground

At the beginning of the 20th century, the "leap into the void" became an alpine theme with the metaphorical dimension being transformed into a reality that could actually be experienced. Simmen's maxim, "Vertigo becomes a metaphor for modernity; the modern age is a project of destruction; the confused vestibular systems (the sixth sense) are indicative of the whirling forms of exhilarating momentum,"[12] seems to be really taking place in the Alps (analogous to the wild brush strokes of the modernist painters to whom he refers), with frenetic bodies, equipped with skis, jumping ecstatically over cliffs into the depths. The new medium of film indulged in this visually, as the mountain film "Der weiße Rausch – Neue Wunder des Schneeschuhs" (White Ecstasy, which appeared in several versions between 1920 and 1931) is testimony to this: here skiers race at breakneck speed over untouched snow slopes. Slow-motion shots create a state of hovering, levitating, with the seemingly gravity-free bodies becoming icons of a new feeling of freedom. The film was the ideal medium for capturing the ecstasy of speed in moving images and rendering them in aesthetic form (in the slow-motion shots almost image for image). A leap that lasted seconds turned into a minute or two of hovering in the air. Mass and speed were dissolved in a novel relationship between space and time, and energy was rendered in concentrated form—both in the decelerated flight and in the accelerated stepping uphill, which became transformed into an ecstatic frenzy (Film Portrait 6).

**Man Rises Up above Nature**

Technological advances made it possible to conquer the last bastions of "wild nature." As a result of the rapid growth of tourism and the creation of an ever denser infrastructural network, it became ever less wild and ever more tamed. The lone wanderer of the 18th century, walking over gorges and rocks, overcome with awe when facing untouched nature, was overtaken at the end of the 19th century by cogwheel trains, which were capable of transporting a significant number of tourists to the tops of the mountains, straight to the grand hotels—as Mark Twain's satirical collection of texts *A Tramp Abroad* (1880) vividly describes. It was no longer possible to admire the sublime sunrise in solitude because of the number of other tourists, brought there on scheduled trips organized by tour guides. This, too, is clearly expressed here. Now that the mountains had been made accessible to

Arnold Fanck, "White Ecstasy," 1920–1931

Arnold Fanck, "White Ecstasy" (Der weisse Rausch), 1931

tourists and the same mundane life could be lived in the airy heights as in the cities, the sense of sublimity was also called into question. The force of nature was triumphantly juxtaposed with technology, which had made it possible to conquer and ultimately tame the "wild mountains." With the high-altitude regions being easy to "scale," the individual felt superior to nature, not just rationally but also physically. But now, when looking at the mountains, he was overcome by boredom instead of feeling the frisson of excitement. The desire for the thrill of elation, which a tamed nature could no longer fulfill, remained though. This may have given way to an emotional void, which coincided with the demise of the Old World or the emergence of the New World. Thus the desire for excitement moved from the mind to the body as only the latter was still capable of a liminal experience—this thanks to break-neck speed and the challenge offered by extreme, existential situations.

## Motion

In the1920s, a gradual liberation from earlier conventions, social rituals, and beliefs took place, with Nietzsche's influence playing a major role. The dynamic of the "new man" was manifest not only in the novel body awareness and in sports but also in travel and dance, as Siegfried Kracauer describes in his 1925 socio-critical essay titled "Travel and Dance."[13] He saw in them symbols of a longed-for movement through which one was able to leave the "old society" in the hope of "overcoming gravity."[14] The grand hotels in the Alps became a popular site for this new addiction to speed, since here both the joy of travel and the dance craze could be lived to the full.

Kracauer takes issue with the frenetic, vacuous movement. He tries to comprehend this novel phenomenon—which reached way beyond the technological advances in transportation—in its very essence, which is to be found in "spatiotemporal passions": "When Goethe traveled to Italy, it was to a country he sought with his soul. Today the soul—or whatever it is that is meant by that word—seeks the change of environment offered by *travel*."[15] Travel is no longer about where one travels to, but the fact that one travels and is moving: "The adventure of movement as such is thrilling, and slipping out of accustomed spaces and times into as yet unexplored realms arouses the passions: the ideal here is to roam freely through the dimensions. This spatio-temporal double life could hardly be craved with such intensity, were it not for the *distortion* of real life."[16]

Reality would dissolve in speed and for a short time vanish in the blissful ecstasy of motion. He took issue with the superficiality of the new society, which did not provide a conception of a whole, a totality, and no longer sought to capture the Beyond, so that they failed to recognize the actual essence. In movement Kracauer identified a substitute for the higher. The hotel hall replaces the church, the quick coming and going, the service: "Travel and dance have taken on a *theological* significance,"[17] he noted with consternation. He was skeptical vis-à-vis speed and technology, because they undermined human profundity: "Technology has taken us by surprise, and the regions that it has opened up are still glaringly empty."[18] With melancholy he notes that "the waltz dream has come to an end,"[19] fully aware that the time of the old society was over. In the restless atmosphere of a new beginning in the 1920s he sensed a danger to be found in the enormous force of transformation.

### The Alpine Grand Hotel: A Focal Point for Travel and Dance

Movement became the modus vivendi of the society at the alpine grand hotels which became the backdrop of the action. There were sundry attractions for entertainment: in addition to skiing and tobogganing there was, for instance, in St. Moritz also ice skating and ice hockey, both popular pastimes, as well as trotting on the frozen lake and jazz dancing at the five o'clock tea, which was served by waiters wearing skates, who seemed to be flying, as the photos from the 1930s show.

Through the frenzy of movement the individual was able to "transcend" daily life, the usual "spatio-temporal coordinate system"[20] and reach unprecedented dimensions by means of the body. The departure from everyday life was deliberately used as an advertising strategy so as to offer the guests a "land outside of time and space," as was announced in big letters on posters of the time ("Therapeutic Landscape," Project 22). Also architecturally the alpine grand hotels had to be modernized. After their economic existence was endangered in the wake of the stock market crash, they were forced to adjust to the changing society and make adaptations for the new bourgeois clientele. Alpine casinos complemented the "alpine paradise"—life was mundane, animated. In addition to the construction of swimming pools, the "meaningless" hotel halls were transformed into dancing halls in which "jazz blared." The feeling of a void that found symbolic and spatial expression in the hotel hall was also taken up by the Prague-born poet Franz Werfel (1890–1945). In his Expressionist story "Die Hoteltreppe" (The Staircase)[21] which appeared in 1927, he describes the vertiginous state of hanging in the air in terms of a high hotel hall that rose up so that it resembled a cathedral. A girl who had unhappily fallen in love climbs the staircase with great effort, circling the round hall: "The path lying before her seemed to her wide and cumbersome like a lonely mountain climb," then she played with the idea of suicide. Bending over the banister she looked into the abyss: "How would it be if I just lean over a bit more and lose my balance." The hovering crystal chandelier in the center of the room became the mystical symbol of deeper meaning: "And in the heart of the abyss there hung the imposing chandelier, with its softly twinkling, quietly clinking prisms, which seemed to sway in a mysterious current of air." While the girl wavered undecided between this world and the next, jazz music resounded from the hall below: "In the depths of the radiant shaft the jazz band erupted. […] Among the sounds clambering apelike upward, she now believed she had discovered the boring Boston, which was nothing other than the melody of the great barrenness that dominated her, dominated everything." This memory was too much, the clamoring music became the trigger for her tragic ending; when her parents and her fiancé arrived it was too late. Travel and dance become apocalyptical elements of a story depicting the decline of sensitivity.

Movement, ecstasy, and vertigo symbolize the transition from the old to the new society. The floating, falling, whirling, the uncontrolled, frenzied losing of oneself in an unfathomable space reflected a new age marked by turmoil and rapid changes. The Alps became the ideal site for this addiction to movement, as it offered an inexhaustible paradise for anyone trying to test their limits over and over again.

## Winter Sports Tourism and Making the Alps Accessible through Technology

With the Alps becoming accessible through the construction of high mountain roads, trains, and cogwheel railways, winter sports also developed. Thanks to the invention of the cable car at the beginning of the 20th century, ever-higher regions could be made accessible. The development of tourism in the Alps was marked, from the very beginning, by a disparity among the various nations that, in the course of the 20th century, had entered into increasingly strong competition. Switzerland was the first Alpine country to realize, as early as the mid-19th century, that the mountains could be turned into a tourist attraction. Here, alpine skiing was practiced from about 1870 on. Renowned grand hotels as well as smaller cure hotels in the form of villas drew high society from all over Europe to the mountains. As the South Tyrolean Kohlererbahn railway was being built in 1908, the Wetterhorn cable car near Grindelwald was opened. With the outbreak of World War I, the tourism boom came to a sudden halt. In 1915, a ban was imposed on constructing new hotels in Switzerland so as to spare the existing hotels from bankruptcy. Between 1920 and 1925 the law was officially known as "hotel construction ban," but it was partially lifted in 1926 (since it was unconstitutional) so that new "modern" hotels that were in keeping with the Zeitgeist could be built, such as the Hotel Alpina by Arnold Itten, because of a fire which destroyed the two existing hotels. (The restrictions on hotel construction were only completely done away with in 1952 as a result of a referendum, as Marcel Just documents.[22])

In Austria tourism had flourished in the Habsburg era, especially in thermal spa towns (Project 3) and later also in the mountains. The summer resort developed in the second half of the 19th century, especially along the newly constructed

Carl Moos, "St. Moritz – Engadin – 1856 m," advertising poster, 1924

railway lines, in particular along the western and southern lines, with completely new towns catering to tourism being established in the mountains, along with grand hotels and villas, as, for instance, on the Semmering. Winter sports tourism emerged at the beginning of the 20th century. In 1908, the Kohlerer cable car—the first public passenger lift in central Europe—was erected in South Tyrol near Bolzano. From then on, the mountains were accessible directly from the city. From 1909 to 1912 the Vigilijochbahn near Lana (near Meran) was built—the first Alpine cable car with stations. After the Habsburg Empire had been reduced to an "Alpine Republic" in 1928, the now small country sought a new identity, finding an eloquent name in *Weißes Österreich* (White Austria).[23] The prosperity, which re-emerged after the devastation of World War I, led to a building boom in winter sports tourism at the end of the 1920s, with Tyrol and Vorarlberg becoming the most important provinces in the development of tourism. Enormous investments were made in hotels and cable cars so as to be able to compete with Switzerland. In 1928 the young, still largely unknown Tyrolean architects Hans Feßler and Franz Baumann built the Patscherkofel and Nordketten cable cars in Innsbruck (Project 38) so that now the high mountains were directly connected to the city. Along with the construction of cable cars, mountain and sports hotels were built and new building typologies emerged. France lagged behind Switzerland and Austria in the development of alpine tourism and only began in the 1920s to build Megève, the first winter sports town, which, however, was unable to compete with similar towns in Switzerland and Austria. It catered primarily to French tourists, especially those wanting to avoid Switzerland for different reasons.


38 Franz Baumann, Nordkette Cable Car, Tyrol, 1928

The wealthy Baroness von Rothschild provided the first initiative for developing Megève, since she could no longer bear the anti-Semitism of some Swiss hoteliers. In the 1930s, several avant-gardist cable-car projects followed. In 1934, the French engineer André Rebuffel (who had specialized in cable-car technology before World War I, working for the Milan engineering firm Ceretti Tanfani) built a cable car up to Mont Revard near Chambéry. The architecture of the base station in the valley had a futuristic appearance with its emblematic slender tower. In 1935 Rebuffel built a cable car up to Mont Veyrier on the eastern side of Lac d'Annecy. The mountain station was an impressive round building made of exposed concrete, which projected out over the steep slope. Both cable cars were equipped with a new technology with respect to the cable run, consisting of an unsupported tensioning wire with a double loop. This way the cable car, which had a free range of 1,525 meters, was able to cover a 1,300-meter difference in altitude in only seven minutes, which was a world record at the time. Another remarkable cable car was the one on Mont Salève, designed in 1931/1932 by Geneva architect Maurice Braillard, who had it erected in the Haute-Savoie range in the immediate vicinity of Geneva, in collaboration with Rebuffel (Project 39).
In Italy, Mussolini, right after coming to power, set about trying to Italianize the new province of the German-speaking South Tyrol and launched an intensive construction program. The mountains were to offer rest and relaxation, primarily to Italians, with the focus being on the development of modern winter sports. In 1941 Gio Ponti was commissioned by a big industrialist to plan a connecting cable-car network with numerous branches extending over the Dolomites. The Salève mountain station served him as a model for the architecture of the station type, while his design for the hotel type was inspired by the architecture of the modern Tyrolean sports hotel. However, he characterized both as "typically Italian," trying to accommodate the nationalist aspirations of the regime (Project 40). In the battle for a national identity, style had become a propaganda instrument, although the national origins of the model were not revealed.

## Movement and Dynamics in Architecture

With the emergence of new body-oriented facilities such as sports hotels, cable-car stations, and ski jumps, architects were able to experiment with new types and forms. When the first cable-car stations were built at the beginning of the 20th century, the question of style was inevitably raised: on the one hand, they were functioning machines that had to integrate all kinds of technical elements; on the other, they were also buildings that had to be given an architectural form. Before World War I, they were part and parcel of the existing stylistic conventions and resembled ordinary buildings with the technical elements hidden wherever possible. Only from the second half of the 1920s and early 1930s on did cable-car stations become a real architectural concern. In 1931 Karl Paulin described the new building program as follows: "When the Nordkettenbahn near Innsbruck was to be built, […] a competition was advertised for the Hotel Seegrube at the middle station, whose only purpose was to be a modern functional building in the middle of the […] rocky wilderness."[24] There were various approaches to this task. In Franz Baumann's design for the three Nordkette cable-car stations a break with traditional styles and building forms can be seen as one goes up the mountain.[25] This was also due to the building regulations, which laid down stylistic specifications for towns and villages but not for the high mountain ranges. Architects thus had to first find a form for the new function, with Baumann designing a free form organically emerging from the rocks for the station at the top of the mountain.

Movement became an avant-gardist motif, with the dynamically based principle of the New World (promising maximum intensity) juxtaposed with the static tectonic compositions of the Old World. In architecture, movement found expression in the dynamics of form, preferably generated by curves. Depending on whether these curves were concave or convex, the landscape is either openly embraced (in concave forms) or staged as panorama (in convex forms). With the convex form the self-contained building becomes the central focus of the alpine landscape, emphasizing the view of the surrounding mountains. They seem to encircle the building and were viewed from a central position, much like a panorama rotunda. By contrast, with the concave form, the perspective is reversed: man is no longer the central point but rather the landscape. The building creates a circular segment of a virtual frame surrounding and containing the alpine landscape. In the 1920s and 1930s, both forms were employed, in alternation, especially for the design of sports hotels.

## Exhilaration

Another form of exhilaration is that related to freedom, which found an ideal terrain in the Alps. In the 18th century Joseph Addison, Albrecht von Haller, and Jean-Jacques Rousseau had associated the Alps with a concept of freedom that was reflected in the sublime. With the emergence of a "philosophy of the body" in the 19th century, the spiritual dimension of an ethical and political freedom shifted more and more toward a physical freedom which affects the mind as well. The desire for a liberation from social conventions that appeared around the turn of the century could be lived out in the wild, largely untouched Alps. Once the body was stripped of all clothing, naked, freed from all cultural attributes, it was possible to have a liminal experience in the midst of snow. The body, confronted with the raw elements of nature, triggered a special exhilarating experience of the sublime, accompanied by a process of purification, which needed the "wilderness" in order to be consummated.

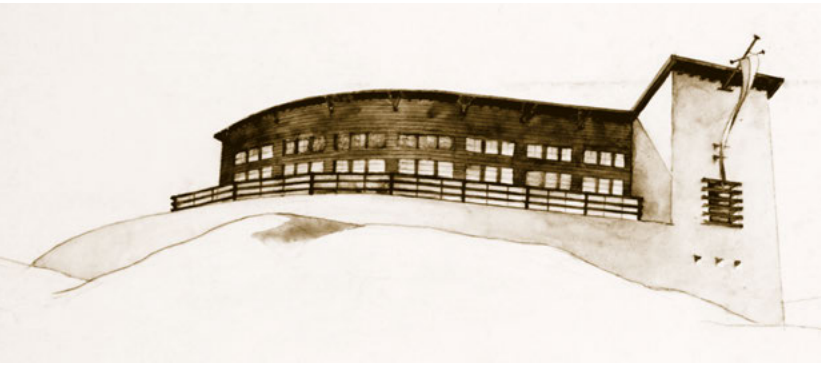
The desire for purification can be seen as a contrast to the mundane life in the Alpine grand hotels where nature, like a theater, played the role of a backdrop against which one indulged in various diversions. The appeal of intense, elemental experiences meant that, in the late 1920s, the grand hotel was replaced as the preferred motif in art by the nude skier in front of the alpine hut, as can be seen in the paintings by Alfons Walde (Project 42).

The need to experience the body and movement not just as a sports activity but also as something "elemental" meant that nudity could have various facets, ranging from a basic connection to nature to eroticism (Portrait 43, Project 44). The former is reflected in a photograph by Charlotte Perriand, in which she stands with a bare back in front of her self-fabricated bivouac and gazes into the wide valley. By contrast, with Alfons Walde the interplay of nudity and eroticism is foregrounded.

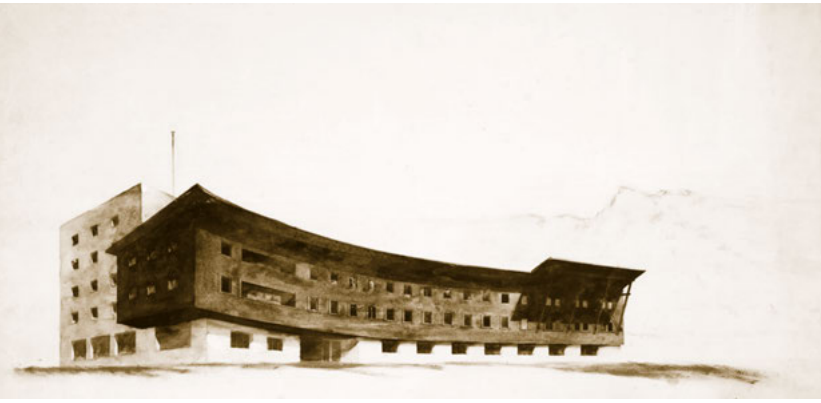
Maurice Braillard, Cable Car to Mont Salève, 1932 39

Gio Ponti, Albergo Sportivo Paradiso del Cevedale, Val Martello, 1935; Cable-Car Network in the Dolomites, 1941–1942 40

Franz Baumann, "Competition for the Gaststube Seegrube Mitte 'Rundsicht,'" a hotel with a convex curve, 1928



Franz Baumann, design sketch for the mountain hotel Monte Pana with concave curve, St. Christina im Grödental, 1930



What is striking is the fact that both Alfons Walde and Charlotte Perriand were architects who in these years sought out the Alps for an experience with the elements, at a remove from daily life. Architecturally, this tendency was expressed in a type of mountain hut and bivouac, which both stood for this addiction to boundless freedom.

## Vertigo

Vertigo brings together contrasting emotions ranging from "fright" to "excitement," triggered by an overwhelming, frightening liminal experience. The dichotomy inherent in the notion of vertigo is also based on the sublime, which is characterized by the combination of diametrically opposed emotions. Given their topography, the Alps are an ideal ground for this type of liminal experience, with architecture assuming an important role here. It can emphasize the slope and generate vertigo by means of projecting elements. In the 1920s a view alone—as in the grand hotels where the landscape had become an image—was no longer enough. The mountain landscape had to be made into something that could be directly experienced with all its wildness: it needed to be physically felt and palpable to all the senses. Architecture served to mediate between the desire for extreme experience and "wild nature," which people sought out to meet this desire. Cable cars and their stations were particularly well suited to triggering a sense of vertigo, given their exposed location, usually on steep slopes, where the experience of arrival was amplified by means of cantilevers. There were a number of cable-car designs that addressed this potential to generate tension.

The cable car conveyed a sense of hovering in the air. The gaze into vertiginous depths, as the account given by Joseph Kessel on the occasion of the opening of Maurice Braillard's Salève cable car in 1932 illustrates, triggered reflexive feelings of depth and space. "The houses became flatter and flatter, the landscape wider and wider, and the aerial cable car moved along an incredibly thin wire on which our lives hung. […] This is what I could see, as I stood on creaking skis and leaned over a deep abyss that grew bigger with every second, thinking about space."[26]

The frisson produced by the possibility of going crashing to the ground was joined by a fascination for the vertiginous depths: here one's thoughts did not become more constricted (as would be the case with pure fear) but rather expanded. The description of this feeling recalls Kant's dynamically sublime in which man must have a sense of security to be able to perceive the frisson of nature as being sublime. Under these circumstances the view of "bold, overhanging, and, as it were, threatening rocks […] is all the more attractive for its fearfulness." The sense of sublimity lies, according to Kant, in the exaltations of the "strength of mind," fortitude, which "gives us courage to be able to measure ourselves against the seeming omnipotence of nature."[27]

At the beginning of the 20th century the attempt to compete with the power of nature was challenged by technology. The vertiginous sense of hanging in the air was reinforced by the architecture of Braillard's mountain station, which was characterized by its huge protruding beam, supported by slender double columns. It rose up over the 800-meter-high vertical crag and its imposing cantilever confronted man with "nothingness." This project, which was aptly described by Bruno Reichlin as the "Prometheus of modernity,"[28] illustrates the destabilizing aspect of modernity, which Simmen highlights in *Vertigo*.

The mountain station recalls El Lissitzky's *Wolkenbügel* (Cloud Hook/Hanger), a utopian project of a horizontal skyscraper[29] from 1923–1925, which he designed together with the young Swiss architect Emil Roth. Johann Christoph Bürkle underlined that this project was well known in Europe.[30] The functional, direct association of transport means and usable space may have served Braillard as an inspiration for the design of Salève. El Lissitzky was fascinated with the "overcoming of gravity" (which had been called into question by Einstein's laws of gravitation). Influenced by the sense of a radical new beginning triggered by the October Revolution, he sought in 1920 to create a "floating body," a kind of "physically dynamic architecture." He was interested in "overcoming the foundation, the attachment to the earth," seeking to explode the Old World and to create a new "world that floats in space."[31] The Suprematists saw a new form of freedom in floating above the ground, which could also be applied to the Alps. Braillard, who was certainly familiar with this project and the Russian avant-garde, was not only an architect but also a committed politician; he advocated social housing and a radical land reform in Geneva, with the cable-car poster indirectly serving as campaign publicity: the popular Sunday attraction for the people of Geneva became an iconic symbol of modernity and progress.

**Vertigo in Mountain Films**

Vertigo was a design theme not just in Alpine architecture but also in the film productions of the 1920s and 1930s. In his mountain film "Der verlorene Sohn" (The Lost Son, 1933–1934), Luis Trenker took up the subject of vertigo in a mountain-city drama that was rich in contrasts. He processed his unsettling confrontation with New York poverty by juxtaposing the American metropolis with the untouched mountain world of his homeland. In doing this, he deliberately worked with the sensation of vertigo by cross-fading the steep canyons between high-rise buildings with vertical walls of rock from the Dolomites. He was thus able to express his unease vis-à-vis the brutality of the big city while also showing his familiarity with cliffs. He addressed the ambiguity of the sensation of vertigo by highlighting the dichotomies of city vs. nature, homeland vs. outside world, horror vs. fascination. The positively perceived, exciting feeling of vertigo could only be rendered by the (familiar) mountains of his homeland, while the skyscrapers of the (unfamiliar) metropolis assumed the role of something felt to be gruesome. Since Trenker was not only a filmmaker and actor, but also a mountain guide in addition to being an architect, different perspectives of the mountains converge in his work. His architect's view of the structure of the vertical skyscrapers and cliffs merges with the gaze of the filmmaker, who saw here a scenario of vertiginous climbing scenes which he, in turn, as an experienced mountain climber could embody himself.

**Mountains as "Experience"**

Mountains were increasingly sought out because of the intens experiences associated with them. Vertiginous architecture was a design theme, too, after World War II and continues to be so. Carlo Mollino's design for the Furggen mountain station from the 1950s is a case in point, since here the abyss is celebrated in an exemplary way through three viewing platforms placed one on top of the other. Mollino addressed the exhilarating sense of vertigo not just in his architecture—he also let himself be drawn into a frenzy of movement. The passionate amateur pilot developed his own skiing technique in order to facilitate a faster descent with the body, achieving maximum speed with an extreme forward-leaning position (Project 41). Werner Tscholl's contemporary project "Timmelsjoch Experience" (2009) illustrates how the mountains could be transformed into an intense experience by means of architecture. Here, the commissioning client not only wanted the alpine pass road over the Timmelsjoch to function from a historical perspective as a border and point of intersection between two countries but also intended that the mountains would become an experience. Tscholl was able to fulfill this wish by constructing buildings that jutted out impressively, offering the visitor a wide panoramic view of the landscape and of the vertiginous "nothingness" below. Vertigo thus becomes the design theme of an architecture built for the sake of experience (Project 45).

Zaha Hadid's ski jump on Bergisel Hill in Innsbruck rchitecturally stages the movement of ski jumping. The building emerges out of the jumping ramp, based on the ski jumpers' movement. Architecture both embodies and generates movement, exhilaration, and vertigo by means of a dynamically

Charlotte Perriand's Bared Body in the Mountain Landscape 43

Charlotte Perriand and Pierre Jeanneret, Bivouac, 1938 44

Luis Trenker, "The Prodigal Son" (Der verlorene Sohn), 1934, film poster

curved form, whose iconic appearance is the expression of a certain conception of nature, illustrating the way we relate to mountains today. The building could also be seen as a " contemporary totem" of alpine sport (Project 46). Addison's and Shaftesbury's virtual flight allegories above the Alps at the beginning of the 18th century were of a philosophical nature, serving as a way to contemplate the world. The bodies that fly today in streamlined form over the mountains find themselves in a frenzy of speed that enables us to forget the "contemplation of the world" in a euphoric way.


41 Carlo Mollino, Maison-Furggen Cable Car Plan, Val d'Aosta, 1950

45 Werner Tscholl, Timmelsjoch Experience, 2009

46 Zaha Hadid, Ski Jump on Bergisel Hill, 1999–2000

Arnold Fanck, "The Wonder of the Snowshoe" (Das Wunder des Schneeschuhs), 1920

**37 Arnold Fanck, "White Ecstasy," 1920–1931**

Directed by Arnold Fanck, the film "White Ecstasy" (1931) is the third edition of its precursor "The Wonder of the Snowshoe," which premiered in 1920. The movie was released in several editions, with changing titles: "The White Flame," "White Frenzy," "Ski Chase." The first version takes place in St. Moritz and was a documentary about skiing and climbing in the snow-covered landscape of the Engadine mountain range. In 1923, a second part hit the screens, a feature film called "Fox Hunt in the Engadine." "White Ecstasy" was shot in St. Anton and Zürs am Arlberg; the score was composed by Paul Dessau.

The plot is simple: the movie focuses on shots of the mountains and the exhilaration of movement. The best skiers compete against each other in a ski-jumping contest and organize a fox hunt after the award ceremony. Hannes Schneider, the winner, is chosen to be the fox. Pursued by twenty-five skiers, he has to be trapped by midnight. Leni Riefenstahl co-stars in the third part: she spends a ski vacation on Arlberg Mountain, gets instruction from Hannes Schneider, and ultimately wins the beginners' race against two clumsy Hamburg carpenters. The following year she is already one of the advanced skiers: she and Hannes Schneider are selected to be the pair of foxes. Hunted by the pack, the two schuss down the white slopes at a wild pace and step sideways back up the mountain almost as fast. Slow-motion and time-lapse shots intensify the speed effects, allowing every move of the skiers to be followed in exhilarating slowness as they then jump over the roof tops of huts in a furious rush and dash across the pristine snow after landing unharmed.

Film critics generally reacted enthusiastically, and even Siegfried Kracauer was impressed by the landscape shots: "As documents, these films were incomparable achievements. Whoever saw them will remember the glittering white of glaciers against a dark sky in contrast, the magnificent play of clouds forming mountains above the mountains."[32]

However, he was much more critical of the general tone of the German mountain films. He saw them as an attempt to cope with the "existing plight" in which the German soul found itself, "haunted by the alternative images of tyrannical rule and instinct-governed chaos" and "threatened by doom on either side."[33] According to Kracauer, Fanck would be interested in "combining precipices and passions, inaccessible steeps and insoluble human conflict."[34] He criticized the attitude of the young German hikers, which amounted to "a kind of heroic idealism which, through blindness to more substantial ideals, expended itself in tourist exploits. Fanck's dramas carried this attitude to such an extreme that the uninitiated could not help feeling irritated at the mixture of sparkling ice-axes and inflated sentiments."[35]



Arnold Fanck, "The Wonder of the Snowshoe" (Das Wunder des Schneeschuhs), 1920

Franz Baumann, Hafelekar mountain station, Nordkette cable car, Innsbruck, southeastern aspect (t) and entrance to the waiting room (b)

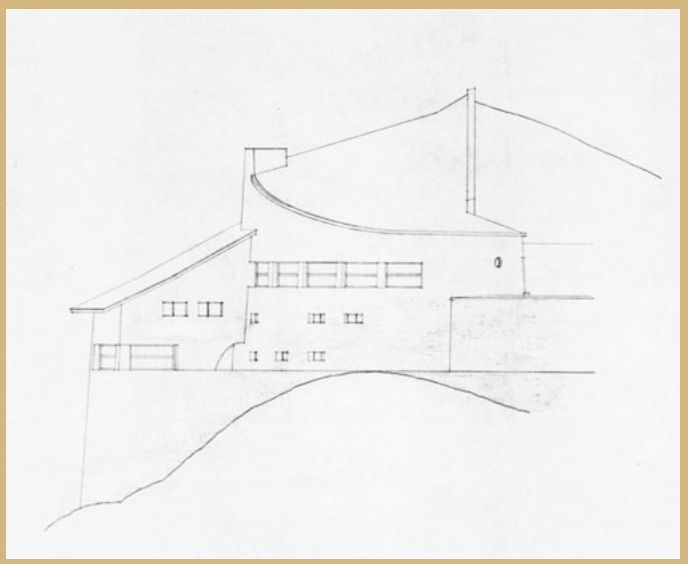
38 **Franz Baumann, Nordkette Cable Car, Tyrol, 1928**

Built in 1928 by Franz Baumann (1892–1974), the stations of the Nordkettenbahn (Nordkette Cable Car) are characterized by the diverse designs of the three structures which take up the concept of ascent in their architectural design language. Based on the type of a Tyrolean farmhouse, the Hungerburg valley station (situated at 863 m) shows a strong regional reference. The middle station Seegrube (1,905 m) consists of a more complex composition, whereby the two different functional tasks of the construction are emphasized. While the pitched roof of the mountain hotel inclines against the steep slope and accentuates the view of the mountain range across from it, a second pitched roof sloping upward in the opposite direction accompanies the movement of the ascending cable car.

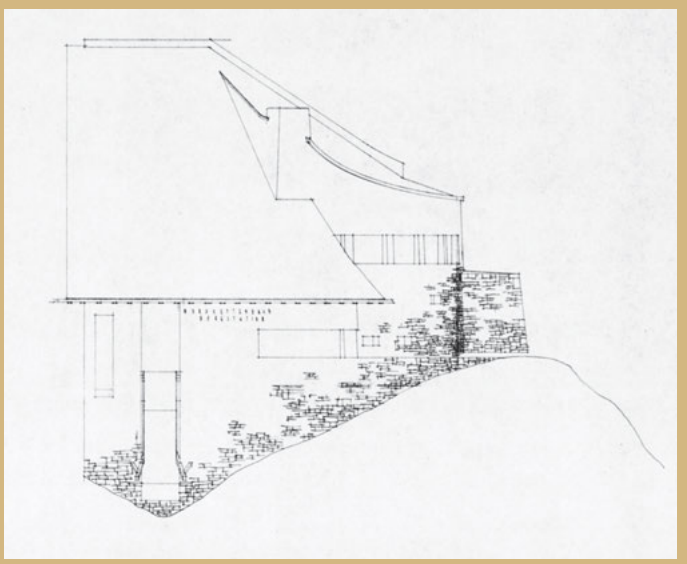
Crowning Baumann's trilogy, the Hafelekar summit station (2,256 m), which organically evolves out of the rock, is particularly unconventional because it completely disassociates from standard stylistic features. Its distinctive spatial qualities make the building an accessible sculpture that creates a fluid transition between inside and outside. With its organically curved shape, the structure receives people as they arrive and successively leads them into the high mountains by means of a circular movement, which is continued in the outdoor area by a curved, rough natural stone wall. The roof shape, which follows the rotational movement of the building, contributes to the dynamic effect. Long ribbon glazing in the dining room of the restaurant, which adjoins the cable-car hall, frames the mountain panorama.

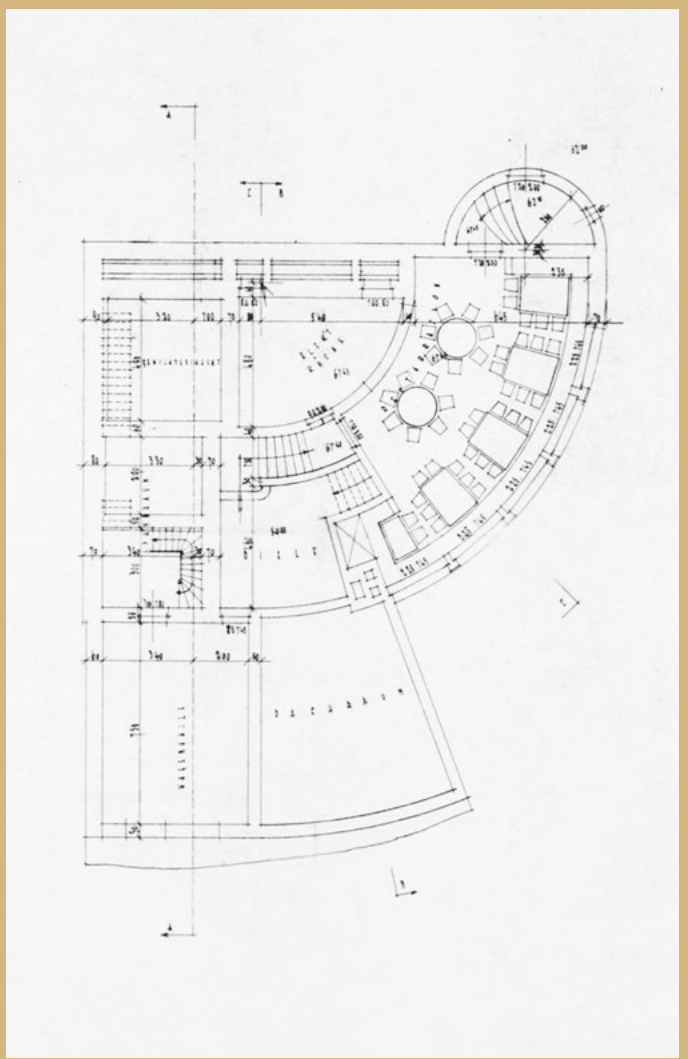
The harsh mountain atmosphere is used thematically in the design, with emphasis placed on the rudimentary and the powerful. The strikingly textured, white-washed, rough plaster, in which the spatula lines emerge, gives the façades of the three stations an optical and haptic depth effect that supports the powerful sculptural distinctness of the building. The furniture also has a deliberately rural and archaic character (termed "mountain-defiant" by Moroder). Through their un-familiar large scale, they have a destabilizing effect, because one feels infinitesimally small when sitting in the massive, oversized wooden chairs. The seating surfaces of the chairs are made of coarse wicker; the wood joints are interlocked using traditional craftsmanship techniques (rather than being cleverly hidden, as was common in urban furniture). The mixture of traditional elements and avant-garde, Art Deco–like design (which is deliberately rudimentary, and reduced to the essentials here) lend the three buildings (together with the interior) a specific expression that exemplifies the innovative "New Building" of Tyrolean Alpine architecture in the 1920s and 1930s.

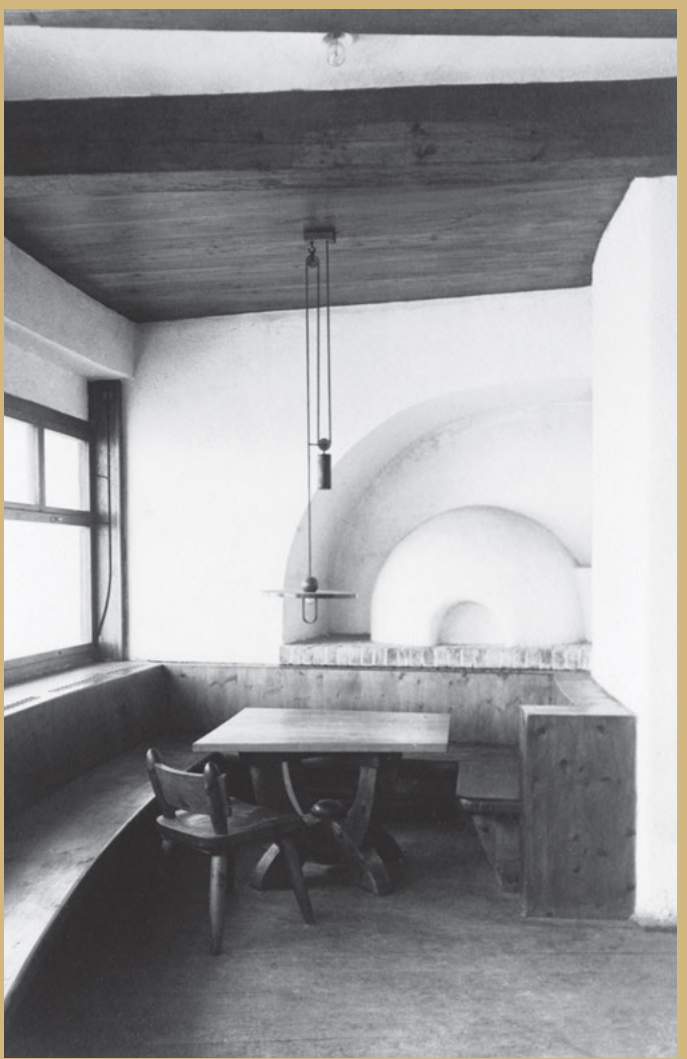
Franz Baumann, southeastern aspect of Hafelekar mountain station, Nordkette cable car, 1928



Franz Baumann, southwestern aspect of Hafelekar mountain station, Nordkette cable car, 1928









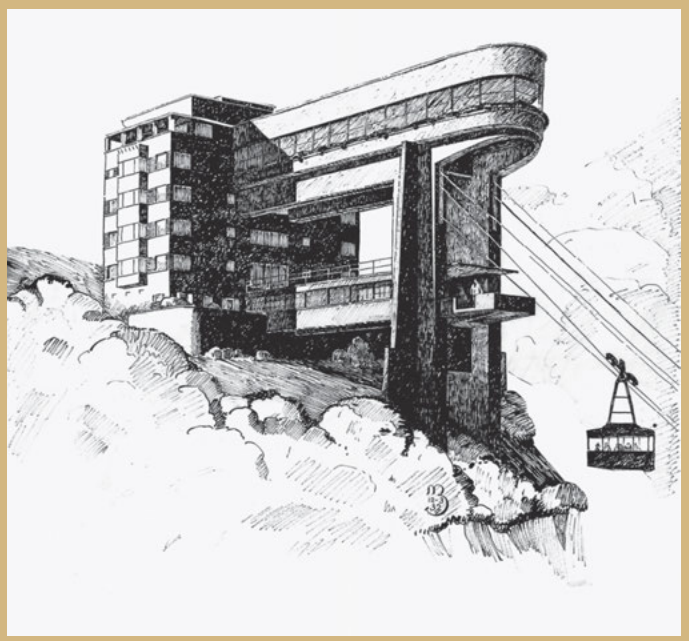
Franz Baumann, plan of 1st floor of Hafelekar mountain station, Nordkette cable car, 1928

Restaurant at the Hafelekar mountain station

Maurice Braillard, Mont Salève mountain station perspective sketch (t) and plan of the restaurant (b), 1931

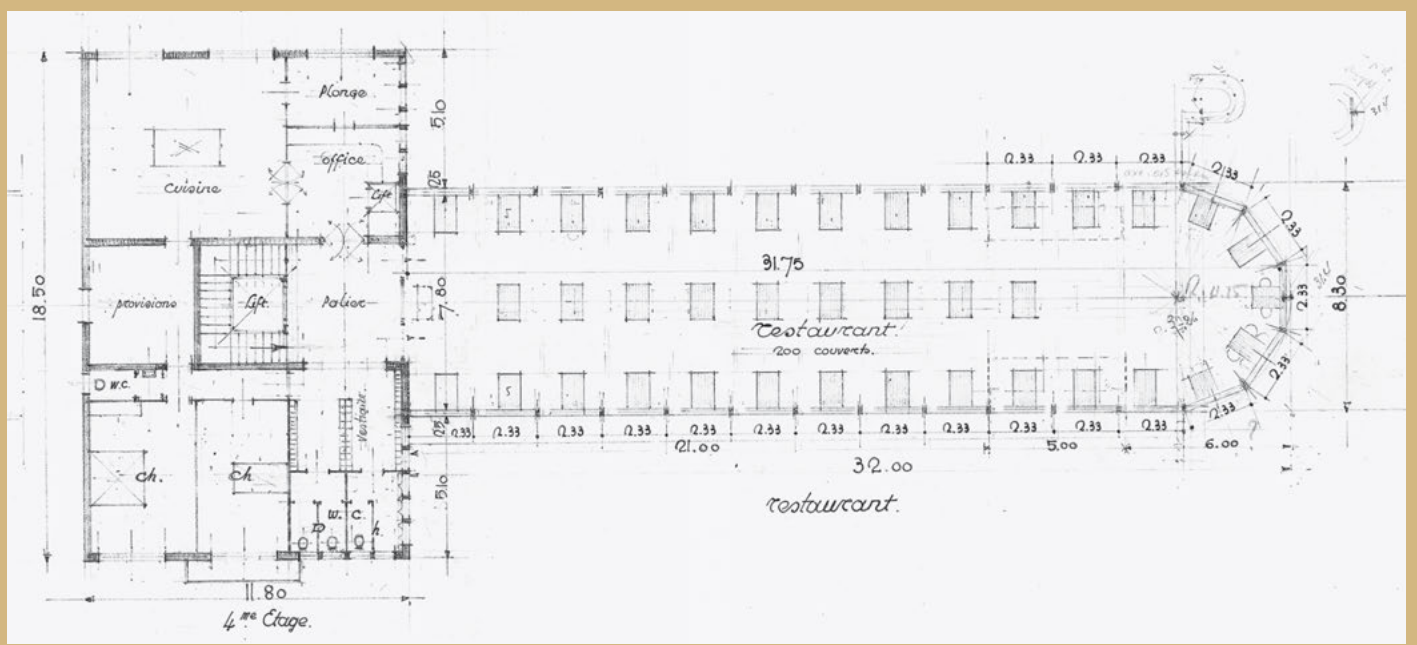
**39 Maurice Braillard, Cable Car on Mont Salève, 1931–1932**

In 1893, the first electrically operated rack railway was built on Mont Salève, located on the outskirts of Geneva in the



Haute Savoie region. In 1932, Auguste Fournier, an entrepreneur from Geneva, persuaded 300 shareholders to invest in a daring cable-car project on a steep slope in Veyrier, with a mountain station located at 1,100 meters above sea level. He commissioned the Geneva-based architect Maurice Braillard and two engineers, F. Decrock—a specialist in cableway construction—and G. Riondel, with the design of this ambitious undertaking.

The blueprint for the reinforced concrete top station consists of two superimposed horizontal components, supported on the valley side by 27-meter-high double pillars, and ending on the mountain side in a tower-like transverse structure anchored in the slope. Arriving at a steep incline, the cable car is received in the space between the pillars. The lower horizontal beam bridging the slope serves as an arrival hall, which was to originally lead to the transverse construction, whose side wings were to house the ancillary rooms and a twenty-four-room hotel, with loggias glazed on three sides at both ends. A staircase and a lift leading to the panorama restaurant, which was situated in the upper, 32-meter-long beam, were planned in the center of the transverse structure. Due to its small width of 8.3 meters and the horizontal, continuous glass ribbon window, which was only interrupted by fine steel columns, the restaurant was to offer a generous view of the mountain panorama. On Braillard's interior perspective sketch there is an elegant dining room featuring three rows of tables with white tablecloths, tuxedoed waiters, and ladies with low-cut dresses.



Mont Salève at the time of its opening, without the rear wing—the restaurant remained unfinished, 1932

The transverse structure was not carried out for cost reasons; the hotel and restaurant were abandoned. Instead, a second concrete support anchored in the slope, bearing both beams, was erected.

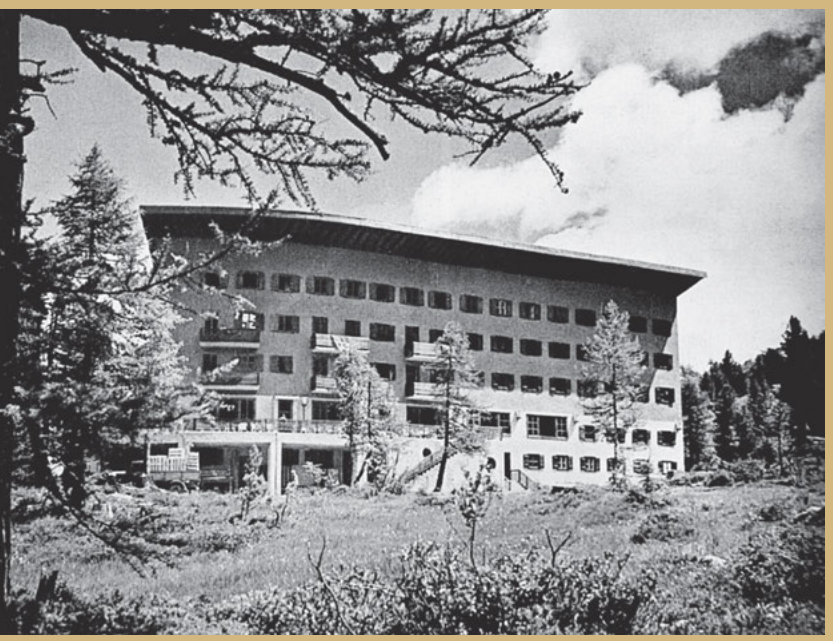
On August 27, 1932, the cable car was inaugurated. The advertising poster proclaimed: "For a few francs, in a few minutes, one of the most beautiful panoramas in the world." Mont Salève became a popular destination immediately after the cable car opened. Gilbert Taroni, a contemporary witness, wrote: "On some days, there are up to 2,500 prospective travelers waiting for the moment of silent dizziness experienced at four meters per second." The story was narrated with stunning accounts, which Joseph Kessel's article in the newspaper *Le Messager* (October 29, 1932) testifies to:
"As we got closer to the top of Mont Salève—the largest fortress overlooking the Geneva Plain, surmounted by the steep, 800-meter-high cliffs—we saw a white sculpture that stood out against the dark background and bore witness to the boldness and precision that can only be created by human hands; it was like a big, blind lighthouse. For me, the sight of this unique monument was truly the reward of this wonderful day." [36]

The experience of the gliding ascent was enhanced by the vertigo-inducing structure of the mountain station. Underlining the destabilizing sensation of the gradual loss of any support, the architecture contributed to the liberating feeling of the dissolution of limits.

Gio Ponti, southern aspect of the Albergo Sportivo Paradiso del Cevedale, Val Martello, 1935

**40 Gio Ponti, Albergo Sportivo Paradiso del Cevedale, Val Martello, 1935; Cable-Car Network in the Dolomites, 1941–1942**

In 1935, Gio Ponti, in collaboration with Antonio Fornaroli and Eugenio Soncini, built the sports hotel Albergo Sportivo



Paradiso del Cevedale, which was accessed via a newly constructed road, in Val Martello, South Tyrol. Initiated by the Italian Ministry of Tourism, the company received direct support from the fascist party.[37] The client was a wealthy businessman from Milan, who wanted to build a modern sports hotel for Alpine tourism that would serve two different groups of guests: on the one hand, low-cost dormitories and quadruple rooms were envisioned for mountaineers and hikers; on the other, there were to be spacious rooms for the wealthy elite from finance and industry, composed primarily of representatives of the Mussolini regime. Gio Ponti found a clever solution to the challenge of accommodating two different social classes in one single structure. Elegant restaurants and a bar for the upper crust, accessed from outside via a staircase, stood on the first floor of the west wing. The mountain tourists were housed in the east wing, which had a direct entrance on the ground floor. A separate dining room, with simple wooden furniture and stools, was located there.

Depending on the usage and comfort level, Ponti's furnishing concept followed a scale that ranged from simple quarters for mountain climbers to elegant rooms with their own bathrooms and balconies for wealthier guests. Despite the dichotomy, Ponti paid attention to a unified design line where the color concept played an important role, as he underlined: "The different atmospheres of the rooms are characterized by liveliness and, while preserving a unity of style, each room has a distinctive design because of the color or the particular furniture."[38] His hotel distinguished itself from the Tyrolean predecessor models by virtue of the unconventional way in which it was painted: blue, yellow, red, green, and gray stripes in various widths and directions, crossed lines, dots, or circles adorned the walls and ceilings. His color scheme also acted as a signal: slanted stripes, painted on the separating door between the west and east wing, were to visually indicate a barrier.

From a stylistic perspective, Gio Ponti, who worked in Milan and was used to urban projects, first had to search for an architectural language and drew up three preliminary designs. The first corresponded to the rationalistic style common in Italy back then. The second and third drafts resembled Baumann's designs: a rectilinear structure with a convex sweep at the end and a pent roof slanting steeply toward the slope. The base with a panoramic terrace was situated in front of the curved (chic) component, which emphasized the asymmetry in terms of design. In the executed building, the curvature was moved to the southwest, the sloping roof struts were omitted, and the windows were no longer arranged in pairs but evenly spaced. The base was covered with white roughcast, while the upper floors were smoothly plastered in a forest-green hue.

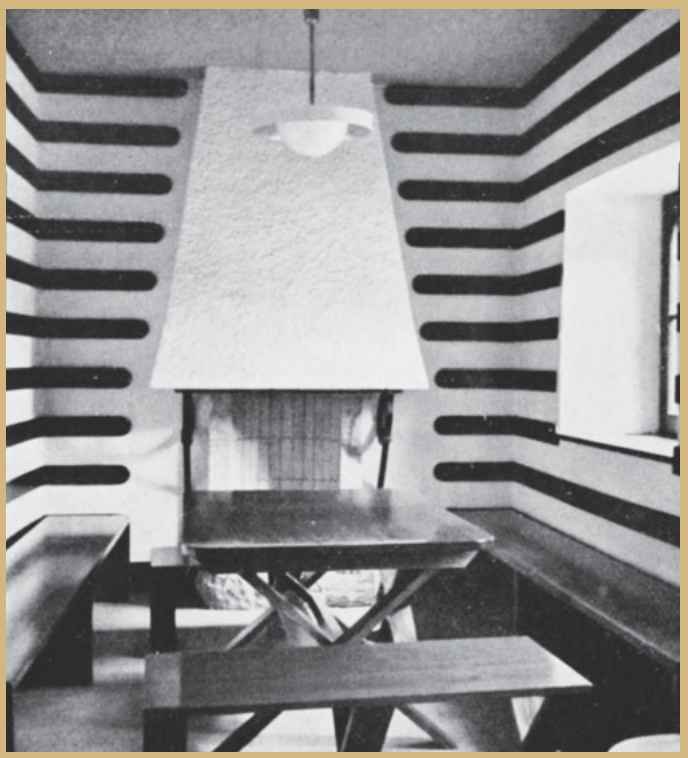
**Cable Car Network in the Dolomites, 1941–1942**

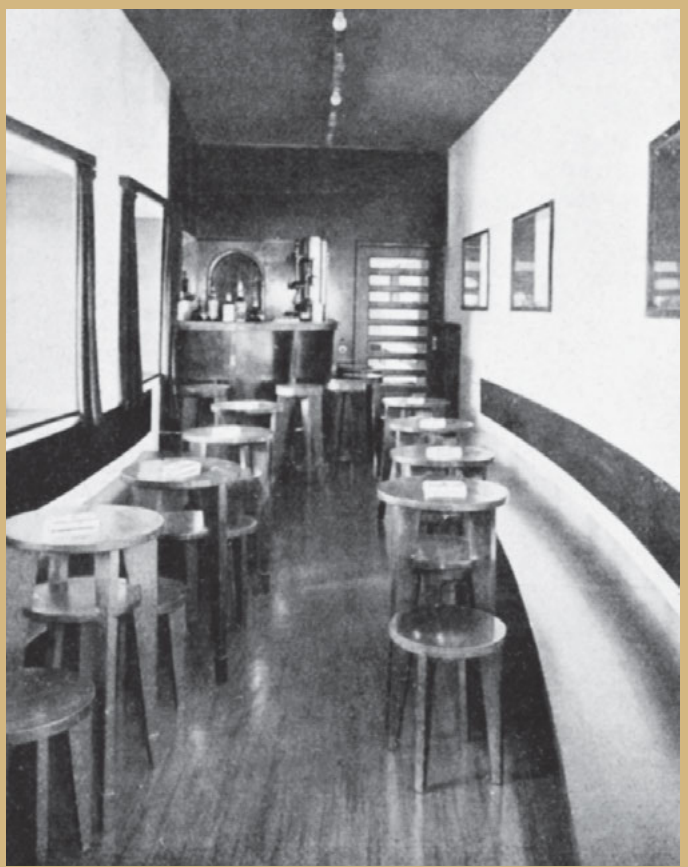
In the years 1941/1942, Gio Ponti was commissioned with planning a coherent touristic development of the Dolomites. It is not surprising that this major planning was undertaken in Mussolini's Italy, since the South Tyrolean mountains were regarded as a new territory to be explored, one that was to serve the *uomo nuovo*, who was ideally dynamic and motorized, sporty, strong, and bellicose.

In 1941, Gio Ponti met Gaetano Marzotto in Milan. Marzotto owned a large textile company in Valdagno and envisioned a

Albergo Sportivo Paradiso del Cevedale, reading room with fireplace (t) and bar in the smart wing (b), Val Martello

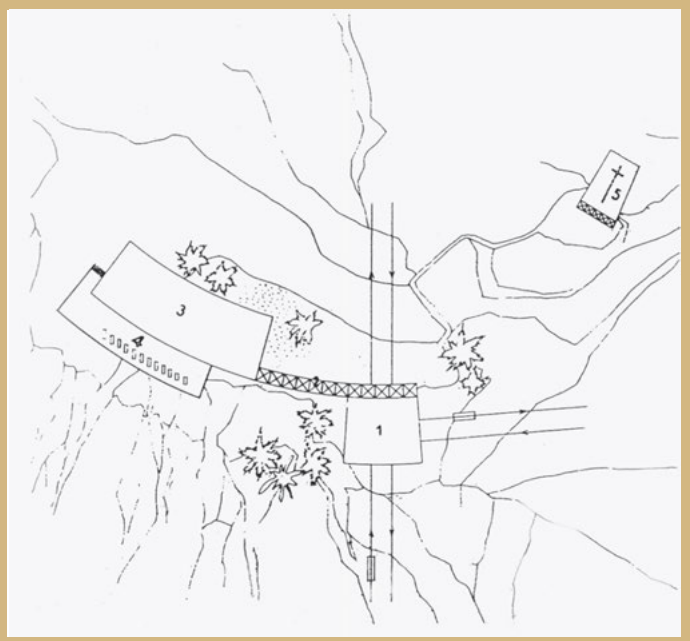
major tourist project that would connect the Dolomites from Ortisei to Cortina with an extensive cable-car network. He commissioned Ponti, whose name was known to him through the Hotel Valmartello, with the study. Ponti designed a 160 kilometer cable-car network and proposed a prototype system for the entire area, consisting of hotels of different sizes and a cable-car station type which could accordingly be a valley station, middle station (to pass through), crossing point (for two cable cars coming from different directions) or mountain station. Maurice Braillard's mountain station Salève apparently served as a model for this type, which he modified to produce a multifunctional prototype. The vertical pylon integrated various functions and, as in Salève, a panorama restaurant was planned in the upper horizontal section. Ponti's sketches show that besides the cable-car stations, which were to offer lookout points to the "new Italian mountain world" in the most attractive locations,[39] hotels, mountain shelters, restaurants, service facilities, and skiing and climbing schools were also to be included. Besides catering to the demands of tourism, it also offered plenty of scope for architects.





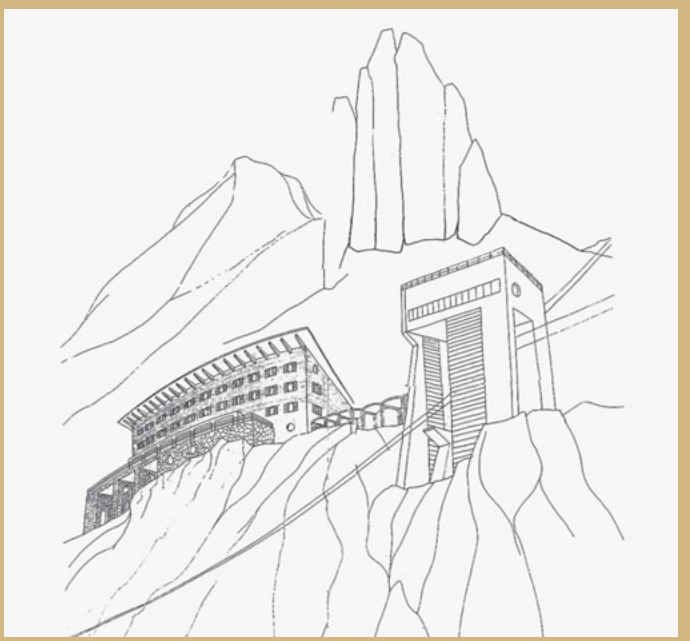
Ponti deliberately emphasized the "Italian" identity of his design. After all, he had an interest in making himself popular with the regime, because he took part in public competitions and sought commissions. To highlight the "Italian" identity, he produced a sketch featuring traditional South Tyrolean pitched-roof hotel types, which he crossed out, calling them *schema non italiano*, while he labeled his Hotel Valmartello *schema italiano*. The argumentation was based on practical facts, such as the maintenance of the roofs and the removal of snow loads, which are problematic for pitched roofs. He did not mention the fact that he stylistically drew upon the "New Alpine Building" practiced by Tyrolean architects since the 1920s, nor that the type of cable car copied the one in Salève, which the Swiss architect Braillard had built ten years earlier. It was, as Bocchio suspects, evidently a matter of retroactively putting his hotel building in the right light and declaring it, in conjunction with the avant-garde cable-car architecture, a project of Italian "rationalism"—in keeping with the stylistic requirements of the fascist government. However, this major project never came to fruition.

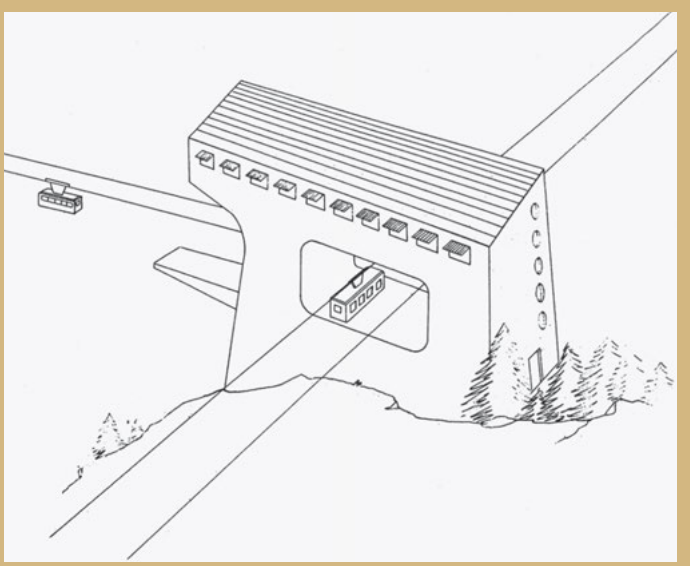
Gio Ponti, plan drawing of a prototypical cable-car station with hotel, 1941–1942

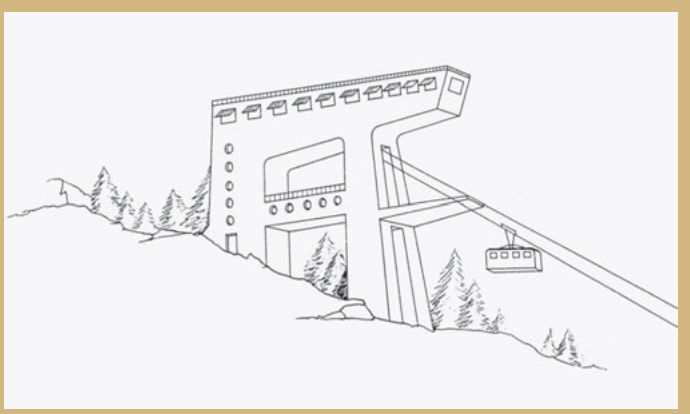



Hotel Valmartello ceased operation when World War II began; in 1943 it was occupied by the Wehrmacht and the SS. After the war it briefly reopened but went bankrupt in 1946. Bought in 1951 by Benati, a Venetian ship owner, it was extended upward and had a new wing added; it was also plastered red and had its terrace lengthened. In 1955 it stood idle again. Another change of ownership took place in the 1960s, but no renovation. Since then it has been empty and decaying.

Gio Ponti, prototypical cable-car station with hotel: middle way station with intersection, 1941–1942







Gio Ponti, cable-car terminus and station and transfer point sketch, 1941–1942

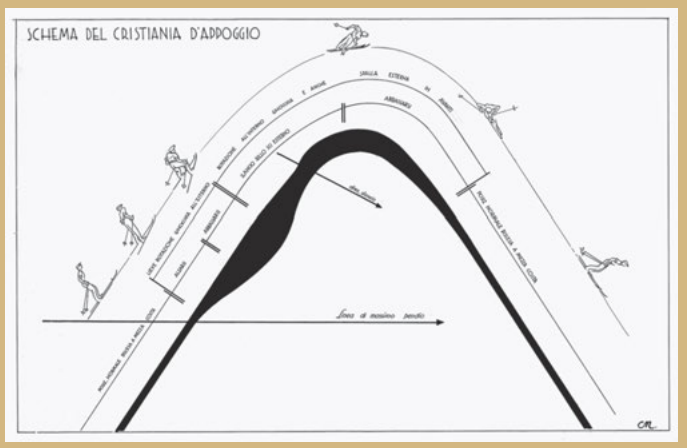
Carlo Mollino, sketch of the cable-car station design for Maison-Furggen, Val d'Aosta, 1950

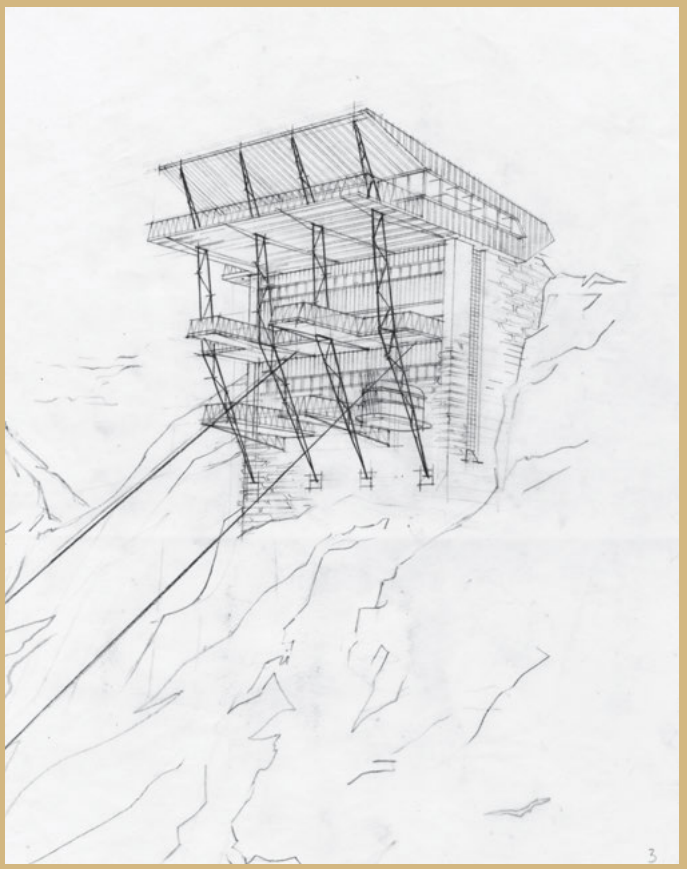
Carlo Mollino, "Diagram of the human support," sketch of the downhill skiing technique he developed himself, (before 1950)

**41 Carlo Mollino, Maison-Furggen Cable-Car Plan, Val d'Aosta, 1950**

In 1950, the Cervino company commissioned the engineer Dino Lora Totino to build a cable car to connect the Alpe Plan Maison at 2,500 meters above sea level with Mount Furggen. The 2,900-meter-long stretch had to overcome a height difference of 1,000 meters. When it opened it was the longest cable car in the world.

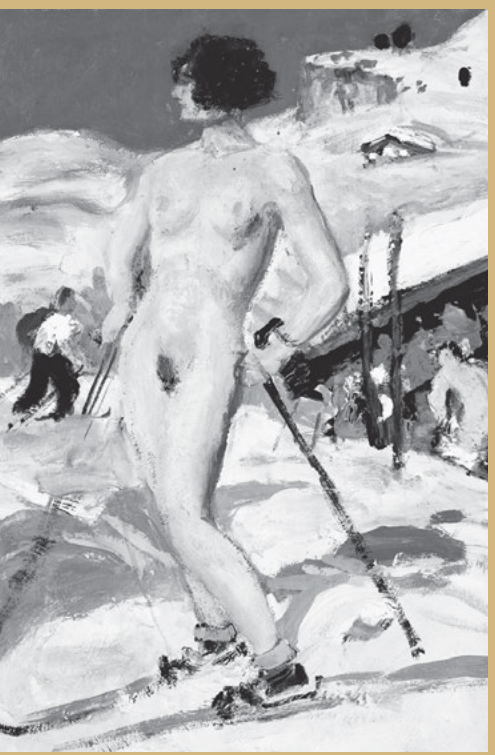
Carlo Mollino, a Turinese architect who had also acquired renown as a photographer and sport aviator, was chosen to design the mountain station. He had a passion for skiing and had developed his own skiing technique in the 1930s, called *discesismo*, whereby a high speed could be achieved by leaning the body forward at an extreme angle. He was obsessed with the exhilarating sensation that he could create through frantic movement and the confrontation with dizzying heights.



This is reflected in the architectural concept of the mountain station, where he staged the exposed altitude by projecting architectural elements: a steel structure anchored in a concrete base and consisting of four truss girders, each with two bends, towering over an almost vertical rock face. The feeling of vertigo caused by the cable-car ride was to be increased upon arrival through the architecture, by three superimposed terraces projecting over the precipice. Access was provided from the arrival level of the gondolas, the lowest of the three platforms. A waiting room was to receive the skiers who had to cross a rock path to reach the glacier. Coming from the slope, there was to be direct access to the restaurant, which opens to the top terrace, offering a brilliant view of the mountains. Construction began in 1952, but from the outset there were major technical problems, in particular, because of the exposed position of the steep slope and the difficulty of delivering the building materials. For this reason, the ambitious project was reduced to a strict minimum: only the concrete basement floor was constructed to ensure the operation of the cable car. Today, this fragmented structure has been abandoned and left to erode.

Alfons Walde, "A Nude in the Alps" (Nackte vor der Almhütte I), oil painting, ca. 1925



## 42 Alfons Walde, Nudity and Eroticism in the Snow

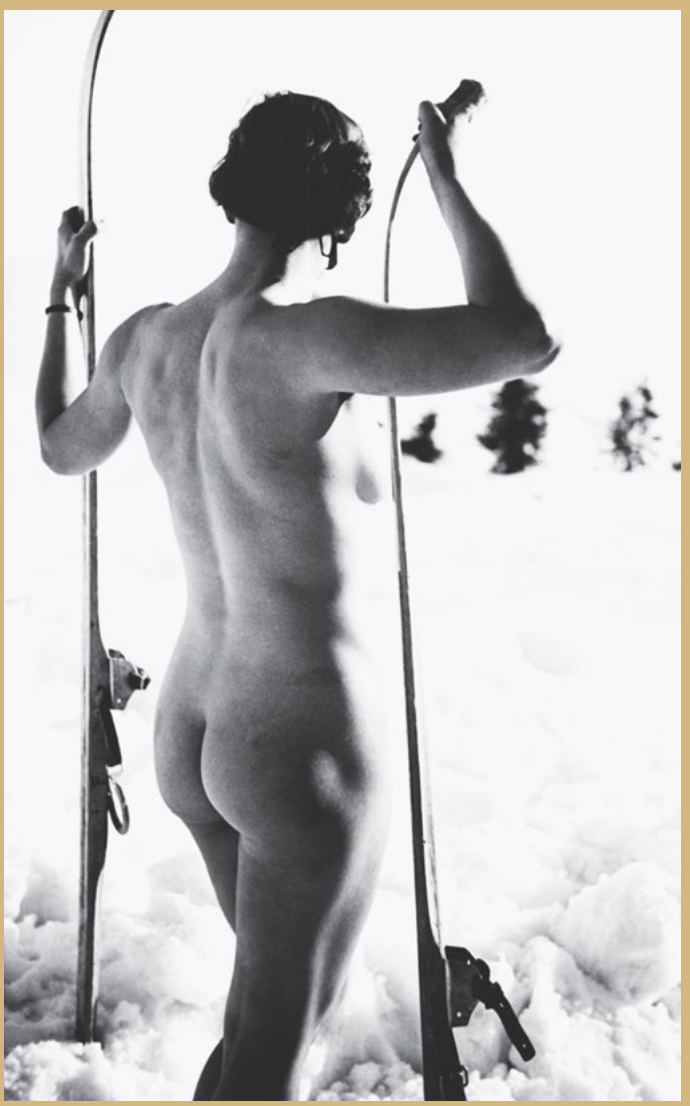
Born in St. Johann in Tyrol, Alfons Walde (1891–1958) was a painter and an architect. He became well-known for his moving winter sports scenes and village and Alpine hut motifs in snowy landscapes. His photographic work, which oscillates between eroticism and pornography, was discovered late and presented in 2015 at the "SchauLust" exhibition in Vienna's Galerie Westlicht. Relationships could now be established between his oil paintings and photographs, which often served him as models.

Many of his nude scenes are located in the high mountains, mostly in the snow, in front of a mountain hut. Alfons Walde's oil painting "Nackte vor der Almhütte I" (A Nude in the Alps) suggests a desire for an elemental experience in the snow. Standing relaxed on her skis, the stark naked woman pictured here looks into the distance. Behind her is the Alpine hut, where a second woman who is just undressing can be seen from behind. The landscape is not in the foreground here, nor even the view of it (as with Caspar David Friedrich's "Wanderer"), but rather the nude body as the new epitome of "Alpine borderline experience."

A naked female skier is seen from behind in a black-and-white photograph, the curves of her body merging in the white light of the snow, partially dissolving into it. The body and the snowy landscape meld into an inseparable unity, in keeping with a new, erotic feeling for life in the great outdoors.

A color photograph shows a naked woman lying on the bench in front of an Alpine hut. Dressed only in saucy urban shoes, she rests her legs elegantly on the bench. Her body also becomes part of the landscape: the soft, round shadow that her navel casts on her smooth skin is similar to that of a snow hole, digging a crater-shaped relief into the snow cover under her legs. The rosy-warm skin and the cold snow blend visually into a whole, whose demonstrative "virginity" has an erotic aura that awakens desires to conquer. These relate to both the snowscape and the female body.

Alfons Walde, "Lacerta," nude photo of a female skier, 1935



Pierre Jeanneret (attributed), photo of Charlotte Perriand on a ski tour, looking at the mountain panorama, 1930s

Photo of Charlotte Perriand with friends on a ski tour, studying the map and the mountains, 1930s

43

### Charlotte Perriand's Bared Body in the Mountain Landscape

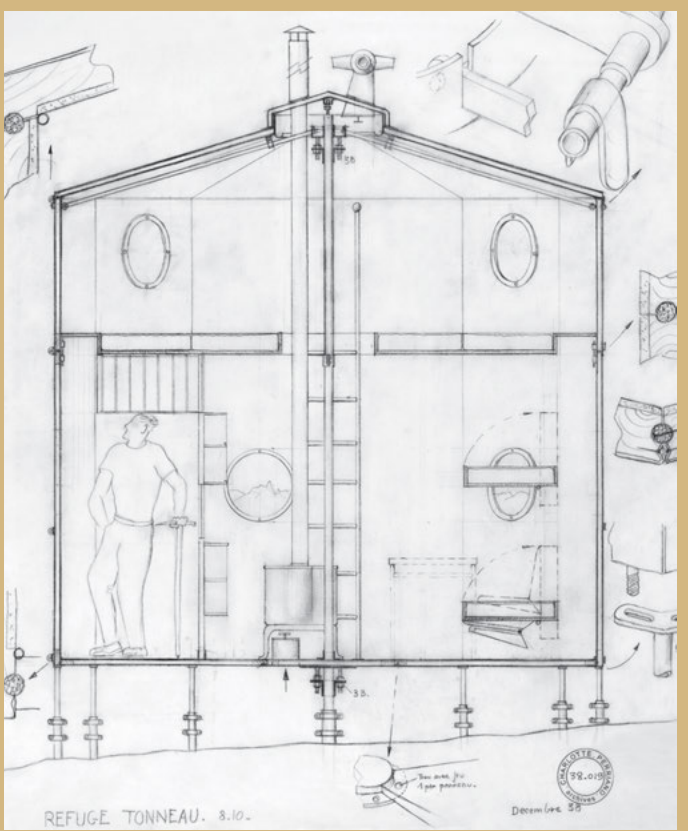
The well-known photo of Charlotte Perriand's exposed upper body in the mountains (for which, unfortunately, permission for reprint in this book was not granted) is not based on voyeuristic eroticism but expresses her elemental intimacy with the mountains. She always felt drawn to the mountains, which confront us with our limits and challenge us to cross them: "I profoundly love the mountains. I love them because I need them. They always were the barometer of my physical and moral balance. Why? Because the mountains offer the possibility of self-transcendence,[40] which is so thoroughly needed. […] One does not cheat them. They are overcome by endurance; they allow us to confront calculated risks. Through the exertion, the city's toxins, including those of the mind, are eliminated."[41]

She was an enthusiastic backcountry skier and saw the isolated solitude as a way to regenerate. Equipped with skis and sealskins, she set off to climb the untouched glacier landscape, *objet de mes rêves*—an exhilarating experience that she vividly described: "With the *Guide Bleu*, called 'the Pope,' I initiated myself in the high mountains; above Bonneval-sur-Arc, near the Les Evettes hut, at the foot of the glacier—the object of my dreams. I had just experienced the infinite vastness of solitude and whiteness, the overcoming of my limits to reach the summit—facing heaven and infinity; a rapture that I could never forget—a true regeneration."[42]

Most of the time she undertook her ski tours with her friend Pierre Jeanneret, Le Corbusier's cousin. It was he who took the picture of her, bare-chested, arms outstretched, contemplating the mountains, with the leather mittens and black woolen ski trousers being the only attributes clothing her body. Half-naked, she stood confidently in the snow, enjoying the view, rather than being staged as a model by an artist (as was the case with Walde, with his nude models in the snow). Her nakedness did not reflect the voluptuousness of others but rather her uninhibited way of experiencing *her* mountains.

Photo of Charlotte Perriand, Pierre Jeanneret, and André Tournon in their homemade "Refuge Bivouac," ca. 1937

Charlotte Perriand, section drawing of the barrel-shaped bivouac, "Refuge Tonneau," 1938




**44 Charlotte Perriand and Pierre Jeanneret, Bivouac, 1938**

In 1936, Charlotte Perriand (1903–1999) and Pierre Jeanneret (1896–1967) built a bivouac ("Refuge Bivouac") in collaboration with the engineer André Tournon to go on longer mountain tours. They carried the single components on their backs up to the ridge of Mont Joly (near Saint-Gervais in Haute-Savoie), where they assembled the bivouac and anchored it in the rock with tensioning cables. The two-by-four-meter aluminum box of isothermal panels was erected on four tubes, to stick out of the snowpack in winter. It was designed for six people, equipped with fold-down beds, six stools that offered storage space at the same time, a folding sink that also doubled as a table, and a ski locker with drainage. It served as a temporary prototype for a barrel-shaped bivouac ("Refuge Tonneau"), whose design was completed in 1938, but could not be constructed because of the outbreak of World War II.

This was the more complex evolution of the first prototype. According to Charlotte Perriand, the inspiration came from a merry-go-round: prefabricated wall elements, which were held together with three clamping rings, were arranged around a central, tubular umbrella support structure. During the planning stage, low production costs and a low weight had to be taken into account. In order to be able to transport them on one's back, the individual components could not weigh more than 40 kilos. Due to the exposed height, the assembly could not take more than three days. In order to withstand the climatic conditions, the outer shell was designed as lightweight sandwich panels consisting of aluminum, duralumin, glass fiber fabric, hardboard, and a bitumen sheet. The bivouac had a polygonal shape to provide the least possible contact surface for the wind. It was lifted off the ground to avoid snow accumulation during storms. The aluminum surface was to reflect the sun's rays to keep the area around the bivouac free of snow.

A small stove was provided for in the center; a sink with a snow pail above it was planned at one of the windows. Charlotte Perriand designed the amenities as compact, multifunctional furniture: the wooden beds could be folded up like in a couchette wagon and used as benches during the day, while the cube-shaped stools also served as storage space. The polygonal shape with reflective surface lent the bivouac a timeless, crystalline character.

Charlotte Perriand, photos of a model showing the assembly sequence for the barrel-shaped bivouac, 1938

Werner Tscholl, "Fernrohr," Timmelsjoch Experience, 2009

**45 Werner Tscholl, Timmelsjoch Experience, 2009**

The High Alpine Road over the Timmelsjoch Pass, which connects North Tyrol with South Tyrol today, was built for a variety of reasons. While it was of military importance to Mussolini, it was constructed on the Austrian side in the

1950s for touristic purposes. At the end of the 1960s, the two roads were finally connected. Since repairs on the mostly snow-covered pass road are costly, the province of South Tyrol decided to create an overall concept to promote tourism, which also attracted interest on the part of Austria. In 2008, a tendered architecture competition for the Timmelsjoch Experience was launched with the aim of enhancing the 2,509-meter-high pass so that crossing it might become a conscious experience. The South Tyrolean architect Werner Tscholl won with a radical project that refrains from architectural and cultural references and enters into dialog with nature alone: "I wanted to make the landscape tangible through sculptural architecture. One can only react to this landscape with sculptures, not with buildings. The toll station and border posts that stood there pointed up this problem: What is a wooden hut supposed to do there? One is powerless against this grandiose landscape; it is not so easy to survive there without being ashamed."[43]

He was free to develop the concept of the objects in terms of architecture and content, and he was also able to choose the locations. The decisive criterion was the experiencing of the landscape through specific views. Five sculptural architectural objects that convey both subjective experience and knowledge (road construction in the high mountains, smugglers, telescopes and views, flora, minerals) characterize the pass road at various points. The topic of borders is addressed in different ways, with regard not only to the institutional country border but also to the topographical and psychological boundaries that are deliberately challenged by the radical confrontation with the landscape.

Two structures were built in South Tyrol, two in North Tyrol; the fifth is at the top of the pass and is part of both countries. The first station, called Granat (garnet), is a marker point consisting of two garnet-shaped structures that symbolize and stage the surrounding rock formations. One is made of rough concrete, the other of glass surfaces. At the edge of the steep cliff it offers a dizzying observation deck. It shines red at night, signaling the beginning of the "experience," which is psychic, physical, and spiritual.

The next stop on the South Tyrolean side is the Fernrohr (telescope), which, according to Werner Tscholl, is intended to cause a destabilizing experience: "The funnels, which are closed at the sides, suck visitors in. One of them orientates the view upward so that the visitor walks up the stairs facing the glacier; the other funnel leads down, offering a view into the valley." On a gently rising, staircase-like floor, the visitor is led up to the middle of the funnel, where the floor abruptly ends with a glass railing—leaving him or her to linger in limbo. In order to look at the valley, the visitor first has to descend two steep steps, approaching a glazed parapet, behind which the landscape reveals itself.

Situated at the highest point is the Pass Museum, which focuses on the national border. Anchored on the Austrian side, it juts out 13 meters across the frontier. The bent building absorbs the sweep of the road and, with its spectacular shape, invites passersby to take a break, which turns into an experience. The "erratic boulder" (Tscholl) is lined with white, fragmented glass, awakening the impression of an ice cave. On the backlit glass one can read about how and under what circumstances the pass road was built. The specific borderline experience of this sculptural building is encapsulated in the uneasy question: "Is it tipping over or not."
According to Tscholl, a major issue here is "the mythical

Werner Tscholl, Timmelsjoch Experience Pass Museum, 2009

figure of the smuggler, as the pass is a point of intersection for various trafficking routes." The figure of the smuggler is cut into the meter-thick walls of the entrance portal to a skewed monolith. As visitors pass through, they seem to force their way into the stone, the idea being that "they should have the feeling of being smugglers themselves." The interior of the monolith is clad with black glass—as it is a long way from any source of electricity, the space is illuminated by natural overhead light. Inside the building, visitors are provided with information about smuggling.

A short distance before the Austrian toll booth is the last station, a walkway protruding eleven meters, offering stunning panorama views of the far end of the Ötztal Valley. Tscholl emphasizes that "going out into the landscape" is important here.

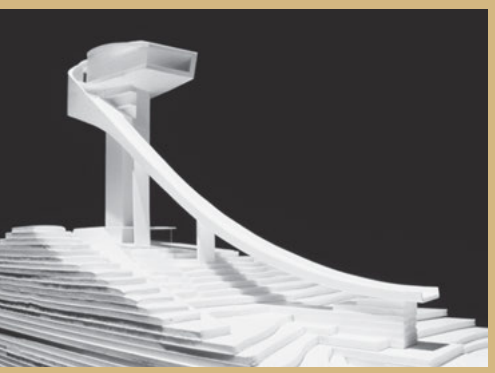
The sense of the sublime is stimulated by borderline experiences, in which sensory perception looms large: vertigo, for example, the fear of falling, of emptiness, or of the infinite are just as important as the overwhelming impression of nature. Werner Tscholl's architectural sculptures play with these extreme experiences (through large protrusions over nothingness) and provoke an emotional state that is often mistakenly associated with the past.

Zaha Hadid, photo of a model of the Bergisel ski jump, 2000

Night photo of the Bergisel ski jump, 2002

**46 Zaha Hadid, Ski Jump on Bergisel Hill, 1999–2000**

As early as 1926, a ski jump was built on Bergisel Hill above the city of Innsbruck. To replace the old facility, which no



longer complied with international standards, a new complex had to be built within a year. The Austrian Ski Federation wanted a café directly above the ski jump, since this is the best place to watch the descent and subsequent flight of the ski jumpers. Zaha Hadid placed the two program points of the ski jump and the café in a single, dynamically curved structure which uses the functional necessities to create a sculptural landmark. A 48-meter-high exposed concrete shaft housing the elevators and the staircase is anchored in a plinth, whose roof functions as the lower observation deck and sundeck. In the upper area, the sloping ski jump snuggles up to the shaft and makes an elegant countermovement near the athletes' starting platform, in order to transition to the horizontal. The jump is accompanied by a flight of stairs that ends abruptly—above the "nothingness." A second, narrower platform is located directly above the take-off area, enabling reporters to film. The shape of the jump becomes an essential design element: The organically curved, steel-clad volume swings around the shaft in a 180-degree rotational movement and juts ten meters higher above it. The overhanging shaft houses a café glazed on three sides that offers 150 guests a view of the ski jump below.

Zaha Hadid conceived an "organic hybrid between a tower and a bridge."[44] While the tower with its protruding café emphasizes the vertical, the curved 90-meter-long jump supported by a bell-shaped, bent truss construction enhances the dynamics of movement. However, the sloping "bridge" does not provide a connection between two points, but rather contributes to the acceleration of the ski jumpers who, through this mechanism, can jump to heigths of up to 134.5 meters, as Sven Hannawald brilliantly demonstrated at the inauguration of the structure in 2002 (Michael Hayböck set the record in 2015 with a jump of 138 meters.) The ski jump "abstracts the speed of downhill and ski flying, which is one of the most spectacular winter sports events."[45] In its streamlined elegance, it becomes a symbolic monument of speed.

**1** Roland Barthes, "The Jet-Man," in *Mythologies*, trans. Annette Lavers (New York: The Noonday Press, 1972), 71–74.
**2** Price (1796) 1810, 86.
**3** Friedrich Nietzsche, *Twilight of the Idols, or, How to Philosophize with a Hammer* (1889), trans. Richard Polt (Indianapolis, London: Hackett Publishing Company, 1997), "Raids of an Untimely Man," 56.
**4** Jeannot Simmen, *Vertigo: Schwindel der modernen Kunst* (Habil. diss., Universität Wuppertal; Munich: Klinkhardt & Biermann, 1990) [=Simmen 1990].
**5** Simmen 1990, 23.
**6** Nietzsche (1885) 2010, no. 125, "The Madman," 98.
**7** Ibid.; see also Simmen 1990, 23.
**8** Marinetti (1909) 1960, 181.
**9** Ibid., 181f.
**10** Simmen 1990, 160.
**11** Ibid., 23.
**12** Ibid.
**13** Kracauer (1925) 1995, 65–73.
**14** Ibid., 72.
**15** Ibid., 65.
**16** Ibid., 68.
**17** Ibid., 71.
**18** Ibid., 73.
**19** Ibid., 66.
**20** Ibid., 70.
**21** Franz Werfel, "Die Hoteltreppe" (The Staircase, 1927), in *Gesammelte Werke: Erzählungen aus zwei Welten,* vol. 2, ed. Adolf D. Klarmann (Frankfurt am Main: S. Fischer, 1963), 169–180.
**22** Just et al. 2007, 24ff.
**23** Susanne Stacher and Christoph Hölz, eds., *Dreamland Alps,* exh. cat. (Paris, Innsbruck: ENSA-V, Archiv für Baukunst, 2014) [=Stacher, Hölz 2014], 77.
**24** Joachim Moroder and Peter Benno, *Hotelarchitektur, Bauten und Projekte für den alpinen Tourismus, 1920–1940* (Innsbruck: Haymon, 1996) [=Moroder 1996], 40.
**25** "There were no models for this type of construction, which meant that a synthesis had to be found from the function, the location, and the approach. Strangely enough, it was much easier to do in this early phase of Alpine construction than under the later constraints of the so-called 'Alpine styles,' which became a trivial symbol of certain aspects of ski tourism." Friedrich Achleitner, *Österreichische Architektur im 20. Jahrhundert*, vol.1, ed. Museum moderner Kunst Wien (Salzburg, Vienna: Residenz Verlag, 1980); see also Moroder 1996 and 1998.
**26** Joseph Kessel, *Le Messager,* October 29, 1932, 9.
**27** Kant (1790) 1911, "The Dynamically Sublime in Nature, § 28, Nature As Might," 110f.
**28** Bruno Reichlin takes issue with the devastating consequences of the renovation work which completely spoiled the nature of the building. See Bruno Reichlin, "Sauve qui peut," in Ursula Paravicini and Pascal Amphoux, eds., *Maurice Braillard: Ein Schweizer Pionier der modernen Architektur* (Geneva: Fondation Braillard Architectes, 1993), 21.
**29** El Lissitzky planned a series of eight emblematic "Cloud Hooks" along the Moscow Ring. A column serving as a roofed tram stop provided vertical access which both connected the subway with the street level and gave a direct way in to the horizontal, branching office hook. The "Cloud Hook" was a three-story, L-shaped platform fifty meters above the street, supported by three pylons.
**30** Even before the "Cloud Hook" was featured in the 1926 ASNOVA report, it was presented in the architecture exhibition of the November Group in Berlin and shortly thereafter in Mannheim. It was also depicted on the cover of Behne's *Der modere Zweckbau*, and in Erich Mendelssohn's 1929 *Russland, Europa, Amerika*. See J. Christoph Bürkle and Werner Oechslin, eds., *El Lissitzky: Der Traum vom Wolkenbügel; El Lissitzky – Emil Roth – Mart Stam,* exh. cat. (Zurich: GTA Zurich, 1991), 55.
**31** El Lissitzky, *Der Suprematismus des Weltaufbaus* (1920). Cited in Simmen 1990, 27.
**32** Kracauer 1947, 111.
**33** Ibid., 107.
**34** Ibid., 110.
**35** Ibid., 111.
**36** *Le Messager,* October 29, 1932.
**37** Gabriele Reiterer, "Gio Ponti, Val Martello," *Die NZZ*, December 7, 1998, www.nextroom.at.
**38** Gio Ponti: "Un nouvo albergo: Un nouvo stupendo centro turistico italiano," *Domus,* no. 121 (January 1938), 10f. "E'dotato di impianti perfetti e realizza anche novità nel campo alberghiero d'alta montagna, come la 'guardaroba calda' per gli skiatori. Gli ambienti sono arredati con vivacità e carattere e, per conservare una unità di stile, ogni camera è diversa per il colore o per la particolarità d'arredamento."
**39** Ivan Bocchio, "Gio Pontis Vision: Die Rationalisierung und 'Italianisierung' Südtirols," in Stacher, Hölz 2014, 73f.
**40** In the original, *dépassement*, or selfconquest.
**41** Charlotte Perriand, "Construire en montagne: Pour une prise de conscience de nos responsabilités," *L'Architecture d'aujourd'hui,* no. 126 (June/July 1966).
**42** Charlotte Perriand, *Une vie de création* (Paris: Editions Odile Jacob, 1998) [=Perriand 1998], 21.
**43** Werner Tscholl, interview with Susanne Stacher on March 11, 2013, published under the title "Timmelsjoch Experience, Tirol – Das Sublime, reloaded," *architektur.aktuell* (May 2013).
**44** See Philip Jodidio, *Zaha Hadid Complete Works, 1979–2013* (Cologne: Taschen Verlag, 2013), 122.
**45** Ibid.

Marcel Breuer, Hotel Le Flaine, projecting out above the edge of the cliff, Arâches-la-Frasse, Haute-Savoie, 1969

# 6 "Sublimation" of 30,000 Beds

*One had to condense and find the smallest possible grid compatible with as much depth as possible. […] It was about 'sublimating' the organization of the living space and the visual space of a cell with four beds and less than 30 m². One had to foresee everything—down to the choice of teaspoon—and build 500 habitable studios between May 1st and November 30th: a modern program and a true challenge.*

*Il fallait densifier, définir la plus petite trame compatible avec la plus grande profondeur. […] Sublimer l'organisation de l'espace de vie et l'espace visuel dans une cellule de quatre lits de moins de 30 mètres carrés… Il fallait tout prévoir jusqu'au choix de la petite cuillère, et construire 500 studios habitables entre le 1er mai et le 30 novembre : programme moderne et véritable défi .*[1]

**Charlotte Perriand, *Un art de vivre*, 1985**

Mass tourism has conquered the mountains since the 1960s, endangering what is left of "wild nature." The problem it brings with it is densification in the mountains and the associated effects on the landscape, as well as architectural questions; in a sense, they go hand in hand: How can one build for the masses? How should the "terrain" of nature be dealt with? By building compact or scattered settlements—and to what degree? The strategies that are chosen reflect the relationship between man and nature which has changed rapidly in the course of the 20th century.

This issue could also be traced back to the question of "who dominates whom," or, to continue the theme of the sublime, to the question of how and in what way man feels superior to nature. "Sublimity" no longer lies in the intellectual and philosophical placing of oneself above the forces of nature (as in Kant), but in its physical conquest—which went from strength to strength in the 20th century through the advance of technology. Now man was really able to rise above nature and thus feel superior to it. Strangely enough, a new facet of the "sublime" also appears here, whereby the mass effect, combined with continuous comfort, plays the decisive role. It triggers an "eerily exciting" rush of collective power over the perfectly domesticated mountains.

In Bruno Taut's book *Alpine Architecture* (1919), the architect already appears as a demiurge who strives to beautify nature by perfecting it. Taut's utopia was contingent upon human intervention in the Alps, whereas aesthetics and crystalline perfection were linked to a particular conception of nature, which man designed in order to make the divine more perfect. This demiurgical creative drive intensified in the age of functionalism; the mystical, transcendental side of Expressionism gave way to a certain pragmatism focusing on the physical well-being of the "new man." "Wild nature" was now simply considered to be an ideal "terrain of recreation," which had to be "ordered" by the architect to make it subservient to man. This chapter discusses the "domestication" of "wild nature," illustrated by architectural developments in the 20th and 21st centuries.

### The Advent of Mass Tourism: From the Alpine Hotel to the Superblock

As already mentioned, this change began at the end of the 19th century with the infrastructural development of the

mountains and the related architectures (mountain roads, railways, rack railways,and grand hotels, followed somewhat later by cable cars and their station buildings, sports hotels, and mountain huts). In the late 1920s, when the Alps first became accessible for a wider public (whereupon they no longer exclusively served a moneyed elite as a recreation area), the problem of touristic densification came up. This also raised the question of type and style (see chapter 5).
In the 1920s and 1930s, architects experimented with new hotel types in Tyrol (partially in Switzerland as well, on account of the "hotel construction ban"). If they were located in existing Alpine villages, they mostly took on and reinterpreted regional elements. Owing to the building regulations, stylistic renewal was slow and gradual in the villages. Therefore, the traditional farmhouse type was adapted for tourism by changing the scale, primarily for functional reasons. Enormous farmhouses, often up to nine stories high and equipped with balconies, were built. At Clemens Holzmeister's hotel in Sexten (Sesto) in South Tyrol, the issue of crowds was first addressed as an Alpine problem in terms of design not only by scaling up a conventional type to meet the new requirements but also by giving it its own architectural expression. The beginning of the problem of mass tourism in the Alps can be seen in the typological transformation of the farmhouse (Project 47).
In chapter 5, Gio Ponti's cable-car project illustrated that the idea of creating an infrastructural network to link up the Alps as an interconnected recreational area had already been considered in the interwar period, but at that time it was only possible to carry out smaller projects. The first ski resort in the Italian Alps was built by Fiat under Mussolini. Since Giovanni Agnelli, the director of the automobile company, was an enthusiastic skier himself, convinced of the future potential of emerging winter sports, he (together with his son Eduardo) built the town of Sestriere in Piemont for his employees *ex nihilo*. He bought the land in 1928 for the ridiculous price of 40 cents per square meter. This newly founded town consisted of a church and two ramp-shaped towers that resembled the typology ofchildren's homes (see Project 34), except that they featured closed rooms with ceiling high walls, which provided more intimacy. Sports facilities—at that time two ski lifts and a skating rink—were offered; a ski jump and a golf course for summer use were added in

Giuseppe Riccobaldi Del Bava, advertising poster with spiral ramp and the Fiat Balilla, 1928


the 1930s. Mussolini subsequently issued the official founding decree of Sestriere in 1934, and had a town hall built as a sign of administrative autonomy. The ski town was ideally located, as it could be reached quickly from Turin by car. To this end, Fiat built an affordable "people's car," the Fiat Balilla (named after the fascist youth organization). The car, the towers of Sestriere, and the ramp were iconic images on the advertising posters.

**Leisure Zones in the High Mountains—Le Corbusier and the Fifth CIAM Congress**

Parallel to the regionalist, small-scale chalet buildings for wealthy elites (as in Megève), the need for mountain recreation for the masses was discussed in France at CIAM's Fifth Congress in Paris in 1937. Le Corbusier played a key role and was responsible for communications with the press. The topics of this international congress included the recreational areas in

47 Clemens Holzmeister, Hotel Drei Zinnen / Tre Cime, South Tyrol, 1929–1934

Magazine advertisement for Fiat, "The 1500 invites you to Sestriere," with the Sestriere hotel tower in the background on the left, ca. 1936


the high mountains. The report written by Josep Lluís Sert (who worked for Le Corbusier from 1927 to 1929), Gino Pollini, and Luigi Figini commences with the following words: "We note that the human organism—having had its psychic and physical energies connsumed in the city—needs a powerful confrontation to provide quick regeneration, which can only come about through direct contact with the rawest nature. Therefore, it is necessary to dedicate certain zones to 'complete leisure' and to establish their classification [as a recreational area] within the framework of a national plan."[2]
In order to fill up with energy for city life through a "powerful confrontation" with the "rawest nature," the terrain was to be selected according to the following criteria: "The zones where nature is still untouched are preferred, but those that have not yet been hopelessly compromised by [architectural] disorder can also be used if the necessary demolition work is performed."[3]
Areas of "virgin nature" were preferred for the new buildings (characterized, in contrast to the unplanned, "disordered" existing houses, by a clear ordering principle). If such sites were no longer available, the area was to be "cleansed," subjected to a purification process, so that the city dwellers seeking to regenerate could undergo an elemental nature experience. The radicalism of the idea is expressed in the need for "demolition," so that the experience of nature is not affected:
"The basic requirement for the selection of these zones will be the panorama, so that the human being can benefit from the emotions excited by the works of nature. As much as possible, one must eliminate from these zones everything that is reminiscent of today's city."[4]
A socially committed and pragmatic program followed these introductory words on the quest for meaning. The infrastructure and a "network of fast transportation" must be determined in a "national plan." A law should ensure the right of public use, so that the most beautiful mountainous areas would not be exploited by private entrepreneurs. Building legislation should be "adapted," and a detailed plan developed for each area, making a stay (for weekends and vacations) possible for everyone. Various criteria (both climatic and technical, with the inclusion of a panoramic view) were to be included in the planning and harmonized with the architecture, which could accordingly be used in winter, in summer, or all year round. In order to have a positive effect on health, the ideal altitude for the construction of such buildings must be graded according to the age and physical condition of the expected crowds of tourists.
The question of the ideal altitude was of major importance and not only for reasons of health—after all, here it was not doctors but architects who developed the recreational concept in the mountains. With regard to the architectural and planning-related potential of their plan, they came to the following conclusion: "It also seems that the pristine zones at two or three thousand meters in height could offer an extremely large field of study and experimentation for urban planning and architecture."[5]
To experiment in "wild nature" is a tempting challenge for architects. By way of warning, however, they pointed out that pure pragmatism may not determine how the mountains are dealt with, because the architectural concept should not be

Marcel Breuer, Flaine Forum, the large plaza for the Flaine ski station, ca. 1970

constrained by regulations. In the end, they appealed to the poetry of the creator: "The poetic elements—by their very nature—always elude methodological study and it is absolutely imperative that they be brought to the fore."[6]
In 1939, Le Corbusier designed a ski resort for the town of Vars, located in the French Alps, and described the architect as an *ordonnateur* of nature, someone, in other words, who orders (organizes) nature and makes it serve man according to his needs. In the *experimentum mundi*, the architect took up the role of the creator (Project 48).

## The Consumer Society Conquers the Alps

The functionalist conception of nature first made a breakthrough after the war in terms of building, when the most necessary reconstruction was completed and the topic of recreation could be addressed again. With the emergence of the consumer society in the 1960s, mass tourism also developed. There is a direct connection between society's attitude toward consumption and its relation to nature, which is also affected by it.
In his book *La Société de consommation* (*The Consumer Society,* 1998), which was published in 1970, the French sociologist Jean Baudrillard compared the fast-paced nature of everyday objects with wild nature, since consumer goods threaten humans just like the sprawling vegetation of a jungle: "Objects are neither a flora nor a fauna. And yet they do indeed give the impression of a proliferating vegetation, a jungle in which the new wild man of modern times has difficulty recovering the reflexes of civilization. We have to attempt rapidly to describe this fauna and flora, which man has produced and which comes back to encircle and invade him as it might in a bad science fiction novel. We have to describe these things as we see and experience them, never forgetting, in their splendour and profusion, that they are the *product of a human activity* and are dominated not by natural ecological laws, but by the law of exchange-value."[7]
Baudrillard refers to Montaigne and Rousseau's notion of the *bon sauvage* (a "noble savage" living amidst nature), by confronting the "new wild man of modern times"[8] (*nouvel homme sauvage des temps modernes*) not with nature in the raw but with the jungle of consumer goods, which leads him

to question civilization and progress. He sees a dangerous delusion in the assertion that consumption brings humanity into line and lends it freedoms; rather, consumption hollows people out and diverts them from essential goals: "The whole discourse on consumption aims to make the consumer Universal Man, to make him the general, ideal and definitive embodiment of the Human Race and to turn consumption into the beginnings of a 'human liberation' that is to be achieved instead of, and in spite of, the failure of political and social liberation."[9]
According to him, this involves a confusion about the notion of freedom, which is now seen in consumer potential, and no longer in more essential content. A critical distance to everyday life is needed to realize this.
When Joseph Addison wanted to criticize France's policy in 1710, he cloaked his social criticism in an allegory of flying, located in the French and Swiss Alps, contrasting the fertile landscape of free Switzerland with the barren mountains of France, which symbolized oppressive absolutism (see chapter 1). By soaring above the here and now, he was able to take a

48 Le Corbusier, Ski Town in Vars, Hautes-Alpes, 1939

critical look at the political landscape. Critical distance to everyday life has often been sought in nature, preferably in unspoiled nature, especially in the mountains, where man can rise above everyday things and reach a state of contemplation and reflection.

In the consumer society, this kind of reflective dimension is difficult to achieve, because one is flooded everywhere with products, information, and billboards that one can hardly escape. In the meantime, marketing has embraced not only consumer goods produced by humans but also nature itself. It has become a consumable commodity, which has received a similar status to all other consumer goods. It, too, has become an "object" that is no longer determined purely by "natural ecological laws," but by the "law of exchange-value." The degree of its recreational value, which Baudrillard describes with the term *bien-être* (well-being), also depends on its exchange value. However, in my opinion, the intensity of the perception of nature proportionally decreases with increasing consumption, because the consumer mindset distracts from the direct confrontation with "nature in the raw." The concept of *bien-être* is far less concerned with subjective intensity than with what can be quantitatively measured, valued, and marketed.

**Living Machines in the High Mountains for the Universal Man**

With the emergence of consumerism, the large-scale "ordering process" of nature prevailed. Developers and architects became "organizers" of nature and completely subjugated it. Baudrillard's "Universal Man" conquered the Alps in the second half of the 20th century and consumed the last available terrains of unspoiled nature, and on a large scale: 30,000 beds became the standard measure of French investors who divvied up the Alps among themselves in a carefully worked out calculation to determine the percentage of the total population that was in a financially healthy position.

The so-called *stations intégrées*[10] (resorts featuring every comfort) are an expression of this phenomenon, which is particularly widespread in France. Many "new towns" were built overnight in still completely undeveloped mountainous areas. Even in the highest mountain regions, people surrounded themselves with consumer goods. Every service and amenity was to be available: shopping malls just like in the city, with numerous shops, restaurants, pharmacies, doctors, nurseries, and discos—perfect luxury, as the proud expression of human achievement. Despite the exposed location, almost the same everyday rituals as those in the city could be continued; the cable car merely replaced the metro, and skiing replaced work.

In a documentary about the ski resort Avoriaz, which opened in 1967, the young investor proudly explains his concept of central organization and describes the facility as a "functioning machine": "A single phone number and any problem—whether it's a sick child or one that needs minding, a room to clean, or a cupboard to be built—will be resolved immediately."[11] Then a young couple is interviewed and asked what they like most. Sitting in their designer apartment with its urban furnishings, the pair are pleased with what is on offer. The woman with immaculately tied-back hair and blue eyeshadow, caressing a white chihuahua with pointed ears, says with a double bat of her eyelashes and in a blasé, nasal tone that it is so pleasant here because her toddler is cared for by a babysitter all day long and she can ski undisturbed. Her sporty-looking husband, in a fashionable turtleneck, tanned, with sunglasses and white, shiny teeth, nods smilingly and points out the absence of cars in the resort, while the toddler (not in the frame) squeals in the background.

This film symbolically conveys the *bien-être*, the well-being created by "integrated comfort" in the ski resorts of the 1960s and 1970s. The pistes had to be accessible directly from the apartments, without needing cars; all guests had mountain views to maximize the regenerative effect (which was already an essential feature of the panorama, according to the CIAM report). The "terrain" of these flawless machine cities was selected according to the needs (the suitability of the ski slopes) and adapted according to the plans.

## Mountain Towns Created out of Nothing

Three ski resorts in France are now highlighted, since they are the most radical examples of mass tourism in the 1960s and 1970s. Until then, France had lagged far behind Switzerland and Austria in the development of ski tourism. The rapidly increasing prosperity in the so-called *trente glorieuses* (as the thirty years after World War II are called in France,

which were marked by a construction boom thanks to the Marshall Plan) led to the establishment of innumerable major projects—in the Alps as well. France's deficit was recognized as an opportunity for particularly rapid development, because it did not have to expend much energy dealing with the existing conditions, which also made radical solutions for the towns built *ex nihilo* in the high mountains possible. Here, Le Corbusier's ordering principle of nature—rationally divided into A, B, C, D, E—became the dominant template. The ideal of making the mountains accessible to *everyone* remained a utopia, but the affluent middle class of the younger generation could be reached. Moreover, the CIAM maxim that the right of public use must be granted by the state to protect the mountainous landscape from private speculation remained a utopia; in France, it was mostly private investors who "divvied" up the mountains, in agreement with the respective regions and municipalities, who hoped that developing tourism would provide an economic boost to counteract outward migration (the agricultural proportion of the population which stood at 50 percent during the interwar period, had dwindled to 11 percent by the 1960s.

The state provided a fertile ground for the development of winter sports by adopting a law in 1958 (*Loi 58*), which gave a private investor a free hand over a large area. It allowed total *maîtrise du terrain*, which meant the right to legally seize land (and dispossess the mountain farmers), and included the right to overall project development. Its framework was established by law: the access roads were to be financed by the regions and municipalities, the buildings, lifts, and infrastructures by the investors, who were also responsible for the operational side and for marketing.With increasing prosperity, an affluent youth had grown up during the *trente glorieuses*, one that had lived in the city for only a generation and had an ambivalent relationship to urban life, as Roger Godino, the developer of the Les Arcs ski resort, wrote: "Unfortunately, economic and social progress also brought a new problem with it: the overcrowded city. Obviously, our cities, whose urban planning dates back to the last century, were not designed to absorb such a large influx of rural population within such a short space of time. Huddled in dilapidated houses or in social housing complexes—built in a hurry, irrespective of aesthetics—the young generation, whose parents had once left the countryside, had only one need: to escape."[12]

After maximum capacity had been reached on the coasts, winter sports in the mountains were to be developed. The example of the Courchevel ski resort, built immediately after the war, was followed almost simultaneously by the major projects of Flaine, Avoriaz, La Plagne, and, shortly thereafter, Les Arcs. Before Roger Godino got involved with the major investment, he compiled a capacity study: "France had 60 million inhabitants. Of these, 10 percent of the richest middle class could afford a second home in the mountains [i.e., one-tenth of one percent of the total population]; that made 60,000 beds in total. About 30,000 had already been built in the existing resorts, so there were still 30,000 left. So I plunged into adventure as a young man."[13]

These gigantic construction projects again raised the question of the form the "organizers of nature" were to give to their creations. Stylistically, traditional Alpine construction was no longer in vogue; reactionary architecture was out, and the aim now was to design buildings that were sophisticated, forward-looking, and dynamic as a symbol of progress. Exactly the same comfort to be found in the urban apartment block was to be transferred to the proposed "Alpine block." Three French examples with different architectural approaches will illustrate how such a building assignment could be handled: the 10,000-bed resort of Flaine (Project 49), the unexecuted project of the 25,000-bed resort of Belleville (Project 50), and the 30,000-bed resort of Les Arcs (Projects 51 and 52).

**Flaine: "A Prototype of Modernism"**

Eric Boissonnas, the developer of the Flaine resort, wanted to build a "prototype of urban design for the modern age"[14] in the middle of the mountains. Gerard Chervaz, a young mountain guide, searched for a suitable site together with him and brought him up to a 1,600-meter-high cirque, which Boissonnas recognized as an ideal location. In this completely isolated spot he saw a unique opportunity for his pedagogical project of modernity: "It is extremely rare to find projects that benefit from an exceptional location. [...] In order to realize a project in the ideal location, the entrepreneur is prepared to forego immediate profits that are incompatible with well-considered architectural planning."[15] He commissioned a "star architect" from America for his ambitious project: Marcel Breuer. His prestigious name was supposed to help convince regional politicians of the value of this major project.

Marcel Breuer, circular, open concrete fireplace at the Hôtel Le Flaine, ca. 1969

**Les Arcs: "Sublimation" of 30,000 Beds**

Roger Godino, the developer of Les Arcs, endeavored to develop a modern type of ski resort that was to display neither urban ambience, like Flaine, nor "regionalistic décor."[16] Charlotte Perriand, who had been involved in the concept of "Belleville" in 1962 and had planned small-scale mountain hotels, agreed after initial hesitation to participate in the planning as a coordinator and dove into the work with the specially created architect group Atelier d'Architecture des Arcs. She, too, was faced with the question of how to deal with the pristine terrain, which, in this case, was a continuously rising steep slope: "How to divide the terrain? How to build on the large Alpine meadows?" Perriand wrote about the building strategy for the terrain: "Guy Rey-Millet, who had a certain sensitivity, came up with the following idea: 'We won't build on the plateau, where the mountain pastures are situated; we will position ourselves behind them to have a view of them; we're not going to spoil this gorgeous place.' His vision interested me."[17]

Originally designed by Atelier d'Architecture de Montagne (AAM, prior to Perriand's participation), the vertical project was abandoned in favor of a horizontal solution. The resort was divided into three different locations in altitude with a distance of 200 meters between each part. The first block, called Les Arcs 1600, was situated along the lowest contour line at 1,600 m and had a capacity of 4,200 beds. In order to protect the tourists from noise, the parking lot was arranged below the ski resort, while access to the individual buildings was provided by sidewalks. In terms of the layout of the buildings, Charlotte Perriand was looking for ways to orient the view toward the mountains so that no other apartment block would spoil the desired recuperative effect. Densification instead of scattering, unrestricted panoramic views, and maximum use of sunlight were the most important design criteria, which led to the emergence of new architectural typologies, as illustrated by the projects La Cascade, Versant Sud, and La Nova (Project 51). Composed as an ensemble of three- to four-story structures, the first construction stage, Les Arcs 1600, was inaugurated after only one year of construction at Christmas 1969. During the second construction stage, Les Arcs 1800, everything had to be optimized: the sizes of the houses, the construction time, and the costs. Godino introduced a new tourist housing model originating from Switzerland, the parahotel (rental apartments with hotel comfort, including bed linen, cleaning, and a reception desk). The housing units were much smaller to reduce rental costs, and the living spaces became ever longer and narrower (10.4 meters deep and 2.96 meters wide) to avoid expensive façade costs. Profitability determined the design and construction. 18,000 beds were housed here in buildings up to thirteen stories tall: "One had to condense and find the smallest possible grid compatible with as much depth as possible. […] It was about 'sublimating' the organization of the living space and the visual space of a cell with four beds and less than 30 m². One had to foresee everything—down to the choice of teaspoon—and build 500 habitable studios between May 1st and November 30th: a modern program and a true challenge."[18]

To meet the tight deadline and budget, Charlotte Perriand suggested working with prefabrication. Inspired by shipbuilding, she designed two-piece polyester bowls for the kitchens and bathrooms, incorporating wash basins, bathtubs, mirrors, and toilets, as well as sinks, and cooktops into them. "Following the imperative of the program—concentrated urban planning and short construction time: seven months 'from the concrete

Charlotte Perriand and Gaston Regairaz, southern aspect of the Versant Sud vacation apartment complex, Les Arcs 1600, 1969–1974

down to the teaspoon'—I had to have things prefabricated to reduce building time: first of all, the sanitary and cooking area, connected to a vertical shaft. [...] So, starting in 1975, seven bathrooms were delivered every morning as planned—fully equipped and ready to be moved by crane. This successful experiment was to soon involve 3,000 units."[19]

Based on the idea of complete comfort, the concept of the *station intégrée* was to be perfected, starting with direct access from the apartments to the piste, to a wide range of public facilities, comprising a shopping center, daycare, medical center, ski schools, etc., as well as a 40-hectare golf course to make the resort attractive in the summer months as well.

**Charlotte Perriand's Critical Review**

When the third construction phase began at the foot of the glacier with Les Arcs 2000, and Jean Prouvé's innovative design (Project 52) was not realized in favor of more conventional and more "optimized" solutions (in the developer's interest), Charlotte Perriand withdrew from the project. She resignedly wrote: "And yet this place, which had been originally sublime, was completely destroyed."[20] She had seen how ski tourism developed at a rapid pace, changing the way people relate to the mountains. In her memoir, the ninety-five-year-old woman wrote critically about her ambitious plan to share her beloved mountains with the masses, who she called "robotized hordes":[21] "Today, 28,000 beds adorn the valley for the horde of holidaymakers who flood the area during the winter holiday season. Lifts await them, slopes without stones, without bumps, without obstacles, excessively smoothed by the locals in summer and winter; new hotels and shops for this wadded manna of city dwellers, who have enough money to spend it cheerfully in eight, ten, or fifteen days, before returning to the city to refuel 'from the sweat of their brow' until the next year."[22]

She wondered if the real problem was not the people, who changed because they were "too spoiled." Perriand criticized the comfort of a consumer society that sought something different in nature than nature itself. The "sublimation" of the living unit was to make it possible to provide a setting for 30,000 people to view nature: a last remnant of the former sublime, whose loss Charlotte Perriand lamented, in an attempt to save some of it—even if it was only the view to the mountains.

## Man-Made Shudders

Mass tourism had euphorically conquered the mountains. Nothing stood in the way of human achievement; the mountains had become accessible for the masses, something that could be "experienced" with a sense of urban comfort. As a result of the feelings this produced, the perception of the mountains had also changed: in place of the contemplative, sensory, and physical experience of the sublime, the people collectively took possession of nature. A shift took place, away from the awe of nature to the awe of human work in nature. Man felt superior to the forces of nature, not only intellectually (in spite of his physical inferiority, as was the case in Kant's time) but also physically, because now he could use technology to rise completely above the natural forces. It was no longer the power of nature that generated a feeling of excitement in him, but the human technology that could conquer wild nature. The sublime now lay in the proud work of man: in the speed of construction, in the sophisticated maximum utilization of the "terrain," and in the optimization of a smartly designed living unit. In the mass settlements in the high mountains, man felt superior to nature through the boundless comfort he had achieved through modern construction technology. The eerie feeling no longer arose when facing the precipices, peaks, glaciers, and avalanches, but

51 Charlotte Perriand: La Cascade, Versant Sud, La Nova, Les Arcs 1800, 1968–1981

rather at the sight of excavators, bridges, roads, tunnels, cranes, houses, lifts, and avalanche barriers. The demiurge known as man now shudders at the power of his own work.

## The End of the Euphoria of Mass Tourism

With the oil crisis of the 1970s and the advent of the ecological movement, a change took place in man's relation to nature. The belief in progress and technology was challenged and the unrestrained, consumption-oriented exploitation of the last natural reserves criticized. The relation to the mountain landscape was also questioned, especially with regard to the crowds streaming season by season into the mountain resorts. The construction of new urban ensembles at high altitudes was noticeably avoided. In pursuit of more sustainable ways of dealing with the landscape and cultural heritage of villages and settlements, a new form of regionalism emerged in the late 1970s and in the 1980s. However, only in some cases is it possible to speak of a "critical regionalism," because the large forms that were frowned upon were often followed by an *un*critical regionalism, which uncompromisingly used traditional formal languages (right up to kitsch) to attract guests: wooden chalets of all shapes and sizes visibly "colonized" the still pristine mountain landscape. The 1990s proved to be another turning point: densification, but on a human scale, was now the motto.

### Strategies between Analogy and Abstraction

While the mountains became consumer goods for the masses in the 1960s, luxury now seems to be the new goal that is increasingly supplanting conventional Alpine tourism. In the planning of contemporary luxury resorts, the intention is to make a clean break with the urban flair of the 1960s' ski resorts, while at the same time demanding an end to the increasing expansion of the chalet settlements. A high density is to be realized, but without creating an urban ambience.
In search of new spatial arrangements and formal languages, an analog construction mode is often used: Chur-based Swiss architect Thomas Domenig conceived the buildings of the Rocks Resort in Laax in the Canton of Grisons as enormous rock cubes at the bottom of the mountain slope, which resemble layers of erratic boulders (2010). Despite the compact nature of the resort, the building forms were to have a deliberately non-urban character, whereby a distinctly "natural" ambience was to be established through the stone analogy, which is also articulated in the materiality of the coarse-grained stone façades.
Conversely, Miroslav Šik followed the historically grown village structure in the design of the new village center of the Andermatt Swiss Alps resort (erected by an Egyptian investor) and imitated it by consciously working with alienation and deformation (2008). This example illustrates how an analog design approach seeks to create an "artificial culture," in contrast to Laax, where the creation of an "artificial nature" was aimed for.
Artificial villages, stones, and crystalline shapes help us in an illusionistic way to overcome the fact that we are intruders in the very nature we yearn for. The analogous village that creates an artificial world nestles in the "illusionist kaleidoscope of tourism" to use an expression of the French anthropologist Marc Augé, who stated in 1997: "The world, in its diversity, still exists. But this has little to do with the illusionist kaleidoscope of tourism. [… One has to] relearn traveling to relearn seeing." [23]
Traveling as an intense experience is intended to expand the mind and stimulate "seeing," as it did before the 20th century The confrontation with "wild nature" and the experience triggered by it can be counted as this kind of "elementary seeing," because it is able to expand consciousness by going beyond the limits of intuition. Man is confronted with himself, whereby, according to Kant, he becomes aware of his "own destiny." This process of becoming aware through an elemental experience, which was occasionally triggered by the high mountains in the 18th and 19th centuries, is still sought after today—but less and less found because of the omnipresent tourism. Specific architectures strive for the "relearning of seeing" and deep feeling, whereby the individual's isolation in the midst of the mountains sometimes plays an important role.
Interestingly enough, crystalline or polymorphic abstractions are drawn upon again, as evidenced by Ross Lovegrove's Alpine Capsule (Project 53). He designed a self-contained, fully-glazed, panoramic bubble for one or two people on a high plateau of the Dolomites, opposite the Piz La Ila, for a South Tyrolean hotelier. According to Lovegrove, it is to be a "prototype for a new way of living off-grid" based on a

Jean Prouvé, Reiko Hayama, Serge Binotto, Hotel Les Arcs 2000, 1970

"temporary experience."[24] The emphasis is on the unique experience: alone in the middle of the high mountains, lying in bed, looking at the mountains and the starry sky through a glass dome. This universal "cosmic protozoa" is supposed to offer perfect isolation and a meditative immersion into the mountain, with the amorphous crystalline bubble serving as a formal inspiration. The mode of analogy here does not rely on mountain village romanticism but on pure, "perfectly regular forms of nature," as Semper called them.

Ross Lovegrove, Alpine Capsule, Dolomites, 2008

## Intensity

Once the mountains are completely conquered, man becomes bored in the face of what was once wild nature. Nevertheless, there remains a need to have the strong, liminal experiences that we find in the sublime. The French philosopher Tristan Garcia describes the sublime as an unpredictable experience that we long for and fear throughout our lives: "When we are thunderstruck, we can touch for a moment the highest degree of our existence; it is an erratic experience. From birth to death we develop the variations of this discharge that we expect and fear, that we seek to awaken when we miss it—and each of us finds a possibility to estimate its amplitude and frequency."[25] Garcia states that, in contrast to our ancestors, we have long been striving for "intensification" much more than for transcendence.[26] His thesis is that in today's world "to live as intensely as possible" is the highest value of our existence: "We are taught not to wait for anything absolute, eternal, or perfect. We are encouraged to consider the maximization of our whole being as our supreme will."[27] The classical values of ethics have been replaced by the fetishizing of intensity: "When viewed from afar, there is no salvation or wisdom in this idea of intensity. [...] The intensity that is promised to us everywhere in the world today is an ethical program that whispers in a low voice into all our joys and all our sufferings: 'I promise you more of the same. I promise you *more life*.'"[28] Intensity is a seductive contemporary ideal, but also a trap, Garcia says, because it may produce the opposite of what it promises. The constant increase of our self collapses when nothing else can be increased. Our quest for intensity thus neutralizes itself and leads to an emotional vacuum (without any sense whatsoever).

But before we plummet into an existential crisis, we look elsewhere for other intensities that we cannot find in the everyday life of our mediatized world. This is the moment when the mountains become attractive because they promise strong *off-grid* experiences. While speed and dizziness offer a radical intensification of life (with a lot of adrenaline, but little transcendence), the experience *off-grid* confronts us with our inner being. Ross Lovegrove's transparent, completely isolated capsule in the mountains excites the mind and senses of perception in the face of "nothingness." If we expose ourselves to this, we confront ourselves with our inner nature. This is a strong experience in a world where there is no longer any time, peace, and space for it.

In our world today, fear is no longer caused by a lack of physical security (as it was in Kant's time), since we take this for granted (there is always a protective hut nearby or at least a cell phone in our pocket, in case we need rescue). Our contemporary thrill consists rather in the idea of complete isolation, which frees us from any stimulation of everyday life (permanent reachability, a deluge of visual media, information overkill, etc.)—but also frightens us. As long as we know that we can be connected again (a push of a button and our fears are allayed), we feel safe; this seems to be the precondition for us being able to experience our temporary life *off-grid* as sublime (and not just as a shock), as we try to translate Kant's theory of the dynamically sublime with regard to security and anxiety into today's world. Our "power of resistance" gives us courage, not because we can measure ourselves against the "seeming omnipotence of nature,"[29] but against the omnipotence of a networked world, which we withdraw from for a while.

Clemens Holzmeister, Hotel Drei Zinnen / Tre Cime, Sexten/Sesto, 1929–1934

47 **Clemens Holzmeister, Hotel Drei Zinnen / Tre Cime, Sexten/Sesto, South Tyrol (1926), 1929–1934**

Clemens Holzmeister engaged with the development of a new Tyrolean farmhouse, where he sought typological and stylistic innovations to meet the requirements of tourist use. Having already designed an "Alpine Farmhouse for Tyrol," consisting of a three-story, elongated structure with a pitched roof, for his second state examination in 1913, he later developed this type even further. From 1927 to 1929, he built the Hotel Post in St. Anton, a nine-story wooden house with a pitched roof that exceeded the dimensions of the old building. The following considerations motivated his decision to work with traditional elements and yet seek a new expression: "On account of its special building mass, [...] integrating the Alpine hotel into the simple local setting poses a quandary. But the legitimate desire of the hotel guest for a secluded room also calls for solutions that cannot be found in the appearance either of the chateau or of the farmhouse. [...] A new form must be boldly sought for the new demands. Provided that the floor plan functions flawlessly, an elegant, closed character with solid workmanship and use of local building materials ensure the hotel's right to exist, even in the most beautiful landscape. Averse to every fashion trend, the healthy and time-bound also continues here inexorably."[30]

In the quest for typological renewal, he borrowed numerous traditional elements in the St. Anton project by linking them "discretely" to the required size of the building volume. According to Holzmeister, "healthy and time-bound" did not necessarily have to be "fashionable." The solution lay rather in the further development and moderate modernization of traditional building types.

At the Hotel Drei Zinnen / Tre Cime in Sexten/Sesto, he went a step further by abstracting the prototype of the farmhouse and interpreting it cubistically. The seven-story building is

characterized by an imposing pitched roof, under which the south façade is gradually recessed, creating a composition of cubic forms. He adapted the function of traditional bay windows with this design element, but modified their sculptural form.

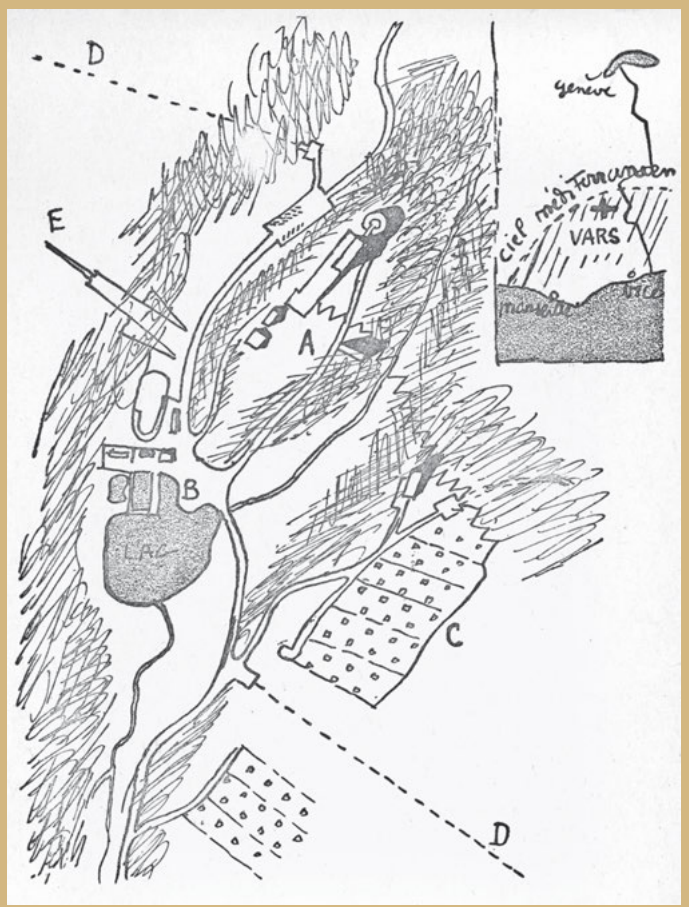
Drawn up at approximately the same time, his draft for Hotel Seegrube on the Hafelekar Mountain (1927), which lay far above the city and thus beyond the village conventions and requirements of the *Heimatschutz* movement, had a different design language. The convexly curved structure featured a pitched roof slanting toward the mountainside, similar to the designs of Welzenbacher and Baumann, which embodied the "New Alpine Building" of that time. Holzmeister spoke both languages and eloquently used them in accordance with the specifications and possibilities of the task at hand.

In the postwar period, still heavily influenced by the concept of *Heimat* (homeland), which had become a symbol of "Germanness" in the Nazi era, the avant-garde style with a pent roof did not prevail, but rather the long-established farmhouse with a pitched roof—and this is to some extent still the case today. The fact that nine or more floors are housed under it does not seem to bother the heritage-minded *Heimatschützer*. The main thing is that the enveloping "farmhouse coat" looks familiar, even in XXL. Fundamental innovations like those introduced by Holzmeister are, however, a rare phenomenon.

Le Corbusier, project for a ski resort in Vars, in *La Maison des Hommes*, July 1942

48 **Le Corbusier, Ski Resort in Vars, Hautes-Alpes, 1939**

Since the fifth CIAM congress, Le Corbusier had been intensively involved with the theme of a "recreational area" in the Alps. In 1939, he made plans for a ski resort in the town of




Vars (Hautes-Alpes), which is located at an altitude of 1,850 meters. The letters A, B, C, D and E are noted on a hand drawing of the site plan and explained in the accompanying text as follows:

"The organizer (*l'ordonnateur*), who imposes order on things, intervenes with his humanistic doctrine, relying on technology.
He clears the inextricable shrubbery, reads with clarity, measures, disposes, commands.
Order becomes crucial for both plan and action.
He determines the 'terrain status' for each area in the surroundings that can be built on, creating assets to offset the necessary losses.
He identifies the landscape.
The organizer studies the question of winter sports, looks for the slopes with good snow, but still within the southern climes.
In the town of Vars he installs a rigorous program of center for skiing, according to the topography and the sun:
**A**: the hill of hotels
**B**: the shopping center and the skating rink
**C**: the private chalets
**D**: the cable cars
**E**: the ski jump
The terrain is occupied, the terrain is protected, the landscape is ennobled by architecture.
The valley now has 'terrain status.'"[31]

The "terrain status" should give the planner a free hand. On the "hill of hotels" there is an elongated, eleven-story building with a spiral-shaped car park where the road ends, while private chalets are arranged on the hillside—for "a different group of users." With this kind of "charter of winter sports," nature was to be classified, "ordered," and made usable according to human needs: "doctrine, technology, clarity, order, rigor, program and status" are the recurring slogans of his discourse on the subservience of nature. Architecture has the task of "ennobling" (*ennoblir*) the landscape. The "ennobler" is the architect, the demiurge of the technical age.

**Ski Resort for the Vichy Government**

After Hitler's invasion in 1940, the south and south east of France was the *zone libre*, the free, unoccupied zone, until 1942. It was administered by Maréchal Pétain's fascist Vichy government in collaboration with Hitler's occupying regime. Vichy was interested in the development of winter sports for two reasons: on the one hand, in fascism sports were part of the program of education, recreation, and invigoration for the people; on the other, winter sports made it possible to get hold of foreign currency, provided that they could successfully compete with Swiss and Austrian tourism.

In 1942, the government commissioned engineers from the École Nationale Ponts et Chaussées in Paris to study winter sports development in the Trois Vallées region of Haute-Savoie. Maurice Michaud and Laurent Chappis were responsible for the revision. In parallel, Le Corbusier wanted to reactivate his project for Vars. In July 1942, his study appeared in the book *La Maison des Hommes*, which he published with

Le Corbusier, shaded plan, "Construction of winter and summer sports resort," Vars, France, 1939

François de Pierrefeu, a cofounder of CIAM. The Vichy government showed interest in his hygienic approaches and radical, large-scale planning. His *Plan Voisin*, for example, fell on sympathetic ears, but, like his Vars project, could not be realized, especially since Hitler also occupied the *zone libre* on November 11, 1942. Under these circumstances, it was no longer possible to think about leisure-time planning; from that point on, any money had to be invested in the war.

Marcel Breuer, Flaine Forum, ca. 1970.

Marcel Breuer, view of the Flaine winter sports resort in the 1970s

**49 Marcel Breuer, Flaine, Haute-Savoie, 1960–1977**

Flaine is one of the most radical examples of a new urban-style complex in the high mountains. Eric Boissonnas chose the mountains for the development of his "prototype of modern urban planning" because there were no stylistic regulations there.

Founded *ex nihilo* in a mountainous basin at an elevation of 1,600 meters, Flaine overlooks Mont Blanc and Les Aiguilles de Chamonix. To determine the exact location, Boissonnas flew over the area with Marcel Breuer by helicopter on November 30, 1960. Breuer's immediate response was, "What a wonderful site! How do we avoid spoiling it?"[32] He suggested that the resort should be built on three edges in front of a long limestone cliff wall that shapes the structure and morphology of the terrain. Breuer set an architectural counterpoint to the dominant geometry of the vertical limestone rocks through horizontal concrete bars, whose diamond-shaped facets were to bring variety and vibration into the long fronts of the façade. The concrete façade was to blend in with the color of the rocks, "so the terrain does not need to be protected, because the buildings almost optically disappear due to the mimesis principle," Breuer argued. He justified the arrangement of the buildings with the topography of the terrain, the crystalline façade design with the incidence of light: "The architecture of Flaine is an example of the application of the principle of light and shade that I adopted. The façades of the buildings are carved like facets of a diamond. The rays of sun hit their faces from different angles, contrasts in lighting resulting from their reflections. The horizontal linear quality of building levels, a human creation, contrasts with the chaotic terrain of the mountain which testifies to the overwhelming power of nature. Each building maximised the use of modern construction techniques. The entire composition is integrated into the magnificent and wild landscape of Flaine, which it partners and humanises."[33]

The proclaimed mimesis with respect to the morphological and geological condition of the landscape and the "humanization" of nature that is thought to be necessary could be seen as contradictory: on the one hand, we have the strategy of disappearance; on the other, the endeavor to order wild nature through "human creations" and "humanize" it. As already the case with Le Corbusier, architecture was regarded as an "ennoblement" of the landscape, since it brings "order" to the wilderness and makes it subservient to man.

The fact that the diamond served as a reference in this demiurgic creative process is quite interesting; after all, the timeless abstract principle of the crystalline allows wild nature to be withstood and a formal expression to be formally found. In search of abstraction, Breuer reduced the design elements to the essentials; this also affected the choice of materials:

Marcel Breuer, Flaine Forum, ca. 1970

exposed concrete for the façades, natural wood windows, rough quarry stone masonry in the base area. The crystal motif appeared again and again to the point of redundancy through the use of twelve prefabricated concrete elements.

**Construction**

Carried out by the community of Arâches, the construction of the road began in 1961. Owing to administrative and financial disputes, completion was delayed by two years. Building work on the resort did not start until 1963. To avoid the problem of delivery by road, Breuer suggested setting up a concrete factory and a freight cable car in the valley, allowing the concrete elements to be prefabricated and transported directly to the high plateau. In the end, it took six years until the first phase was completed in 1969, and more than ten to finish the entire master plan of the "Utopian City of Modernism" in the high mountains.

**Organization**

An urban ensemble is grouped around the Flaine Forum (1,600 m), which is surrounded on three sides by low buildings, which seek to preserve the unobstructed view from the higher apartment blocks behind it. The Forum constitutes the center of the town, with shops, an art forum, and an ecumenical chapel— a sculptural building with black shingles—on the edge of the forest. Right in front of the piste is a series of low, elongated structures called Flaine Front de Neige (1,580 m). Nearly one hundred meters further up along one edge of the terrain there is a group of residential buildings called Flaine Forêt (1,675 m). They are located south of the road and built into the hillside so that only their roof surface, accessible via wooden bridges, can be seen from the street. This residential ensemble is directly connected to the lower-lying Flaine Forum by an inclined elevator.

Eric Boissonnas and his wife Sylvie had a classical music concert hall built to stimulate tourist life outside the skiing season. Large-scale sculptures by Victor Vasarely and Jean Dubuffet were installed on the grounds, and a sculpture by Pablo Picasso was added in 1991.

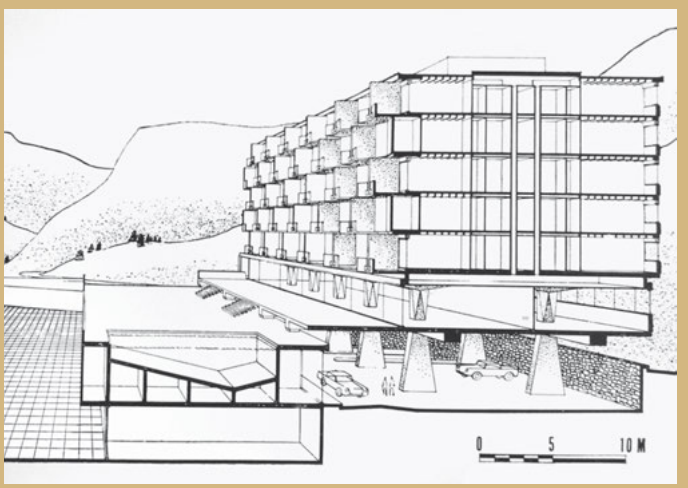
**Hôtel Le Flaine**

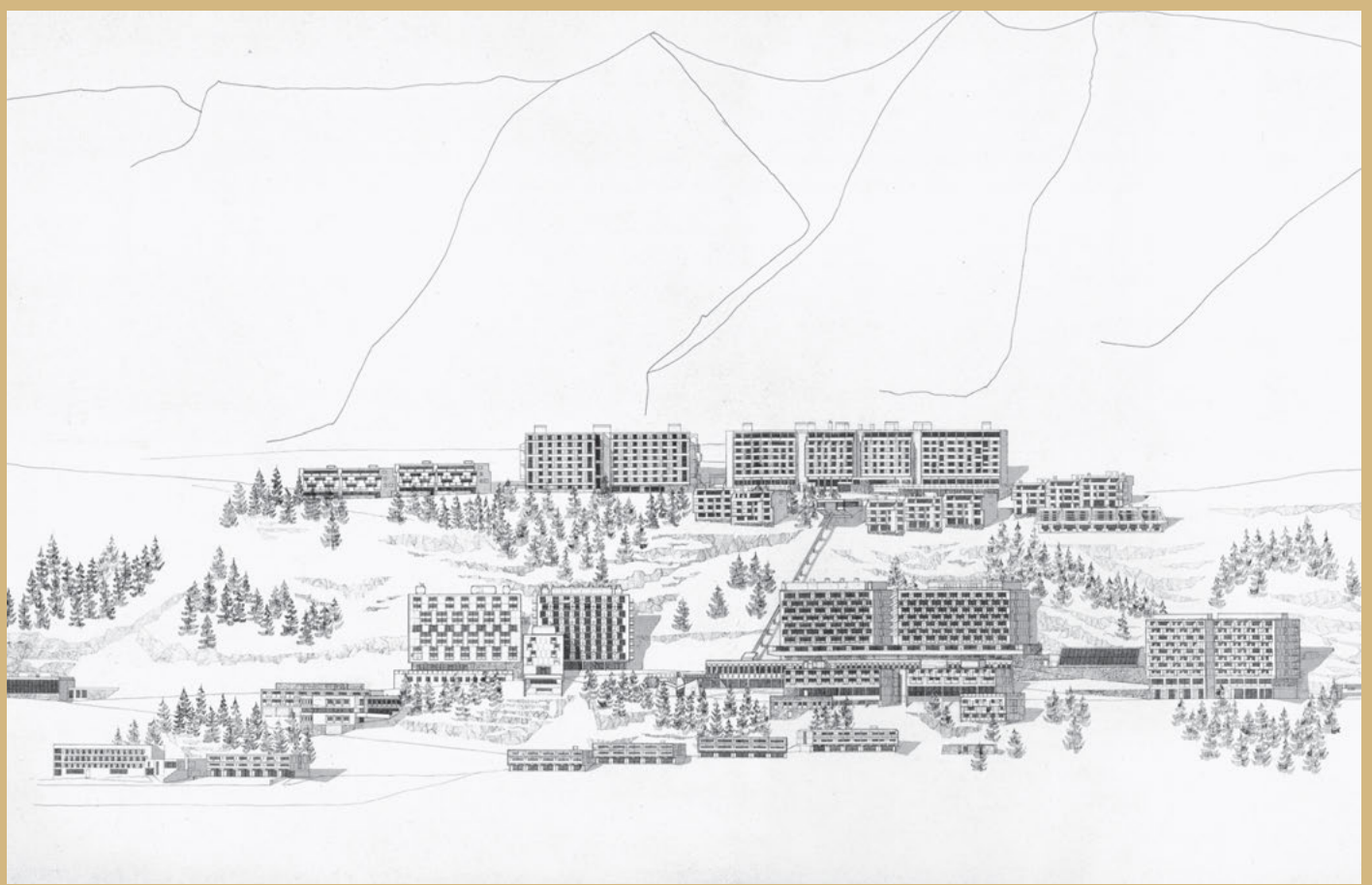
The Hôtel Le Flaine is a four-story block whose front platform juts out over a rock ledge—a powerful symbol that became the icon of the ski resort. It is the only building with an east-west orientation, which makes it stand out from the others. Moreover, it rests on pillars to allow a view from the town entrance to the Forum. Common areas equipped with design furniture are located on the elevated ground floor: a salon, bar, and restaurant with an open fireplace, designed by Breuer. On the other four stories, the hotel rooms are arranged with their projecting balconies. Marcel Breuer retired from the project in 1977, leaving his employees to carry out the final construction phase: Flaine Forêt. This meant that Gérard Chervaz, among others, got his chance. In 1991, the Hôtel Le Flaine was placed on the list of monuments worth protecting, which, however, could not prevent structural alterations in 1992/1993 after the Boissonnas family withdrew. The open ground floor area was closed and the designer furniture sold, leaving little of the interior's former flair.

Marcel Breuer, view of the Flaine resort in situ, 1969

Marcel Breuer, perspective section of the Flaine Forum building, 1960

Like most ski resorts of the 1960s, Flaine looks aged and decrepit today. Other places attract the wealthy classes of France, while Flaine was left to the drunken (often rampaging) crowds. However, new strategies are being developed to stop the process of decay; Flaine has been renovated and extended: Christian Hauvette designed a chic apartment block with an integrated indoor swimming pool behind the "Flaine Forum," whose base, at least, makes reference to Breuer's crystalline façade architecture. The slightly bent structure, featuring a wooden façade on the south side, seems to surrender to Breuer's modern stringency.



Candilis, Perriand, Prouvé, Woods, Losic, Piot, and Suzuki, model for the competition project for the Belleville ski resort, 1962

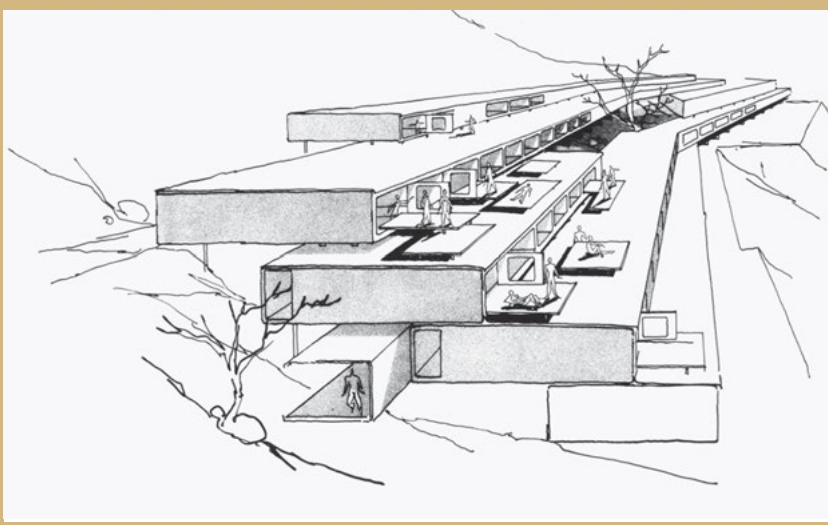
**50 Candilis, Prouvé, Perriand, Woods, Josic, Piot, and Suzuki, Belleville Ski Resort, Savoie, 1962**

Vallée des Belleville, a high mountain valley, was part of the tourist development program of the French postwar government. The state-run Caisse des Dépôts tendered an international competition for a 25,000-bed town in the mountains. The field study drawn up in advance defined the sites of the ski slopes and lifts, as well as the locations of the south-facing buildings. Seven thousand parking spaces were planned for the high season on an area of 50 hectares.

A team of architects consisting of Georges Candilis, Jean Prouvé, Charlotte Perriand, Shadrach Woods, Alexej Josic, Henri Piot and Ren Suzuki, came up with a radical utopian-design with an original development concept: Since road access in the narrow, avalanche-prone valley was problematic, the architects proposed the construction of a monorail system linking the ski resort to the public railway network (at the Moutiers and Modane stations). Arranged along the geographical contour lines, the ski resort is reached directly from the monorail station—the widely scattered buildings are accessed by means of escalators built into the slope, while moving walkways help access the extensive horizontal expanse. Social and cultural facilities, as well as shops, are located along the paths.

The team of architects developed different typologies for the accommodation, for those on small budgets or wealthy guests. The dormitories and cheaper hotel rooms are situated in six- to eight-story buildings with elevators; the studios, apartments, and hotel rooms are arranged in single-story linear structures, following the slope inclination in a series of terraces. In light of the short construction season, which is limited to five months at this altitude, the load-bearing components were to be prefabricated.

The jury deemed the design to be "too progressive for its time." Nevertheless, due to its utopian character it is noteworthy because, in addition to the architectural development concept, it also addresses landscaping and infrastructural issues. The Belleville complex was never realized, but at almost the same time many other ski resorts were built—not by state investors, but by private ones.



Charlotte Perriand and Guy Rey-Millet, north façade of La Cascade, Les Arcs 1600, 1968–69

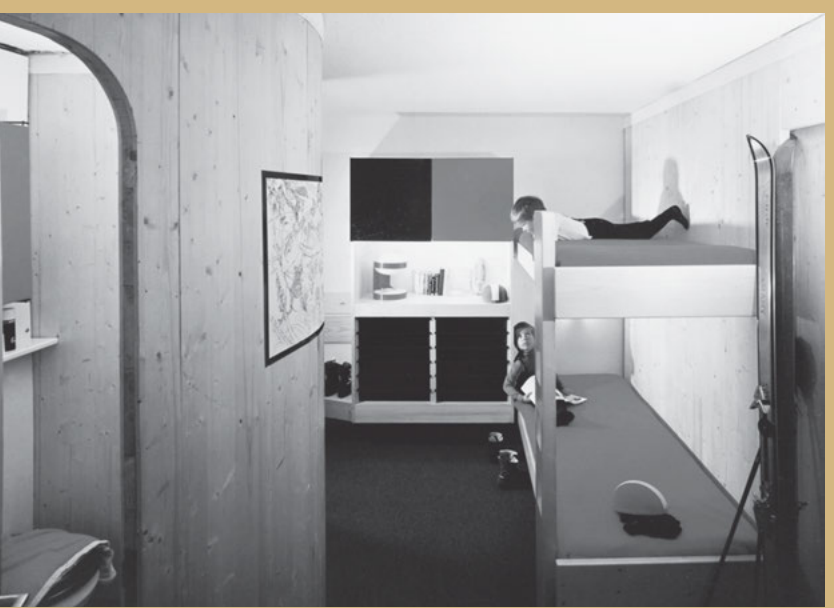
**51 Charlotte Perriand, La Cascade, Versant Sud, La Nova, Les Arcs 1600 and 1800, 1968–1981**

When planning the Les Arcs ski resort, the challenge was to develop innovative typologies to give all visitors an unobstructed view of the mountains. The use of traditional architectural elements (such as slate roofing, larch cladding, and

stone masonry in the base area) was intended to facilitate integration into the landscape and enable the use of modern construction methods (especially prefabrication) to minimize construction time.

The typological innovation of the La Cascade building (planned with Guy Rey-Millet, 1968–1969) consists in the terracing of the stories, which Perriand explains as follows: "The section view of the building shows that the two-meter-deep terraces on the south façade do not overlap and cast any shadow on each other. They are therefore shifted to the north by exactly this distance, which leads to a slanting of the entire building; the path to the ground floor on the north side is protected by this slant, so it is always free of snow."[34] The inclined position of the ensemble means that there is no reduction in living space with increasing height, as typically happens with a conventional stepped building.

Charlotte Perriand always developed buildings from the inside out to offer people the best possible living space. The layout and the interiors of the structures were designed to showcase the view to the mountains. The balconies were raised by 40 centimeters so that they did not disturb the visual field of the underlying apartment and did not take away any sunlight. In the interior, a window sill was added onto the front side of the fully glazed balcony to create a sitting opportunity with a vista. The radiators were hidden underneath. The balconies provided ample space for sitting outdoors, while side shields made for a private atmosphere. Perriand planned all the details as well—the entire furnishings for a minimal living space, where rounded corners allow fluid movement despite the spatial restrictions.




Interior of a residential unit in La Cascade, 1968–69

Charlotte Perriand, Guy Rey-Millet, plan drawing of a residential unit in La Cascade, Les Arcs 1600, 1968–69

Southern façade of La Cascade—the slanting building follows the downward-sloping terrain

Photo of Charlotte Perriand, Roger Godino, and Gaston Regairaz, looking down at Les Arcs 1600 resort, 1990

Lying on a southern slope, the Versant Sud ensemble (planned with Gaston Regairaz, 1969–1974) inscribes itself into the mountainside like a terrace. Seen from above, the development seems to vanish; the green or snowy flat roofs appear to merge with the mountain. The real size of this 1,000-bed settlement can only be appreciated from the side or from below. It is accessed from above by guiding the occupants to their respective living levels via a staircase that follows the slope. (In its spatial arrangement, this design is reminiscent of the Belleville ski resort, although the latter is much larger).

The La Nova block of apartments curves up out of the mountainside and finishes with ten stories, Les Arcs 1800, 1977–1981

The roof of the La Nova block of apartments begins at ground level and presents a kind of stairway to heaven, 1977–1981

At the Les Arcs 1800 station, which is situated 200 meters higher up, the structure of the Parahotel La Nova (designed 1977–1981 with Gaston Regairaz) swings out of the steep slope in a dynamic curve. It begins at ground level with an accessible roof terrace and rises to a height of ten stories on account of the steeply slanting terrain. Although the pastures between the buildings were retained, the cows seem somewhat lost set against the grand scale of the mass apartment complexes.

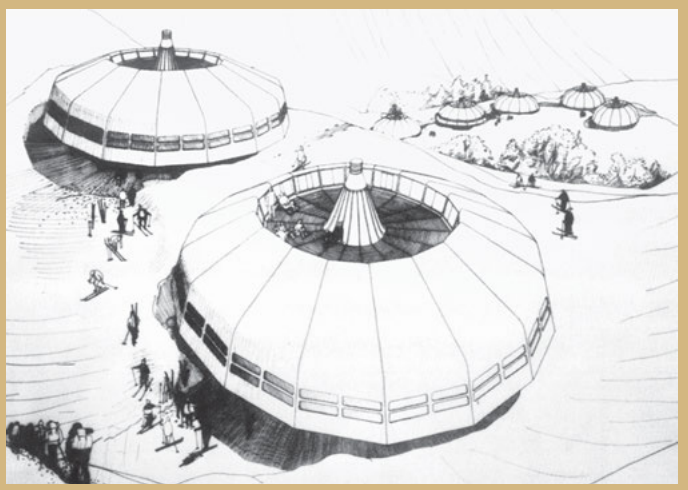
Jean Prouvé, design for the Hotel Les Arcs 2000, perspective drawing, section drawing, and model (from t to b), 1970

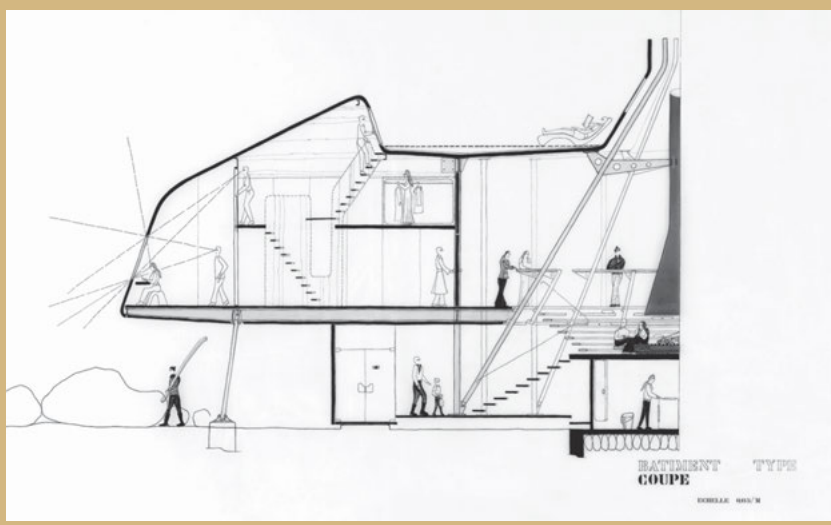
**52 Jean Prouvé, Reiko Hayama, and Serge Binotto, Hotel Les Arcs 2000, 1970**

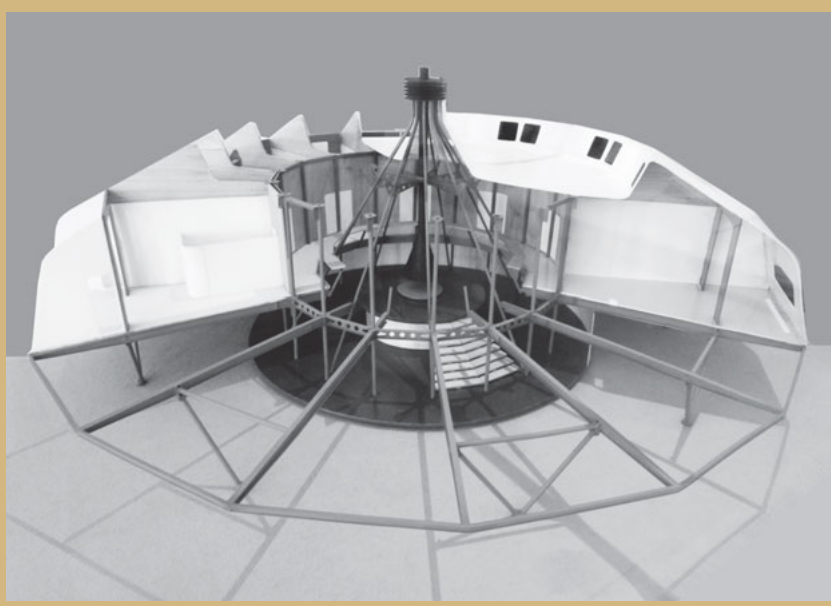
In 1970, Roger Godino was looking for new typologies for the last and tallest of the three building stages, Les Arcs 2000 at the foot of the glacier. He held an internal competition, to which, following Perriand's suggestion, he also invited Jean Prouvé. In collaboration with Reiko Hayama and Serge Binotto, Prouvé proposed an unconventional project for an apartment hotel: a series of isolated, gyroscopic buildings positioned on a high plateau, on the slope of a mountainside, accessible only by foot.

As a great advocate of industrial construction, Prouvé envisioned a prefabricated steel structure to optimize the construction time, which is very short under the climatic conditions in the high mountains. Each "gyro" is supported by adjustable steel uprights that adapt to the topography of the site. The inhabited volume is covered by a reinforced polyester skin. In the center is a large, open fireplace with a circular platform for social gathering, similar to a yurt. Around the core there are fifteen apartments that vary in size and accommodate a variety of different layouts, some with a mezzanine for children.

Although this innovative and functional project won first prize, it was "too utopian to be realized," as Roger Godino explained. After conducting an economic feasibility study, he stated, with a pragmatism peculiar to the developers, that "this type of hotel residence would not have worked at that time."[35]





Ross Lovegrove, Alpine Capsule on the Piz La Ila, Alta Badia, rendering, 2008

**53 Ross Lovegrove, Alpine Capsule, Dolomites, 2008**

So far unrealized, the Alpine Capsule project was planned between 2008 and 2010 by Ross Lovegrove on a high plateau of the Dolomites, at an altitude of 2,100 meters, opposite the Piz La Ila in the Alta Badia region. Developed for a hotelier, the residential unit was to offer guests the possibility of accommodation in the middle of the mountains, directly under the stars. Since complete autonomy is the prerequisite for this project to function, the location is chosen so that the wind and solar energy can be optimally used. In the immediate vicinity of the capsule is an energy system, separately devised by the British designer, consisting of vertical-axis wind turbines and solar panels which can be folded up in bad weather. Each capsule is eight meters in diameter. The constructive principle consists of a two-shell dome made up of thirteen elements, stabilized by acrylic ribs placed between two membranes. Made of reflective polyacrylic, the outer shell provides good thermal insulation by filtering the infrared radiation. While the reflective surface of the capsule creates a visual fusion with the landscape, there is complete transparency from the inside, making it possible to view the mountain panorama and the sky during the day and at night.

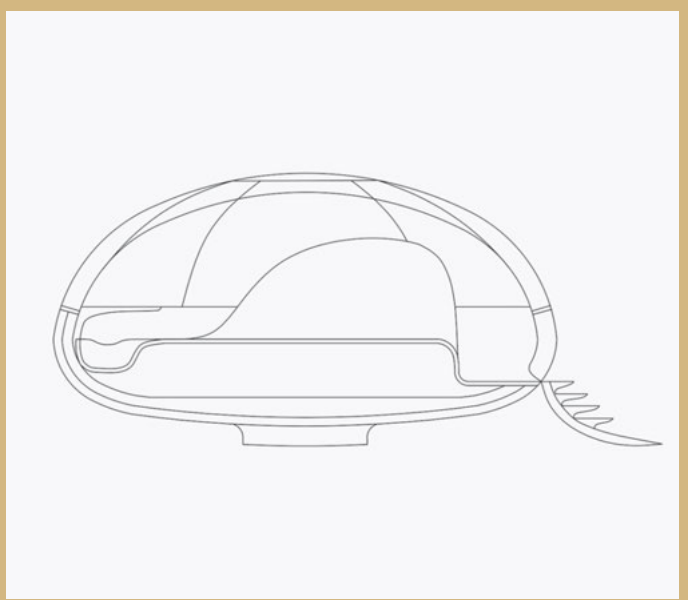
The Alpine Capsule offers space and comfort for two people. The interior is made up of interspersed areas for sleeping, relaxing, eating, and bathing, the latter being located a little lower, at the entrance level (one meter above the ground), so as not to impair the panoramic view in the main room (1.6 meters above the ground). The living area is covered with white leather; the soft room ambience is accentuated by small, indirect lighting elements to avoid reflections.

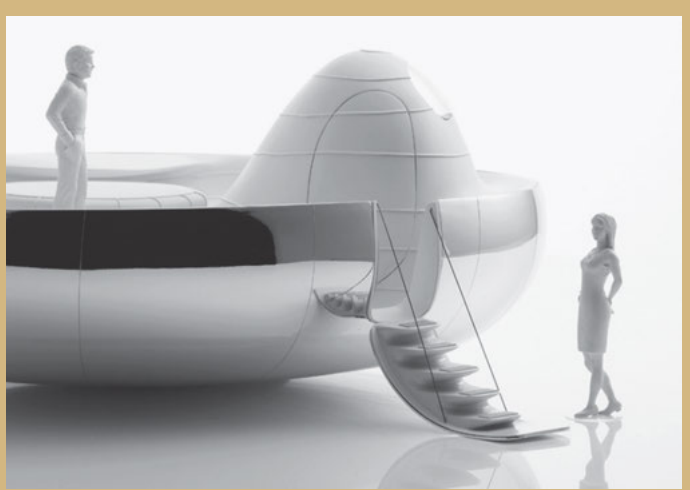
Construction schema for the Alpine Capsule

The isolated position of the capsule is an important part of the concept, as is the potential for duplicating it: "The project is a prototype for a new way of living off-grid, even as a temporary experience, a new ambition for the 21st century that can be implemented in so many environments."[36]
Ross Lovegrove's "cosmic utopia" is consciously situated in a self-sufficient, high-alpine region. On one of the computer images, the interior is depicted as a fluid self-contained landscape in white, within which lies a naked female body, curled up like a fetus. Skin and leather blend visually into an inseparable whole. Derived from Romanticism, the cosmic dimension of "becoming one" with nature is articulated here in an amorphous crystalline[37] bubble form, with the view from inside celebrated by a "pure" formal language and materiality.

Interior of the Alpine Capsule with a naked woman lying in fetal position

An organic interior landscape with raised bed and sunken bathing area







Rendering of the Capsule with Ross Lovegrove, all in white, and his commissioning client, who is touching the capsule

Section drawing of the Alpine Capsule, 2008

**1** Charlotte Perriand et al., *Charlotte Perriand: Un art de vivre*, ed. François Mathey, Musée des Arts décoratifs, exh. cat. (Paris: Flammarion, 1985), chap. "Les Arcs," 67.
**2** Fifth Congress of CIAM 1937: "Housing and Leisure," excerpt from the report, written by Josep Lluís Sert, Gino Pollini, and Luigi Figini in *L'Architecture d'aujourd'hui*, no. 126 (June/July 1966), 11.
**3** Ibid.
**4** Ibid.
**5** Ibid.
**6** Ibid.
**7** Jean Baudrillard, *The Consumer Society: Myths and Structures* (London, Thousand Oaks, CA, and New Delhi: Sage Publications, 1998), 25f.
**8** Ibid., 25.
**9** Ibid., 85.
**10** The term *station intégrée* is a legally defined combination of public and private investment. While the state guarantees the legal right to the property and subsidies, the sole investor is responsible for cultivating and selling the land, as well as for managing and maintaining it.
**11** "Avoriaz," 1967, 6'12", INA Film Archive.
**12** Roger Godino, *Construire l'imaginaire, ou le management de l'innovation* (Paris: Presses de la Cité Solar, 1980), 15.
**13** Roger Godino, interview conducted with Susanne Stacher, spring 2012 [=Godino 2012].
**14** Eric Boissonnas, *Flaine, la création* (Saint-Mandé: Editions Du Linteau, 1994), 8f.
**15** Ibid., 12f.
**16** Godino 2012.
**17** Perriand 1998, 335f.
**18** Ibid.
**19** Roger Aujame and Pernette Perriand-Barsac, eds., *Charlotte Perriand: Carnet de montagne* (Albertville: Édition Maison des Jeux olympiques d'hiver, 2007), 70.
**20** Perriand 1998, 376.
**21** Ibid., 412.
**22** Ibid.
**23** Marc Augé, *L'Impossible Voyage: Le Tourisme et ses images* (Paris: Payot & Rivages, 1997), 14.
**24** Ross Lovegrove, cited in Rose Etherington, "Alpine Capsule by Lovegrove Studio 2," *dezeen*, December 23, 2008 [=Lovegrove 2008], www.dezeen.com.
**25** Tristan Garcia, *La Vie intense: Une obsession moderne* (Paris: Autrement, 2016), 9.
**26** Ibid., 12.
**27** Ibid.
**28** Ibid., 24f.
**29** Kant (1790) 1911, "The Dynamically Sublime in Nature," § 28 "Nature as Might," 110f. The sense of sublimity lies, according to Kant, in the exaltation of the "strength of mind," the fortitude that "gives us courage to be able to measure ourselves with the seeming omnipotence of nature."
**30** Clemens Holzmeister, *Bauten, Entwürfe und Handzeichnungen* (Salzburg, Leipzig: A. Pustet, 1937). Cited in Georg Rigele and Georg Loewitt, eds., *Clemens Holzmeister*, exh. cat. (Innsbruck: Haymon Verlag, 2000), 317.
**31** Le Corbusier and François de Pierrefeu, *La Maison des Hommes* (Paris: Editions Plon, 1942), 193. Cited in *L'Architecture d'aujourd'hui*, vol. 36, no. 126 (June/July 1966), 11.
**32** Marcel Breuer, cited in Dan Howarth, "Alastair Philip Wiper finds 'noble failure' at Breuer's Modernist Flaine ski resort," *dezeen*, March 6, 2016.
**33** Marcel Breuer, cited in Sylvie Mazard and Maryse Moncéré, *Flaine: Architecture of a Ski Resort*, trans. Sita Guneratne (Annecy: CAUE de Haute-Savoie, 2009), 40.
**34** Perriand 1998, 338.
**35** Roger Godino, interview by Susanne Stacher, spring 2012.
**36** Lovegrove 2008, n.p.
**37** See Semper (1860) 2004, 84: "This regularity becomes absolute, all-embracing uniformity in the circle (a polygon of infinite sides) and in the sphere (a polyhedron of infinite flat surfaces). Therefore these forms have been valued since time immemorial as symbols of the absolute and of perfection."

## Afterword

In this work I have endeavored to demonstrate how the sublime, a concept that originated in Latin rhetoric, was transposed in the Age of Enlightenment onto an awareness of the mountain world, in particular the Alps, and how this way of observing nature became the foundation for conquering the mountains, Alpine tourism. Even though the reasons why city-dwellers choose to visit the Alps have varied a great deal over the centuries, the sublime can be seen not only as the main motive for the "Alps craze" that was rampant in the 19th century, but also as the guiding principle for the types of architecture associated with it.

Dealing with the history of the sublime and investigating the extent to which we can interpret its transfer onto Alpine architecture also made me realize that architecture itself plays a part in generating the "sublime": by means of spatial mechanisms that foster people's capacity for a spiritual or physical liminal experience—from the panorama to Lovegrove's Alpine Capsule.

With regard to Alpine architecture, sublimity interested me less as an abstract philosophical concept and much more as an operative figure that generates fictions. The analyses carried out here emphasize the visionary and utopian character of Alpine architecture, whereby what strikes us is the pronounced radicality of the various approaches. Through confrontation with "wild nature" or the "wilderness," building in the Alps has something tremendous and violent about it per se and this is articulated in different facets. The very act of positioning a building in an isolated spot in the midst of a mountainous landscape is associated spot with stupendous effort—based on a complex array of premises: the access to the site, the creation of infrastructures, the confrontation with climatic and geographical conditions. All this has to be wrested from the raw grip of nature.

### Six Different Approaches and Purposes

The **grand hotels** of the 19th century were imposing blocks deposited in the wilderness as urban export products. Their positioning in the landscape can be regarded as an "act of violence," because they did not grow out of the topography (in the way that Baumann's Hafelekar mountain station would), but were "implanted" into the mountains as ready-made "superblocks." They can be seen as the monuments of city-dwellers in the way they "occupied" the Alps. They were built in order to frame the landscape as an attraction and thus convey to the guests the longed-for feeling of the sublime. However, this framing of the view created an effect of the picturesque that was intensified by planning landscape parks in the surroundings. Grand hotels formed hermetic enclaves in the middle of the Alps; they alluded to the sublime merely as a reference to a faraway yearning ("The Emergence of the Alpine Sublime").

A radical link to nature has always been sought in the crystalline element—and still is today. Bruno Taut's concept of the beautiful and the sublime is expressed in the relationship between the human being and the **crystal or glass architecture** that he was to build on the highest peaks of the Alps. The idea of sacrifice plays an important part here: man must subject himself to the "lofty assignment" that can only be fulfilled by the "prodigious offering of courage, strength, and blood."[1] This crystalline vision is based on something tremendous and violent, demanding a redefinition of the relationship between man and nature: on the one hand, through the crystalline perfecting of nature and, on the other, through the inscription of the body into the perfect form of the crystal. In crystal or glass architecture the sublime is articulated in the visionary union of man and nature, of mountain and technology ("Crystal, Crystallization").

Coming to the relationship between the body and the natural elements, the **sanatoriums** are marked by another form of radicality. Architecture stepped into the service of medicine and was transformed into a "therapeutic hygiene machine."[2] Its functioning was based on an interaction of sun, cold, and high-altitude fresh air with the objective of conditioning the body: for hours in all weathers and temperatures the patients were trundled out onto their cure galleries and exposed to the climate. The tremendous aspect here was reflected in the sick body's permanent struggle for survival, which was exposed programmatically to the raw mountain climate. Dr. Saidmann's solarium articulated the dimension of the tremendous in an architecture that revolved with the sun—more machine than building. The patients' bodies stretched out on tilting sunbeds are an expression of an extreme relationship to the sun, which stood for health.

At Monte Verità, too, there is something impressive about the extremes to which bourgeois sons and daughters were

willing to go—fortified by extreme borderline experiences in the midst of nature, naked and subsisting on a vegetarian diet—in order to attain a healthier life and a radical new beginning.

The sun played a central role in all these "paths toward health" and was elevated to the status of a myth. The sublime lay here in the direct confrontation of the body with the elements of nature ("Therapeutic Landscape").

The various architectural types of the **children's homes** of the 1930s illustrate the variability of educational concepts, depending on the national, political, and cultural context—between reform and dictatorship. In particular, the towers of the Fiat children's homes are remarkable for their radicality. They made no compromises whatever with their locations; whether in the mountains or by the sea, they stood as universal prototypes like beacons in the landscape, as icons of a specific ideology. This radicality defined their interiors as well, where the children lived, serially arranged in an orderly spiral around an atrium. The view onto the landscape was replaced by the view into the center. Nature outside was no longer the sublime element, but rather the educational politics within. The tower can be seen as "education machine," which was uncompromising both inside and outside ("Contesting for the Child").

A completely different approach is represented by the impressive **cableway projects** at exposed high altitudes, presenting a breathtaking scenario of rock faces. Radicality is expressed here in the form of mighty, dizzying overhangs. Dynamic forms heighten movement and speed, they transport people into a kind of floating state. The tremendous is articulated here physically: now it is the body, tumbling head over heels into practically vertical scarps and slopes, reveling in a euphoria of speed. The sublime lies here in an extreme physical experience, which is not only enabled but deliberately intensified and celebrated by architecture ("Motion, Exhilaration, and Vertigo").

The sheer number of 30,000 beds also entails a specific form of power: six beds for every 38 square meters multiplied 5,000 times equals a **"ski factory,"** a gigantic machine for the masses, redefining the relationship between man and nature. The radicality of such facilities consists in the total subjugation of nature by "universal man"; nature is exploited, like every other consumer item. Architectural strategies deployed to screen out the masses, so that the individual is isolated, at least optically, from other people in order to come into visual contact with nature, are attempts to escape—at least for an instant—the touristic colonization of the mountains. The aim is to salvage something of the old sublimity, while its modern version is anchored in the proud work of man, before which we stand in awe ("'Sublimating' 30,000 Beds").

**Ideas for the Future of Alpine Architecture**

If architecture is seen as a "generator of the sublime," building in the mountains can never be a neutral thing—nor can building in the future. If we approach the issue of tourism with this awareness, we need to reflect on the current state of development. The Alps, once the sole utopian territory, the counterworld to the city, are in danger today of becoming a dystopia through continuous urbanization and the increasing masses of tourists; their elemental and wild naturalness is about to vanish. The Alps have been transformed successively into a gigantic "theme park," a "European Central Park,"[3] and they must now be regarded and treated as a threatened nature reserve. Because serving the various needs of 120 million holiday guests is an ambition that has to be approached with caution and care if people wish to preserve the very aspect that they actually come to experience in the first place: "wild nature."

In 1704 Shaftesbury compared the beauty of "the wilderness" to the "artificial princely gardens": the latter have in the meantime become installed in what were once wild mountains and have confronted us ever since with the question of what our relationship to nature should actually look like. It now behooves architects and planners to design, organize, and define our stay in the mountains. If architecture is regarded as a "generator of the sublime," the acceptance of radicality might empower the opening up of new visions.

**1** Taut (1919) 2004.

**2** Louis Landouzy (ca. 1900), in Grandvoinnet 2014, 13.

**3** Regina Barth-Grössler, Theo Deutinger, "European Central Park: Europe Is a City – The Alps Are Its Central Park," in *GAM. Graz Architecture Magazine 01*: *Tourism and Landscape*, ed. Urs Hirschberg, Günter Koberg, Jörn Köppler, and Roger Riewe (Berlin: Springer, TU-Graz, 2004), 128ff.

## Paolo Amaldi—Postscript: Sublime Machines

Having read Susanne Stacher's book we can note, without any real reservations, that the sublime is, in fact, a most modern aesthetic experience (which in fact emerged with the development of aesthetics as an independent discipline). More than ever, it finds a certain resonance in contemporary research in the neurological and cognitive sciences, which plunge the human sixth sense—according to Ernst Mach the ability to place oneself and consequently also to free oneself from the requirements of one's own perception—into a crisis.

The sublime arises from a new approach by an observer, who at one and the same time participates in a situation and is entirely immersed in it (was it not Diderot who in *D'Alembert's Dream* affirmed that "our senses are like the many keys of an instrument that are struck by the nature that surrounds us"?). This contrasts with the contemplative approach of distancing, which—as we would say—is peculiar to classic Platonic culture but which also contrasts with the theories of formal mannerist beauty and all the effects of Baroque theatricals. If the history of culture shows that the development of new key concepts upsets the order and the hierarchy of the earlier concepts that preceded them, then the sublime was a highly discriminatory term which forced most of the previously developed aesthetic concepts into the other end of the spectrum, even though these had originally been constructed in opposition to each other. The modernity of the sublime lies in its qualities of authenticity and immediacy. In literature these coincide with a new sensibility in the reader, with the intensive appropriation of texts such as Rousseau's *La Nouvelle Héloïse*, Bernardin de Saint-Pierre's *Paul et Virginie* or Goethe's *Die Leiden des jungen Werther.* Novels that are repeatedly read and re-read, quoted and recited, which penetrate the readers, filling them with these stories of initiation.

The psycho-physiological and cognitive expression of this experience is the widening of the self, the strengthening of feelings, the contraction of all fibers, the expansion—a blending of the individual with the dumb and telluric forces of nature. This movement can therefore be linked with the idea of "self-emptying" about which Worringer spoke in *Abstraktion und Einfühlung* or before him Nietzsche, Schopenhauer, or Augustine, which set the attraction of nature against humanity's ability to devote itself to introspection, to meditation.

Ultimately, stepping outside of oneself is also an experience to which the architects of modernism have given a spatial and temporal form, but before we take a closer look at this point, a short digression that deals with terms is necessary.

By attempting to outline the experience of the sublime by means of modern machines for the observation of nature, Susanne Stacher's book makes us aware that this exhilarating experience of the Alps is, in fact, extremely fragile, that it is always about to tilt or to drift away into the lower, "inferior" category of the picturesque. The picturesque in fact represents a kind of "decline" of the sublime. William Gilpin in *Three Essays: On Picturesque Beauty* and Uvedale Price in *A Dialogue on the Distinct Characters of the Picturesque and the Beautiful* were not mistaken when they placed this category half-way between the sublime, which in terms of theory had been introduced by Burke, and classic beauty.

In fact, the period of the sublime lasted only until the infrastructures made these imposing landscapes accessible. And when, toward the end of the 19th century, the mountains, which had been domesticated, were regarded as gardens that had to be preserved from the invasion of technology, this landscape was seen as "pretty" or "pleasant." It is therefore no accident that the term "picturesque" resurfaces in early 19th-century guidebooks in conjunction with a specific experience of travel that is characteristic of a cosmopolitan population—borne along by the Rousseau-influenced fashion for a return to nature and journeying easily and without impediment—and is therefore modern.

When Napoleon built the Simplon Pass road in 1807 to replace the old mule track across the Alps, the relationship of the traveler to the landscape changed. Crossing the Alps was no longer dangerous; the affluent class could easily make this journey on horse and could stop at regular intervals in order to admire the landscape. Gabriel Lory's pictures in his book *Voyage pittoresque de Genève à Milan par le Simplon* illustrate this infrastructure, which for the spectator in a frock coat became a continuous balcony, a terrace with a view of the landscape. Infrastructures transformed the crossing of the Alps into a montage of views or "individual parts," which are largely dependent on the route taken by the road. This fragmentation of reality into a series of consecutive scenes recalls the theories of landscape developed in the 18th century by Humphrey Repton in his *Red Books*. It is clear that the train and

subsequently the car as visual facilities have developed this kind of dismembering of experience further and have caused it to be separated into fragments with a view to consuming it more easily.

This degradation, which led, so to speak, from the sublime to the picturesque, was the result of human interventions in nature and the emergence of an infrastructure. To use the famed expression of Marx and Engels, it is the new forms of "infrastructure" that since the 19th century have produced and determined new value systems, along with a new form of social and aesthetic consciousness with its new practices of the appropriation and enjoyment of landscape. The representation systems produced by the conquering infrastructure are related to the acceleration and sequencing of experience and contribute to the aestheticization of the landscape. This produces the following hypothesis; the architectural means presented as examples in this book are, through their radicalism, visual and sensory machines which attempt—consciously or unconsciously—to counteract the aesthetic degradation of the Alpine landscape, as outlined earlier. These architectures endanger the body of the viewer or the user: they expose it to the elements of nature and the mountain atmosphere, understood as totality. Sublime—as Kant in his third critique remarks—is not the object itself, but the relationship that the human establishes to the object. The sublime calls for a radicalism that is excellently suited to so-called functionalist architecture: the Fiat tower, the product of an exalted ideology which organizes children in military fashion in a huge spatial continuum—an ascending space bathed in dramatic zenithal light. This building can only strengthen the status of the monumental mountain landscape that surrounds it, just as its coastal version dramatizes the relationship to the endless horizon of the sea. The radicalism of the form, which is typical of the principles of modernism can be summarized in three terms that are mentioned in the preface to the first Giedion manifesto of 1929: "light, air, opening." These terms are a call to explode the domestic place, to project it outward, to break through the bourgeois way of life in order to place the residents in a significant and radical relationship to atmospheric elements. If we think of the cure galleries in the heliotherapeutic sanatoriums or the children's holiday camps, while they were, of course, built for healing, they were also places where exposure to the extreme weather conditions could be fatal.

As regards new architectural installations of the present-day, they are also part of this approach: by means of technology they attempt to strengthen the relationship to the feeling of vertigo that the Alpine landscape provides us with; however, this landscape has been largely urbanized and degraded to a picturesque or "pretty" place. If this thesis is topical, then this is precisely because it questions the fragility of this feeling of the absolute that demands new, increasingly powerful visual observation machines, which try to continue putting observers in a state of tension, in sublime isolation, in the hope that they will never tire of this relationship that is both powerful and destructive.

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**25** > J. Faber, "Thomas Burnet, Master of the Charterhouse" (1635–1715), after a painting by Sir G. Kneller (1697), 1752, mezzotint (scraping or "black art" engraving technique), Wellcome Collection
**26** John Vandergucht, "Mr John Dennis," 1734, line engraving, National Portrait Gallery London, WmC
**27** Anonymous, "Anthony Ashley-Cooper, 3rd Earl of Shaftesbury, English politician, philosopher, and writer," 1702, Falkensteinfoto/Alamy stock photo
**28** Anonymous, "The R.t Hon.ble Joseph Addison Esq., one of his Majesty's Secretary's of State" (1672–1719), ca. 1712, engraving after the oil painting by Sir Godfrey Kneller, ÖNB, inv. no.: PORT_00092088_01
**29** Charles-Simon Pradier (1786–1847), "Horace Bénédict de Saussure [1740–99], Professeur de philosophie à Genève, Membre de plusieurs Académies, Dédié à la Société des Arts de Genève," 1810, line engraving after an oil painting (1796) by Jean-Pierre Saint-Ours (1752–1809), printed by Durand, Geneva, 21.5 × 15.5 cm, ÖNB, inv. no.: PORT_00136619_01
**30** ^ Marc-Théodore Bourrit (1739–1819), "Circular View of Mountains Seen from the Top of the Buet Glacier," in Horace-Bénédict de Saussure (1740–99), *Voyage dans les Alpes, précédés d'un essai sur l'histoire naturelle des environs de Genève*, Neuchâtel, 1779, vol. 1, p. 513, pl. 1, sheet 8, Google Books
**30** v Lane, advertisement for the Panorama, Leicester Square, London: "Battle of Trafalgar," 1806, colored engraving after H. A. Barker, Wellcome Images CC BY 4.0
**32** ^ Christian von Mechel (engraving), Marquard Wocher (sketch), "Voyage de Mr de Saussure à la cime du Mont-Blanc, au mois d'août 1787 – La descente," 10th plate, hand-colored engraving, ca. 1790, Wellcome Collection
**32** v Christian von Mechel, Marquard Wocher, "Voyage de Mr de Saussure à la cime du Mont-Blanc, au mois d'août 1787– La descente," 2nd plate, hand-colored engraving, ca. 1790, ÖNB, inv. no.: 110262806
**33** ^ William McGregor, "Ascent of Mont Blanc," ca. 1850, printed by George Baxter (1804–1867), aquatint, n.d., Alpenverein-Museum Innsbruck, inv. no.: 2807.33
**33** v William McGregor, "Ascent of Mont Blanc," ca. 1850, printed by George Baxter (1804–1867), aquatint, n.d., Alpenverein-Museum Innsbruck, inv. no.: 2807.33
**35** Sir Thomas Lawrence (1769–1830), "Sir Uvedale Price, 1st Baronet," (1747–1829), ca. 1799, oil on canvas, 76.2 × 63.5 cm, Museum of Fine Arts, Boston, WmC
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**38** < Friedrich Studer (CH, 1880–1943), "Giessbach – Am Brienzersee – Au Lac de Brienz – Beleuchtung der Fälle jeden Abend – Illumination des cascades chaque soir," advertising poster, 1912; source: Otto Haberer-Sinner (CH/DE, 1866–1941); commissioned by: anonymous; printing: Hubacher & Cie. AG, Bern, CH; lithograph, 100 × 70 cm, Museum of Design Zurich, poster collection, inv. no.: 03-0945
**38** > Karl Bickel (CH, 1886–1982), "Trümmelbach – Lauterbrunnen – Schweiz," advertising poster for the Trümmelbach Falls, 1929; commissioned by: Kur- und Verkehrsverein Lauterbrunnen; printing: Graphische Anstalt J. E. Wolfensberger AG, Zurich, CH (founded 1902); lithograph, 128 × 90.5 cm; courtesy Karl Bickel-Stiftung
**39** Otto Baumberger (1889–1961), Höll-Grotten Baar bei Zug – Wundervolle Tropfsteinhöhlen," advertising poster, ca. 1931; commissioned by: Höllgrotten Baar, Baar, CH; printing: Art Institute Orell Füssli AG, Zurich, CH; lithograph, 127 × 90 cm, Museum of Design Zurich, poster collection, inv.no.: 50-0169
**42** Anonymous, *Fête de l'Être suprême,* June 8, 1794, view of the mound on which the Champ de la Réunion was staged to celebrate the marriage of the Supreme Being, 20 Prairial, Year II of the French Republic, engraving, Bibliothèque Nationale de la France, Gallica
**43** Alexandre-Théodore Brongniart (senior, 1739–1813), project for a mound for the "Fête de la Raison" in the Cathédrale Saint-André, Bordeaux, 1793, Musée du Louvre, Paris, D.A.G., inv. no.: RF50432-recto, © RMN-Grand Palais (Musée du Louvre), Michèle Bellot
**44** Johann Huber (after Johann Peter Krafft, 1817), "Erzherzog Johann am Hochschwab," 1839, oil on canvas, 41.3 × 29.4 cm, Neue Galerie Graz – Universalmuseum Joanneum, inv. no.: I/2638, © J. Koinegg
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showing Bad Gastein and environs, 1850, ÖNB, inv. no.: 12838903
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**46** v Johann Baptiste Isenring (1796–1860), Gäbris panorama, view from Gäbris near Gais in the Canton of Appenzell looking at the Thurgau mountains, the northwestern part of the Canton of St. Gallen, Lake Constance, the Rhine Valley, the Vorarlberg Alps, and the Säntis massif, n.d., graphic print, Schweizerische Nationalbibliothek, Prints and Drawings Department, WmC
**47** Alexis Donnet, *Architectonographie des théâtres de Paris, mise en parallèle entre eux: Recueillis et dessinés a une échelle commune, gravés par Orgizzi*, printed by Didot l'Ainé, 1837–1840, sheet 23: "Diorama et Waxhall," © Susanne Stacher
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**49** v< Giovanni Segantini (1858–1899), Alpine Triptych "La Morte," 1898–1899, oil on canvas, 190 × 320 cm, © Segantini Museum, St. Moritz, WmC
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**54** Andrea Deplazes with Studio Monte Rosa, ETH Zurich, Monte Rosa Hut, 2009, © Tonatiuh Ambrosetti
**56** ^ Jacopo de' Barbari (attributed), detail from "Portrait of Luca Pacioli," studying a crystal, ca. 1495, Pinacoteca di Capodimente, Naples, 99 × 120 cm, WmC
**56** v Jacopo de' Barbari (attributed), detail from "Portrait of Luca Pacioli," studying a crystal, ca. 1495, Pinacoteca di Capodimente, Naples, 99 × 120 cm, WmC
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**62** Ernst Haeckel (1834–1919), drawing of a Radiolaria marine protozoa, Acanthophracta, cover image for *Kristallseelen*, Kröner publishing house, Leipzig, 1917
**63** Rudolf von Laban (1879–1958), dancer in the crystal, n.d., sketch, Archiv Univ. Leipzig
**65** Ross Lovegrove, Alpine Capsule on the Piz La Ila, Alta Badia, rendering, 2008, © Ross Lovegrove Studio
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**70 and 71**< Four pictures: Laban dance school: dance exercises in the icosahedron, sequence from an anonymous silent film (untitled), 1' 41", 1928; clip from "Un siècle de danse" (1992) by Sonia Schoonejans, with thanks to Lea Daan for the image rights
**70** v Anonymous, photograph of Rudolf von Laban in the icosahedron that he designed, n.d., Archiv Univ. Leipzig
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**72** Arnold Fanck (dir.), "The Holy Mountain," 1926, still from the climbing scene before the fatal fall; courtesy Archiv Matthias Fanck Stiftung, Deutsche Kinemathek, inv. no.: F1036_3
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**74** Leni Riefenstahl (dir.), "The Blue Light," 1932, still of Junta in a mystic pose in the luminescent crystal cave, Deutsches Filminstitut Frankfurt, © Walter Riml; courtesy Dr. Christian Riml
**75** ^ Richard Buckminster Fuller (1895–1983), "Laminar Geodesic Dome from the 'Inventions: Twelve Around One' portfolio," 1981, screenprinted clear film and a duotone screenprint on Lenox 100% rag paper, 76.2 cm × 101.6 cm; courtesy Carl Solway Gallery, Cincinnati
**75** v Richard Buckminster Fuller (1895–1983), "Non-Symmetrical, Tension-Integrity Structure from the 'Inventions: Twelve Around One' portfolio," 1981, screenprinted clear film and a duotone screenprint on Lenox 100% rag paper; courtesy: Carl Solway Gallery, Cincinnati
**76** Gerhard Garstenauer (1925–2016), crystalline sphere next to the dome-shaped ski-lift station in Sportgastein, 1972
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