WHC Nomination Documentation

File name: 785.pdf UNESCO Region EUROPE AND NORTH AMERICA

SITE NAME ("TITLE") Semmering Railway

DATE OF INSCRIPTION ("SUBJECT") 5 / 12 / 1998

STATE PARTY ("AUTHOR") AUSTRIA

CRITERIA ("KEY WORDS") C (ii)(iv)

DECISION OF THE WORLD HERITAGE COMMITTEE:
22nd Session
The Committee inscribed this site on the World Heritage List on the basis of criteria (ii) and (iv):
Criterion (ii): The Semmering Railway represents an outstanding technological solution to a major physical problem in the construction of early railways.
Criterion (iv): With the construction of the Semmering Railway, areas of great natural beauty became more easily accessible and as a result these were developed for residential and recreational use, creating a new form of cultural landscape.
Several delegates supported this inscription as it reflected the inclusion on the World Heritage
List of new categories of properties.

BRIEF DESCRIPTION:
The Semmering Railway, built over 41 km of high mountains between 1848 and 1854, is one of the greatest feats of civil engineering of this pioneering phase of railway building. The quality of its tunnels, viaducts and other works have ensured the continuous use of the line up to the present day. It runs past a background of a spectacular mountain landscape containing many fine recreational buildings resulting from the opening up of the area with the advent of the railway.

1.b. State, province or region: Provinces of lower Austria and Styria (the Semmering Pass forms the boundary between them)

1.d Exact location:

1. Specific location a) Country	Republic of Austria
b) State, Province or Region	Provinces of Lower Austria and Styria (the Semmering Pass forms the boundary between them)
c) Name of property	Semmering Railway - cultural site
d) Exact location on map and indication of geographical coordinates	see documentation, map.
e) Maps and/or Plans	see documentation, map
2. Juridical data a) Owner	Railway: "Österreichische Bundesbahnen" (Austrian Federal Railways, 1010 Wien, Elisabethstr.9) Various owners for all other non-railway buildings and landscape

2. Juridical Data (cont'd) b) Legal status	See documentation, pages 11 f.
c) Responsible national agency	"Bundesdenkmalamt" (Federal Office of Historical Monuments) for listed monuments.
d) Collaborating national agencies and organizations	"Amt der Niederösterreichischen Landesregierung" (Office of the Lower Austrian Provincial Government) A - 1010 Wien, Herrengasse 9. "Amt der Steirischen Landesregierung" (Office of the Styrian Provincial Government) A - 8010 Graz, Landhaus.

3. Identification a) History	see documentation, pages 25 ff.
b) Description and Inventory	see documentation, pages 15 ff. and pages 36 ff, 43 ff. Dehio Handbuch Steiermark. Die Kunstdenkmäler Österreichs, Wien 1982 (Dehio Handbook - Styria, the monuments of Austria) Vienna 1982 (The Dehio Handbooks are short inventories of monuments edited by the Federal Office of Historical Monuments. The respective volume on the Lower Austrian part of the Semmering is in preparation, the currently available material has been used for this documentation).
c) Photographic and/or cinematographic documentation	see documentation, annex, slides and a video are enclosed.

3. Identification (cont'd) d) Public awareness	The 1992 exhibition "Eroberung der Landschaft, Semmering-Rax-Schneeberg" (Conquering the landscape, Semmering-Rax-Schneeberg) and the "Semmering" leaflet have greatly enhanced public awareness.
e) Bibliography	see documentation, pages 62 ff.
4. State of preservation/ conservation a) Diagnosis	Railway maintenance, and in particular the upgrading to state-of-the-art technology, are both conducted by the Austrian Federal Railways under supervision of the Historical Monuments Department of the Bundesdenkmalamt. see documentation, pages 15 ff.

4. State of preservation/ conservation (cont'd)	see documentation, pages 25 ff.
b) History of preservation/ conservation	
c) Means for preservation/ conservation	"Bundesdenkmalamt" (Federal Office of Historical Monuments) 1010 Wien, Hofburg-Säulenstiege "Amt der Niederösterreichischen Landesregierung" (Office of the Lower Austrian Provincial Government) A - 1010 Wien, Herrengasse 9 "Amt der Steirischen Landesregierung" (Office of the Styrian Provincial Government) A - 8010 Graz, Landhaus
d) Management plans	

5. Justification for inclusion in the World Heritage List	see documentation, pages 13 f.
a) Cultural property	
(i) reasons for which the property is considered to meet one or more of the World Heritage with, as appropriate, a comparative evaluation of the property in relation to properties of a simmilar type	see documentation, pages 21-22
(ii) evaluation of the property's present state of preservation as compared with similar properties elsewhere	see documentation, pages 15 ff.

(iii) indications as to the authenticity of the property	see documentation, page 6
5. Justification for inclusion in the World Heritage List (cont'd)	see documentation, pages 4 ff.
b) Natural property	
(i) reasons for which the property is considered to meet one or more of the World Heritage criteria with, as appropriate, a comparative evaluation of the property in relation to properties of a similar type	see documentation, pages 13 ff.

(ii) evaluation of the property's present state of preservation as compared with similar properties elsewhere

see documentation, page 21

(iii) indications as to the integrity of the property

With its viaducts and tunnels, its tracks along the contours of the mountain, the Semmering Railway is an inseparable part of the landscape enhancing its beauty and grandeur.

Signed (on behalf of State Party)

Full name Elisabeth GEHRER

Title Federal Minister for Education and Cultural Affairs

Date Vienna, September 21st 1995

REPUBLIK ÖSTERREICH

THE WORLD HERITAGE

Documentation for the Nomination of

Semmering – railway – cultural site Semmeringbahn (Kulturlandschaft)

Material based on various studies compiled by the Bundesdenkmalamt

1010 Wien, Hofburg, Säulenstiege

Wien 1995

Semmering – railway – cultural site

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THE SEMMERING AND ITS LANDSCAPE

GEOGRAPHY – TOPOGRAPHY – GEOLOGY – CLIMATE

GEOGRAPHY

The Semmering Pass is situated on the eastern fringe of the Alps and connects the Austrian provinces of Lower Austria and Styria. It is situated at 984 m above sea level, between the Pinkenkogel (1292 m) to the north and the Hirschenkogel (1340 m) to the south, and forms the south-west-north-west transition between the Mur-Mürz trough and the Lower Austrian lowlands of Steinfeld, in the southern part of the Vienna Basin. The so-called *Schräger Durchgang* ("sloping passageway") represents the shortest route between Vienna and the Adriatic, with the result that the Semmering belongs, alongside the Brenner, to the most important mountain passes in the Eastern Alps.

TOPOGRAPHY

The Semmering Region is mountainous and is bordered by the highest mountains in the Federal Province of Lower Austria.

The Schneeberg Massif with the Klosterwappen (2076 m) as its highest peak rises to the north; in the north-west lies the limestone massif of the Rax whose summit, the Heukuppe (2007 m), already belongs to Styria, followed by the Schneealpe (1903 m) and the Veitschalpe (1981 m) to the west. From the south-east, the ramp-like Valley of the Froschnitz ascends steadily towards the pass. To the south, the Fischbacher Alps – whose highest mountain, the Stuhleck (1782 m), rises over Spital am Semmering – extend parallel to the Valley of the Mürz. The Wechsel Range (Hochwechsel 1743 m) and, further east, the Bucklige Welt Mountain Range form the south-eastern boundary of the Semmering Region. The Semmering descends over steep terraces and rift valleys to the Steinfeld in the north-east, its outer foothills ending in the Gloggnitzer Inlet. The highest mountains of the region lie to the west of the Semmering. The Große Scheibe (1473 m) and the Beeralpkopf (1481 m) rise to the north of Mürzzuschlag. The border between Lower Austria and Styria runs across the Tratenkogel (whose 1565 m make it the highest mountain in the Semmering Region), the Kampalpe (1535 m, above Spital am Semmering), the Ochnerhöhe (1403 m) and the Pinkenkogel (1292 m). The Semmering Pass itself is situated between the Pinkenkogel to the North and its pen-

dant, the Hirschenkogel (1340 m), to the south. The provincial border crosses these and continues over the Dürriegel (1504 m) and the Alpkogel (1414 m) towards the south. The Sonnwendstein (1523 m), which rises over Maria Schutz, offers a prominent vantage point. It is flanked by the Ottergruppe and its highest point, the 1358 m high Großer Otter. The Raachberg (908 m), which is situated to the south of Gloggnitz, forms the south-eastern corner-point of the Semmering Region.

The wooded uplands that cover the slopes of the Kreuzberg (1084 m), Kobermannsberg (925 m) and Gotschakogel (760 m) represent the watershed between the Valley of the Schwarza to the north and the Adlitzgraben to the south. The Semmering Region is drained by two major river systems: those of the Schwarza and the Mürz. The Schwarza meanders from the north through the narrow gorge of the Höllental between the Rax and Schneeberg Massifs. The Preiner Bach, which flows from the Preiner Gscheid as the Rettenbach, is supplied with water by the Hollensteingraben and Schonergraben Valleys, as well as by waters from the Griesbach, Großa[illegible]bach and Kleinaubach Streams. It enters the Schwarza at Hirschwang an der Rax. Between Reichenau an der Rax and Gloggnitz, the Schwarza is largely fed by side streams coming from its (orographic) right-hand side (Grünstlingerbach, Payerbach Bach, Kübbach, Höllbach and the waters of the Abfaltersbachgraben).

South of Kreuzberg Mountain, the Heidbach enters the Adlitzgraben. The Heidbach gathers its moisture from the slopes of the Hirschenkogel, Dürriegel, Arzkogel and Sonnwendstein, and flows in a northerly direction through the Myrthengraben and later turns towards the east, in an almost right-angled bend at the foot of the Weinzettelwand, into the Adlitzgraben. Here it is met by streams from the Oberer and Unterer Adlitzgraben, as well as the Kalte Rinne, and flows to meet the Greisbach, which decends from the Bärensattel, at Schottwien. It continues onwards to meet the Göstritzbach, which flows through valley basin of the Sonnwendstein, Arzkogel, Dürreigel, Alpkogel and Kleiner Otter Mountains, and is known in its eastern reaches below the village of Aue as the Auebach. From there it flows onward to enter the Schwarza at Gloggnitz. The Schwarza joins the Pitten at the village of Pitten to form the Leitha which enters a subsidiary branch of the Danube at Wieselburg (or Mosonmagyaróvár in Hungarian) on Hungarian territory.

To the south, the Semmering is drained largely by the Fröschnitzbach which enters the Mürz at Mürzzuschlag. The Fröschnitzbach is fed by waters from the Scheedgraben, Wallersbachgraben and Holzergraben Valleys on the southern slopes of a mountain ridge comprising of the Große Scheibe, Beeralpkopf, Tratenkogel, Kampalpe, Ochnerhöhe and Pinkenkogel, together with the Fröschnitz, Kaltenbach, Sommeraubach, Steinbach and Auersbach Streams on the northern slopes of the northern Fischerbacher Alps.

The Mürz itself drains the Semmering Region between the village of Kapellen and the town of Mürzzuschlag. Here it is fed by waters from the Raxenbach, which descends from the Preiner Gscheid, the Valleys of the Glasgraben and Griesgraben and the lower valley of the Mürz. The Mürz enters the Mur at the town of Bruck an der Mur, which in turn flows on to met the Drau.

GEOLOGY

The geological structure of the Semmering Region is highly complex. A number of major geological formations are contained in a relatively small area that consist of the north-south course of the Upper Eastern Alpine (Northern Limestone Alps and the sandstone zone of *Grauwacke*), the Middle Eastern Alpine (*Tattermannschuppe*) and the Lower Eastern Alpine (Semmering and Wechsel System).

CLIMATE

The Semmering, which is situated at an altitude of almost 1000 m, is generally quite well protected against the westerly and north-westerly winds that prevail in this region. This is above all due to the alpine plateau of the Rax Massif which lies to the north-west. Under certain climatic conditions, compensatory air currents sometimes form at the height of the pass itself, between the Mürztal which ascends from the east and the depression of the Steinfeld to the north-east.

Besides being protected from winds, the Semmering also benefits from mild temperatures. Because cold air is unable to accumulate over the pass, the area is not subject to extreme temperatures.

Apart from this, the region has a relatively low precipitation, as the mountain range which runs from the Veitsalpe in the west to the Schneeberg Massif in the north forms a barrier to rainfall coming from the west and north-west. Its position in the lee of this range ensures favourable conditions for sunshine and hinders cloud-formation.

In comparison to the average temperatures of other areas of Austria at similar altitudes, air temperatures in the Semmering Region tend to be higher throughout the year as a result of its acclivitous location. Generally, July is the warmest and January the coldest month.

The Semmering is particularly notable for its mild temperatures. Despite a difference in altitude of 800 m, the region is not significantly colder in winter than Vienna, while the summer temperatures are on average 4° to 5° C lower than those of the capital. This shows that – unlike the metropolis of Vienna – heat is substantially attenuated over the Semmering Region in summer. The mildness of the climate is also manifested in the fact that differences in temperatures over the autumn

months between the Semmering and Vienna are much smaller than during the summer. While in Vienna the mean spring and autumn temperatures are equal to one another, the autumn temperatures on the Semmering are an average of 1.7° C higher.

In the period between 1961 and 1975 the lowest mean monthly temperature of -8.5° C was measured in January 1963 and the highest was 17.3° C in July 1967. The temperatures recorded for the same periods in Vienna were -6.0° and 21.6° C.

The same is true of days with frost, in other words those days where the minimum air temperature lies under freezing-point. Fewer of these have been recorded during the year at the Semmering Pass than in the considerably lower-lying Reichenau an der Rax (484 m). The Semmering has an average of 118 days of frost a year; Reichenau an der Rax, 123.6 days.

During the autumn and winter months the Semmering often lies above the level of temperature inversion, in other words over the level where an increase in altitude corresponds to an increase in temperature. Autumn and winter temperature inversion is often accompanied by fog cover, with the result that the Semmering lies, for many days of the year, above the level of fog in valleys and enjoys more sunshine than lower-lying areas. Apart from this, many forms of air pollution (industrial and domestic emissions, automobile exhaust fumes, etc.) often cannot cross the inversion level for thermal reasons, with the result that bioclimatic conditions are generally more favourable on the Semmering than further below in the valleys.

From October until February the Semmering has less cloud cover than Vienna. The pass often lies above the level of frequent fog and low stratus cloud cover during the winter period. The slightly higher amount of cloud cover between April and September is caused, on the one hand, by the warming of mountain slopes during daylight hours in summer, (which favours cumulous cloud formation over mountainous areas) and, on the other, by the fact that cloud accumulation resulting from bad weather periods takes longer to disperse in the mountains. In the autumn and winter months fog often covers lower-lying areas during the night. This is often dispersed during the day by insolation (exposure to the sun's rays). As a result, mornings at the Semmering feature less cloud cover than Vienna between the months of September and March; but in the evenings, only between November and February. This means that in the cold half of the year the persistence of frequent ground fog in lower-lying areas increases significantly between November and February. Conversely, the formation of cumulus clouds over mountain crests throughout daylight hours increases as a result of sunshine during the warm half of the year. This explains the increase in the balance of cloud-cover values between the Semmering and Vienna during the day.

The Semmering is favoured with more sunshine in the autumn and winter than lower-lying areas. This is evident from the large number of sunny days, in other words those days where the mean cloud cover is less than two tenths of the total area of the sky. While Vienna has an average of 5.6 sunny days in winter, the Semmering has 13.2. October has the highest average number of sunny days.

The favourable climatic conditions that prevail in winter in the Semmering are also evident in the number of cloudy days, or those days where the mean cloud cover exceeds eight tenths. Vienna has an average of 64.5 such days between November and February: the Semmering, only 45.9.

The orographic variety of the Semmering Region also has a favourable effect on its character as a recreational area. The region features significant variations in length and periods of sunshine. As a result, guests to the area may also choose shadier paths when the sun is shining.

Throughout the year the humidity of the Semmering Region lies below the Austrian average. The only exception is the month of June, which is only minimally higher than the average rate: namely, 1%. A comparison of daily deviations in relative humidity reveals that these are consistently smaller than in the surrounding valleys. This is largely due to small fluctuations in air temperatures and to a certain extent – particularly in the warmest months – to the fact that air currents ascending the slopes during periods of good weather, and low clouds in bad weather, hinder the reduction of the relative humidity during the day.

The Semmering is characterised by a relatively low prevalence of fog for just 31 days in the year (this also includes days in which fog was recorded only for a short period). From October through to February the Semmering has substantially fewer days with fog than Vienna. In the summer months between March and September, however, the capital can expect fewer foggy days. The higher frequency of fogs at the Semmering is explained by the fact that during bad weather low cloud cover can sink to the level of the pass. The advantage the mountain resort has over Vienna during the winter months lies in the fact that this time of year is largely characterised by low-lying fog, which – although it sometimes reaches the level of the pass – often lies further down the valleys and leaves the Semmering above the blanket of fog. Fog banks that move up the Valley of the Mürz and cross the pass towards the *Hotel Panhans* can often be seen on mornings when other parts of the region remain free of fog. For this reason, the number of foggy days at the pass itself is significantly higher than, for instance, at the *Südbahnhotel* on the Wolfbergskogel.

As was already mentioned, the Semmering enjoys a relatively low precipitation because of its protecting range of mountains. In the 1961 to 1975 observation period, January had the lowest monthly rainfall with 36 mm, and July the highest, with 129 mm. The mean annual precipitation

of the Semmering Region reached 916 mm (the Austria average was 1190 mm). On average, holiday guests must reckon with 167 days of rainfall throughout the year, although climatologists also include among these days with at least 0.1 mm of rainfall. As a result, a day of rainfall is by no means the equivalent of a rainy day, since it is possible to spend some time in the open air even on these days and they can be counted among the most enjoyable because of the freshness of the air.

Snowfall is an extremely important factor to a winter resort like the Semmering. However, the Semmering is not merely visited by skiers (Hirschenkogel, Stuhleck) but also by ramblers who enjoy the snow-covered winter landscape of the Semmering Region. The numerous walks and promenades are also well-frequented during the winter months.

Snowfall was recorded for an average of 49 days in the year over the period of observation between 1961 and 1975, ten of which were between the months of December and March. The snow cover remained for a period of 111 days. This is somewhat less than the Austrian average for this altitude. The reason for this is the relatively low precipitation of the region. The situation at the Semmering itself, however, is far more favourable than in more low-lying areas of the region. Reichenau an der Rax, for instance, has snow cover for only 58 days of the year.

The first show falls generally on the 6th of November and usually does not remain long on the ground. The last show falls around the 17th of April. A largely continuous blanket of snow covers the Semmering on average from the 24th to the 18th of March. The mean maximum thickness is around 67 cm; the highest snow cover in the period of observation measured 120 cm. A comparison between the Semmering and Reichenau an der Rax, which is situated at a much lower altitude, shows that the pass has twice as many days with snow cover of at least 1 cm thickness (117 at the pass and 58 days in Reichenau); four times as many days with at least 15 cm (the Semmering has 60; Reichenau 16 days); and over ten times as many days with 30 cm and more (Semmering, 33; Reichenau and der Rax 3 days). This goes to show that snow cover at the Semmering is far more favourable for winter sports than in the surrounding areas. The Semmering is, as a result, a good winter resort in close proximity to the Austrian capital of Vienna.

Because of the wide variety of orographic features, there are always places at the Semmering that remain relatively sheltered even from high winds. This is of immense importance to a recreational and health resort.

The Semmering is affected largely by south-westerly and north-westerly winds. Most of the residential area lies on the eastern slopes and is, as a result, protected from the prevailing winds. Average mean wind velocities of 2.8 m/s throughout the year (over 3 m/s in Vienna) are fairly low for an altitude of 1000 m. February features the highest mean wind velocity of 3.5 m/s, followed by November with 3.4 m/s; the lowest aver-

age values of 2.4 m/s are to be found in the month of August. No wind movement at all is often recorded at the Semmering: on about a third of the days scheduled for wind observations there was either calm or very little wind.

The number of stormy days amounts to about 46 a year at the Semmering, although these are twice as frequent in winter as in the summer. Storms come usual from a westerly or north-westerly direction.

In summary, the Semmering features favourable climatic conditions the whole year round. A wealth of sunshine, little fog, pleasant temperatures, good snow cover, enough protection from the wind and an absence of industry (pure air) all combine to ensure that the Semmering remains, from a climatic point of view, a recognised winter, recreation and health resort.

LEGAL PRINCIPLES AND PROVISIONS

A great part of the historic heritage of buildings within the cultural landscape of the Semmering is protected by the Austrian Monument Protection Act (Federal Act of 1923 as amended in 1978, BGBl. No. 167/1978, and 1990, BGBl.No. 473/1990), according to paragraph 1, 2 and 3. For monuments (objects of historic, artistic and cultural significance) that belong to the Republic of Austria, federal territories and municipalities, the church and religious communities etc., the public interest in their preservation is valid as long as the Bundesdenkmalamt has not stated anything to the contrary. The entire site of the Semmeringbahn with all its remarkable technical installations and other buildings is subject to this Protection Act. The summarily decreed protection of monuments also applies to all sacred buildings as well as other monuments belonging to the government. Apart from these, monument protection includes those monuments in private possession that have been put under protection order as individual objects. According to the regulations of the Austrian Monument Protection Act, monuments that are protected are subject to several restrictions and, hence, fall under the control of the *Bundesdenkmalamt* (Federal Monument Protection Office): their demolition or any alterations that might influence their condition, historic appearance or aesthetic effect, requires the written permission of the *Bundesdenkmalamt*. This also includes the sale of a monument. In the case of a monument being in danger of destruction, or being damaged in its appearance or its condition by alterations or changes to its environment, the *Bundesdenkmalamt* can apply to the local authorities for protection measures. Violations of the Monument Protection Act are liable to be prosecuted by trial in court.

Subsidies may be granted by the *Bundesdenkmalamt*, within the framework of financial legislation, for the expenses arising from the preservation, safeguarding and research of monuments.

In addition, part of the cultural landscape of the Semmering is protected by the Act for Environmental Protection (Lower Austrian Act for the preservation of Nature of 8 November 1955, LGBl. 120/1955 and of 27 April 1979, LGBl. 5500/35-0). This protection includes the area of the municipality of Gloggnitz (without region south of the ÖBB railway line through the registered municipality Gloggnitz), the municipality of Gutenstein, Puchberg am Schneeberg, Reichenau an der Rax, Schottwien and Schwarzau am Gebirge, as well as the municipalities of Breitenstein, Otterthal, Payerbach, Prigglitz, Rohr am Gebirge, Semmering and Vöstenhof.

For that part of the cultural landscape of the Semmering that belongs to the Federal Province of Styria, the Act for Urban Renewal of the 28th of June 1977 (*Ortsbildschutzgesetz*, 1977) LgBl. 1977/54 is applicable.

GUIDELINES FOR THE INCLUSION IN THE LIST OF CULTURAL HERITAGE

The 41 km long railway line that was built across the Semmering between 1848 and 1854 was the first noteworthy mountain railway the world had seen up to that point. It had a lasting influence on the technical development of this relatively new system of transport. Nowhere is the wish to take technical control over nature more clearly show than in the Semmering Railway. Its architect Carl Ritter von Ghega's pioneering achievement was, above all, the solution of three technical problems: as the marking out of the terrain was impossible with the means available at the time, new surveying methods and instruments had to be developed; for the planning of the marked out route hitherto unheard-of parameters with respect to gradient and the radii of the curves were employed; finally, the actual construction of the line with its 14 tunnels, 16 viaducts and over 100 arched passageways and kilometres of retaining walls in extremely difficult and largely mountainous terrain; all represent an extremely daring architectural and organisational undertaking for the period. The wide variety of aesthetically outstanding buildings can be seen as a *Gesamtkunstwerk* whose technology and architecture are subtly and harmonically integrated into an important mountain landscape. Hence, this 19th century masterpiece of Austrian engineering can be regarded as a synthesis between nature and architecture that was entirely new to the period.

In spite of its 150 year-long operation, the changes that the maintenance and the functional adaptations the line required remained within acceptable boundaries from the point of view of monument preservation, thanks largely to its solid construction. This means that the original appearance of the site could be retained to a large degree up to the present day.

The first completely artificial recreation area developed at the Semmering as a consequence of its new accessibility, as it could be comfortably and rapidly reached by train. Grand and palatial hotels, country houses and villas were designed by the most famous architects of the period, in the so-called "Semmering-style", heralding the modern age in alpine building.

The Semmering was soon frequented by both the nobility and the *grand bourgeoisie*, particularly of Vienna and Budapest, and became a meeting-place for notable and important personalities of the Austro-Hungarian Monarchy. The varied landscape, the favourable climate, the easy accessibility and the luxurious accommodations of the area, drew a large influx of guests.

Thus, the history of the Semmering reflected the events of economic and political history as a whole. In its heyday during the *fin-de siècle* and after the First World War, it was remained a rendezvous for the high society. Although the halcyon days of the Semmering were over by the end of the 'twenties and the beginning of the 'thirties, it became fashionable again as a holiday resort after the second World War. After another "low" that continued until the late 'eighties of this century, the cultural landscape that had been so indelibly marked by the architecture and the concepts of early tourism during the late 19th century met with new public interest. For various reasons easily accessible recreation areas are being increasingly valued once more.

In order to revitalise the area through tourism, many villas and country houses were restored during the past years, and many hotels and guest houses were modernised to meet the present standards of comfort.

With the help of the *Bundesdenkmalamt*, these changes were carried out so as to cause as little damage as possible to the building fabric, by retaining the external appearance of the old buildings and thereby of the entire Semmering area (ill. 1).

THE SEMMERING RAILWAY

CHARACTER

The Semmering Railway, which remains fully operational to the present day, was Europe's first major large-scale alpine railway. Because of the configuration of the terrain and its altitude, it may justly be called the world's first mountain railway. (Its planner and constructor Carl Ritter von Ghega knew of thirteen lines with steep gradients for rolling stock that were erected between 1840 and 1850 but, on the one hand, these were on a much smaller scale and, on the other, were not planned to meet the same extreme parameters that Ghega planned for the Semmering: no locomotives had yet been developed for Ghega's maximal gradients that were combined with curves with extremely short radii. It was only during the construction that suitable locomotive designs were developed and tested in an international competition. These were later built in a improved form for actual operation.) Ghega's Semmering project, which foresaw a total length of 41 km and a difference in altitude of 460 m, was actually carried out between 1848 and 1854 despite the vehement objections of some prominent experts. The practical success of the line which is in continual use up to the present day, vindicated the innovative significance of the project and the audacity of the realisation under the direction of a man who was able to fully grasp the technical possibilities of the time and may be regarded as one of the pioneers of 19th century railway construction.

The track's course through often bizarre mountain scenery can produce strong emotional reactions even today: because of its special symbiosis of technology and nature it gives the impression of an extraordinary technical achievement and offers an out-of-the-ordinary travel experience (ill. 2-10).

The combination of (innovative) technology and nature has been regarded as unique for more than 150 years.

THE CONSTRUCTION OF THE RAILWAY

The Semmering Pass is situated at an altitude of 984 m above sea level and, because it is passable throughout the year, represents an old and important traffic route between Vienna and Trieste (i.e. from the former Imperial capital to the sea), which rapidly grew in importance during the 19th century as a result of rapid economic development (Industrial Revolution). Together with the Neumarkter Sattel, which is set in less demanding terrain and some 100 m lower than the Semmering, it represents the only difficult crossing point in whole of the approx.500 km long Trieste

Route. In 1728 the road was improved at public expense and attained a gradient of about 16% in accordance with the practice of the time. In 1841 the steep northern approach was relayed and its gradient reduced by 5%. Between 1844 and 1854 the road played an major role as the supply route between the railway terminals in Gloggnitz and Mürzzuschlag, since the materials for the construction of the railway had to be transported by horse and cart over the pass.

The railway was recognised as the most promising means of transport for the future at a very early date in Austria. Franz Xaver Riepl, a professor of the Polytechnic in Vienna, already presented a comprehensive project for a railway line that stretched from Brody in the extreme northwest of the Dual Monarchy (now in the Ukraine), passed through Vienna and ended in Trieste, in 1829. The first railway line of any significant length on the European Continent was opened in 1824–1832 between Linz and Budweis (Ceské Budejovice): although this was horse-drawn, the possibility of mechanisation was planned from the beginning. The first locomotion line between Florisdorf and Deutsch Wagram was installed in 1837 as part of the Vienna-Brünn (Brno) Railway. The southbound Vienna-Gloggnitz line was opened in 1841. The section from Mürzzuschlag to Graz was added in 1844 as the continuation of this route (leaving out the difficult Semmering stretch). This line was then extended to Cilli in 1846, to Laibach (Ljubljana) in 1849, and finally crossed difficult karst terrain to reach the Adriatic port of Trieste in 1857.

The necessity of crossing the Semmering Pass in order to establish a continuous railway connection between Vienna and Trieste was clear from the beginning. The technical prerequisites needed to achieve this aim, however, developed slowly at first. During the construction of the Vienna-Gloggnitz section of the railway, a Semmering crossing with a projected gradient of 1:30 (3 per thousand) was already being planned and the station at Gloggnitz was located to suit this purpose. In spite of successful trial runs on an artificial ramp, however, this project was regarded as unrealistic, because the locomotion technology of the period could only manage a maximal gradient of 1:200 (5 per thousand) and curves with a minimum radius of 1500 feet (475 m).

A further planning stage of the Semmering project followed from 1842 onwards, when Carl(o) Ghega was appointed Chief Inspector of the southern line of the State Railway, or the rail connection between Vienna and Trieste. Ghega, who was born in 1802 in Venice, became a doctor of Mathematics at the age of seventeen. He had already worked on the planning and implementation of road construction and hydraulic engineering projects and had invented methods of improving land surveying techniques, when he began to collaborate on the construction of the northern railway line in 1836. While the first railways had been constructed with the aid of private financing, it was decided in 1841 to build the main lines

with government funding and an executive board of the State Railways was established for this purpose in Vienna with Francesconi as chairman. Shortly after entering the civil service, Ghega was sent on a five-month-long educational tour of the USA. Accompanied by the architect Moritz Löhr as translator and draughtsman, he inspected a total of 39 railway lines with an overall length of 2413 km. Initially, he presented the innumerable results of his research to the President Kübeck of the *Hofkammer* and later presented them in two publications to the public. Ghega books exercised a great deal of influence on European railways, for instance on the construction of mountain railways over the Rauhe Alp in Würtemberg and over the Fichtelgebirge in Bavaria. While visiting the Baltimore-Ohio Railway, Ghega had seen that larger gradients (15.6 per thousand) and narrower curves (300m radius) presented no problems to locomotives. So he came to the conclusion that the Semmering could be developed for locomotion transport only and that gradients between 15 and 27 per thousand would be quite feasible. Shortly after his return from America, Ghega began to plan the course of the railway tracks for the Semmering section. This proved to be a very laborious process, because no satisfactory maps were available for guidance. Because of the intricacy of the mountain terrain, earlier hitherto reliable surveying methods proved insufficient. The normal course was to lay makeshift tracks along the projected course of the railway and to mark these with pegs. The next task was to measure the distances to these points and to adjust differences in height. Horizontal measurements were often carried out with the aid of a surveying table. Because of the inaccessibility of many parts of the Semmering Region, *in situ* measuring of optical distances and heights was unavoidable and the technicians were forced to build new surveying instruments. These included the *Stampfer'sche Nivellier-Höhen- und Längenmeßinstrument* (an instrument for the geometrical measurement of height and distance), which was to become an important tool in geodetics (ill. 11).

Ghega worked out a variety of different routes, the most important of which was later carried out with a number of modifications. The technical data of this route were: almost 43 km long, with 22 major bridges and viaducts, and containing a main tunnel, 1200 m long and situated 90 m below the pass (ill. 12). Other contemporary projects with simpler routes, a smaller gradient and a tunnel between 4 and 5 km long, would have substantially increased speed but were too demanding technically for the period. Because no dynamite was available for excavation work but only cordite with $^1/_8$ of the effect of the former, the construction of such a "base tunnel" would have taken eight to ten years to complete. By 1846, Ghega had largely completed his draft of the route of the Semmering Railway and had worked out the details of the plan by 1847. These were not implemented immediately, because Ghega was intensively involved in planning and supervising the construction of another section of the southern State Railways, namely the line between Cilli and Laibach.

Ghega's project was held to be impracticable by a number of experts and specialist committees. A series of alternative suggestions were made, such as the proposals for the construction of: a) a mountain railway with a gentle incline (5 per thousand) and very narrow bends, made by Luigi Negrelli; b) an "atmospheric" (i.e. air pressure) railway, which had already been built in England; c) either several cableways or a horse-drawn railway to overcome elevations.

The new Minister for Public Works, Andreas Baumgartner, reviewed Ghega's plans, because he was looking for building projects that would offer long-term employment, and ratified Ghega's already modified main plan (the route over the Eichberg) within a matter of days in June 1848. After the planned Semmering project was officially announced a storm of protest was directed towards Ghega and the Government. The whole matter was passionately debated in the daily newspapers, as well as in native and foreign specialist journals. In spite of this, the entire line was divided up into 14 sections which were then entrusted to various firms. The work already started in August 1848: in the beginning 1007 men and 414 women were employed on the project, this number increased to 20,000 later.

The maximum gradient of 25 per thousand and the unheard of narrow curves which were needed in order reduce to cost of adapting the railway line to the terrain, demanded a new type of locomotive. For this purpose an international competition was advertised in March 1850 which four firms entered. The trial runs of the locomotives that were then submitted took place in August and September 1851. Even though these locomotives managed to surpass the requirements, none of them were found to merit being produced in series. The first prise was won by the *Bavaria*, which was constructed by the Maffei Company in Munich. The judges, however, recommended the purchase of the other three machines: namely, the *Wiener Neustadt* by the Günther Company of Wiener Neustadt, the *Seraing* by the Cockerill Company of Seraing and the *Vindobona* by the engineering works of the Vienna-Gloggnitz Railway Line. The trial runs had already demonstrated that none of these were ready to be mass-produced and Wilhelm von Engerth was commissioned to combine their various merits in the design of a new Semmering locomotive. His plans for a ten-wheel locomotive with two bogies, which enabled the machine to fit snugly to sharp curves, was so successful that 26 engines of this design were ordered from the manufacturers Cockerill and Kessler in Esslingen. This major success finally confirmed the feasibility of Ghega's project.

According to an official announcement in the *Österreichische Kaiserliche Wiener Zeitung*, no. 166, the transport of passengers and goods over the Semmering began – according to schedule – on the 17th of July, 1854 (ill. 13, 14).

DESCRIPTION OF THE ROUTE

The almost 41 km long route of the Semmering Railway begins at Gloggnitz Station at an altitude of 436 m above sea level. After a travelling 29 km it reaches its highest point at 895 m above sea level in the tunnel over the pass and ends after a further 12 km in the Mürzzuschlag Station at 677 m above sea level. It can be roughly divided up into 4 stages according to the terrain it passes through:

a) In the first 7 km to Payerbach Station the railway track follows the left-hand slopes of the Valley of the Schwarza with a gradient of 10% and numerous abutments and cliff facings.

b) It then changes valley sides and direction by crossing the 276 m long and 25m high Schwarza Viaduct in order to reach the opposite slope and continues with a gradient of mostly 25% by winding itself along rough terrain to reach Eichberg Station after 6 km. Eichberg is situated fairly exactly over Gloggnitz, at 609 m above sea level. It now skirts the Eichberg and turns into the Valley of Auerbach, in order to continue along a steep incline to the station of Klamm-Schottwien. This stage is largely characterised dense forestation.

c) After passing through the Klamm Tunnel, below the picturesque ruin of a mediaeval castle ,the track reaches the Adlitzgraben and the actual alpine territory. A series of viaducts and tunnels in narrow curves are followed by the passage through the Weinzettelwand, Krauselklause and Polleroswand in several tunnel segments. These are followed by the most striking edifice of the whole route, the two-storeyed curving viaduct over the Kalte Rinne. The Lower and Upper Adlitzgraben are reached and crossed at a continuous incline of 25%. Finally, after penetrating the Wolfsberg and Kartnerkogels and travelling a distance of 11 km the track reaches Semmering Station (ill. 15–47).

d) The station is followed immediately by the 1400 m long Semmering Tunnel. After leaving the tunnel the track descends gradually along the right-hand slope of the Valley of the Röshnitz, through Steinhaus and Spital am Semmering, to reach Mürzzuschlag. The decline along this section ranges from 20 to 22%. This stage is characterised by a moderately populated highland landscape.

The difficult terrain necessitated the erection of numerous engineering edifices such as tunnels, viaducts and retaining walls. There are 14 tunnels with a total length of 1477 m, which means that almost $^{1}/_{10}$ of the total line runs underground. The main tunnel is 1431 m long. A new single-track tunnel through the pass was laid parallel to this between 1949 and 1952, because the old tunnel had been so constricted by overhead pressure that it had to be narrowed down and re-faced. Together the 16 major viaducts reach a length of 1477m: four of these are two-storeyed, the Kalte Rinne Viaduct being the highest (46 m) and the thirteen-bay

Schwarza Viaduct the longest (328 m). The track is also supported by 118 smaller, arched stone bridges and 11 small iron bridges. The numerous retaining walls and abutments of considerable length should also be noted, as well as the wing walls (which were originally made solely of coursed rubble masonry) that terminate bridges and viaducts.

61% of the total length of the Semmering Railway have maximum inclines of 20–25 per thousand. The narrowest radius of the track curves is 190 m and covers 16% of the entire length. This was extremely daring, considering the minimum radius of 475m in Europe at the time. This enabled Ghega to minimise on excavation work and supporting structures and to adjust well to the terrain.

Most of the portals of the tunnels are of a simple but monumental architectural design and feature widely different forms of ornamentation. The supporting structures were largely carried out in stone (quarry stone or ashlar) and brickwork was often used for the arches of the viaducts and the facings of the tunnels.

The 57 two-storey attendants' houses, which are situated approximately every 700 m along the line, are a characteristic and highly visible feature of the Semmering Railway. Like the few remaining original station buildings, they were constructed of coursed rubble masonry with sparse brick trimming for the windows and doors.

The few stations were originally erected to aid the running of the railway, i.e. as relay stations and watering plants. For this reason, the terminal buildings in Eichenberg, Breitenstein and Spital am Semmering were fitted out with large heatable water cisterns in their upper storeys. The station at the Semmering possessed only a small terminal building, hardly larger than an attendant's house and a locomotive shed with a built-on water tower. The latter were often converted to the present-day terminal buildings in the course of the 19th century. An imposing terminal building was added to Payerbach-Reichenau in 1875 when the original terminal building proved too small for the increasing influx of passengers. Klamm-Schottwien, on the other hand, boasted of the largest terminal building. It contained numerous apartments for railway personnel and a large water reservoir. The architect Moritz Löhr was responsible for the architecture of station buildings.

The Semmering Railway, which was actually planned and fitted out for long-distance travel, had a decisive influence on settlement patterns in the picturesque Semmering landscape. This was followed by an increase in passenger services that far outreached the original prognosis of the project's planners. Consequently, the station facilities had to be extended to such an extent that they now present a poor impression of their original condition.

In the course of the railway's 150 year history, diverse viaducts and passage ways were reconstructed and the largely stone masonry of the original structures were often replaced by double-fired bricks and cement blocks. This reconstruction work was also carried out in concrete in recent years. It must be stated that the increase of axle load from the planned 13 tons to the present-day value of 22.5 tons, coupled with a significant increase in the speed, frequency and, above all, the freight load of trains, all represent an enormous burden to the supporting structures – above all, to the viaducts. These have stood up extraordinarily well, although they all display signs of restoration and reconstruction to varying degrees. The appearance of the whole railway line changed significantly between 1957 and 1959 when it was converted to electricity and fitted with masts to carry overhead contact wires.

RÉSUMÉ

The 41km long railway line over the Semmering Pass, which was planned and erected by Carl Ritter von Ghega between 1848 and 1854, represents the world's first major mountain railway. A number of forerunners in Europe and the USA only fulfilled some of the requirements needed. Ghega then incorporated these in his daring project.

This is a unusually innovative feat of railway construction, that had a major influence on the technological development of what was then a relatively new form of transport. The mountain railways that followed (they were largely located in the Austrian and Swiss Alps) drew on the technical discoveries and innovative ideas that were first implemented on the Semmering.

Three factors define the innovative character of the Semmering Railway:

1) The tracks were laid in a terrain that could not be properly surveyed at the time. New instruments and geodetic techniques had to be developed to deal with this problem.

2) The plan for the route foresaw new parameters, such as an incline of 1:40 (25 per thousand) and minimum radii of 190 m (450 m up till then) for curves of the line, that had not been used before. The project was hotly contested among experts at the time because of these guidelines.

These new parameter necessitated the development of new locomotives and, as a result, the early stages of railway engineering received significant new innovative impulses.

3) The supporting structures in a difficult and partially extremely rugged mountain landscape, which consisted of 14 tunnels, 16 viaducts, over 100 arched passageways and kilometres of retaining walls, employed up to 20,000 people in the course of 6 years and represent a major and –

for the time – very daring undertaking, both from a technical and organisational point of view.

The large number of supporting structures reveal the whole complex to be "a building in the landscape". The special flair of this railway has always impressed even the general public as a wonderful combination of (innovative) technology and the natural environment, that makes a trip over the Semmering a unique travel experience. Ghega must have been aware that this visually and aesthetically exciting solution to a purely technical problem would lead to lasting public acknowledgement of his achievement, as the his publication of the *Malerischer Atlas der Eisenbahn über die Semmering* in 1854 shows.

The Semmering Railway stands out, with its pleasing archetectural composition and its magnificent natural setting, as a epoch-making achievement of the human spirit.

THE CULTURAL SITE OF THE SEMMERING

INTRODUCTION

In recent years the reputation of the Semmering as the "Magic mountain" has won back some of its former glory. Not only does it offer the city dweller attractive new recreational possibilities with 100 km of Vienna, it also enables him to develop a new sense of one of cultures "special places"; a landscape that not only has a specific charm of its own, but displays its own individual creative features (ill.1).

Particularly the 1992 County Exhibition, *The Conquest of the Landscape: Semmering, Rax and Schneeberg* in Gloggnitz Castle and the discussion of the future of the Ritter von Ghega Railway (Semmering Railway) have helped to remind the public that the Semmering Region is no "ordinary" landscape. This is epitomised by a recent change of attitude towards this landscape, that resulted in the introduction of modern tourism and a renewal of interest in alpine flora and fauna. The region abounds in testimonies of a fascinating contrast between technology and nature, between urban lifestyles and the picturesque backdrop of the mountain setting. Transport networks and buildings, villas, hotels and carefully calculated vistas combine to produce an elaborate mixture of

man-made and natural objects, that may be interpreted as a compendium of intellectual outlooks, a history of lifestyles between the Romanticism of the Biedermeier period and the cosmopolitical modernism prevalent at the beginning of the century.

Many illustrious guests visited the region; from Franz Werfel to Gerhard Hauptmann, from Johannes Brahms to Gustav Mahler, from Adrienne Gessner to Josephine Baker. The holiday resort Semmering used to be the stomping-ground of a dazzling number of distinguished personalities and some of the visitor's books of the region's hotels read like a "who's who" of the period. The Semmering has won a significant place in Austrian history and tradition, not only as a playing-ground of celebrities, artist and aesthetes, and as a rendezvous for nobility and socialites, but also as an showpiece for the inventiveness and industry of Austrian engineers. But these are just some facets of the colourful kaleidoscope that makes up the cultural history of the Semmering.

BOUNDARIES AND CHARACTERISTICS OF THE REGION

The Lower Austrian part of the Semmering Region, or the area now famous for the "summer architecture" of its villas and hotels which has become synonymous with the term "Semmering architecture", begins with the old commercial and municipal centre of Gloggnitz which marked, from 1842 onwards, the end-point of the original Vienna/Raab Railway Line and the small market town of Schottwien (ill. 48–49), the starting-point of the Semmering Road; and ends in the south-west of the present-day municipality of Semmering, which is situated at the beginning of the railway tunnel towards Mürzzuschlag in Styria or the highest point of the road over the pass itself. As a result of the growth of the region following the construction of the Semmering Railway (1848–1854) and the subsequent discovery and exploitation of the landscape – especially towards the end of the 19th century – by Viennese society, a large number of buildings were constructed along the artery of the railway, making use of the most picturesque sites, in order to capitalise on the spectacular mountain scenery and exploit it to almost theatrical effect.

Peter Rosegger wrote in 1900: "Today it is difficult to decide whether the Semmering may be said to be a countryside full of suburban villas or a city full of country houses". In effect, the Semmering became, with respect to its buildings and their situation, one of the first artificially laid-out alpine resorts. Examples of these characteristic buildings are already to be found in Gloggnitz, which is approached through the wide, horseshoe-shaped Valley of the Schwarza dominated by the hilltop position of Gloggnitz Castle (ill. 50), in Reichenau and Payerbach and – further up the railway line – in Edlach (ill. 51–52) and Prein. Küb (ill.53) and the environs of Eichberg (ill. 54) between Gloggnitz and Klamm or Payerbach and

Gloggnitz, Breitenstein (ill. 55) and to the road to Payerbach and to the Semmering Pass – with the Wolfersbergerkogel to the north – contain typical and well-preserved buildings from the period.

Klamm (ill. 56–58) and Wartenstein (ill. 59, 60) Castles, parts of which date back to mediaeval times, as well as the pilgrimage church of Maria Schutz, which in its present form dates back to 1728, all formed the visual foci in the concept for the re-routing of the road.

THE HISTORY OF THE SEMMERING REGION

The first settlers were Slavs, who came from the south in the 7th century and reached as far as the southern edges of the Vienna Basin. Their traces are only to be found in place names (Mürz, Gloggnitz, Adlitz). The word *Semmering* is of Slavic origin, although it is not certain whether it comes from *smrk* (pine) or *cemer(i)nik* (a mountain near the Schneerose).

Franconian colonists came during the Carolingian Period. The Valley of the Schwarza became a periphery zone on the edge of the Ostmark, which acted as a buffer state to the Empire. Between 1049 and 1158, the region to the east of the Semmering, along the upper reaches of the Mürz the Preiner Gscheid, Schneealpe and Rax, belonged to the Graf of Formbach-Pütten. Benedictine monks from Bavaria founded the Abbey of Gloggnitz in 1100 and towards the middle of the century the region fell into the hands of the Styrian Ottokars. As a result of the new transfer of ownership, a passable route between the Valley of the Mürz and Neunkirchen was needed. For this reason, Otakar founded the hospice *Spital am Semmering* in 1160. The role of the pass in welding territorial claims together increased in importance as Austria and Styria were united under the Babenbergs in 1192. The pass only became a border post when Styria was temporarily annexed by the Hungarians in the 13th century. From this period onwards the journey across the pass was accompanied by the consciousness of passing from one territory into another.

1254 brought a decisive turning point, when the lands of the Duchy of Styria were ceded as a result of the Peace of Ofen. This resulted in the necessity of drawing a new border between the provincial jurisdictions of Wiener Neustadt and Mürztal.

Following division after the death of Emperor Ferdinand I in 1564, the border became the boundary between different dominions. Border disputes often assumed national importance, as for instance was the case in 1560, in the dispute between the monastery in Neuberg and the dominion of Klamm or, more precisely, the market place of Schottwien which belonged to Klamm. In 1645, the menace of Swedish invasion made the surveillance of the Semmering Pass and the Preiner Gscheid necessary. The boundaries of the provincial jurisdiction in Wiener Neustadt, of the local jurisdiction in Schottwien and the national border of Austria below the

Enns River all met at the cross on the Semmering Pass. The local magistrate in Spital am Semmering, Max Balthasar Seidl, tried repeatedly to extend the borders of Styria into Lower Austrian territory. The dispute over the Semmering border began to escalate.

Finally, the Styrians entrusted the geographer Georg Mathias Vischer with the delicate task of fixing the national boundary between the Duchy of Styria and the Archduchy of Austria below the Enns.

The Turkish siege of 1529 represented a major setback for Lower Austria. Some 3,000 to 4,000 Turks crossed over the pass and pillaged Spital, Krieglach and Mitterdorf. The Styrians began to fortify the border passes to Lower Austria, that reached from the Lower Austrian side of the Semmering as far as the Myrthengraben. The successful defence against the Turks encouraged the Styrians to extend their territorial ambitions.

After protracted negotiations, the boundary commission convened in 1713. It was elected by the Styrian and Lower Austrian estates. Engineers compiled maps of both territories and the disputed border that were then approved and ratified by the Emperor. According to the agreement, the territorial borders were to be marked by the *Bettlerkreuz* ("Beggars Cross").

In 1715, the boundary commission convened at the Semmering Pass and laid down the course of the border along the watershed. This date represents without doubt a significant turning-point in the economic situation of the Semmering.

THE HISTORY OF REICHENAU

The Valley of Reichenau at the foot of the Rax Massif had served the abbots of Neuberg as a hunting-ground since the 14th century. A *Weisskunig* wood-cut depicts Emperor Maximilian I. engaging in a chamois hunt *in ainem tal, gennant die Reichenau* ("in a valley, called Reichenau") in 1515: even today an area above Griesleiten is know as Königsschußwand in commemoration of this event. Emperor Karl VI. visited the Reichenau area to hunt for chamois and deer in 1728: his hunting party discovered the impressive spring in the Höllental, whose water was regularly transported to the Imperial court in Vienna at the behest of the Emperor.

In the Age of Romanticism during the early years of the 19th century, nature enthusiasts from Vienna who swarmed all over the alpine regions of Austria, did not exactly approach Reichenau as a *terra incognita*. Writers like Joseph Schultes (1802) and Franz Xaver Embel (1803) had eulogised the beauties of the scenery, but complained of the strenuous journey from Vienna that for lasted days and of the extremely modest accommodation. Ignaz Waissnix of Reichenau was afforded the privilege of offering both board and lodgings at his farmhouse, the *Thalhof*, in 1823.

The guest book of the *Thalhof*, which dates back to 1830, testifies to the large number of members of Viennese society who frequented Reichenau, at first on short outings to the country and later on extended stays. The entries include prominent members of the aristocracy and the Viennese patriciate; academics, artists, poets and actors; as well as the Archdukes Carl and Albrecht; the Princesses of Esterhàzy and Liechtenstein; the Grafs of Wilczek, Hoyos and Fries; the Barons of Kübeck, Lebzeltern, Sommaruga, Geymüller and Schlechta; the banking family Pereira-Arnstein; the poets Bauernfeld and Lenau; the Lord Mayor of Vienna, Dr. Zelenka; the American railway engineer William Norris and the American Consul Schwarz.

Franz Carl Weidemann, a writer and actor in the ensemble of the Burgtheater, came regularly from 1820 onwards to Reichenau for his summer vacation and wrote a widely-read tourist guide. However, the monument on an elevation overlooking the Orthofstrasse commemorating the first summer guest in Reichenau during the Biedermeier Era was not dedicated to him, but to the civil servant Georg Kletschka by his friends in 1838. Another loyal guest of Reichenau, the court actor Ludwig Loewe, had himself commemorated in the following way: he arranged a charity performance of Raimund's *Verschwender* in Vienna and used the proceeds of 2,000 fl. to commission an altarpiece by Friederich Schilcher for the Church of St. Barbara in Reichenau, in which Loewe himself was portrayed as a patron in a miner's costume.

Emperor Franz Joseph visited the *Hahnenbalz* (rooster courtship season) Reichenau every year from 1853 onwards and took up accommodation in the *Thalhof*. Michael and Alois Waissnix built a villa on the Waag (ill. 61–65) in the vicinity of the *Thalhof*, which was used by Crown Prince Rudolf and his sister, Archduchess Gisela, together with their entire entourage of tutors and courtiers, for their summer visits between 1859 and 1865. The parents, grandparents and cousins of the imperial siblings often came to Reichenau on visits (ill. 66).

FROM VIENNA TO TRIESTE

Naturally, the transport route from the Valley of the Mürz to the Vienna Depression over the Semmering was already know in ancient times. During the Middle Ages, it was regarded as being one of the few secure alpine crossings. The construction of a hospice on the Styrian side of the pass was of decisive importance; it formed the nucleus of the village of Spital. The so-called *schräger Durchgang* ("sloping passage") from Bruck to Villach and on to Italy developed at times into a route of European importance. Transport by wagon was possible alongside pack animals and mules; however, this required an additional team of oxen to overcome the steep approaches to the Pass. Thus, one can speak of a "road" from quite an early date.

The year 1244 heralds a rapid growth of international commercial traffic. Commercial traffic between merchants in Venice, Friesach and Graz, is mentioned in early documents. The *schräger Durchgang* between Villach and Vienna was soon known as the Semmering Route. This term was not merely applied to the road between Spital and Schottwien but to one of the most important international long distance routes of the 12th century. At times it was referred to as the Italian or Venetian Route. However, the Wechsel Route soon outstripped the Semmering Route in the 13th century. Moreover, the 15th century brought a far-reaching turning-point: the Semmering Route lost most of its trade. The reason for this may be found further south: the Brenner Route and the road over the Radstätter Trauern proved to be serious competition. Political mercantilism aimed towards a reduction of trade restrictions. As a result, the transport routes had to be improved. The road over the Semmering was improved in 1728 during the reign of Karl VI. The section was referred to as a "commercial" and "military route", which reflects the spectrum of its significance.

The monument that the estates had erected at the Pass itself emphasises the contact with the Adriatic. From the 18th century onwards; Venice was not the destination, but the Austrian port of Trieste. The Semmering Route became the "Trieste Route".

The village of Schottwien profited from the increase of traffic. Alongside the supply of additional draught animals, the advent of regular postal services ensured that the village became a major and profitable postal station.

Perhaps, it was these first guests who used their stopover at the postal inn to ramble through the countryside and admire the picturesque castles of the neighbourhood before continuing their gruelling journey up to the pass. At any rate, the first views of the Semmering Region were a series of drawings produced by Viennese publishers in 1800, that depict Schottwien and its environs. Almost all of these landscapes show scenic

vistas along the route. Clearly, this marks a new development: travellers began to enjoy the mountain scenery, collected pictorial souvenirs of their journey and began to regard the beauties of the landscape as a form of outdoor "theatre". Their favourite adjectives were *schaurig-schön* ("dreadfully beautiful").

THE METAMORPHOSIS OF A LANDSCAPE

The Railway as a pacemaker of consciousness

The attitude of the small number of travellers to the region was one of indifference before the 18th century. Travelling was synonymous with danger and tribulation. A wild alpine pass *mit viel schneh und eys und... so hardt gefrohren, daß unsere pfert immer fallen wollten* ("with a lot of snow and ice, and frozen so hard that our horses were always about to fall") that rose suddenly out of the plain must have appeared to many wayfarers as a divine affliction.

By the end of the 18th century, travellers to the area were largely intellectuals, artists and poets who wanted to widen their intellectual horizons. Accordingly, the region was transformed in their eyes from being merely an unheeded background to an emotionally-charged object of contemplation. A reappraisal of town and country life was under way. Urban life – for instance, in the densely-populated Imperial capital of Vienna – came to be regarded as being decadent and unhealthy. In contrast, the healthy, rosy complexions of the rural population were now found commendable.

From the Early Middle Ages until the middle of the 19th century, the Rax and Semmering Region was not the rendezvous of *Ringstrasse* society, but farm land. During the Romantic and Biedermeier Eras, only individualists were able to discover the bizarre mountain landscape at Vienna's doorstep. A sojourn in the Semmering Region was a risky undertaking, that required many days' journey in a carriage and living in inadequate accommodation. Friederich Eckstein, the philosopher and private secretary of Anton Bruckner, was one of the first of these pioneers. It was only with the completion of the railway line between Vienna and Gloggnitz in 1842 and the Semmering Railway over the pass in 1854, that the region was made accessible to less adventurous "tourists".

As a result of the "quicker pace" of the times, everything was centred around the railway: horse-drawn omnibuses had required four-and-a-half hours to travel from Gloggnitz to Mürzzuschlag, whereas the regularly-scheduled rail connection only lasted two. Because the railway line was, in fact, twice as long as the road, this meant a quadrupling of speed. Moritz Benedikt, a doctor, embarked as a student on a long-distance holiday on the Semmering Railway during its first few weeks of operation: "The Vien-

nese are so afraid of so many tunnels, that we had to telegraph [home] that we had arrived safely at the Semmering".

SUMMER RESORT AND SCENIC THEATRE

Wherever tourism is associated with an atmosphere of adventure and the promise of confrontation with untrammelled Nature is in the air, the guarantee of a safe return is a prerequisite for enjoyment. This is particularly evident in this "exotic" destination for early tourists and earned the Semmering Region the nickname *die österreichische Schweiz* ("Austrian Switzerland"). It was possible to ramble through rugged gorges with stout shoes and, moreover, to return to the grand hotels in time to change for an elegant dinner.

The history of a cultural landscape shaped by tourism is a history of sights. The first sight the admiring visitor glimpses of the previously unheeded "wilderness" (that has, of course, long since become a cultivated agrarian landscape) is the beginning of a long chain of perceptions of that landscape. The feeling of experiencing "beauty" or "edification" at the sight of a particular landscape, is accompanied by the desire to obtain pictures of these views or to make them one's self. As a result, the landscape inevitably becomes a commercial object. Once the sights have been defined, in other words put on sale, hotels offer these at attractive rates and offer rooms with a view at a higher price than "blind" rooms. Whoever buys a villa or apartment in the mountains, on the other hand, secures permanent access to the sights.

The scaled-down Semmering landscape with its richly-contoured relief was always regarded as a paradise for sight-seeing. From the beginning, the Biedermeier vantage-point, the railway journey through picturesque terrain, the grandiose alpine hotels with their terraces commanding splendid views and the enormous variety of panoramas, chasms, and mountain vistas were all essential to the development of this classic Austrian tourist landscape.

Schneeberg, Rax, Semmering and *Reichenau*: these were the élitist highlights of this pioneering period of Austrian tourism. The large number of both well-known and obscure stories about this familiar and nostalgic holiday landscape (which can also seem somewhat careworn and dowdy) that are etched in the memory and can lead to a rather anecdotal style. And this state of mind is supported by many prominent "witnesses": from the Habsburgs, who had a summer residence in the Valley of Reichenau; to the famous Jewish banking families, who were able to realise their social ambitions by building magnificent villas in what was then a highly fashionable area, conveniently close to the city; from painters of Gauermann's and Ender's generation who visited the Schneeberg Region searching for Romantic motifs; to artists at the dawn of modernism like

Kolo Moser, who used the same view from his villa on the Semmering of the Rax to create a series of colour studies; from the Viennese café literati, who came to the Semmering to air their decadent sensibilities in the bracing mountain air; to Olga Waissnix, the wife of the proprietor of the *Thalhof*, who was consumed with unrequited love for her regular guest, Arthur Schnitzler, and the epitome of a woman enervated by the tension between the amorous adventure of a summer flirtation and the brutal stress of the tourism industry.

Nevertheless, these changes also have a deeper aspect: they document a transformation in our perception of nature and could serve to illustrate a social history of "going out" into the countryside; moreover, they show the inherent tension between technology and nature, and reveal ideologies and intellectual attitudes that manifest themselves in our evaluation of nature.

Thus, a characteristic Central European landscape can play the role of model and reference object, and demonstrate in an exemplary manner a development that begins in the Middle Ages and ends with the advent of mass tourism in the '30's. In this context, pride of place must be given to the Semmering Railway, which was completed in 1854, as it was largely responsible for transforming not only the region itself from a mountainous wilderness into an archetypal tourism region – in other words, a landscape for sightseeing, leisure and adventure – but also for transforming the visitors' physical impression of its scale, perspectives and vistas.

Modern consciousness of nature is closely related to the desire to subdue nature to technology. Nowhere else is this more evident than in the case of the Semmering Railway, a masterpiece of the art and ingenuity of 19th century engineers, which was both a symbol of the subjugation of nature and yet offered its passengers an almost "cinematographic" visual enjoyment of nature. The history of this landscape is notable for a surfeit of pioneering achievements: it was here that the *mis-en-scène* of Europe's first mountain railway, with its imposing tunnels and stone viaducts, was presented to the public; it was here that alpine skiing became popular; here is the Austrian Republic's oldest cableway (the Rax Cableway); and, finally, it was here that the first totally artificial health resort (the "colony" of hotels and villas on the Semmering, begun in 1880) was laid out. The Semmering was not a distant destination but almost an extension of Vienna (and, indeed, Budapest). Constant reference to its proximity to the city formed the evergreen refrain of all advertisements ("2 hours by express train from Vienna!"), but this was soon to become a disadvantage, as rising affluence, private motorisation and greater social prestige made distant destinations seem more attractive.

HALLMARKING THE LANDSCAPE

Emperor Franz I. had a victory monument erected on the Schneeberg to commemorate his *Gipfelsieg* ("Summit Victory") and gave the mountain a new title: *Kaiserstein*.

In other words there were official ways of "hallmarking" nature to reflect inherited power structures and distribution of property.

If one considers the history of tourism as a history of bourgeois liberation from the constraints of private land ownership on the part of a privileged gentry, then the semi-official patronage that was widespread in the early period of tourism was of great importance, as it helped mark the public area according to the spirit of liberalism and individualism. This is particularly evident on the Rax which boasts of a *Akademikersteig* ("Graduates' Path") and a *Malersteig* ("Painters' Path").

Reichenau offers an interesting example of the naming and appropriation of a landscape during the Biedermeier Period. One could almost speak of a successful civic action group: in 1837 a group of friends erected a monument to a certain Herr Kletschka, a minor civil servant from Vienna, on a hill opposite the Rax. His favourite vantage-point was to be immortalised in this manner after Herr Kletschka, who had regularly visited Reichenau on his summer vacations, died suddenly. The hill was, in fact, renamed *Kletschka-Hügel*, much as if Kletschka had been an important explorer who had claimed a remote part of the world his own. Although this may seem to be a unique example of an alpine location being named after an obscure, common tourist, it was actually a highly symbolic event. Other early examples that catered to this urge to communicate were the guest books of the hotels and alpine huts. Guest books represent a fascinating source for research, above all, because they concisely reflect the spirit and mentality of the times in typical situations.

Architecture also offers impressive testimony of this attempt to appropriate alpine landscapes. The insistence on prominent situations in the landscape to underline territorial claims, echoes the aristocratic architecture of the past. *Nouveaux riches*, like the sport publisher and "king of the Semmering", Victor Silberer, made certain that the towers of their villas were visible to railway passengers and strollers from as many view points as possible along their routes. A characteristic anecdote concerning the *Villa Wartholz*, which Heinrich von Ferstel erected for Archduke Carl Ludwig in 1870 in an open expanse of the Valley of Reichenau, relates that the Archduke wanted the Rax removed to improve the view of the property.

THE SEMMERING RAILWAY AND THE VILLAS OF PAYERBACH AND REICHENAU

Up to now, the construction of the Semmering Railway has largely been extolled as a *tour de force* of engineering in specialised literature. The architectural merits of the railway, its ideological background, as well as the planning and construction techniques used, have only been superficially discussed. Yet, the history of the construction of the Semmering Railway reflects the conflict between Romanticism and neo-Classicism, which deeply influenced the history of architecture in Austria in the middle of the 19th century. Alone the plan of overcoming natural obstacles with the help of new machines and technologies, together with the consequent decision to take calculated risks and carry through a carefully-arranged experiment that entailed building and manoeuvring outside accepted limitations, betrays eminently Romantic ideas. The "masterplan" of that "enlightened romantic", Archduke Johann, to connect the northern and southern parts of the Monarchy by means of a railway was, in effect, an attempt to implement a Romantic utopian ideal. The problem of conquering the mountainous terrain was tackled with Romantic élan: railway engineers like Mathias Schönerer and Carl Ghega, who made study trips to America were confronted with a – for Austrians hitherto alien – mentality that placed so much trust in technology that it refused to be deterred by momentary setbacks. To construct a railway for which no suitable locomotives had yet been created, meant not only a considerable personal risk for the responsible planners but also a major step towards the future that combined both the most modern technology of the period with an almost boundless belief in the further development of mechanical engineering.

Up until recently, it was thought that the route Carl Ritter von Ghega's railway tracks had been simply the result of technical necessity and that "it had nothing whatsoever to do with Romanticism". This point of view completely neglects Ghega's involvement in the intellectual trends of the time. During his short and brilliant period of study at the University of Padua, Carl Ghega (1802–1860) not only received tuition in Mathematics but also in Architecture. He was confronted with alpine road planning and construction, which demands enormous sensitivity in the handling of landscapes, during his service in the road-construction administration in Lombardy-Venice, and the provinces Belluno, Treviso and Rovigo. Austrian mountain roads that were built during this period, like those over the Splügen (1812–22) and Stiflser Joch (1820–24) Mountain Passes with their series of serpentines, tunnels blasted from rock, trestles and bridges, represent outstanding achievements in international engineering. In his designs for the road over the Finstermünzpass in Val Sugana in Tyrol and for a suspension bridge across the Etsch River near More, Ghega was able to put his knowledge to the test. He was already involved in railway con-

struction between 1836 and 1840 when he was commission to build a section of the Northern Railway between Rabensburg and Brünn and it was here that he introduced viaducts of rubble masonry, which were later to be such a characteristic feature of the Semmering Railway, for the first time.

When Ghega was confronted with the problem of completing the railway cuttings he had laid out (1843–1844) from 1848 onwards in an extremely rugged but highly picturesque terrain, that had to be secured with the aid of retaining walls, dynamiting of loose cliffs and extensive protective measures, he did not have to merely rely on his own experience and knowledge of the construction of mountain roads and railway bridges. The period leading up to the March Revolution of 1848 was characterised by a completely new enthusiasm for the aesthetic and formal possibilities of picturesque mountain landscapes: Prince Johann I. of Liechtenstein, for instance, had heavily manipulated his extensive grounds in Mödling to give the appearance of walk-on landscapes, whose unexpected vistas were carefully calculated and complemented by architectural "backdrops" such as artificial ruins and "ancient" temples.

A NOVEL SYNTHESIS OF NATURE AND ARCHITECTURE

The Semmering, with its wide variety of vistas of the Rax and the Schneeberg, and the bizarre perspectives of its cliffs and gorges, was predestined to be exploited for scenic effects and this was taken into account in the course of railway planning and construction. But another entirely new element was to play an unexpected key role in the Romantic effect of the area: one could pass though delightful mountain scenery at hitherto unknown speed, with constant changes of direction and view in the course of a single railway trip – ideal conditions that Romantic nature enthusiasts had previously dreamt of for decades. Alpine summits could be seen; narrow rocky gorges were crossed at dizzying heights; the railway even seemed to accidentally skirt a ruined castle (Klamm); nothing seemed lacking in this novel synthesis of nature and architecture. Above all, it offered a simultaneous experience of both nature and motion and even contemporaries were aware of its theatrical quality. Similar impressions could be had by travelling up the serpentines of the alpine road, but the postal coach could hardly compete with the effect of much greater speeds and continuous movement that a railway trip offered. In fact, the impression the railway passenger had of the Semmering was similar to a visit to a landscape garden of immense dimensions. It is not surprising that, shortly after the opening of the line, the viaduct over the Schwarza was seen by some visitors as "a segment of an enormous amphitheatre", whose overwhelming scale could be measured by the height of the neighbouring parish church in Payerbach. The Viennese public had been familiar with

the motif of "ancient" amphitheatres as an architectural highlight intended to "refine" landscapes since at least 1810, when Prince Liechtenstein has one erected as an artificial ruin on his estates in Maria Enzersdorf.

It is remarkable that the buildings erected by engineers along the Semmering Railway are all in a classical style: the trestles, tunnel entrances, and viaducts are modelled on Ancient Roman bridges, canals and water conduits. The question why Ghega actually chose this style and not another has not yet been satisfactorily answered. He had a number of precedents for his choice of style for the edifices of the Semmering Railway: the bridges that carried the first – originally horse-drawn – Austrian railway line between Linz and Budweis over valleys (i.e. at Waldburg in the Mühlviertel, 1830–32) had round arches. Ghega's first bridge at Brünn was also built in this style: he had discovered a bridge of rubble masonry during his journey to America along the Baltimore to Ohio Line. Mathias Schönerer built a rubble masonry bridge with round arches at Mattersburg between 1845 and 1847 and a multi-tiered bridge with round arches that was modelled on ancient viaducts had been under construction in the Göltsch Valley in Vogtland since 1845. The 649 m long Pössnitz Viaduct with its forty-six high rounded arches in a classical style was erected in 1846 under Ghega's direction as part of the Southern Railway between Graz and Cilli. In the light of all of this, it is even more surprising that the original plans reveal that the architectural style of the railway buildings was not settled even shortly before the commencement of construction. Designs dating from 1849 display three variations: the tunnel entrances are sometimes rendered in "Roman" style. Alternative architectural styles were discussed for the viaduct over the Kalte Rinne: besides the three-storied Classical version that was finally chosen, there are designs that dispense with a division of the storeys, where the extremely high piers either seem to terminate in Gothic arches or end with a purely functional iron lattice construction. This concern with stylistic considerations obviously reveals a close relationship to the development of Romantic garden and landscape architecture: follies and decorative buildings in a Classical, neo-Gothic or Egyptian style had been typical features of the artistic repertoire of landscape gardens of the Enlightenment since the late 18th century. The `30's and `40's of the 19th century were characterised by an often highly emotional discussion among architects, whether Classicism, which was already becoming rigid and stereotyped but was favoured by the Court Building Authorities for its projects, or the mediaeval stylistic ideals of the Romantics (known as the *altdeutsch* or "Old German" style and redolent of the aspirations of nationalistic and bourgeois revolutionaries of the 1848 period) was to be given preference.

In the year of the 1848 Revolution, the labour-intensive construction of the railway over the Semmering proved politically opportune: the uprising in Vienna shook the very foundations of the state and it was hoped

that centrally-organised emergency measures would create long-term employment and at the same time remove discontented and potentially dangerous social elements from the capital. It is hardly a coincidence that the Classical style was chosen after all: the tension between social upheaval and the maintenance of order is reflected in the conspicuous dichotomy between the Romantic intentions and the Classical stylistic details of the railway. Although the subjugation of nature reveals the influence of Romantic utopian ideals, its implementation was determined by Imperial law enforcement policies. A choice of the neo-Gothic style, which had suddenly become associated with the nationalist pan-German aspirations of the 1848 Revolution, was out of the question under the circumstances. On the other hand, the choice of the Classical style for engineers' buildings had the advantage of echoing the stylistic repertoire favoured by engineers in Ancient Rome and could be adapted to make an ideological statement: only the long-standing Imperial power of the Dual Monarchy which, nevertheless, was committed to the "polyglot cultural humanism of the Enlightenment", could be allowed to emerge "victorious" over natural obstacles.

VILLAS IN PAYERBACH AND REICHENAU

Private citizens who wished to build houses in the Rax, Schneeberg and Semmering Region in the middle of the 19th century were faced with completely different stylistic problems than the railway. Here too, the relationship of the building to the surrounding countryside played a decisive role, but the intentions of these patrons and the architects they commissioned were entirely different. The desire to create an individual and unique private environment was ideally suited to the wide variety of diverse styles prevalent during the epoch know as *Historismus* or "eclectic historicism". The numerous contemporary architectural publications (both journals and single works) that offered models and prototypes played a major role in influencing both the patrons and their architects choice of styles. In England, A. J. Downing presented "Gothic cottages" alongside "Swiss cottages" and "houses in the English rural style" in his highly influential book *The Architecture of Country Houses*, published in 1850: his villas displayed a wide number of variations on 'Romanesque", "Gothic", "Italian", "Grecian" and "Classic" styles. In Austria, a leading role was played by Christian Ludwig Förstner who published the journal *Allgemeine Bauzeitung*, which regularly featured comprehensively documented examples of the latest country house architecture from at home and abroad.

According to the dictates of historicism, which were best formulated by Gottfried Semper in his book *Der Stil in den technischen und tektonischen Künsten* (1860–1863), the appearance of a building was seen to be dictated by its purpose, function and construction. Architecture and applied art were seen to be in the service of this prerequisite as an ex-

pression of functional conditions. In the case of a villa, the technical construction and the functional domestic requirements formed the outer framework, that then had to be "clothed". This stylistic "clothing" was subject to the creative intentions of the patron and his architect. This procedure reveals the actual "style" of the period: the art of the 19th century was by no means a slavish copy of the art of the Middle Ages, Ancient Rome and Greece, the Renaissance or Baroque. Nor can a mere repetition or miniature copy of historic models be found anywhere in the architecture of villas and hotels. The architecture of historicism was created on a totally independent footing and it differed entirely in its basic attitude from those historic epochs that supplied it with stylistic "citations". It was not intended that a villa resembling a castle should actually bring the Middle Ages back to life: on the contrary, such buildings were intended to reflect the dialectic confrontation of 19th century reality with the historical past. As a rule, these stylistic devices reflect a focus of individual projections and represented the best way of realising an imaginative will. As a result the "stylistic clothing" of a building played an important role in the dialogue launched between the patron and creator of the architectural work on the one hand and the viewer and interpreter of the building on the other.

After the inauguration of the railway station in Payerbach (1853) the Valley of Reichenau, suddenly became just as accessible to the Viennese public as the area around of Mödling and Baden. The alpine region not only stood open to everyone, it offered, at the same time, ample room for the development of a country house architecture set against a backdrop of incomparable scenery that conformed fully with the ideals of Romantic historicism. Villas could be built on relatively limited – and, as a result, cheap – plots in select locations, whose architectonic effect on their surroundings and their intrinsic value for their owner depended on their interaction with the picturesque countryside. The Valley of Reichenau offered conditions that were particularly favourable: until their abolition, the Monasteries of Neuberg (1786) and Gloggnitz (1803) had large and cohesive estates in the Valley of the Schwarza and in the Rax, Schneeberg and Semmering Regions, which could now be divided into individual plots and offered to interested buyers. The vast forests, alpine pastures and mountain regions that offered the best scenery, however, remained in the possession of big landowners and the state.

A COMMONER AS PACEMAKER

The first strangers who settled in the Valley of Reichenau were involved in the construction of the railway. Their houses were architecturally extremely modest: for example the *Buchenhof* in Reichenau-Hinterleiten (1849) that belonged to Matthias Schönerer, the builder of the railway line

to Gloggnitz and the simple, one-storied house that the son of Ignatz Theuer, the viaduct engineer, built alongside the railway bridge over the Schwarza. Edward Warrens, who had propagated the Semmering Railway as a journalist in the services of the Ministry for Commerce, bought Mühlhof Castle in Payerbach in 1850 and had an elaborate villa built on a nearby hill, overlooking the banks of the Schwarza. Warrens' architect, Otto Thienemann (1827–1905), produced a design that used neo-Gothic forms of Romantic historicism and promptly had it published in the *Allgemeine Bauzeitung*, which, in turn, ensured that it was widely emulated (ill. 67). The design seems to be the perfect setting for an individualist: even at first glance, the battlements on the corner tower give the building the appearance of being a castle and a park with fountains was laid out in front of the house. The villa's secluded setting – it lay in the middle of vast grounds, which, however, were largely owned by others – played a major role in the impression it was intended to make. Edward Warrens' biography corresponds exactly with this picture. He was born in 1820 in Hamburg and emigrated to America early in his life, where he became politically active as a journalist and writer. Warrens was sent as U.S. consul to Trieste as a reward for his help in the election of James Polk as American President. The Austrian Minister President Count Stadion summoned Warrens to Vienna, where he worked as an editor and publisher of newspapers, this time on behalf of the Austrian Government. It is characteristic of the man, who was so widely travelled and had a keen sense for new opportunities, that he was the first to exploit the scenic beauty of the region by building an imposing new villa. The *bourgeois* social climber was able to surround himself with feudal splendour with the help of a "villa in the form of a castle" and attempt to establish himself by this means on a higher social plane. The fact that the villa was used as a summer residence in 1872 by the family of the American General William T. Sherman and by Empress Elisabeth as a holiday home in 1873 testifies to its success in fullfilling this purpose. It is just as remarkable that the creator of the villa, Otto Thienemann, belonged to the group of "architectural engineers" who were trained at the Vienna Polytechnic. Thienemann, who was the architect of important historic office and domestic buildings in Vienna, served the Austrian railways (Empress Elisabeth Western Railway, Crownprince Rudolf Railway) for many years and was responsible for their building construction.

THE ARISTOCRACY FOLLOWS SUITE

The Imperial family soon discovered the scenic charms of the Rax and Schneeberg Region. The restaurant owner and entrepreneur Ignaz Waißnix from Reichenau put the *Rudolfsvilla* (ill. 66) he built not far from the *Thalhof* at Crownprince Rudolf's and his sister Gisela's disposal for the summer months. Emperor Franz Joseph's brother, Archduke Carl Ludwig,

bought the *Warthölzl* estate in Reichenau and commissioned the architect Heinrich von Ferstel with the erection of an imposing villa. Although Wibiral referred to *Wartholz* as "a grand country seat; that is, a castle in the old sense" and the property is know locally to this day as "Wartholz Castle, both the owner and the architect insisted on the more modest term "villa" (ill. 68). Incidentally this nomenclature was retained even after the country house was used by Emperor Karl I. as an official summer residence in 1917 and 1918. In spite of the inclusion of some features reminiscent of a castle, the building was conceived as an intimate family house in the country and was more modest than real castles of the period, such as Hernstein or Grafenegg. Nevertheless, even here attention was paid to the external appearance of the building, which was decorated with ornamental sculpture and polychrome brickwork. In order to ensure that the owner and his guests were not disturbed, the service rooms and servants quarters were moved from the main building to annexes containing the stables, coach house and nursery which were -in part – hidden in the woods. The main reception rooms on the ground floor and the working rooms and bedrooms of the family on the first floor were oriented towards the west, which opened out onto a charming but rather undramatic view of the Valley of the Schwarza. The villa was sheltered from the elements by the wood but, by the same token, deprived of a view of the alpine panorama which could only seen from a *belvedere* in a turret. The extremely pious Archduke laid great emphasis on the large private chapel that was two storeys high. It was distinguishable on the exterior from the rest of the building by a tower in the form of a Renaissance *tempietto* and was open to visitors on Sundays.

In its early stages, this type of country architecture hardly interacted with the surrounding countryside. Heinrich von Ferstel's attempt to construct one of the side buildings of the *Villa Wartholz* in a half-timbered "rural" style, that was never indigenous to the Austrian Alps, seems rather uninspired. The architect followed the same principle in his design for a villa for the Viennese businessman Martin Jacobsen in Schneedörfl near Reichenau (built 1873/74). The *Carlshof*, a wooden "Vorarlberg house" that Archduke Carl Ludwig bought at the 1873 World Exposition in Vienna and had re-erected on the Kreuzberg near the *Ortshof*, is something of a curiosity. The villa was used by the Archdukes sons, Franz Ferdinand, Otto and Franz Karl, from time to time. Basically it adheres to the older principle of the *Hameau* or *Schweizerei*: that is, those "hermitages" intended for the delectation of the nobility that were a feature of the late 18th century repertoire of landscape architecture. Again an interaction with the surroundings is evident: the *Carlshof* was not situated on Carl Ludwig's own estate but far away from Wartholz and the stretch of countryside in between quite naturally formed part of the theatrical "experience" of a country outing.

RUBBLE AND SHINGLE

In the meantime, an entirely new type of country house was being constructed. Dr. Ferdinand von Hebra, the famous Viennese professor of medicine who was one of the founders of the cold-water-sanatorium *Rudolphsbad* in Reichenau, had a villa erected near the sanatorium in 1860 (ill. 69). Hebra's architect, Wilhelm Flattich, chose an entirely different style to the Warrens and Wartholz villas for this commission. The design favours neither an asymmetrical groundplan nor an irregular silhouette with turrets; in other words, it dispenses with any attributes of a castle and was displays a compact and regular structure. The gable end was oriented towards the west – the exposed side – and, as a result, the major rooms (the drawing room on the ground floor and the main bedroom on the first floor) commanded views of the Rax. This arrangement, which seems so natural today, was regarded as being so daring at the time that Flattich had to defend his design in the *Allgemeine Bauzeitung*. In particular, he was forced to justify his choice of materials: "The building is constructed of untreated stones; as plaster would suffer in the mountain climate... Shale was chosen for the base of the building, which comes in a dark bluish grey tone from local quarries". On a plinth of shale rubble masonry of similar reliable construction to Ghega's viaducts, Flattich erected a ground floor of unplastered brickwork and rubble masonry walls and, above that, an attic storey of weatherboarding on shale masonry. Flattich was able to drawn on his own experience as a architect employed by the Southern Railway on the Semmering line both in his choice of materials and construction techniques. The obvious formal similarities to the attendants' houses of the Semmering Railway did no lessen Flattich's villa in the eyes of his contemporaries; on the contrary, they applauded these for being oriented towards the most advanced construction programme of the time – the Semmering Railway – which was also regarded as the epitome of modernity. This really prototypal building, whose low cost (23,000 Gulden) was less than a tenth of that of the *Villa Wartholz*, was destined to appeal to a wide circle of potential house-builders. The underlying ideas of both the owner and the architect were based on a totally new appreciation for the recreational possibilities of a country house, namely on the medicinal qualities of the mountain climate, which Hebra recognised earlier than his contemporaries. A villa of this progressive design had a largely receptive function: the owner regarded it as a comfortable setting for an optimal experience of nature. The accommodation had the character of a "box" in a theatre, to which he could retire to enjoy the scenery and recover his vigour in the mountain air. The external appearance of the building played a subordinate role which was not intended either to impress or to enhance the owner's social prestige. Again, it should be pointed out that the artist who designed the Villa Hebra, Wilhelm von Flattich, was an "architectural engineer" who studied at the Polytechnic in Stuttgart. He had been en-

trusted with building construction for the railway from 1848 onwards, was appointed Chief Architect of the Southern Railway in 1858 and oversaw the construction of the Southern Railway Station in Vienna between 1869 and 1873. Without doubt, this technically competent architect, who had wide experience of the problems involved in building in mountainous terrain under extreme climatic conditions, was better qualified than others to fully implement Professor Hebra's unusual and – for the period – extremely modern ideas.

THE DEVELOPMENT OF NEU-REICHENAU

The consequent development of villa architecture in Reichenau and the surrounding neighbourhood was determined by the two prototypes of the villa, as status symbol and as recreational objects, mentioned above. The spectrum of stylistic possibilities ranged villas modelled on the style of the Northern Italian Renaissance (Julius Frankl's country house, 1872) with asymmetrically grouped components, and the steep-gabled and fantastically ornate "Swiss chalets" (villa of the Austro-Hungarian Foreign Minister Julius Count Széchényi, 1875) with their richly fretworked and decorated weatherboarding, to a prefabricated wooden cottage that was imported piecemeal from Scandinavia (villa of Josef Lovasy, 1890). The presence of the popular Archduke Carl Ludwig in Reichenau soon attracted members of the upper echelons of society, who also built country houses in the neighbourhood. Villas for the aristocracy and nobility (i.e. the Counts Kuefstein, Salm and Castell and the Barons Bourgoin, Vetsera and Sommaruga) and country mansions for bankers and industrial barons (Rothschild, Erlanger, Fränkl, Knöpfelmacher and Schöller) were built. Reichenau gained in importance particularly after the death of Crownprince Rudolf (1889), when the line of succession passed on to Carl Ludwig's line and his sons. The town was seen by many – including speculators – as the future summer residence and as a potential successor of Bad Ischl, Franz Joseph's favourite summer resort. From 1873 onwards, the former dominion of Reichenau, which included numerous potential building plots in the Valley of the Schwarza, was owned by a stockholder's company. One of the shareholders, Leo Herzl Ritter von Hertberg who had amassed a fortune from war profits in 1878, purchased the sole control over the domain and began with the division of the land in 1883. The Viennese architect, Lothar Aber (1841–1896), who made a reputation as a landscape gardener and domestic architect during the planning of the parks along the Ringstraße in Vienna, was entrusted with the supervision of the allotment of plots. The plan for "Neu-Reichenau" was based on a system of radial and ring roads and a comprehensive development of detached single-family homes in the style of a "cottage colony". This type of development was first introduced to Austria with the foundation of the "Wiener Cottage-Verein" in 1872 at the instigation of Heinrich von Ferstel

and under the patronage of Archduke Carl Ludwig: the Vienna *Cottage* was thus, at least formally, the antecedent of the "Neu-Reichenau" project. The main concern in Reichenau, however, was not the creation of affordable dwellings for the upper middle classes, but the speculative planning of holiday homes in a chic recreational resort. The "Neu-Reichenau" project was not completed before the fall of the Dual Monarchy and almost half of the total project was never carried out. Very few of these houses reveal outstanding architectural quality; exceptions are Leo von Hertberg's own house (1895), which Lothar Aber designed with a strikingly steep roof of glazed tiles and a porch in the neo-Renaissance style, and the villa of Zdeno von Wessely, a building by the Viennese architectural bureau of Bressler & Wittrisch (1905), of the Romantic castle type favoured by the late stages of historicism and suffused with *Art Nouveau* stylistic influences. Most of the villas were designed by busy local builders such as Alois Seebacher or Carl Postl; these entrepreneurs were often developers who built the houses and then sold or let them to interested clients. The development of other regions followed a similar pattern: for instance the Viennese architect Moritz Hinträger was responsible for Prein and the Viennese civic contractor Ludwig for Spital am Semmering. Stylistically, the villas of "Neu-Reichenau" followed the principles of late historicism, their façades often reveal an asymmetrical arrangement with turrets and oriel windows, but they were quite functional from the point of view of domestic arrangement. One characteristics of this type of "summer" architecture were open wooden verandas that replaced the drawing-room in good weather and which were so popular that they were copied in summer resorts throughout the Dual Monarchy. These verandas were sometimes several storeys high and decorated with delicate fretwork and filigree ornamentation in wood. Indigenous carpentry traditions were soon supplemented by pattern books of Austrian and German origin (ill. 70). Carpenters who specialised in this kind of work, like Carl Weinzettl and Franz Schreiner, created a very loose form of "vernacular style" that included small summer cottages, verandas and bowling alleys, as well as complicated pavilions, such as those in the spa promenades of Reichenau and Payerbach (1895 and 1909; ill. 71–74).

THE SHORT INTEREST OF A *NOUVEAU RICHE*

At the end of the 19th century, the banker Nathaniel Baron von Rothschild added an effective highlight to the development of Reichenau. His Viennese palace in the Theresianumstraße, which was built between 1871 and 1878, was already one of the most imposing examples of historicism. Nathaniel Rothschild bought a large estate in Reichenau-Hinterleiten in 1883 and engaged the architectural bureau of Bauquè & Pio with the erection of a mansion of hitherto unrivalled luxury from 1884 onwards (ill. 75, 76). The main wing was in a neo-Renaissance style and

reflected the architecture of the *chateaux* of the Loire Valley with its multitude of gables, turrets, chimneys and oriels. In this way, the architects catered to the owner's predilection for French architecture. As the documents of its construction record, the technical fittings belonged to the most modern of the period: a gasometer was built in 1886 expressly for the gas lighting. In spite to the enormous outlay of 2 million Gulden, which was equivalent to ten times the cost of the *Villa Wartholz* and one hundred times that of the *Villa Hebra*, Hinterleiten Castle was still partially unfinished in 1889 – for instance, much of the Baroque and Classical decoration of the interior designs had not been carried out – when Nathaniel Rothschild began to tire of his *Villa Penelope*. Archduke Carl Albrecht must have regarded the erection of the Rothschild mansion as a personal challenge: even its location dominated over the lower-lying *Villa Wartholz* and it was possible, therefore, to gaze from the banker's house down towards the Archduke's estate. Rothschild tried to outdo the relatively reasonable dimensions of the *Villa Wartholz* by building an overblown and extravagant 200-room fairytale castle, which he also ironically termed a "villa" – a rather excessive understatement – in the building records. The view of the mountain scenery of the Rax, which rose behind the *Villa Wartholz*, received the unwanted addition of the obtrusive polychrome glazed roofs of the Rothschild villa, whose style was referred to contemptuously by locals as "Persian". *Hinterleiten Castle* is a characteristic example of Viennese political Liberalism at its height: the owner was no longer satisfied with the mere appropriation of feudal symbols of power in the form of stylistic references to the architecture of the nobility, as Edward Warrens had once been. Rothschild wanted to show that, as one of the richest men of the Dual Monarchy, he was able and willing to display his own importance in a much more impressive form than the brother of the Emperor. The mutual antipathy between Archduke Carl Ludwig and Baron Rothschild has been illustrated by a number of anecdotes: it came to the fore, however, when Rothschild decided to convert his castle into a foundation for tuberculosis patients. This prompted the Archduke, who was worried about the area's reputation as a summer resort, to encourage the civic corporation of Reichenau to oppose and eventually hinder the plan.

HOTELS AND VILLAS ON THE SEMMERING

The Semmering Pass itself remained untouched by tourism for a remarkably long time after the opening of the railway line (1854). The court sculptor Franz Schönthaler (1821–1904) was the first to discover the scenic beauties and tourist possibilities of the region. Although he grew up as the son of a woodsman in the area, it was only after he had widened his intellectual horizons on extensive tours of Western Europe that he began to share the current enthusiasm for nature and was able to propagate this

successfully at home. Schönthaler's influence was instrumental in convincing the director of the Southern Railway Company, Friedrich Schüler (1832–1894), of the economic possibilities inherent in the development of this hitherto unheeded alpine region. The Southern Railway Company had just begun to get involved in the construction of hotels: the architect Wilhelm Flattich erected a hotel in Toblach, the last station along a branch line to the Valley of the Puster, which enjoyed great popularity as a starting point for tours of the Dolomites. At first, however, the company itself did not actively invest in the Semmering. As D. Vasko recently demonstrated, a consortium was formed with Schüler and Schönthaler as members which bought the so-called "Polleros-Hube", a climatically favourable location at the foot of the Wolfbergskogel, for 4,000 Gulden in 1878. Franz Schönthaler now suggested that, instead of a grand hotel, a number of villa-like guest houses could be built there around a restaurant in a country house style, but the Southern Railway Company showed no interest in this plan. So the consortium offered the company a plot from the land they bought as a site for a hotel, while planning at the same time to erect a number of villas on the remainder (Schönthaler also received a plot for his private use). After purchasing their plot in 1880, the Southern Railway Company entrusted the task of designing the "Semmering Hotel" to their chief inspector of buildings, the architect Franz Wilhelm. Wilhelm had just succeeded Flattich as Chief Architect of the company and had cooperated closely with him in the past. Flattich's knowledge of the prevalent climatic conditions are reflected in the long narrow wing of the *Passagiershaus*, which was constructed of unplastered brickwork. Its rigid symmetry, shallow projections and the treatment of the roof, are all reminiscent of Flattich's almost austere houses for railway attendants along the Southern line between Vienna and Mödling (1870) and soon after the opening (1882) Peter Rosegger aptly compared it to a barracks. In the same year, however, the *Österreichische Touristen-Zeitung* was quite extravagant in its praise of the building as being "very stately and imposing", and "looking more like a proud alpine castle than a hotel". The adjoining low wing with reception rooms (dinning hall, billiard room, library and verandas) was added in 1883 and resembled, both in its overall concept and details, Flattich's restaurant wing for the hotel in Toblach. It boasted unusually large panoramic windows and the gable and veranda roofs had rich wooden ornamentation in the "Swiss chalet" style. Two villa-like annexes in the same style were built to the designs of the railway's chief engineer, Josef Daum, in the immediate vicinity of the hotel (1881/82), which were rented out together with the necessary staff during the summer months.

NEUMANN'S "SEMMERING STYLE"

The villa (ill. 77) that Franz Schönthaler had built in 1882 on his plot of land south of the hotel was to be of great significance to the stylistic architectural development of the Semmering. As a nature enthusiast, Schönthaler could see no merit in Daum's use of brick as a building material. In his opinion, "in this climate, only a wooden structure modelled on alpine traditions is artistically and technically viable". As a result Daum's task was restricted to merely constructing a solid substructure for the building, while the architect Franz von Neumann designed a timber superstructure with characteristic weatherboarding. The choice of a frame building represented a new departure, "which resulted in the introduction of this kind of construction to the Semmering". Franz Neumann later called the erection of the building in traditional alpine construction in wood a pioneering feat: "Such an undertaking at a time when villas were generally constructed using the principles of urban architecture, without any regard to the landscape and climatic conditions whatsoever, was almost a complete novelty". These quotes reveal that Schönthaler and Neumann had concrete alpine precedents in mind and intended to exploit their evident merits for building projects in mountainous areas. This typical "Semmering architecture" that developed under Neumann's influence was far removed from merely indiscriminately applying the "Swiss chalet" style, as was the case in the earlier period of the "vernacular style": of course, Tyrolean and Salzburg farmhouse architecture from Western Austria was drawn on as a model and not the local tradition of the Lower Austria and Styria area. How much Neumann saw his villas elevated over the normal farmhouses is displayed by his contrasting his exemplary model of his design for a villa for Mautner von Markhof and the straw-covered Upper Austrian farm *Keusche* during the Jubilee Parade of the Semmering Railway in 1904.

Franz Schönthaler lost all interest in his villa just six years after its completion. The pioneer of the Semmering sold his house and left the area. Franz von Neumann, on the other hand, was able to establish himself on a permanent basis at the Semmering. He succeeded in realising the project of a colony of villas at the *Südbahnhotel* in gradual stages (ill. 78). Neumann fulfilled an extraordinary number of different roles: here as a speculator and builder, there as a agent for finished houses, all the time as an architect and creator, and in some cases even as an official of the land registry office of Breitenstein. Following the *Villa Schönthaler*, Franz von Neumann designed a house (1883/84) for his own family in its immediate proximity (ill. 79, 80). Here, the architect chose a timber block construction for the upper floors and the supporting walls were constructed of rubble masonry with deep courses. The basement and parts of the ground floor were constructed of bricks and coated with rough plaster, the upper stories were constructed of staggered and dove-tailed timber

beams. All of the rooms, including those on the upper floors, were thermally insulated and plastered. The relatively gently sloped and shingle-covered saddle roof which was weighted down with stones, the fretworked balcony balustrades and bargeboards, and a little belfry all gave the Villa Neumann the appearance of being a stately "Tyrolean house". Shortly afterwards, Neumann erected the neighbouring villas, *Bittner* and *Dunz* (*Villa Johannesruh*) which date from 1894/95 and the remodelled the *Villa Prenninger/ Leibenfrost* (1898): all of these reveal the same overall arrangement of steeper roofs and encircling *Ganglzier* (decorative balconies) and are mainly modelled on alpine farmhouses in Salzburg. Here and there Neumann made deft concessions to the citified tastes of his clientele, as the green, glazed-tiled roof and turret-like chimneys of the *Villa* or the big, arched, panoramic windows of the *Villa von Markhof* (1903) show. Franz Neumann was also quite willing to incorporate *Art Nouveau* elements into his work and to modishly "doll-up" façades with painted garlands of flowers (*Villa "Unsere Hütte"*, 1898/99: *Villa Kleinhans*, 1900) when he recognised that the Semmering public wanted them (ill. 81–84). Finally, Neumann designed a number of buildings in the neighbourhood in the latest fashion with more or less neo-Baroque overtones, for instance in the villa of the manufacturer Schöller in Hirschwang (1901) or the extension of the Dr. Konried's sanatorium in Edlach (1902).

Franz von Neumann was regarded as one of the most successful "architectural engineers" of this period in Austria. After studying at the Technical University in Vienna, he became the pupil and later the collaborator of Friedrich von Schmidt (on the building project for the City Hall) at the Academy of the Fine Arts. His design for the arcaded houses on the Rathausplatz first brought him to the attention of the public. The country house he erected between 1883 and 1886 in the Helental near Baden for Archduke Wilhelm also proved to be a great success artistically: it was featured in Crownprince Rudolf's de luxe edition of *Die österreichisch-ungarische Monarchie im Wort und Bild* as an exemplary representative of "modern country houses of the highest order". Franz von Neumann belonged to the Vienna municipal council from 1889 to 1900 and was also a city councillor until his death. It is not surprising that Neumann was not only a much sought-after "architectural tailor" for the villa projects of the Viennese society, but was also respected as the highest authority in aesthetic questions: he interrupted construction work on the *Villa Kleinhans*, for instance, to radically modify the already ratified design of the master builder Joseph Pansl from Mürzzuschlag. In 1901 Neumann was active as both the spokesman of the building committee for the extension of the *Südbahnhotel* and as the official representative of the community of Breitenstein for the construction project.

Franz von Neumann's position on the Semmering was strengthened by the fact that his younger brother Gustav (1856–1928) also worked as

an architect in the area. Gustav von Neumann was engaged by Prince Johann II. of Liechtenstein as court architect. A specialist for sacred architecture and profoundly knowledgeable about the architecture of the Middle Ages, Neumann restored the Prince's chapel in Klamm Castle in 1889 and his patronage church in Schottwien between 1889 and 1892. In 1894 a society was founded at the instigation of Countess Melanie von Zichy with the object of building a chapel and a house for the administering priests (a beneficiary order) at the Semmering. Prince Johann II. of Liechtenstein agree to act as patron to the society, donated a site on the mountain slope along the Hochweg and commissioned Gustav von Neumann with the drawing up of plans. Although the chapel was dedicated by Archbishop Gruscha in 1895, owing to a shortage of funding it could not be completed until the Diamond Jubilee of Emperor Franz Joseph's reign in 1908. Gustav von Neumann designed the chapel in the Early Gothic style of the mid 13th century, without, however, modelling it on any specific buildings. In spite of the alarming increase in the cost of the building, which Prince Liechtenstein was regularly obliged to cover, the interior of the chapel was fitted out with decorative frescoes, a rich inventory and coloured stained glass windows. The rectory was built in 1896 and displays an interesting combination of styles: the ground floor is similar to the chapel and built of unplastered rubble masonry walls and mirrors the latter's mediaeval style with arched apertures and heavy ashlar trimming. The upper floors echo the villas of Franz von Neumann with their wooden block construction and richly carved and painted supports, decorative courses and turned balustrades in the Tyrolean "vernacular" style (ill. 85, 86). Other buildings on the Semmering that Franz von Neumann erected in the "vernacular" style include Prince Liechtenstein's hunting lodges in Maria Schutz and the complex of buildings that form the cold water sanatorium *Marienhof* in Haiderbachgraben.

SHOWMANSHIP à la NEUSCHWANSTEIN

In spite of its considerable artistic success, Neumann's "Semmering style" does not seem to have gone unquestioned. Franz Neumann himself complained that his style of building lacked enough support among the inhabitants of the Semmering. He accused the country population of having no feeling for the Semmering: "This emporium of luxurious alpine splendour, that continually offers itself for development by both natives and strangers, to the joy and use of everyone whose property and acquisitions tie them to its soil". Another Semmering pioneer of the period was of a different ilk: the entrepreneur and sportsman, speculator and politician, Viktor Silberer (1846–1924), was resolutely "citified". The first act of his impressive self-dramatisation consisted of the erection of the *Silbererschlössl*, a mansion set in an imposing location above the Hochweg, whose dramatic silhouette was visible from a far along the railway line (ill. 87).

Josef Bündsdorf (1858–1926) was the architect of this building. Like Franz Neumann, he studied at the Technical University in Vienna and was a pupil of Friedrich von Schmidt. Bündsdorf's teacher infected him with his enthusiasm for mediaeval architecture, which he cultivated while restoring castles in Tyrol and applied in highly imaginative combinations: "The Silbererschlössl displays an accumulation of narrow, often steep vertical accentuations which are strongly spatial, varied and picturesque, in subtle balance with one another". The main wing features a gable front which is surrounded by polygonal turrets and oriels, that offer panoramic views in every direction. The immediate prototype for the building was Neuschwanstein (1869–1884), the fantasy castle of King Ludwig II. The interior of the miniature version on the Semmering boasted of lavish opulence and the most modern of fittings, such as central heating. Victor Silberer commissioned the Viennese firm of architects Fellner & Helmer with the erection of a large hotel at the pass – to replace the older *Erzherzog Johann* inn – in 1898. The versatile firm, which specialised in theatres and department stores all over the Dual Monarchy, was able to complete the building after only eight months. The Grand-Hotel *Erherzog Johann* offered its guests every comfort: 130 rooms, many with balconies and oriel windows, were available to the guests; and conversation, music and writing rooms, as well as an elegant café were intended to cater to the needs of an increasingly international clientele. The building also had central heating, a lift and electric lighting (already in 1902), a telephone and its own supply of spring water. On photographs that were taken during the construction, the half-finished complex seems extraordinarily modern. Nevertheless, it was inevitably encrusted in the fashionable style of the time and this time it tried to cater to all tastes. A number of stylistic elements from the German and alpine Early Renaissance were included, such as the square tower with its panoramic loggia and that terminates in an ogee cap, the polygonal corner turrets that echo Tyrolean models or the imitation Franconian weatherboarding. While the window surrounds were decorated with *Lüftlmalerei* and inscriptions on the gable and on the ground floor façade were in the "Old German" style, the three-storeyed verandas were built in the now firmly established "vernacular" style.

Silberer's opulent reconstruction of the hotel was a challenge to the other hotels already established in the Semmering area. The architects Alfred Wildhack and Robert von Morpurgo enlarged the *Südbahnhotel* by a six-storeyed extension towards the mountain between 1901 and 1903 (ill. 88). Later a tower was added that gave the building an asymmetrical outline strikingly reminiscent of Transylvanian fortified churches. Obviously, the intention was to challenge the dominance of the "vernacular" style with a more "international" appearance, that was calculated to appeal to the numerous Hungarian guests. In 1904, Franz Panhans also enlarged his hotel by adding an long 25 bay new wing with a raised tower-like middle section.

MODERNISM IN ALPINE BUILDING ON THE SEMMERING

The demand for further modernisation to cater to the rising expectations of the Semmering public up to the end of the Dual Monarchy led to a veritable architectural "race" between hotel proprietors. In 1909 a casino, the *Kurhaus Semmering*, was built in a "Riviera style" on a sheltered plot adjacent to the *Villa Meran* on the Wolfsbergkogel, as a joint project for convalescents between the Franz von Neumann's widow and the spa physician Dr. Hansy (ill. 89, 90). The architects Prof. Franz Baron von Krauß and Prof. Josef Tölk were jointly responsible for the design of the building. After completing the same course of studies as his colleagues, Franz Neumann and Josef Bündsdorf, Franz von Krauß (1865–1942) made a name for himself above all with the construction of theatres (*Wiener Volksoper*, 1898; *Wiener Bürgertheater*, 1905), and repudiated historicism early in order to explore new aesthetic possibilities. The *Kurhaus Semmering* stands on the threshold between these aesthetic traditions. While the *Lufthütten* ("air cabins") of the sanatorium were planed as wooden pavilions in the "vernacular style" of the Neumann brothers, the main building merely displays alpine elements in the rows of wooden balconies of the main façade which face towards the valley. The rear of the long and narrow building, however, which faces the mountain, is purely functional. Its interior displays both highly modern construction details, such as columns and joisted ceilings of reinforced concrete, and novel aesthetic forms, such as the railings and flower baskets of the main staircase that are reminiscent of contemporary work by Otto Wagner. The next innovative impulse followed in 1912 when Josef Deisinger commissioned the young architect Stwerdnik with the construction of the *Palast Hotel*, a reinforced concrete building with a *Fischdach* (an alpine roof-form), on a projecting site on the slopes of the Sonnwendstein. The management of the *Südbahnhotel* reacted immediately by adding another extension: in 1912/13, Alfred Wildhack designed an annex to enlarge the main wing of 1903. In spite of the modern building techniques used, this cannot be regarded as a radical break from traditional forms of construction. In order to remain to some extent abreast of the times, Wildhack decided to decorate his extension in the style of the *Wiener Werkstätte* – this ambitious plan, however, was only partially realised. The *Bürgerstüberl* in the new restaurant wing, on the other hand, displays the hackneyed attributes of "Old German" Romanticism: mass-produced cast iron capitals and stencilled mural paintings catered to the tastes of the masses that frequented this popular beer cellar. The new reception rooms and dinning halls of the *Südbahnhotel* were furnished in an *Empire* style which had once again become popular in Viennese society. In what – with hindsight – seems to be a final attempt to outshine all previous projects, Franz Panhans commissioned the construction of another – this time almost 128 m long – extension in 1912. The well-tried architectural firm of Fellmer & Hellmer ap-

plied all of the latest findings in international hotel planning to the project, but were unable to avoid certain deficiencies. Like the *Kurhaus Semmering*, the new wing of the *Hotel Panhans* was conceived as a modern reinforced concrete structure – and, seen from the valley, it actually looks like a skeleton construction as a result of its protruding loggias. The symmetrical arrangement of the projections and the uniform mansard roof were, nevertheless, concessions to local building traditions, that gave the hotel the appearance of a Baroque castle that had been transposed into the 20th century.

THE END OF THE "GOLDEN ERA"

It seems almost valedictory that Franz Panhans did not live long enough to experience the fulfilment of his dream. A year later the First World War broke out and heralded the end of the "golden age" of the Semmering. Momentous changes also affected the arts. Adolf Loos attacked the "vernacular style" relentlessly and Egon Schiele also felt uncomfortable about the artificiality of this kind of architecture: similar sentiments have been documented for Josef Hoffmann. Preservationists and world-weary individualists also voiced their criticism. The possibility of finding a way out of a widely-felt stylistic crisis and the hope of reforming older worn-out perceptions were seen from many different points of view. For Adolf Loos (1870–1933), a frequent guest of "Semmering society", the region seemed ideally suited for the foundation of the school of reform that the progressive pedagogue Dr. Eugenie Schwarzwald had envisioned. The *Schwarzwald School* at the Semmering presented Loos with the possibility of negating the difference between urban and country culture he had been aiming for. Genia Schwarzwald deliberately chose Loos as architect: "Adolf Loos, to whose almost twenty year long struggle against unnaturalness, untruthfulness, clutter and artificiality in architecture and interior decoration we owe so much, is just the right man for a building, whose main worth must be its simplicity and functionality". Loos adapted a steeply-sloped site by planning a U-shaped arrangement of building segments that was open to the south and had four storeys on the side facing the mountain and eight facing the valley. The careful spatial organisation of the interior was designed to meet the needs of 200 students. The exterior aspect of the complex was radically simplified: a flat roof was to terminate the regular, plain window fronts. Only the rough rubble masonry of the basement storeys could interpreted as a grudging concession to conventional "Semmering architecture". Even the planning phase of the school project was accompanied by a great deal of interest from Austria and abroad, but in 1914 – just as a loan of over 1 million Crowns had been arranged – the First World War broke out, and there was no possibility of even contemplating completion. In 1913, in a parallel project which has not been quite unravelled, Loos planned a winter sports hotel for a consortium of Swiss

banks on the same site on the slopes of the Pinkenkogel: the completion of one project would have ruled out the realisation of the other. Strangely enough, Loos' design for the hotel is very similar in form to that of the *Schwarzwald School*. The hotel project was abandoned even earlier than the school.

The fate of Adolf Loos' plans for the Semmering seems symptomatic; the time for implementing huge projects was past. Although some impressive large-scale designs in widely varying styles were created by individual architects (such as the project for a gigantic *Rax Hotel* with *Art Nouveau* elements by Helmut Wagner-Freynsheim or a large, exclusive, neo-Baroque hotel in the Adlitzgraben by Friedrich Ohmann), none of these projects were actually carried out. The architects had to make do with smaller commissions, in which they could try to realise their individual and increasingly varied aesthetic points of view.

Between 1908 and 1912, the architect Prof. Friedrich Ohmann supervised the adaptation of the old farmhouse *auf der Höhe* in Raach near Gloggnitz as a country home for Dr. Josef Kranz and his family. This assignment suited Ohmann's temperament. Friedrich Ohmann (1858–1927) was a pupil of Heinrich von Ferstel at the Technical University in Vienna and of Friedrich von Schmidt at the Academy of Fine Arts. In 1904 he became Otto Wagner's colleague as professor of the Academy. Ohmann had an intimate knowledge of Austria Baroque architecture, which qualified him to become the Director of the building project for a new wing of the Hofburg (1899–1907) in Vienna . Ohmann was also a master of the short-lived *Art Nouveau* style in Vienna, as his designs for covering the River Wien and the glasshouse in the Burggarten testify. Last and not least, Ohmann possessed a great deal of sensitivity for preservation problems as a member of the Central Commission for Research and Preservation of Artistic Monuments. For this reason, the reconstruction of the farmhouse in Raach became a unique attempt to correct "false" – i.e. not indigenous – "vernacular architecture". Instead of this the existing fabric of the three-winged farmhouse – which is, in fact, typical of native building types of the Semmering Region – was retained, although it was refined by the addition of new aesthetic elements, such as subtly integrated extensions, loggias and terraces. Original Baroque figures were placed in front of the house and Baroque reliefs were incorporated into its façade. Oscar Strnad and Robert Obsieger carried out frescoes and plaster work in the interior (1916/17) and further embellishments followed between 1922 and 1925.

THE PROGRAMMATIC COUNTRY HOUSE

In the winter of 1928/29, Adolf Loos was commissioned by Paul Khuner with the erection of a country house on the Kreuzberg in Payerbach (ill. 91, 92). The Semmering itself had become somewhat overrun as

a result of the presence of the big hotels and was increasingly avoided by those in search of more privacy. Consequently, a large number of villas were built before and after the First World War on the upper slopes of the Kreuzberg between Klamm and Payerbach, Breitenstein and Reichenau. Naturally, the Semmering itself had not lost its attractiveness and attempts to improve its facilities were undertaken, such the construction of swimming pools. A house on the Kreuzberg offered the advantages of being both secluded and quiet, together with the possibility of easy accessibility to the entertainment and sport facilities, as well as the scenic areas of the Semmering, Rax and Schneeberg. Loos realised the chance of building a house with a maximum of recreational potential for Paul Kuhner. The house faced north, in order to take advantage of the magnificent view of the Schneeberg. The main living area was the hall on the ground floor, which offered visual contact with the surrounding mountain panorama through huge French windows. When these were opened in summer they helped eliminate the division between exterior and interior. A sun deck that was situated the saddle roof of the building allowed members of the household to enjoy sunbaths without being seen by the others. But the house was also suitable for sojourns during the winter months. With the help of shutters that were reinforced with metal and mounted on rollers, the hall could be transformed into a cosy fire-side room and a special room was designed to store skis. Characteristically, Loos planned the Kuhner house from the inside out, by establishing "functional forms" for all domestic needs. The result seems even more ingenious, since the demands of the "spatial plan" were incorporated in a very compact rectangular building. The technical fittings seem familiar: Loos chose a timber block construction of dove-tailed rectangular beams on a rubble masonry base, which featured a shallow saddle roof. The building was carried out by the contractor Alexander Seebacher from Reichenau. The Khuner house hardly differs in its basic structure from Neumann's villas in the "Semmering style" and it even mirrors some elements of Flattich's *Villa Hebra*. But Loos always adhered to tradition when it was founded on logical premises that admitted no improvement and, consequently, he complied with the age-old traditions of alpine construction in wood. Incidentally, he had also intended to use a wooden hut as his planning office for the *Schwarzwaldschule* project (1912/13).

The architect Otto Pruscher chose a diametrically different approach in his 1932 design for the villa of Dr. Alfred Haberfeld, a Viennese lawyer, on the Kreuzberg. Here too, the owner specified a country house in the style of a "Semmering villa", in other words, a gable front with the appearance of a timber building. Prutscher planned the two-family house with integrated garage as a reinforced concrete structure, that merely masqueraded as a "Semmering villa" with the aid of superficial weatherboarding. In spite of the high quality of some of its structural details and the carefully worked-out arrangement of its ground plan, Prutscher's design

for Dr. Haberfeld's villa was theoretically the antipode of Loos' demand for truthfulness in the choice of materials, but, in fact, Prutscher's building has nothing to do with "falsity" and "deception". Both of the aesthetically so important country houses of Dr. Kranz and Kühner display, although they were designed on quite different premises, interesting similarities: both the ornamental tendency of Ohmann's work and the functional tendency of Loos' demonstrate, in their uncompromising quest for aesthetic "truth" and formal articulation, a striking concurrence. The demand for country houses had not changed with time; it advanced from merely being a peripheral problem of architects to becoming a major form of articulating individual aesthetic tenets. At the same time, the two basic types of villas that evolved during the 19th century continued to exist alongside each other. Ohmann's villa for Dr. Kranz epitomises urban sophistication in idyllic scenic surroundings. It is an example of a refined and imposing residence with an interior that was furnished with fine antiques and that featured consummate craftsmanship in every detail. Friedrich Ohmann's intention and, indeed, achievement was the creation of a villa that represented a *Gesamtkunstwerk* in suitable surroundings. The *Villa Kuhner* by Adolf Loos, on the other hand, conforms to the long-established tradition of the country house as a place of relaxation and leisure. Once again an architect created a comfortable and, in this special case, functionally ingenious building for the enjoyment of Nature's splendours, which could afford uninterrupted views because of its lofty situation on the Kreuzberg above the tree tops. Moreover, both types of country architecture originally sprang from the Romantic dream of "sharing" Nature's bounty, of partaking in the beauty of a natural landscape that had not yet been desecrated by Man.

REPRESENTATION, SACRED BUILDINGS, FUNCTIONALISM

In other cases, the activities of architects in the Semmering Region included a wide variety of different building projects, that, both from an ideological and aesthetic point of view, were solved in widely different ways. One of the big hotels on the Semmering decided to modernise in what seems to be a final attempt to regain its attractivity: in 1934 the architectural firm of Emil Hoppe & Emil Schönthal was commissioned to refurbish the entrance hall of the *Südbahnhotel*. The foyer was fitted out with dark stained wood panelling and glass and metal fixtures in the cool elegance characteristic of the *Neue Sachlichkeit*. In the style of the period the emblematic use of ornamentation represents a new departure within the framework of the overall design. The same may be said of the gable front of the extensive hotel garage, which was built by the same team of architects. Large windows, divided by broad rectangular rhythmical bars, join the exterior and interior of the swimming pool, another work by Hoppe & Schönthal. The ceremonious lamps in the form of simplified

chandeliers contrast strangely with the plain and functional design of this swimming pool. The *Alpenstrandbad* of the *Hotel Panhans*, which was built in 1932 by the architects Anton Liebe and Ludwig Stiegler was even more radically modern. The tall rectangular glass walls of this structure were divided by bars and could be slide open across the length of the building, so that bathers could have the impression of being in the open air and yet under a roof. A comparison of this building with highly developed Italian constructions of the period reveal the quality of this hall structure, where the construction of the roof played a significant role in its spatial composition – not unlike an aeroplane hangar.

A completely different building project was being developed in Gloggnitz. Clemens Holzmeister had been working on plans for a reconstruction of the parish church since 1927. This had been a leading objective of the Archbishop of Vienna, Gustav Cardinal Piffl, who had developed a close relationship to the town as a result of his regular summer vacations in Kranichberg Castle. Holzmeister designed a spacious and graduated hall church with a characteristic tower over the choir. This part of the building – a prismatic block with 17 cone-shaped arched windows – was begun in 1933 and Archbishop Theodor Innitzer was able to consecrate the presbytery in the ground floor of the tower in 1934. The building was named the *Kardinal-Gustav-Piffl-Gedächtniskirche* in memory of the Viennese ecclesiastic who died in 1932 and, being as it was a high profile, lavish project, it had almost national ideological significance for political Catholicism in Austria. Construction work, nevertheless, soon had to be abandoned. The church was finally completed to Holzmeister's revised plans between 1956 and 1962. The orientation of the church was reversed and the existing bell tower became an entrance tower over the narthex.

Another highly unusual architectural object from the interwar years represents a complete contrast from the point of view of its scale, intellectual premises and stylistic development. It was a small weekend house in Prein, designed by the Viennese architect H. Stiegholzer. The artist became known as a "red architect" because of his planning of major corporation housing schemes in Vienna. The building project on a site at the foot of the Rax had to struggle against extremely constrained finances. Stiegholzer designed a minuscule accommodation for an athletic individualist; a kind of "refined bivouac" for a mountaineering enthusiast who spent most of his time in the open air on mountain hikes. The building, which only measured a few square metres in area, was built around a cuppyhole-like sleeping place. The floor plan of the rooms was not arranged in a rigid grid pattern: these were freely grouped according to their function. The little wooden structure was expressively accentuated by its roof: the staggered and jagged system of gables that bestrode its tiny volume gave it the appearance of a bizarre sculpture. The Stiegholzer house is an outstanding example of how the often very modest (for financial rea-

sons) holiday homes of this period could achieve high architectural quality with the simplest of materials.

It might seem symptomatic of our discussion of these two examples – the Holzmeister church (uncompleted at the time) in Gloggnitz and the tiny vacation home in Prein – breaks off with the `30's. Like the "conquest of the landscape", the development of alpine architecture – which has been illustrated here by the Semmering – is, in reality, an on-going process. Even today it is a process that can develop in both a positive and negative direction. The results show that architecture has followed topological principles laid down in the 19th century, irrespective of all stylistic developments of the intervening years, right up to the present day. The investigation of this process can only be of advantage to us – facing, as we do, the prospect of over-settlement and pollution of our environment. To respond to its lessons can only be a question of our collective responsibility.

GARDEN LANDSCAPES/VILLA GARDENS IN HOTEL PARKS

The artificial mountain became a popular motif in gardens both south and north of the Alps from at least the middle of the 16th century onwards. It was not until the end of the 18th century that the charm of the wilderness was discovered. The Romantic Adlitzgraben behind Schottwien was developed by Prince Liechtenstein as a picturesque natural park with a minimum of "artificial" manipulation. A temple, a waterfall, an artificial pond took the Romantic visitor by surprise in a "natural" landscape that was, however, maintained by gardeners.

VILLA GARDENS AND HOTEL PARKS AS A "THEATRE" FOR THE COMMERCIAL EXPLOITATION OF MOUNTAIN SCENERY

In the 19th century artificiality gradually returned to landscape gardening; an artificiality that did not have to hide itself behind a studied naturalness. There were social reasons for this: the reaction to the French Revolution and the rise of the bourgeoisie as the leading social class with their claim for acceptance. Alongside elements of English landscape gardening, formal geometrical ones were also used. Parallel to this development, a thorough reappraisal of garden aesthetics was under way. As a result, the garden was no longer a *hortus conclusus*, no "paradise" that offered protection from chaotic nature, but a public – or at least a publicly discussed – "theatre" for the increasingly academic perception and commercialisation of nature. The representation of nature had become a framework for *presenting* nature. Especially in the environs of Vienna which had been "conquered" aesthetically – in other words the Rax, Schneeberg and Semmering regions, where the English style of landscaping reached its limits – the new interpretation of parks had a specific civi-

lising mission. this region illustrates in an exemplary manner this new relationship to nature and to the mountains themselves.

The park of the *Villa Wartholz* in Reichenau was laid out for Archduke Carl Ludwig from 1870 onwards. It represents a schematic threshold to the historicist mansion by Heinrich von Ferstel and is by no means merely just another element of the mountain setting, but rather competes with this as a picturesque symbol of power. The landscape no longer stretches out into the landscape, but penetrates into it in a wedge-shaped, almost aggressive, fashion in the direction of the new resort and attempts at the same time to outdo the gardens of the smaller villas with respect to location, size and opulence. In spite of the "naturalness" of its layout, it is clearly and self-consciously artificial, as old photographs from its time of origin clearly demonstrate. The Archduke did not orientate his villa towards the mountains, in order to enjoy the scenery; but towards the town, in order to "dominate" it. But he did not have everything his own way: he had to strenuously defend his turf, as the competition of the neighbouring Rothschild mansion demonstrates. The grandest park in Reichenau was actually laid out two years later and it no longer belonged to a single individual but to bourgeois society as a whole for its delectation and relaxation. The spa promenade in Reichenau succeeded in repudiating the Archduke's claim to "exclusiveness" of his garden for once and for all. These pleasure grounds and not the park of the *Villa Wartholz* were destined to become the real centre of the new fashion for resort gardens and fashionable enjoyment of the mountains from the turn of the century onwards.

The almost symmetrical overall design, which features a playful layout of paths and picturesquely distributed groups of trees and shrubs, was the work of the Viennese gardener, Franz Erban, who implemented the concept of the architect Lothar Aber. Aber had attracted attention by publishing an authoritative book on gardens in 1876 and had later submitted proposals for the enhancement of the villa colony in Reichenau. Landscape and formal structural elements were cleverly combined in the spa promenade: the overall concept did not foresee an organic connection with the surrounding landscape but its efficient presentation. A casino was originally planned for the site of the present-day bandstand. The artificial pond with its gondola serenades, the shooting range, the pergola and the sales kiosks no longer have any mythological or sententious historical significance, their sole purpose is to offer *bourgeois* amusements, whose charm lay, above all, in the contemplation of the tamed "wildness" of nature. The paths of this park were not intended for sentimental ramblers, as those of Neuwaldegg and Mödling had been, but for promenades in which less importance was laid on seeing than on being seen. The mythical and sentimental view of nature characteristic of former epochs was transformed in the second half of the 19th century into a "Nature for

promenades", which was worshipped less and less and consumed more and more.

If the construction of villas reveals, as one of the major architectural objectives of the 19th, the tension between urban and rural lifestyles then the phenomenon of large hotels in mountain settings is, perhaps, an even more pronounced symptom of this imbalance. The topos of the stately city palace was re-animated for this purpose towards the end of the 19th century in the spirit of the vernacular "style", enriched with rustic elements and erected at attractive scenic locations in such a way that the views of the "wild" natural surroundings could be exploited at a profit. A multitude of hotel guests superseded the aristocrat of yore and the mountain scenery was presented to them in the most panoramic form possible. The parks that were expected to accompany grand hotels did not respond to the shapes and composition of their natural environment as the gardens in the Age of Enlightenment had done, nor did they attempt to heighten or embellish them. For this reason the parks of Swiss and Austrian grand hotels often boasted of a wholly foreign flora: a Mediterranean atmosphere was seen to be quite consistent with alpine surroundings. For instance, palms were introduced into a postcard of the *Hotel Panhans* although they could not, in reality, be cultivated at an altitude of 1000 m above sea level. The object was to give the hotel guest the impression of being treated like a "prince" both inside and outside the hotel. The *Südbahnhotel* and its pendant the *Waldhof* offer a good example of this attitude. Everything was done to make the terrain between the two *corps de logis* as "pleasant" as possible – i.e. regular and even enough to allow the guests to "promenade". After the turn of the century, rigid patterns of paths with geometrical spacings – an anathema to 18th century gardeners – were reinstated as overall lay outs. And even if a plurality of styles was still consciously incorporated as a refinement of gardens, English landscape forms had deteriorated to becoming mere stereotypes that were tolerated even in the most bizarre of mountain settings.

In spite of the spirit of cultivation – as a principle of 19th century gardens – which was more significant to social interaction than the Romantic precept of *genius loci*, the search for naturalism, surprisingly, remained. A curious example of this was the very common phenomenon of small artificial rockeries that were closely planted with alpine flora and known as *Alpinum*. Leaving their academic character aside, one is involuntarily reminded of the artificial mountains of Renaissance gardens, which brings us back to the starting point of our train of thoughts.

It does not seem to have been possible to abandon the traditional concept of the garden as a paradisical metamorphosis of Nature in this modern century, although Nature itself – mountain scenery included – had already become an aesthetic object even outside of the garden. And this again clearly shows that the garden was not merely a mirror image of Na-

ture, but – as was already stated – the representation of man's nature and its relationship to Nature as a whole.

CULTURE ALONG THE STYRIAN PART OF THE SEMMERING RAILWAY

The Styrian part of the mountain railway over the Semmering Pass travels connects Spital am Semmering with Mürzzuschlag. It enters the Semmering Tunnel, whose mid-point marks both the boundary between Lower Austria and Styria and the highest point of the line, at Steinhaus.

Steinhaus am Semmering is the first station of the Styrian section of the Semmering line and its buildings of rubble masonry are typical of the whole line. Outside of the village itself, at the entrance to the Fröschnitzgraben, are the remains of a disused ironworks. The blast furnace and foundry works are preserved as ruins.

The cultural landscape of the Valleys of the Mürz and Fröschnitz and the neighbouring forest home of the popular novelist Peter Rosegger to the south, form the setting for the northern ramp of the Semmering Railway in Styria.

Spital am Semmering still lies within the Semmering Region. The village developed around a hospice that was founded by Margrave Otokar III. in 1160 and is now a village along the Semmering Road. Alongside the important Gothic parish church of the Ascension, there are a number of interesting *fin de siècle* buildings. Foremost amongst these is the town hall which was built in 1906/07 by the Styrian Ludwig Zatzka, a pupil of Otto Wagner. Hardly less significant is the villa colony with its own chapel that the Viennese architect Ludwig Zatzka erected to the north-west of the town centre.

Mürzzuschlag, whose existence was already documented in 1227, lies at the meeting of the Fröschnitz and the Mürz. Because it was awarded the privilege of running an iron-working monopoly for the area between Leoben and the Semmering, the town attained great importance and prosperity. After the construction of the Semmering Railway Mürzzuschlag became an important railway junction, which, in turn, encouraged major industries to settle there. Today Mürzzuschlag is also an important cultural centre for the region. The *House of Culture*, the *Museum of Winter Sports* and the *Brahms House* form the basis for numerous cultural events.

THE SEMMERING REGION TODAY: CONSERVATION, RESTORATION, REVITALISATION

Finally, if the interrelationship between buildings and Nature in the Semmering Region form a *Gesamtkunstwerk* in the spirit of the 19th century, then the preservation of monuments and the environment, together

with the care of urban settlements must be co-ordinated to preserve the objects, building complexes and the unmistakable flair of the Semmering as a *fin de siècle* mountain resort.

The boom at the turn of the century and the region's successes up to the '30's as a winter resort were followed by the inactivity of the war years and a decline in the post-war period. A destination so close by did not correspond to the tourism concepts of the '50's and '60's and, in spite of the almost legendary reputation of the area, had no place in the hearts of people who yearned for exotic holidays after the deprivations of war.

The "rediscovery" of the architectural heritage of the 19th century, the reappraisal of the ideas and intellectual trends of the period, and a new consciousness of indigenous culture and self-identity, led to a new perception of this cultural landscape. In the consciousness that these unique resources can be preserved and exploited for tourism, a comprehensive conceptual and protection programme is indispensable to maintain and capitalise on the typical flair of the atmosphere and buildings of the region. On top of this, international tourism must face a number of problems (crime, etc.) in certain countries which could contribute to the revival of recreational areas nearer home. The attractivity of such regions can be increased by diverse exhibitions and similar cultural events. In recent attempts to re-animate the region, measures were implemented to maintain its historic fabric. This not only includes the restoration of a number of villas but also of the legendary grand hotels of the past, such as the *Südbahnhotel* and the *Kurhaus Semmering*, which are in the process of being restored to their former splendour after a long period of forced hibernation.

Accordingly, only the unequivocal co-operation of all concerned can maintain the unique and, in the spirit of the 19th century, all-embracing flair of the Semmering, which combines monumental and, indeed, almost theatrical architecture with a splendid mountain setting. Legislation for the preservation of monuments, on the one hand, and environmental protection measures, on the other, together with the cultivation of urban ensembles by local authorities can all contribute to the sensible and conscientious adaptation of this heritage.

Only the close communication and mutual interaction between all of those involved in decision taking can form the basis for the further conservation of this unique historic and cultural landscape.

RÉSUMÉ

The heyday of the Semmering coincided with a period of rapid development, but also of transformation. The final decades of the 19th century, with their technical and scientific developments and achievements, brought far-reaching changes in the lifestyles of the population. The de-

velopment of the railway had a permanent influence on the region. The railway increasingly became the backbone of 19th century transport and gradually replaced postal coaches and horse-drawn carriages, which had previously offered the only means of transport. Initially, English technology and locomotives were imported. After the "leisureliness" of the Biedermeier Era was brought to an end by the March Revolution of 1848, technological innovation in railway transport brought an "intoxication with speed" (at least from a contemporary point of view). Scientific circles even debated whether this new "craze" could cause damage to health!

These technological and economic developments were accompanied by a demographical transformation. The narrowness of the domestic situation and environment was found to be irksome and the desire for new horizons and the lure of "the great, wide world" grew. The railway became the favoured means of transport for artists and scientists, with intellectuals taking the initiative. The intellectual basis for this first step towards the "conquest of the landscape" was being laid by the nobility and the upper middle class. The Semmering's new "artery" was be the railway and it was preceded by the vision of a mountain line that had no suitable locomotives. At this time, railways were generally financed by companies and consortiums, in other words they were purely commercial ventures. And, naturally, these companies did their utmost to secure their profits. Hence, the Southern Railway Company erected luxurious grand hotels in the style of the time at the termini of its lines in Trieste and Tobelbad, in order to encourage passengers to use its facilities. This might be described as a contemporary form of "open marketing". The Semmering Region must be seen as the point of crystallisation of all of these commercial considerations and developments. It offered everything that the urban population regarded as indispensable to their recreation, "a mere two hour's journey from Vienna": the utmost luxury in grand and palatial hotels; country mansions and villas that were designed by the foremost architects of the epoch; the possibility of mingling with "good society"; and, finally, the natural setting itself, which ranged from the charm of mountain valleys to the seclusion of the forests and the drama of ragged cliffs and alpine scenery. All of these could be consumed as a kind of "alpine theatre" without an personal effort. The choice of sites for hotels, country houses and villas is only comprehensible in this context. The almost theatrical presentation of these objects was arranged in such a way that they offered optimal views of the scenery that could be enjoyed and admired in evening dress and in convivial company.

The heterogeneity of the landscape, the favourable climatic conditions, the hotels, the numerous villas and country houses of prominent members of society and its easy accessibility, all predestined the Semmering to become the meeting place of the *haute monde*, in which *höchste und allerhöchste Kreise* ("the upper and highest – i.e. royalty –

echelons of society"), politicians, the *grand bourgeoisie*, artists and scientists, writers and actors gathered in an easy and casual atmosphere. Contemporary guest books read like a "who's who" of society a the time.

This self-image was reflected in the buildings of the region. The spectrum ranges from villas and country houses, which still echoed rural building traditions and the "Swiss chalet" style with their ornate carpentry and painted decoration and later became known under the term "Semmering architecture"; to technically innovative country houses like Nathaniel Rothschild's country seat at Hinterleiten, which boasted of its own gasometer; and to the "modernist" architecture of the swimming pool of the *Südbahnhotel* which was designed in 1932 by Hoppe & Schönthal and furnished by Marcel Breuer.

The history of the Semmering mirrors the events that formed the economical and political history of the period as a whole. It experienced its heyday during the *fin de siècle*, the twilight era of the Dual Monarchy and a great European power. It was "conquered" and occupied at this time to become the point of crystallisation of intellect and industry, the arts, culture and politics. After the First World War it remained the place "where one meets people" and where the seemingly lost stability of an older epoch was remembered with fondness and nostalgia. But this period also brought a new public with it and new guests from the young nations that once belonged to the old Empire. By the end of the '20's and the beginning of the '30's the Semmering's halcyon days were over, but the myths surrounding the region remained. A cultural landscape that was permanently moulded by buildings and ideas from the early stages of tourism in the latter half of the 19th century still managed to easily combine the charm of this period with the momentous aesthetic developments of the early 20th century.

In a time in which the stress of modern tourism is being questioned for all sorts of reasons, the variety and individuality of this unique recreational area at so many people's doorstep is once more returning to the consciousness of the general public.

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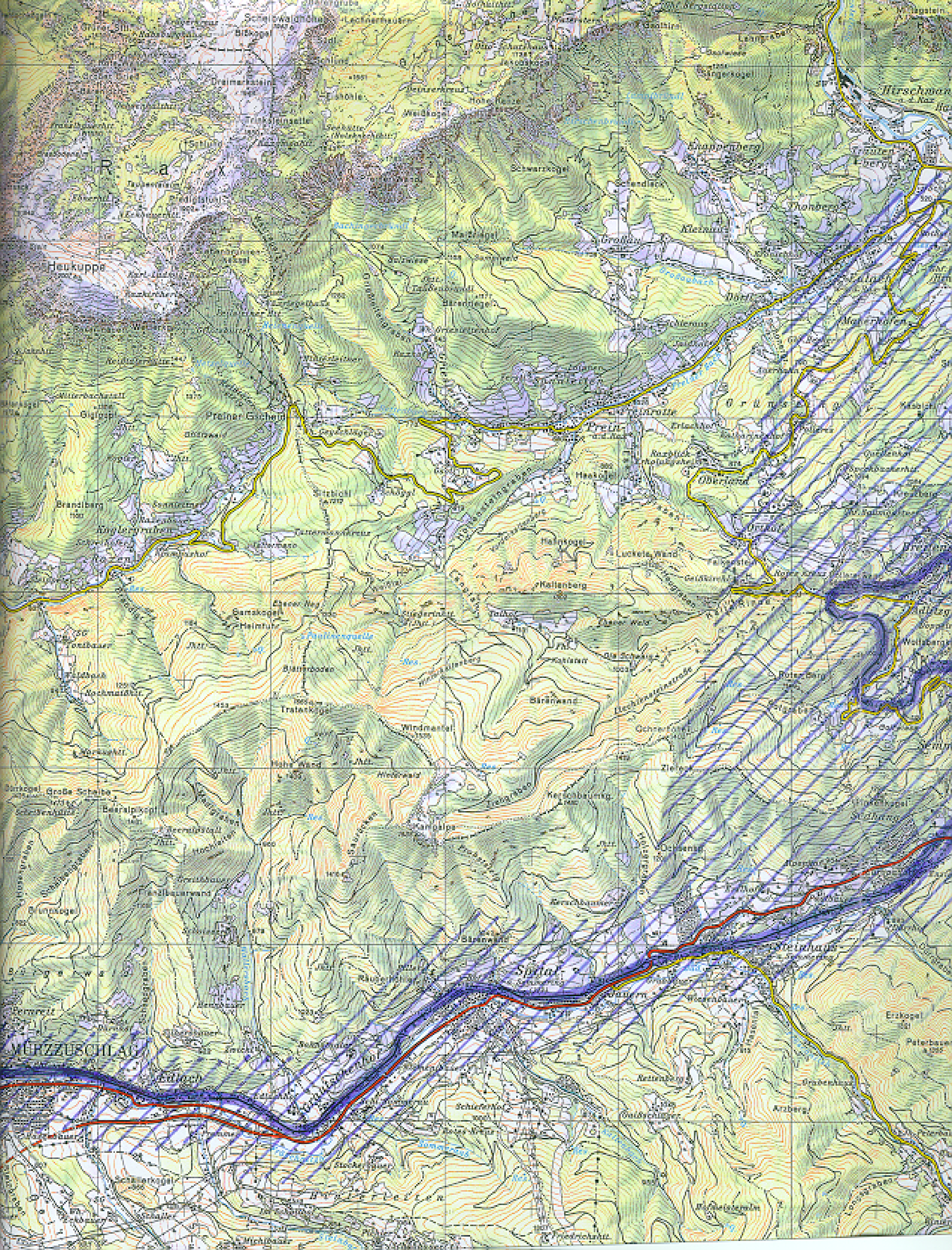
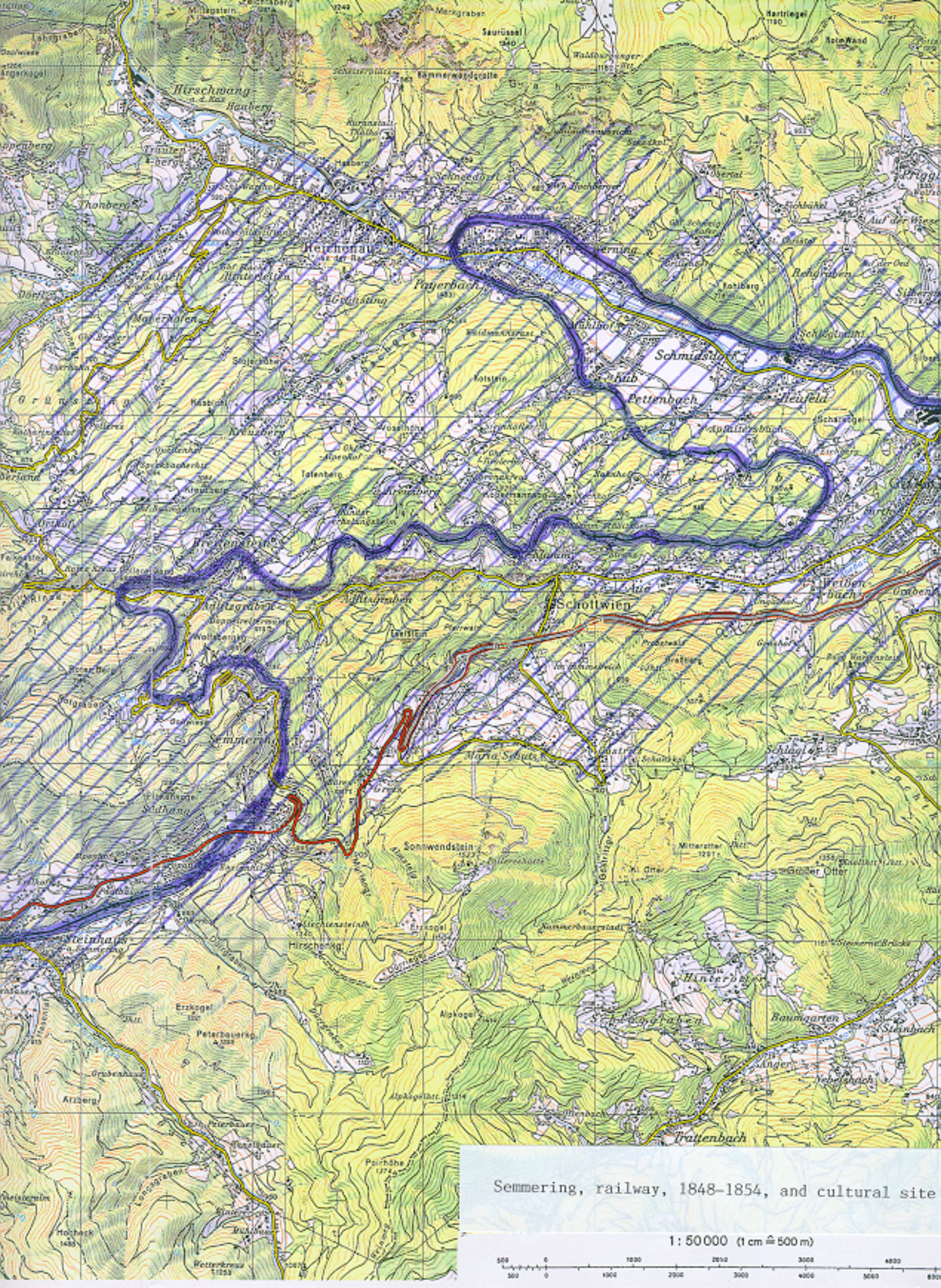


Heukuppe
R a
Preiner Gscheid
Brandberg
Schwarzkogel
Prein
Kallenberg
Bärenwand
Windmantel
Tratenkogel
Spital
Steinhaus
MÜRZZUSCHLAG
Erzkogel
Arzberg


Semmering, railway, 1848–1854, and cultural site
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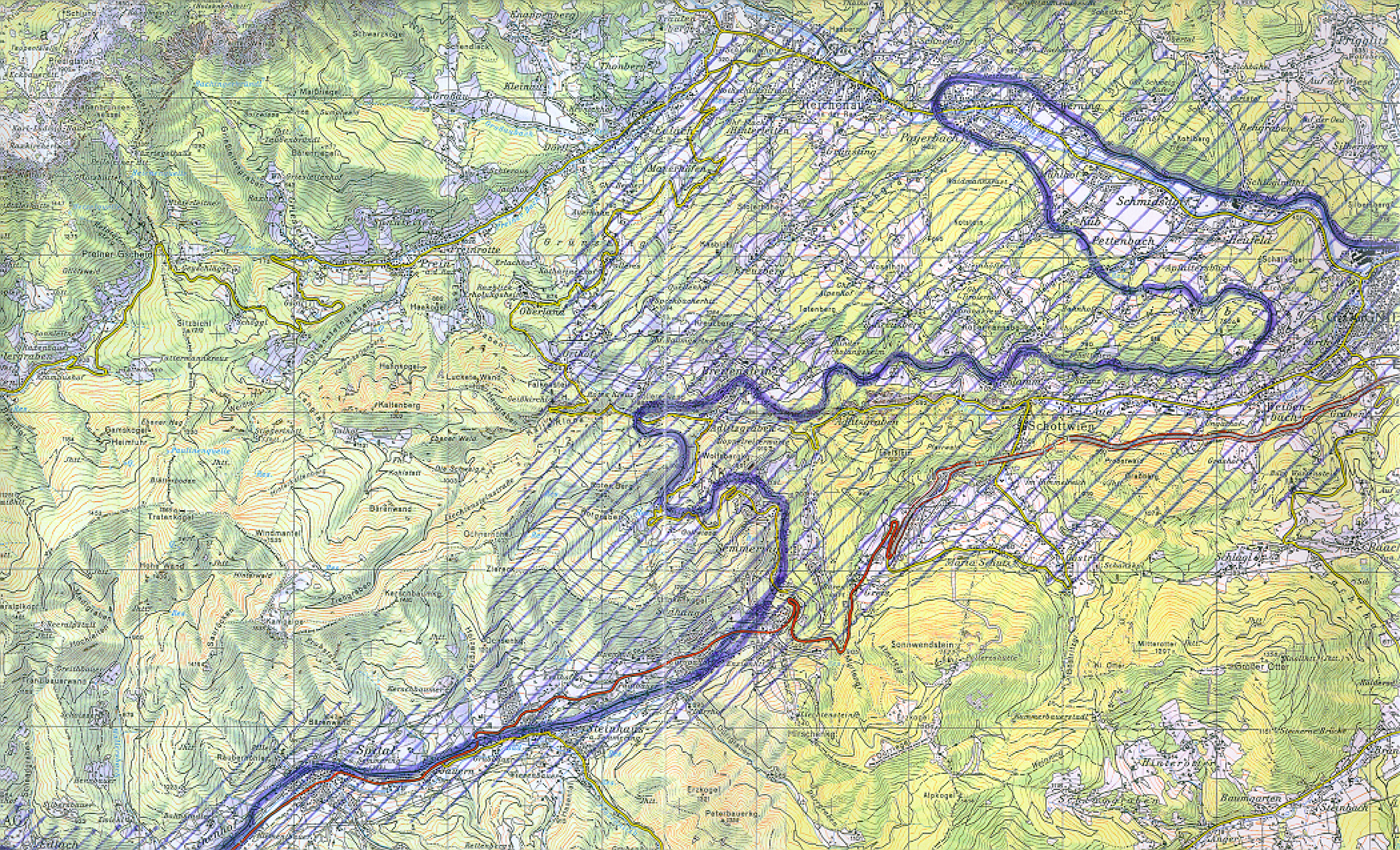


Reichenau
Payerbach
Schmidsdorf
Küb
Pettenbach
Kreuzberg
Schottwien
Semmering
Sonnwendstein
Spital
Prein
Preiner Gscheid
Oberland
Kaltenberg
Windmantel
Hohe Wand
Maria Schutz
Schlagl
Großer Otter
Baumgarten
Hinterotter
Steinhaus
Erzkogel
Alpkogel

36. Semmering Railway, the Kalte Rinne Viaduct and the Semmering landscape in autumn

43. Semmering Railway, a veteran steam locomotive crossing the Kalte Rinne Viaduct

35. Semmering Railway, the Kalte Rinne Viaduct and the Semmering landscape in autumn

WORLD HERITAGE LIST

Semmeringbahn (Austria)

No 785

Identification

Nomination	The Semmering Railway (Semmeringbahn) - cultural site
Location	Provinces of Lower Austria and Styria
State Party	Republic of Austria
Date	27 September 1995

Justification by State Party

The 41km long railway built across the Semmering Pass between 1848 and 1854 was the first noteworthy mountain railway the world had seen up to that point. It had a lasting influence on the technical development of this relatively new system of transport. Nowhere is the wish to take technical control over nature more clearly shown than in the Semmering Railway. The pioneering achievement of its architect, Carl Ritter von Ghega, was above all the solution of three technical problems. As marking out the terrain was impossible with the means available at the time, new surveying methods and instruments had to be developed. For the planning of the route, hitherto unused parameters with respect to gradient and the radii of the curves were employed. Finally, there was the actual construction of the line, with its fourteen tunnels, sixteen viaducts, and over a hundred arched passageways and the kilometres of retaining walls in extremely difficult and largely mountainous terrain. All these represent an extremely daring architectural and organizational undertaking for the period. The wide variety of aesthetically outstanding buildings can be seen as a *Gesamtkunstwerk* whose technology and architecture are subtly and harmoniously integrated into an important mountain landscape. Hence this 19th century masterpiece of Austrian engineering can be regarded as a synthesis between nature and architecture that was entirely new to the period.

In spite of its 150 years of operation, the changes that the maintenance and functional adaptations of the line required remained within acceptable boundaries from the point of view of monument preservation, thanks largely to its solid construction. This means that the original appearance of the site could be retained to a large degree up to the present day.

The first completely artificial recreation area developed at the Semmering as a consequence of its new accessibility, as it could be comfortably and rapidly reached by train. Grand and palatial hotels, country houses, and villas were designed by the most famous architects of the period, in the so-called "Semmering style," heralding the modern age in alpine building.

The Semmering was soon frequented by both the nobility and the *grande bourgeoisie*, particularly of Vienna and Budapest, and it became a meeting place for notable and important personalities of the Austro-Hungarian monarchy. The varied landscape, the favourable climate, the easy accessibility, and the luxurious accommodation of the area drew a large influx of guests.

Thus, the history of the Semmering reflected the events of economic and political history as a whole. In its heyday during the *fin de siècle* and after World War I it remained a rendezvous for high society. Although the halcyon days of the Semmering were over by the end of the 1920s and the beginning of the 1930s, it became fashionable again as a holiday resort after World War II. After another low period that continued until the late 1980s, the cultural landscape that had been so indelibly marked by the architecture and the concepts of early tourism during the late 19th century met with new public interest. For varied reasons easily accessible recreation areas are being more highly valued once more. In order to revitalize the area through tourism, many villas and country houses were restored during recent years and many hotels and guest houses were modernized to meet present-day standards of comfort. With the help of the Bundesdenkmalamt these changes were carried out so as to cause as little damage as possible to the building fabric, by retaining the external appearance of the old buildings and thereby of the entire Semmering area.

Note The State Party does not make any proposals concerning the criteria under which the property should be inscribed on the World Heritage List in the nomination dossier.

Category of property

In terms of the categories of property set out in Article 1 of the 1972 World Heritage Convention, the Semmering Railway is a *site*. It may also be considered to be a linear *cultural landscape*, as defined in the *Operational Guidelines* (1995), paragraphs 35-39.

History and Description

History

The transport route from the valley of the Mürz to the Vienna Depression has been used since prehistoric times. In the Middle Ages it was considered to be one of the few secure

Alpine crossings. Transport was possible using pack animals and wagons drawn by oxen. It had become one of the most important international land routes from Venice by the 12th century. However, the Semmering had lost much of its trade by the 15th century owing to the opening up of the Brenner and Radstätter Trauern routes further south. In 1728 the Emperor Karl VI ordered it to be improved as both a commercial and a military road, joining Austria with Trieste rather than Venice, hence its name, the "Trieste Route." In 1841 the steep northern approach was relaid, reducing the gradient by some 5%. The new accessibility of the region brought artists and poets there, to admire the wild scenery, as well as attracting considerable commercial traffic, as the Industrial Revolution developed in the region.

The first railway line (horse-drawn) of any significance on the European continent was opened in 1824-32 between Linz and Budweis (Ceské Budejovice) and 1837 saw the installation of the locomotive-hauled line between Florisdorf and Deutsche Wagram. The southbound Vienna-Gloggnitz line opened in 1841 and the section from Mürzzuschlag to Graz was added in 1844, leaving a gap over the difficult Semmering stretch. The line was later extended southwards to Cilli in 1846, Laibach (Ljubljana) in 1849, and finally, over difficult karst terrain, to Trieste in 1857.

The first plan for crossing the Semmering, involving a 1:30 gradient, was drawn up in 1841 but not followed up for technical reasons. The project was taken up again in 1842, when Carlo Ghega was appointed Chief Inspector for the southern line, linking Vienna and Trieste. He began by visiting the USA, where he studied 39 railway lines covering 2413km. This showed him that the technical difficulties seen in the first plan were not insuperable, and he began to survey possible routes over the Semmering. Since no reliable maps were available, he had to carry out a complete survey of the area; the difficult terrain led him to develop new surveying instruments, notably the *Stampfer'sche Nivellier-Höhen- und Längenmessinstrument*, used to measure height and distance, which was to become an important tool in geodetics.

He worked out several routes before settling on one in 1846. It was 42km long, with 22 major bridges and viaducts and a tunnel 1200m long, situated just below the pass; although not the simplest route, it was the most feasible in the light of the technological limitations of the day, notably the lack of powerful explosives for tunnelling. His project plan was completed in 1847, but work did not start immediately, because Ghega was engaged in the construction of the line between Cilli and Laibach.

His project met with considerable opposition , but it was accepted in June 1848 by the new Minister for Public Works, Andreas Baumgartner, who wanted projects offering substantial long-term employment prospects. Despite a storm of protest, from both specialists and the press, work began in August 1848. The entire stretch of line was divided into fourteen sections, each of which was entrusted to a separate firm. At the start 1007 men and 414 women were employed, to increase to over 20,000 as the work progressed.

The maximum gradient of 1:25 and the exceptionally small-radius curves called for a new type of locomotive, and four firms entered a public competition in 1850. None of the entries was considered to be suitable for production in series, although they met the technical requirements, and so Wilhelm von Eggerth was commissioned to combine the best features of all of them in a new design. The result was triumphantly successful and 26 engines were immediately commissioned.

Construction work on the line and the manufacture of locomotives and rolling stock progressed well, with the result that the transport of passengers and goods over the line was able to start, on schedule, on 17 July 1854.

Description

The Semmering railway begins at Gloggnitz Station, at an altitude of 436m, and reaches its highest point, 895m above mean sea level, after 29km in the tunnel over the pass itself, ending after a further 12km in Mürzzuschlag Station, at 677m.

The line can be divided into four sections:

i In the first 7km, to Payerbach Station, it follows the left-hand slopes of the Schwarza valley, with a gradient of 1:10 and numerous abutments and cliff revetments.

ii It then changes to the other side of the valley by crossing the Schwarza viaduct (276m long, 25m high), with a gradient of 1:40, to reach Eichberg Station after 6km at 609m altitude. It skirts the Eichberg and enters the Auerbach valley to continue through dense forest to Klamm-Schottwien Station.

iii After passing through the Klamm Tunnel it reaches the Adlitzgraben and Alpine terrain proper. A series of tunnels and viaducts are followed by transit through the Weinzettelwand, the Krauselklause, and the Polleroswand through several sections of tunnel. Next comes the most dramatic section of the whole route, the two-storey curving viaduct over the Kalte Rinne. The Lower and Upper Adlitzgraben are crossed at a continuous gradient of 1:40; finally, after passing through the Wolfsberg and the Kartnerkogels, Semmering Station is reached after 11km.

iv Immediately after the station the line passes through the 1431m Semmering Tunnel, and then descends gradually along the right-hand slope of the Röschnitz valley, through Stienhaus and Spital am Semmering to Mürzzuschlag.

The total length of the fourteen tunnels is 1477m, ie nearly one-tenth of the entire line. A new single-track tunnel was bored parallel to the 1431m Semmering Tunnel between 1949 and 1952 because the old tunnel had become so constricted from the pressure from above that it had to be refaced. The sixteen major viaducts also total 1477m in length; four of them are two-storeyed, the Kalte Rinne being the highest (46m) and the thirteen-bay Schwarza being the longest (328m). There are 118 smaller arched stone and 11

iron bridges.

Maximum inclines of 1:50-1:40 occur over 61% of the total length of the line and the smallest radius of curves is 190m, over 16% of the length. The boldness of the latter achievement is demonstrated by the fact that the minimum radius anywhere else in Europe at that time was 475m.

Most of the portals of the tunnels are simple but monumental in design, and are variously ornamented. Support structures are largely in stone, but brick was used for the arches of the viaducts and tunnel facings. The 57 two-storey attendants' houses, sited at approximately 700m intervals, that are a very characteristic feature of the Semmering line, were built in coursed rubble masonry with brick trimmings. Little remains of the original stations, which were planned originally as no more than relay stations and watering points, but later became converted into more impressive structures as tourist traffic increased.

During the railway's history a good deal of reconstruction has been carried out, using new materials such as cement blocks and concrete. These changes have been imposed by several factors, such as the increase in axle loading from the original 13 tonnes for which it was designed to the 22.5 tonnes of the present day, and a substantial increase in the speed, frequency, and freight loading of trains using it. The appearance of the whole line was significantly changed between 1957 and 1959, when masts were erected to carry the contact wires needed by the conversion to electrical locomotives.

The Semmering pass itself is well known for the "summer architecture" of its villas and hotels that were built between Gloggnitz and the small market town of Schottwien in picturesque locations for Viennese society. It became one of the first artificially laid out Alpine resorts in the decades following the opening of the railway line.

This process had begun even before that project began, with the development of Reichenau an der Rax and Payerbach, to the north-west of Gloggnitz, as tourist areas in the early decades of the 19th century. The architectural style of the villas and hotels that were built there were strongly influenced by the English architect A J Downing, whose book *The Architecture of Country Houses* appeared in 1850: his work was taken up by Austrian architects such as Christian Ludwig Förstner and Gottfried Semper. The basic form of buildings was dictated by their purpose, function, and construction, but the exterior was dictated only by the creative intentions of the patron and his architect. Romantic historicism influenced the appearance of the villas and hotels built in this area, a number of which have Gothic or Renaissance antecedents. The steep-gabled and fantastically ornate "Swiss chalet" also found favour with many builders.

The Semmering pass itself was not affected by tourist development for some time after the line opened in 1854. The Southern Railway Company, operators of the line at that time, began development in 1880, at the urging of the court sculptor, Franz Schönthaler, with the construction of the Semmering Hotel. It was, however, Schönthaler's own villa south of the hotel that had the strongest influence on architectural design along the Semmering line. The use of traditional Alpine wooden frame construction by his architect, Franz von Neumann, was eagerly seized upon by other patrons, and the "Semmering style" predominated in the buildings erected in the latter part of the 19th century.

Management and Protection

Legal status

Many of the historic buildings within the designated area are protected under the provisions of the Austrian Monument Protection Act (Federal Act of 1923, as amended in 1978 and 1990), as is the entire length of the Semmeringbahn. Interventions that may affect their condition, historical appearance, or aesthetic impact require the written permission of the Bundesdenkmalamt; this also covers the sale of a protected monument. The Bundesdenkmalamt may apply to local authorities protection measures to be taken in cases where serious breaches of these conditions are threatened. The Bundesdenkmalamt has funds for subsidizing the preservation and safeguarding of monuments.

The cultural landscape of the Semmering is also protected by two provincial statutes: the 1955 and 1978 Lower Austrian Act for the Preservation of Nature and by the 1977 Styrian Act for Urban Renewal.

Management

The Austrian Federal Railways (Österreichische Bundesbahn - ÖBB) owns the railway line and the buildings associated with it. Non-railway properties are in private ownership.

There is no reference to the existence of a management plan of any kind, but, since this is an active railway route and is also protected by the Federal Monument Protection Act, continuous maintenance is practised, and in particular upgrading to state-of-the-art technology, and all proposed changes are submitted to the Bundesdenkmalamt for approval.

Conservation and Authenticity

Conservation history

Maintenance of the railway line and its associated buildings has been continuous since 1854. The many non-railway buildings have had varied conservation histories. With the decline of the region as a tourist and recreation area in the 1920s and 1930s, there was a good deal of deterioration from neglect, but a policy of revitalization since the end of World War II, with substantial financial aid for restoration from central and provincial government, has resulted in there being a high level of conservation and maintenance in the whole region.

Authenticity

It is difficult to define authenticity in the case of a railway

line that has been in use continuously since it was opened in 1854. The authenticity of the route itself and the remarkable civil engineering projects that made it possible is unquestionable, but the appearance of the line itself has changed, especially since electrification. However, the overall impact of the line on the landscape is indelibly authentic. The same may be said for the cultural landscape created by the construction of villas and hotels in the late 19th and early 20th centuries: this harmonious insertion of architecture into a rugged Alpine landscape retains its integrity.

Evaluation

Action by ICOMOS

An ICOMOS/TICCIH expert mission visited the Semmering in May 1996.

Qualities

The railway line over the formidable Semmering Pass was the first major project of this kind in the world. Building of the line led to the creation of a cultural landscape of villas and hotels over much of its route that is an outstanding example of the sympathetic insertion of buildings of high and consistent architectural quality into a natural landscape of great beauty.

Comparative analysis

A comparative study of outstanding railway systems of technological and historical importance has been prepared by TICCIH at the request of ICOMOS. The Semmeringbahn complies with all the criteria for evaluation set out in that study and is identified as one of the most significant developments in railway technology.

ICOMOS comments

At the meeting of the Bureau in Paris in June 1996, ICOMOS proposed that further consideration of this nomination be deferred to await the completion of the TICCIH comparative study (see above). This proposal was accepted by the Bureau, which also requested the State Party, at the request of ICOMOS, to supply more detailed maps and information regarding the cultural landscape protection legislation in Lower Austria and Styria. The study has been completed and the State Party has complied with the ICOMOS request for supplementary information.

Brief description

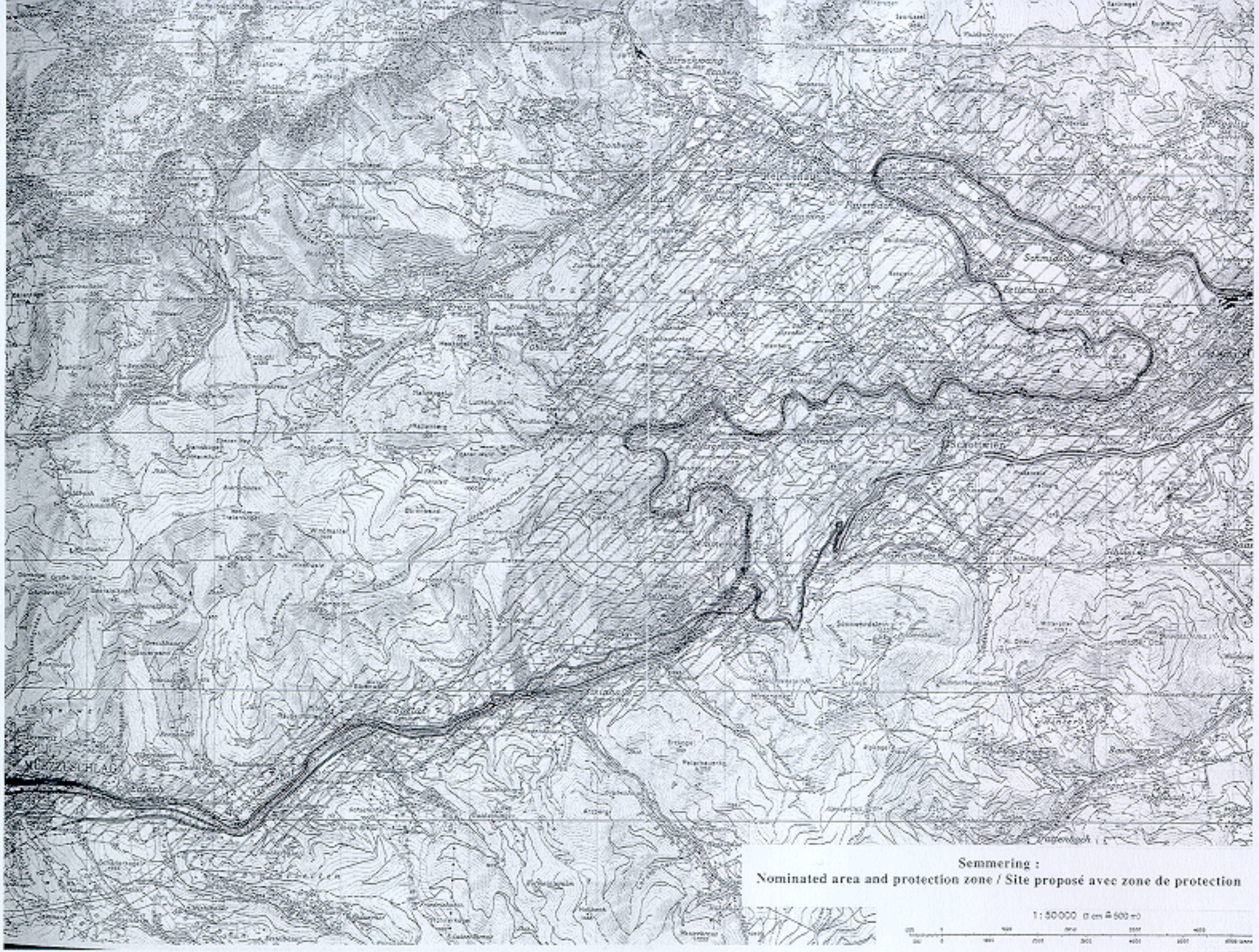
The Semmering Railway, constructed between 1848 and 1854 over 41km of high mountains, is one of the greatest feats of civil engineering during this pioneering phase of railway building. The quality of its tunnels, viaducts, and other works have ensured the continuous use of the line up to the present day, against the background of a spectacular mountain landscape, containing many fine recreational buildings resulting from the opening up of the area with the advent of the railway.

Recommendation

That this property be inscribed on the World Heritage List on the basis of ***criteria ii and iv***:

> ***Criterion ii***: The Semmering railway represents an outstanding technological solution to a major physical problem in the construction of early railways.
>
> ***Criterion iv***: With the construction of the Semmering railway, areas of great natural beauty became more easily accessible and as a result these were developed for residential and recreational use, creating a new form of cultural landscape.

ICOMOS, October 1998


Semmering :
Nominated area and protection zone / Site proposé avec zone de protection
1:50000 (1 cm ≙ 500 m)

LISTE DU PATRIMOINE MONDIAL

Semmeringbahn (Autriche)

No 785

Identification

Bien proposé	La ligne de chemin de fer du Semmering (Semmeringbahn) – site culturel
Lieu	Provinces de Basse-Autriche et de Styrie
Etat Partie	Autriche
Date	27 septembre 1995

Justification émanant de l'Etat Partie

La ligne de chemin de fer du Semmering, longue de 41 km et construite de 1848 à 1854 pour passer le col du même nom, fut la première voie de chemin de fer de ce type au monde. Elle eut une influence durable sur le développement technique de ce système de transport relativement nouveau. Nulle part ailleurs on ne décida plus clairement de prendre le contrôle technique sur la nature que sur cette ligne de chemin de fer. L'architecte Carl Ritter von Ghega fit des prouesses en résolvant trois problèmes techniques. Le relevé du terrain étant impossible à réaliser avec les moyens de l'époque, de nouvelles méthodes d'études et de nouveaux instruments furent mis au point. Pour le tracé de la ligne furent employés des paramètres jusqu'alors jamais utilisés dans le calcul des pentes et du rayon des courbes. Enfin, il y eut la construction de la ligne elle-même, avec ses quatorze tunnels, ses seize viaducs et plus d'une centaine de passages sous voûtes, sans oublier les kilomètres de murs de retenue dans des terrains extrêmement difficiles et montagneux. Tout cela représente pour l'époque une entreprise organisationnelle et architecturale extrêmement audacieuse. La grande variété des ouvrages d'art d'une esthétique extraordinaire sont un *Gesamtkunstwerk* dont la technologie et l'architecture s'intègre subtilement et harmonieusement dans le paysage de montagne. Ce chef d'oeuvre de l'ingénierie autrichienne du XIXe siècle peut être considéré comme une synthèse entre la nature et l'architecture, concept totalement nouveau à l'époque.

Après 150 ans d'exploitation, les modifications rendues nécessaires par les impératifs de maintenance et les adaptations fonctionnelles de la ligne sont restées dans des limites acceptables du point de vue de la préservation du monument, essentiellement grâce à la solidité de sa construction. Autrement dit, l'apparence d'origine du site est largement conservée de nos jours.

Le premier centre de tourisme totalement artificiel au monde vit le jour au Semmering parce qu'on pouvait l'atteindre confortablement et rapidement par le train. De grands hôtels et des palaces, des maisons de vacances et des villas furent conçus par les plus grands architectes de l'époque dans le "style Semmering", annonçant l'ère moderne de la construction alpine.

Le Semmering ne tarda pas à attirer l'aristocratie et la grande bourgeoisie, en particulier celles de Vienne et de Budapest. La station devint un lieu de rencontre privilégié pour les personnalités en vue de la monarchie austro-hongroise. Les paysages variés, le climat favorable, la facilité d'accès et le luxe des constructions attira un grand nombre de visiteurs.

Ainsi, l'histoire du Semmering reflète-t-elle les événements de l'histoire économique et politique. Du temps de sa gloire à la fin du siècle dernier et après la première guerre mondiale, elle fut le rendez-vous de la haute société. Malgré l'interruption des jours heureux du Semmering à la fin des années 1920 et au début des années 1930, la station redevint un lieu de vacances à la mode après la seconde guerre mondiale. Après une autre période de désaffection qui se poursuivit jusque dans les années 1980, le paysage culturel, qui avait été si profondément marqué par l'architecture et les concepts du début du tourisme à la fin du XIXe siècle, trouva dans le public un regain d'intérêt. Pour diverses raisons, les lieux de villégiature faciles d'accès sont à nouveau très appréciés. Pour revitaliser la région par le tourisme, de nombreuses villas et maisons de campagne furent restaurées ces dernières années et de nombreux hôtels et pensions modernisés pour répondre aux normes de confort actuelles. Avec l'aide du *Bundesdenkmalamt*, ces modifications furent réalisées de manière à déranger aussi peu que possible le tissu du bâti et conserver l'aspect extérieur des anciens bâtiments et l'aspect du Semmering dans son entier.

Note L'Etat Partie ne soumet pas de propositions relatives aux critères selon lesquels le bien doit être inscrit sur la Liste du Patrimoine mondial dans le dossier d'inscription.

Catégorie de bien

En termes de catégories de bien, telles que définies à l'article premier de la Convention du Patrimoine mondial de 1972, le chemin de fer du Semmering est un *site*. On peut aussi considérer que c'est un *paysage culturel* linéaire, tel que défini dans les *Orientations devant guider la mise en oeuvre de la Convention du Patrimoine mondial* (1995) aux paragraphes 35-39.

Histoire et Description

Histoire

La route de la vallée de la Mürz vers la dépression de Vienne est utilisée depuis les temps préhistoriques. Au Moyen Age,

elle était considérée comme l'un des passages sûr à travers les Alpes. Le transport se faisait à dos d'animaux et par chars tirés par des boeufs. Elle devint l'une des routes terrestres les plus importantes de Venise au XIIe siècle. Le Semmering perdit cependant beaucoup de son trafic au XVe siècle avec l'ouverture des routes du Brenner et de Radstätter Trauern plus au sud. En 1728, l'empereur Charles VI ordonna son amélioration pour favoriser les transports commerciaux et militaires entre l'Autriche et Trieste plutôt que Venise, d'où son nom de "Route de Trieste". En 1841, l'approche nord abrupte fut retracée et sa pente réduite de quelques 5%. La nouvelle accessibilité de la région attira des artistes et des poètes pour admirer les paysages sauvages et attira aussi un énorme trafic commercial, à mesure que la Révolution industrielle développait la région.

La première ligne de chemin de fer (tiré par des chevaux) de quelque importance sur le continent européen fut ouverte en 1824-32 entre Linz et Budweis (Ceské Budejovice) et 1837 vit l'installation de la ligne à locomotive entre Florisdorf et Deutsche Wagram. La ligne sud Vienne-Gloggnitz fut ouverte en 1841 et la section de Mürzzuschlag à Graz fut ajoutée en 1844, laissant un espace sans ligne sur le passage difficile du Semmering. La ligne fut par la suite étendue au sud jusqu'à Cilli en 1846, Laibach (Ljubljana) en 1849 et enfin, à travers le terrain difficile du Karst, jusqu'à Trieste en 1857.

Le premier projet de passage du Semmering, dont la pente était de 1:30, fut dessiné en 1841 mais ne fut pas réalisé pour des raisons techniques. Le projet fut repris en 1842, lorsque Carlo Ghega fut nommé Inspecteur en chef de la ligne sud reliant Vienne et Trieste. Il commença par visiter les Etats-Unis, où il étudia 39 lignes couvrant 2413 km. Il fut convaincu que les difficultés techniques soulevées par le premier plan n'étaient pas insurmontables et il se mit à étudier les itinéraires possibles pour passer le Semmering. Comme il n'existait aucune carte fiable de la région, il effectua une étude complète de la zone; le terrain difficile le conduisit à mettre au point de nouveaux instruments de relevé, notamment le "Stampfer'sche Nivellier-Höhen- und Längenmessinstrument", utilisé pour mesurer la hauteur et la distance, qui devint un instrument important en géodésique.

Il fit plusieurs tracés avant d'en choisir un en 1846. Il était de 42 km de long et comportait 22 grands ponts et viaducs et un tunnel de 1200 m de long situé juste en dessous de la passe; bien que ce ne fût pas le tracé le plus simple, c'était le plus réalisable au vu des limitations techniques de l'époque, en particulier le manque d'explosifs puissants pour le creusement des tunnels. Son projet fut arrêté en 1847, mais les travaux ne commencèrent pas immédiatement, car Ghega était engagé dans la construction de la ligne entre Cilli et Laibach.

Son projet rencontra une forte opposition, mais il fut accepté en juin 1848 par le nouveau Ministre des Travaux Publics, Andreas Baumgartner, qui cherchait des projets offrant des perspectives d'emplois à long terme. Malgré un déchaînement de protestations, de la part des spécialistes comme de la presse, les travaux commencèrent en juin 1848.

La ligne fut divisée en quatorze sections, chacune étant confiée à une entreprise différente. Au début, 1007 hommes et 414 femmes furent employés et le chantier employa jusqu'à 20.000 personnes à mesure qu'il progressait.

La pente maximum de 1:25 et les courbes d'un rayon exceptionnellement petit exigeaient une nouvelle locomotive et quatre firmes se lancèrent dans un concours public en 1850. Aucun des concurrents ne fut agréé pour la production en série, bien qu'ils satisfassent aux conditions techniques et c'est ainsi que Wilhelm von Eggerth se vit confier la tâche de rassembler les meilleures caractéristiques de chacun des projets dans une nouvelle conception. Le résultat fut une grande réussite et 26 locomotives furent commandées immédiatement.

Les travaux de la ligne et la construction des locomotives et du matériel roulant progressèrent correctement, de sorte que le transport des passagers et des marchandises put commencer comme prévu le 17 juillet 1854.

Description

La ligne de chemin de fer du Semmering commence en gare de Gloggnitz, à une altitude de 436 m, atteint son point culminant, 895 m au-dessus du niveau de la mer, au bout de 29 km, dans le tunnel qui passe le col, et se termine 12km après en gare de Mürzzuschlag à 677 m.

La ligne peut se diviser en quatre sections :

I Dans les 7 premiers km, jusqu'à la gare de Payerbach, la ligne suit les pentes de la rive gauche de la vallée de la Schwarza, avec une pente de 1:10 et de nombreux contreforts et revêtements de falaises.

II La ligne passe ensuite sur l'autre rive de la vallée en traversant le viaduc de la Schwarza (276 m de long et 25 m de haut), avec une pente de 1:40 pour atteindre la gare d'Eichberg au bout de 6 km à 609 m d'altitude. La ligne longe l'Eichberg puis pénètre dans la vallée de l'Auerbach et progresse dans une forêt dense jusqu'à la gare de Klamm-Schottwien.

III Après le passage du Tunnel du Klamm, la ligne atteint l'Adlitzgraben et le terrain proprement alpin. Tunnels et viaducs se succèdent à travers le Weinzettelwand, le Krauselklause et le Polleroswand traversés par plusieurs tunnels. C'est alors la partie la plus impressionnante de la ligne : le viaduc en courbe à deux étages au-dessus de la Kalte Rinne. La haute et la basse Adlitzgraben sont traversées avec une pente continue de 1:40. Enfin, après avoir traversé le Wolfsberg et le Kartnerkogels, la gare du Semmering se trouve à 11 km.

IV Immédiatement après la gare, la ligne passe dans le tunnel du Semmering, long de 1431 m, puis descend progressivement en suivant la rive droite de la vallée de la Röshnitz, en passant par Stienhaus et Spital am Semmering jusqu'à Mürzzuschlag.

La longueur totale des quatorze tunnels est de 1477 m, soit près de 1/10e de la ligne. Un nouveau tunnel à voie unique fut percé parallèlement au tunnel du Semmering de 1431 m entre 1949 et 1952 car le vieux tunnel avait rétréci sous la pression énorme des roches et devait être recreusé. Les seize principaux viaducs font aussi 1477 m au total : quatre d'entre eux sont à deux étages, celui de la Kalte Rinne est le plus haut (46 m) et celui qui enjambe la Schwarza, avec treize arches, est le plus long (328 m). Il y a 118 petits ponts de pierre et 11 ponts de fer.

Les pentes maximum de 1:50 et 1:40 occupent 61% de la longueur totale de la ligne et le plus petit rayon de courbe est de 190m, plus de 16% de la longueur. La hardiesse de cette courbe est incomparable, car, à l'époque, le plus petit rayon en Europe était de 475 m.

Les entrées des tunnels sont pour la plupart de conception simple, monumentales et diversement ornementées. Les structures de soutien sont principalement en pierre, mais la brique fut utilisée pour les arches des viaducs et le revêtement des tunnels. Les 57 maisons de gardien à deux niveaux, construites environ tous les 700 m, très caractéristiques de la ligne du Semmering, furent bâties en pierre et parement de briques. Il reste peu de chose des gares d'origine, qui n'étaient au départ que des gares de relais et des points d'eau, mais qui devinrent par la suite des structures plus importantes capables d'accueillir l'afflux des touristes.

Au cours de l'histoire de la ligne de chemin de fer, d'importants travaux de reconstruction ont été effectués avec des matériaux nouveaux, blocs de ciment ou de béton. Ces travaux ont été rendus nécessaires pour plusieurs raisons : l'augmentation du poids d'essieu qui passa de 13 tonnes à l'origine - en fonction duquel la voie avait été construite - au 22,5 tonnes d'aujourd'hui, l'augmentation importante de la vitesse, la fréquence et le chargement des trains qui empruntent la voie. L'apparence de la ligne changea beaucoup entre 1957 et 1959, lorsque des poteaux furent érigés pour l'électrification de la voie.

Le col du Semmering est bien connu pour "l'architecture d'été" de ses villas et de ses hôtels construits entre Gloggnitz et la petite ville de marché de Schottwien dans des sites pittoresques pour la société viennoise. Ce fut l'une des première stations alpines née dans la décennie qui suivit la construction de la ligne de chemin de fer. Le développement touristique avait commencé bien avant le début du projet, avec le développement de Reichenau an der Rax et de Payerbach, au nord-est de Gloggnitz, qui devinrent des lieux de villégiature dès le début de XIXe siècle. Le style architectural des villas et des hôtels qui y furent construits fut fortement influencé par l'architecte anglais AJ Downing, dont le livre "The Architecture of Country Houses" fut publié en 1850. Son style fut repris par des architectes autrichiens comme Christian Ludwig Förstner et Gottfried Semper. La forme de base des bâtiments était dictée par leur objet, leur fonction et les techniques de construction, mais l'aspect extérieur n'était dicté que par les intentions créatives du client et de son architecte. L'historicisme romantique inspira l'apparence de ces villas et hôtels et beaucoup sont d'inspiration gothique ou Renaissance. Les toits à grande pente et "chalets suisses" fantastiquement décorés trouvèrent aussi la faveur de nombreux constructeurs.
Le col du Semmering lui-même ne fut pas touché par le développement touristique pendant les années qui suivirent l'ouverture de la ligne en 1854. La Compagnie des Chemins de Fer du Sud, opérateur de la ligne à l'époque, commença le développement en 1880, sur les instances du sculpteur de la cour impériale, Franz Schönthaler, avec la construction de l'Hôtel Semmering. Ce fut cependant la villa de Schönthaler, construite au sud de l'hôtel qui eut la plus forte influence sur le style architectural adopté le long de la ligne du Semmering. L'utilisation du traditionnel chalet en bois des Alpes par son architecte, Franz von Neumann, fut reprise avec bonheur par d'autres propriétaires et le "style Semmering" prédomina parmi les bâtiments construits à la fin du XIXe siècle.

Gestion et Protection

Statut juridique

De nombreuses constructions anciennes de la zone proposée pour inscription sont protégées par les dispositions de la Loi sur la Protection des Monuments Autrichiens (Loi Fédérale de 1923, amendée en 1978 et 1990), de même qu'est protégée la ligne de chemin de fer du Semmering dans son ensemble. Les interventions susceptibles d'affecter leur état, leur apparence historique ou leur impact esthétique exigent une autorisation écrite du *Bundesdenkmalamt*. La vente de ces bâtiments protégés est aussi soumise à autorisation. Le *Bundesdenkmalamt* peut être amené à demander aux autorités locales de prendre des mesures de protection en cas d'infractions graves à la loi de protection. Le *Bundesdenkmalamt* dispose de fonds pour subventionner la préservation et la conservation des monuments.

Le paysage culturel du Semmering est également protégé par deux lois provinciales: les Lois de Basse-Autriche de 1955 et 1978 pour la Préservation de la Nature et la Loi Styrienne de 1977 pour le Renouveau Urbain.

Gestion

Les Chemins de Fer Autrichiens (Österreichische Bundesbahn - ÖBB) sont propriétaires de la ligne de chemin de fer et des bâtiments qui en dépendent. Tout ce qui n'appartient pas aux chemins de fer est propriété privée.

Il n'existe aucune référence à l'existence d'un plan de gestion d'aucune sorte, mais, s'agissant d'une ligne de chemin de fer en service et protégée par la Loi Fédérale sur la Protection des Monuments, la ligne est régulièrement entretenue et, en particulier, améliorée selon les dernières technologies. De plus, toutes les propositions de modifications sont soumises à autorisation du *Bundesdenkmalamt*.

Conservation et Authenticité

Historique de la conservation

L'entretien de la ligne de chemin de fer et des bâtiments qui en dépendent est assuré en permanence depuis 1854. En revanche, les nombreux bâtiments qui n'appartiennent pas aux chemins de fer autrichiens ont eu des parcours de conservation divers. Avec le déclin du tourisme dans les années 1920 et 1930, bon nombre de bâtiments ont connu des détériorations pour avoir été laissés à l'abandon. Mais une politique de revitalisation de la région depuis la fin de la seconde guerre mondiale, soutenue par des aides financières importantes consacrées à la restauration et octroyées par le gouvernement central et la province, a permis un niveau élevé de conservation et d'entretien de toute la région.

Authenticité

Il est difficile de définir l'authenticité d'une ligne de chemin de fer qui a été constamment en service depuis son ouverture en 1854. L'authenticité de l'itinéraire lui-même et les remarquables projets de génie civil qui l'ont rendu possible est incontestable, mais l'aspect de la ligne a changé, en particulier depuis son électrification. Toutefois, l'impact global de la ligne sur le paysage est indéniablement authentique. On peut dire la même chose du paysage culturel créé par la construction des villas et des hôtels à la fin du XIXe siècle et au début du XXe siècle. Cette intégration harmonieuse de l'architecture dans un paysage alpin accidenté conserve son intégrité.

Evaluation

Action de l'ICOMOS

Une mission d'expertise ICOMOS/TICCIH s'est rendue au Semmering en mai 1996.

Caractéristiques

La ligne de chemin de fer qui passe le formidable col du Semmering fut le premier grand projet de ce type au monde. La construction de la ligne a façonné un paysage culturel de villas et d'hôtels sur une grande partie de l'itinéraire qui est un exemple remarquable de l'intégration harmonieuse de bâtiments d'une grande qualité architecturale dans un paysage naturel de grande beauté.

Analyse comparative

A la demande de l'ICOMOS, le TICCIH a préparé une étude comparative des systèmes de chemins de fer les plus remarquables, d'importance historique et technologique. Le Semmeringbahn satisfait à tous les critères d'évaluation qui sont présentés dans cette étude et a été identifié comme étant l'un des développements les plus importants de la technologie ferroviaire.

Commentaires de l'ICOMOS

A l'occasion de la réunion du Bureau à Paris en juin 1996, l'ICOMOS avait proposé que l'examen de cette proposition d'inscription soit différé en attendant que l'étude comparative du TICCIH soit achevée (voir ci-dessus). Cette proposition avait été acceptée par le Bureau qui demanda également à l'Etat Partie, sur requête de l'ICOMOS, de fournir des cartes plus détaillées et des informations sur la législation en matière de protection des paysages culturels en Basse-Autriche et Styrie. L'étude est achevée et l'Etat Partie a répondu à la demande d'informations complémentaires de l'ICOMOS.

Brève description

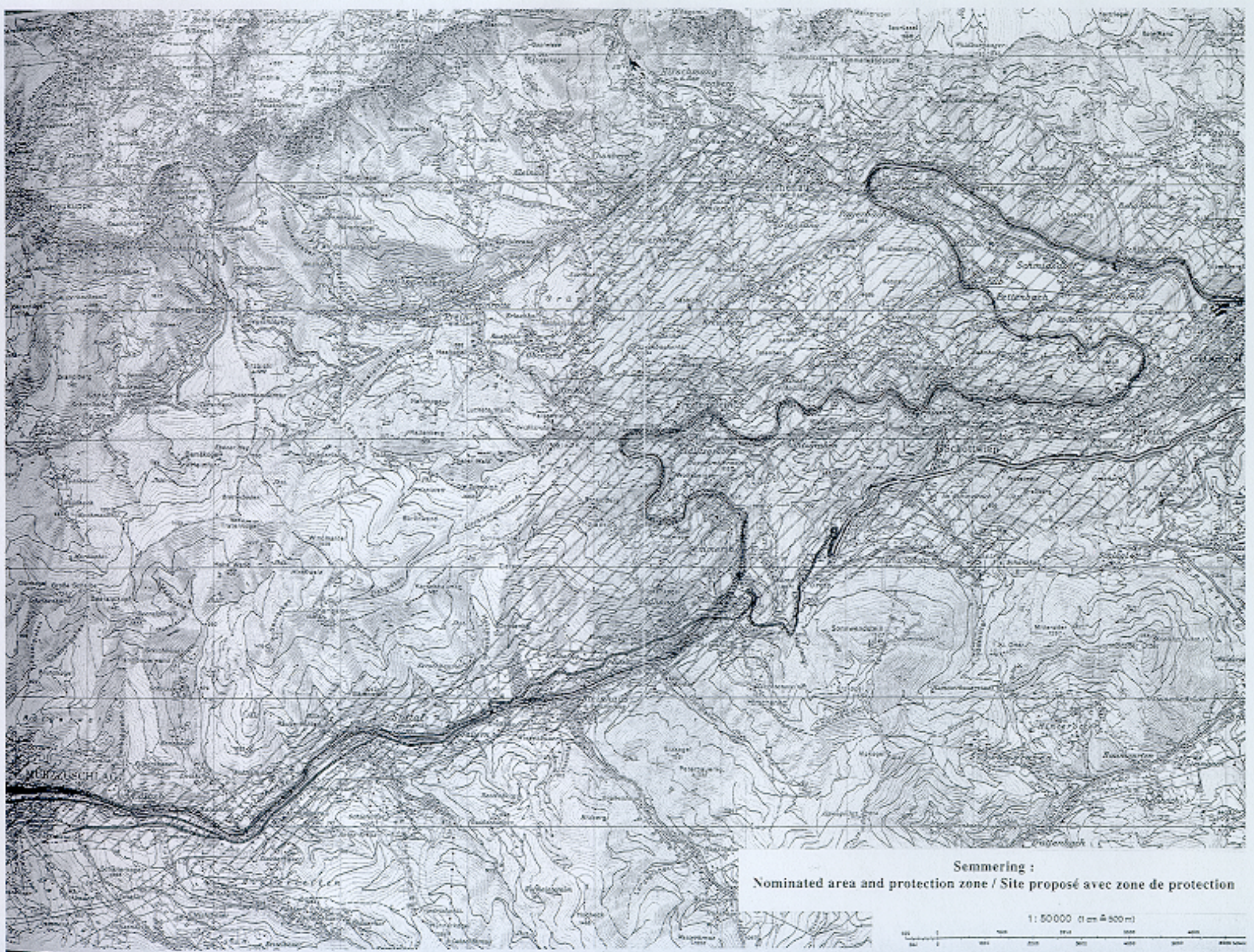
La ligne de chemin de fer du Semmering, construite entre 1848 et 1854 pour traverser 41 km de hautes montagnes, est une des plus grandes prouesses de génie civil de la phase novatrice de la construction ferroviaire. La qualité de ses tunnels, viaducs et autres ouvrages a permis que la ligne soit utilisée de manière continue jusqu'à nos jours. Elle se détache sur le fond d'un paysage de montagne spectaculaire, comprenant de nombreux édifices de qualité, destinés au loisir qui résultent de l'ouverture de la région après l'avènement du chemin de fer.

Recommandation

Que ce bien soit inscrit sur la Liste du Patrimoine mondial sur la base des ***critères ii et iv*** :

> ***Critère ii*** : la ligne de chemin de fer du Semmering représente une solution technologique exceptionnelle à l'un des problèmes physiques majeurs de la construction des premiers chemins de fer.
>
> ***Critère iv*** : avec la construction du chemin de fer du Semmering, l'accès à des régions d'une grande beauté naturelle a été facilité et en conséquence , ces régions ont été aménagées pour des fonctions résidentielles et de loisir, créant une nouvelle forme de paysage culturel.

ICOMOS, octobre 1998


Semmering :
Nominated area and protection zone / Site proposé avec zone de protection
1: 50000 (1 cm ≙ 500 m)