About the Salzkammergut Railway

The Preservation of the Overhead Cable
The Revitalisation of the Building of the Station of Hallstatt

CONTENTS

1. STARTING POINT

The electrical overhead cable of the Salzkammergut railway is the first technical installation of that kind in Austria.
It was built between 1920 and 1924.

- It is to be expected that the overhead cable between the stations Steeg-Gosau and Obertraun, which is between kilometre 38 - 50, will be preserved as a technical monument.
- The mostly frequented trail of the World Heritage area passes directly next to the railway at the eastern border of the lake.
- Nearby the railway station of Hallstatt the regular service ship is landing during the entire year. Because of the popularity of this means of transport a high frequency of tourists can be observed at this place. The waiting periods can be up to one hour.
- The accompanying railway station, which is an architecturally interesting building of the sixties, is empty at the moment.

2. THE BUILDING HISTORY

"The region was connected to the European traffic network by the completion of the West railway in 1858/60 and the inauguration of the Salzkammergut railway (also called Crown Prince Rudolf Railway) from Attnang to Bad Aussee passing through Ischl in 1877."[1]
The construction of the railway network in the Salzkammergut was finished before the first World War apart from the electrification[2] of the section Attnang-Pucheim to Stainach-Irdning in 1924, that was the first completely electrified railway in Austria.[3]

The plans for the electrification of the Salzkammergut railway were already discussed shortly after the turn of the century. The brilliant engineer Josef Stern made a suitable proposal in the course of the project of the utilization of the water-power in the Gosau valley. The project was not realised because of strategical considerations of the military at that time. Still the technical infrastructure for two generators for the railway were planned in the machine room in Steeg at the lake of Hallstatt in 1906.[4]

The yearly consumption of coals of the Austrian railways was about two million tons in the twenties, which corresponded to 22% of the total consumption of the republic.[5] This is the reason for the importance of the electrification program, which was passed as a state law the 23rd of July in 1920. At that time the preparatory work for the electrification of the Salzkammergut railway was already in course.[6] The implementation of the electrical equipment of this section of the railway started in 1922.

As the technology of construction was not yet mature, three firms were charged with the planning and the realization of different overhead contact systems.

The already demolished section between Attnang-Puchheim and Ebensee was constructed by the AEG Union, the one between Ebensee and Bad Aussee by the Siemens-Schuckert Company and the remaining section until Stainach-Irdning by the Brown-Boveri AG.[7]
(This is an example of the pylon to be demolished and the new concrete pylon that replaces the steel construction.)
At the end of July in 1924[8] the Salzkammergut railway was the first railway of the electrification program to be completed as a closed stretch.[9] Repeatedly it was cited as a good example of a project of electrification at that time. [10] The locomotive engines of the type 1029 were used, constructed by the A.E.G. - Union Elektrizitäts - Gesellschaft. [11]
For the purposes of the electrification program the Arlberg railway was completed in 1925[12] and the Inntal railway in 1929[13]. The further realization of the program was heavily affected by the consequences of the world economic crisis.

3. THE BUILDING DESCRIPTION

The Overhead Cable

As the sections were realised by three different companies the construction of the overhead cables differs from one section to the other. The structural weaknesses of the beginnings, such as under dimensioned isolators[14] or wooden spans of the pylons used in the area of Gmunden[15], could be eliminated until the Mid Thirties. [16]

The overhead contact system was suspended elastically from the pylons, which were slim and dimensionally optimised, riveted steel constructions.[17] The tension segment and the compression segment of the construction are clearly visible.
The trolley wire made of copper and the rail rope made of steel are tightened automatically by weights diverted over idler wheels.
This catenary wire strainers are installed in about 1 kilometre distance from each other.[18]
The trolley wires as well as the positive feeder are subdivided by big horn-gap switches, that are fixed at high switch scaffoldings in the area of the stations.
The positive feeder are lead at the highest points of the pylons over special blow-save isolators.

(The handling of the switch by unauthorised persons will be punished as a heinous deed.)

The Station Building

The station building is situated between the railways and the landing stage of the ship. The building is composed of two main elements. The abandoned ticket hall and the small waiting room are at the same level as the platform, whereas the big waiting room and its side rooms are moved up one level.

The design reacts carefully to the condition of the site. The big waiting room adopts the curve of the railways and is situated on a rock formation rising up 3 metres above the platform.
The two areas are linked by stairs and a second staircase connects the upper waiting room with the northern part of the platform.
The centrally positioned big waiting room is connected to side rooms on both ends; at the northern side public conveniences and at the southern side a buffet. The central room is lit from the West by a translucent wall and from the East by a skylight in the open roof structure.

4. THE TECHNICAL DESCRIPTION

At the inauguration the power consumption of the 108 kilometres long mountain stretch ran up to about 9 million kWh, at an average catenary tension of about 15.000 Volt[19] and a frequency of 16 2/3 Hertz[20]. This demand of electricity was covered by two generators with a potential output of 4800 kVA each. Both machines were delivered by the Siemens-Schuckert Werken in 1922 and implemented in the empty spaces of the machine room in the Gosauwerke in Steeg at the lake of Hallstatt. They are fully working until today.

Electricity is lead to the locomotive engine from the trolley wire situated above the railways and the reinforced wire situated parallel to it on the rail tracks. Here the pantograph takes the current to the transformer. Then it runs through the wheels, the rails and the parallel ground wire back to the switch station and the power house. The transformers produce the low-level current for the machines that drive the locomotives.[21]

5. THE VALUE ANALYSIS

The electrification of the Austrian railways is considered as one of the key ventures of the economical reconstruction[22] after the First World War. The program can be seen as a main element of the material renewal of Austria after 1918.[23] It shows the enormous efforts of the young republic to establish an independent energy supply for the railway traffic.
At the example of the electrification of the Salzkammergut railway a prototypical so called "standard overhead contact system" was developed for the Austrian Federal Railways. This influenced considerably the image of the cultural landscape for the years to come.[24] It is to be hoped that the overhead cable will at least be preserved in the area of the World Heritage site, whose aim it is to protect this kind of elements forming a historic cultural landscape. [25]

6. THE EXPLOITATION

6.1. The Primary Exploitation

According to the "Guidelines for the Management of World Cultural Heritage Sites"[26] the overhead cable of the Salzkammergut railway should be preserved following the principles of "Authenticity in material, in workmanship and in design".
In addition, the use of this monument in its original function is possible and desirable.

6.2. The Possibilities of an Exploitation for Tourism

The Economical Framework

Hallstatt is a pure summer tourist resort; half of the over-night stays are registered in the months of July and August. Because of the topographical situation tourism in winter time is not possible. The low temperature of the water in combination with regular bad weather conditions cause problems in summer, too.
Most of the businesses have a lot of problems of capacity out of the two months of peak season.
The "Heritage-Trails" establish a connection between the trekking in the cultural landscape with an accompanying system of cultural information. Thus a new public should be attracted, who will visit increasingly the World Heritage area off season.

The Definition of the Objectives

- The station building is situated half way of a 4 km long section of the trail that crosses an uninhabited area. The installation of a "Heritage-Trail base" in the building of the railway station of Hallstatt could offer an elementary infra-structure to the visitor.
- Attractive presentations of information about the electrification of the Salzkammergut railway using modern media.
- The thematic integration of the railway electrification into the Heritage trail.
- The sensitization of the public for the value of technical monuments.

The Accessibility

Naturally the station building is situated at a local traffic junction. The railway and the parallel "Heritage Trail" are connected by the traffic of the shipping line to the market of Hallstatt. The shipping line is working during the entire year.

The Structural Suitability of the Station Building

The station building can be re-used and transformed by minor changes. The infrastructure like the public conveniences and the buffet are already existing. The big waiting room is the adequate architectonic framework for presenting cultural information.

7. THE METHODS OF REALISATION

7.1. The Financing

The successful realisation depends principally on the question, how to convince possible sponsors of the economical value of the project.
The main argument will be a positive association of the respective company with the term of the "World Cultural Heritage".

7.1.1. The Company of the Realization

This option could be a good promotion for the Siemens AG which is the successor company of the one who realised the overhead cable. The company could refer to a technical pioneering work that is included in the list of the UNESCO World Cultural Heritage.

7.1.2. The Owner

Comparable to the company of the realization, the Austrian Federal Railways, the so called ÖBB, could refer to its tradition as a technological and innovative key company. Within the company the research of its own history could stimulate the identification of the staff members. An integration of ÖBB employees to have a good look at the company's history is desirable.
The second economical question for the ÖBB is the use of an empty building whose preservation or demolishing are rather costly.

7.1.3. The Energy Supplier

The project could also be of an interest for the company of construction (Stern&Hafferl) and the operating authority of the Gosau works (Energie AG Oberösterreich).
By linking the terms : "Tradition in technical invention" and "Technology as a World Cultural Heritage" the sponsoring of the project could be very effective for advertising purposes.

7.1.4. The Public Means

If it is possible to collect sufficient private money for the project by this, there will be much higher chances of succeeding in influencing public institutions.

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