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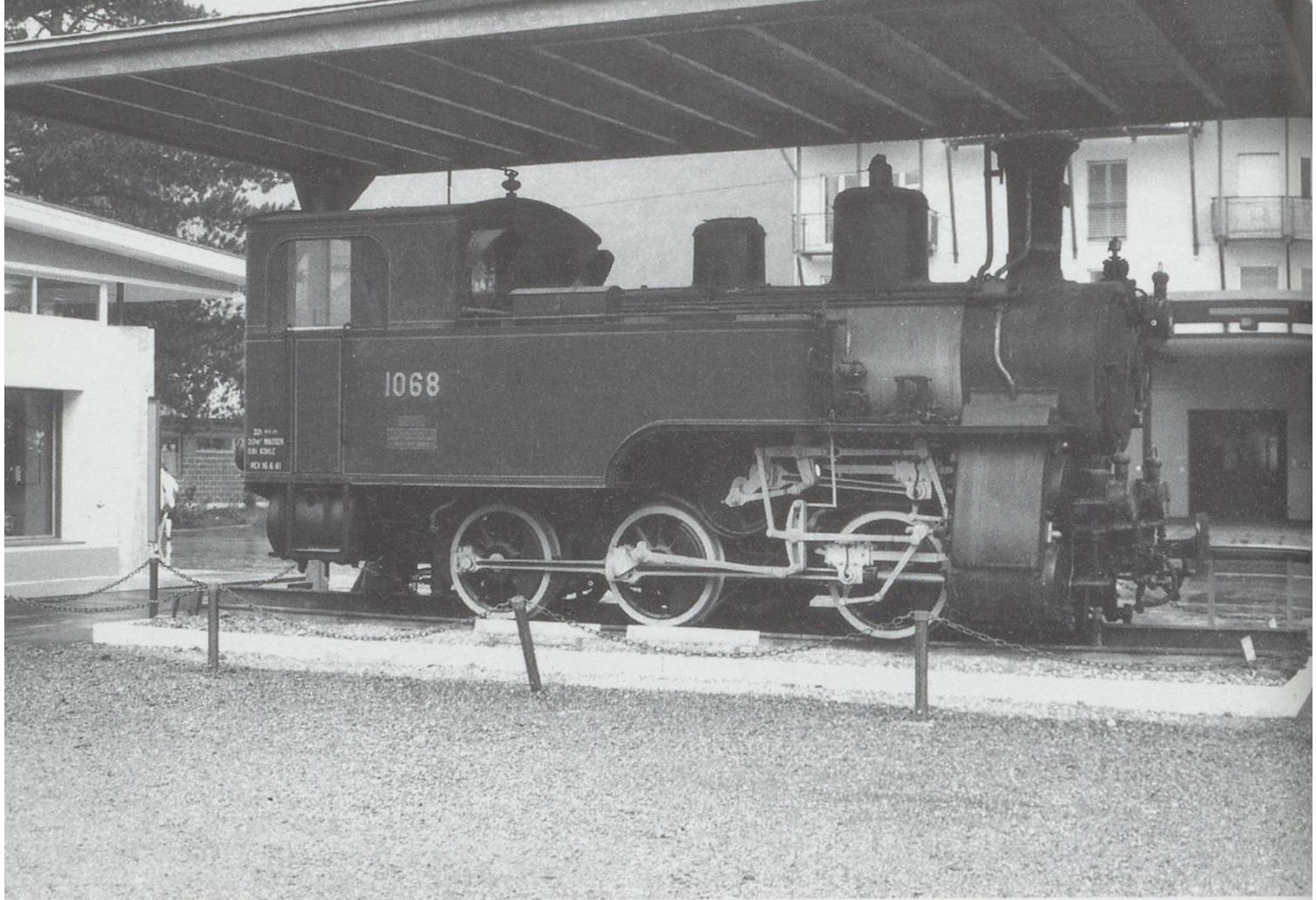
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Private Railways in Switzerland - 13

by Brian Hemming

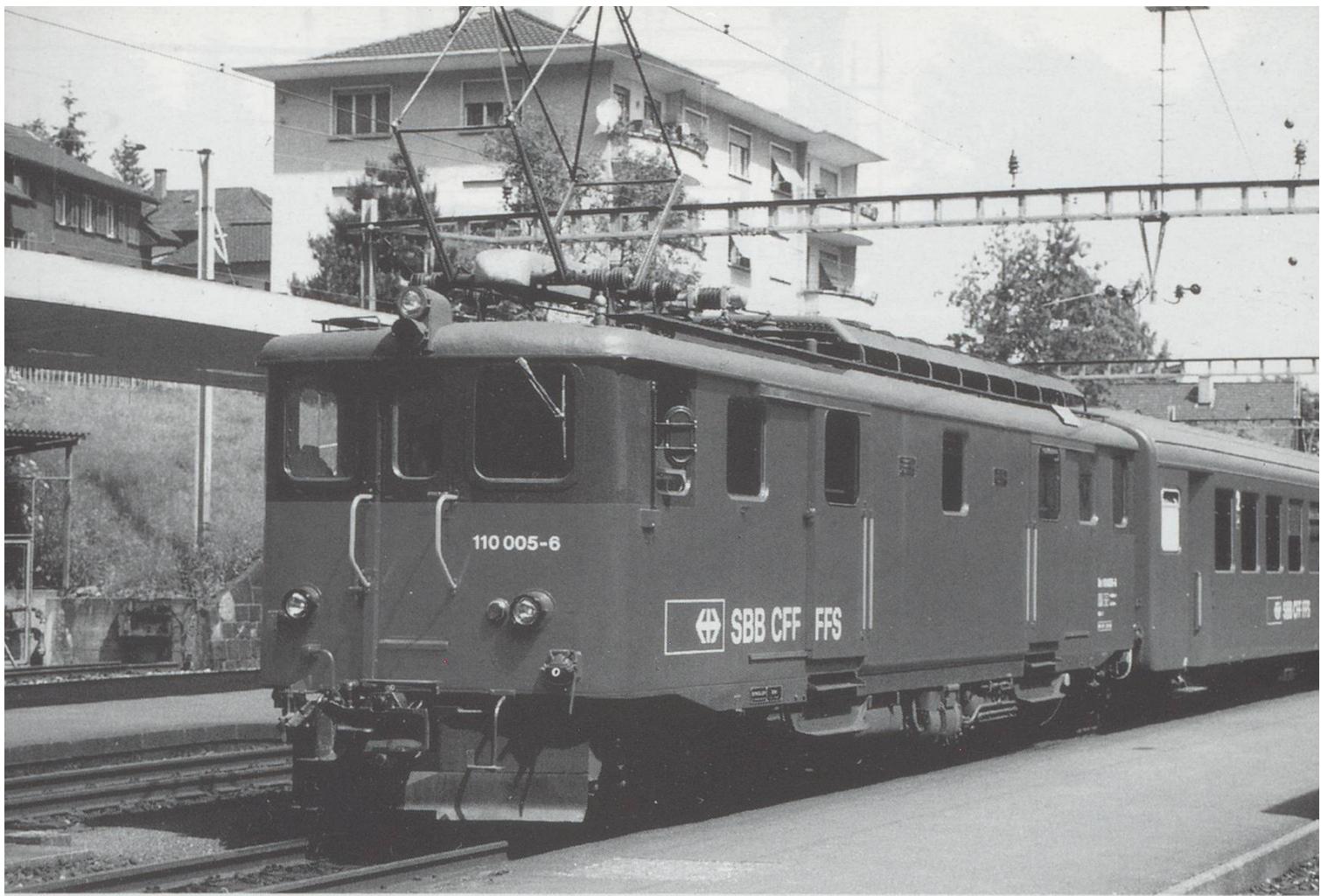
Travel to the tourist heart of Switzerland, and all three railways featured this month are there. It is not strictly correct to call them all private railways as included in the current selection is the Brünig line which may not be a private railway, but it is the only narrow gauge line operated by the Federal Railways and has all the character and interest of a private line. Although they have already been featured in this series, mention must be made here of the other private railways along the route of the Brünig line. At Interlaken Ost there are the BLS Lötschbergbahn and the Berner Oberland Bahnen, at Brienz the Brienz Rothorn Bahn and at Alpnachstad to Pilatus Bahn. Truly a feast of railway interest

Nearly at each end of the Brünig line there are the two private railways which are featured. The Meiringen-Innertkirchen-Bahn is a light railway which has its origins as an industrial line, and is in fact still owned by the industrial concern that built it. Despite competition from local buses it still manages to maintain a regular service and be

Above: 1068 plinthed at Meiringen.

a valuable asset to the communities along its route as well as the many walkers who tramp the Aare valley. Travel on it and you will see how a light railway can be run efficiently and impressively with the minimum of staff and a low budget.

The Luzern-Stans-Engelberg-Bahn is much larger than the MIB but still maintains an air of friendliness coupled with a staff who have an obvious pride in their work and their company. Although covering only a relatively short distance, the line starts in Luzern on the shore of the Vierwaldstättersee, and ends at Engelberg at the foot of the Titlis ski slopes. The rack section is one of the steepest in Switzerland which is demonstrated quite clearly when travelling up or down the incline and facing down - it is a case of hold on tight or face the alternative of sliding off ones seat onto the floor!



SBB - Brünig Brünigbahn

The earliest project for a railway line over the Brünig Pass goes back as far as 1850 when a Brünig - Grimsel line was promoted as part of a north - south alpine crossing. This was, however dropped in favour of the Gotthardbahn project. Following considerable pressure from Canton Bern for a railway connection between the Brienzersee and Vierwaldstättersee a concession was granted in 1874 for the building of a standard gauge line from Brienz to Alpnachstad. Unfortunately this scheme could not be financed and it was not until a much cheaper mixed adhesion and rack narrow gauge railway was agreed that real progress could be made. The construction commenced in 1886 under the auspices of the Jura-Bern-Luzern-Bahn (JBL) and was completed ready for the opening with steam operation between Brienz and Alpnachstad in June 1888.

The JBL was not connected at either end to the main rail network; connections only being possible by ship from either Interlaken or Luzern.

Above: Deh 110 005-6 on a Interlaken service seen here at Hergiswil.

Photo: Les Heath

The first connection to be made was in 1889 when the line was extended from Alpnachstad to Luzern. The section between Meiringen and Giswil only operated in the winter until it was inherited by the SBB following the nationalisation of the Jura-Simplon-Bahn (the successor to the JBL) in 1903. Numerous disagreements took place over the gauge to which an extension from Brienz to Interlaken should be built. The SBB favoured narrow gauge, whilst the Cantons and communities favoured standard gauge. In 1913 a compromise was reached in which it was agreed that the railway would be laid to narrow gauge, but that it should be constructed to standard gauge dimensions. Despite a delay in construction due to World War I the line between Brienz and Interlaken Ost opened in 1916. The generous loading gauge made possible the use of rollschemel between Interlaken and Meiringen, which was particularly useful at the time of the building work in the Oberhasli during and as part of which the Meiringen-Innertkirchen-Bahn (MIB)



Above: Deh 120 006-2 at Alpnachstad with a standard gauge cement wagon on a rollschmel wagon and metre gauge goods wagons..

was formed.

The standard gauge/narrow gauge debate continued and was a major factor in delaying the commencement of electrification. The section from Meiringen to Luzern was electrified in 1941 using the SBB standard line voltage, followed in 1942 by the section from Meiringen to Interlaken Ost. Whilst the electrification works were in progress the opportunity was taken to enlarge the loading gauge between Luzern and Giswil to permit the use of rollschemel. As part of the electrification scheme the mechanical signals on the line were replaced by colour lights, and in 1948 a full block system was installed.

Although not calling for any changes in infrastructure the Brünig line will participate in the through Golden Pass services between Montreux and Luzern when the projected third rail is installed between Zweifelden and Interlaken Ost. It is expected that Brünig locomotives will operate as far as Zweifelden, whilst MOB locomotives will work to Meiringen.

After a climb out of Interlaken to cross the River Aare, the line runs on fairly gentle inclines along the side of the Brienzersee to Brienz and then

continues parallel to the River Aare on a fast (100km/h) stretch of line to Meiringen. Reversal at Meiringen and a change of locomotive takes the train out on the Interlaken line before branching off for the rack assisted climb to the highest point of the Brünigbahn at Brünig Hasliberg. There then follows a series of three descending rack sections. The first from Brünig Hasliberg to Käppeli, a further section from Käppeli to Lungern and a final section from Kaiserstuhl to Giswil. After Giswil the gradient eases and in certain sections higher speeds are permitted up to a maximum of 100 km/h. At Hergiswil the line is joined by the Luzern-Stans-Engelberg-Bahn (LSE); both companies sharing the track into Luzern. On the last 2.37 km of the approach to Luzern the track is dual gauge enabling standard gauge traffic to be hauled to and from the Kriens-Luzern-Bahn KLB).

The passenger services on the Brünig line fall into two categories. At each end of the line on the adhesion only sections, there are local



services hourly between Luzern and Sachseln and approximately two hourly between Interlaken Ost and Meiringen. All stations through trains with a journey time of approximately two hours, are two hourly as are semi-fast trains. This gives an hourly through service throughout the day although in each direction the last train departs before 1900 hrs. The local traffic is operated by De110 locomotives (former Deh4/6 converted for adhesion only working) in push-pull mode, whilst the HGe101 locomotives, assisted on heavier trains over the rack sections by Deh120, work the through trains. The majority of the freight traffic is normally only carried on the adhesion sections.

Length: 73.82 km

Gauge: 1000 mm

Rack systems: Rigenbach

Voltage: 15kv 16 $\frac{2}{3}$ Hz AC

Maximum gradient: 25% (adhesion), 120% (rack)

Depots: Meiringen, Luzern, Giswil

Works: Meiringen

Nearest main line stations: Luzern (SBB),

Interlaken Ost (BLS) (both shared)

Kursbuch tables: 470, 471, 472

Above: HGe4/4 101 966-0 approaching the rack section at Lungern going towards the Brünig pass.

Powered Stock (livery: locomotives: red or red and black; tractors: red or red-brown

Class	Numbers	Built
HGe101	101.961 - 968	1989-90
De110	110.000 - 005	1941-42 (reb. 1987-93)
Deh120	120.006, 008, 120.010 - 012	1941-42
Te ^I	196	1941
Te ^{II}	201 0 203	1962
Tm ^{II}	596 - 598	1959
Tm ^{III}	599	1957
Tm ^{II}	981	1959
Tm ^{II}	982 - 984	1966
Tmh	985 - 986	1965



LSE

Luzern-Stans-Engelberg

The first sight of the LSE by many visitors to Switzerland is at Luzern station where one invariably sees standing on the furthest of the narrow gauge lines a bright red train which can almost be described as in "mint" condition. The LSE takes an enormous pride in the quality of presentation of its rolling stock, but this does not give any indication of the chequered history of the company which is now in its centenary year.

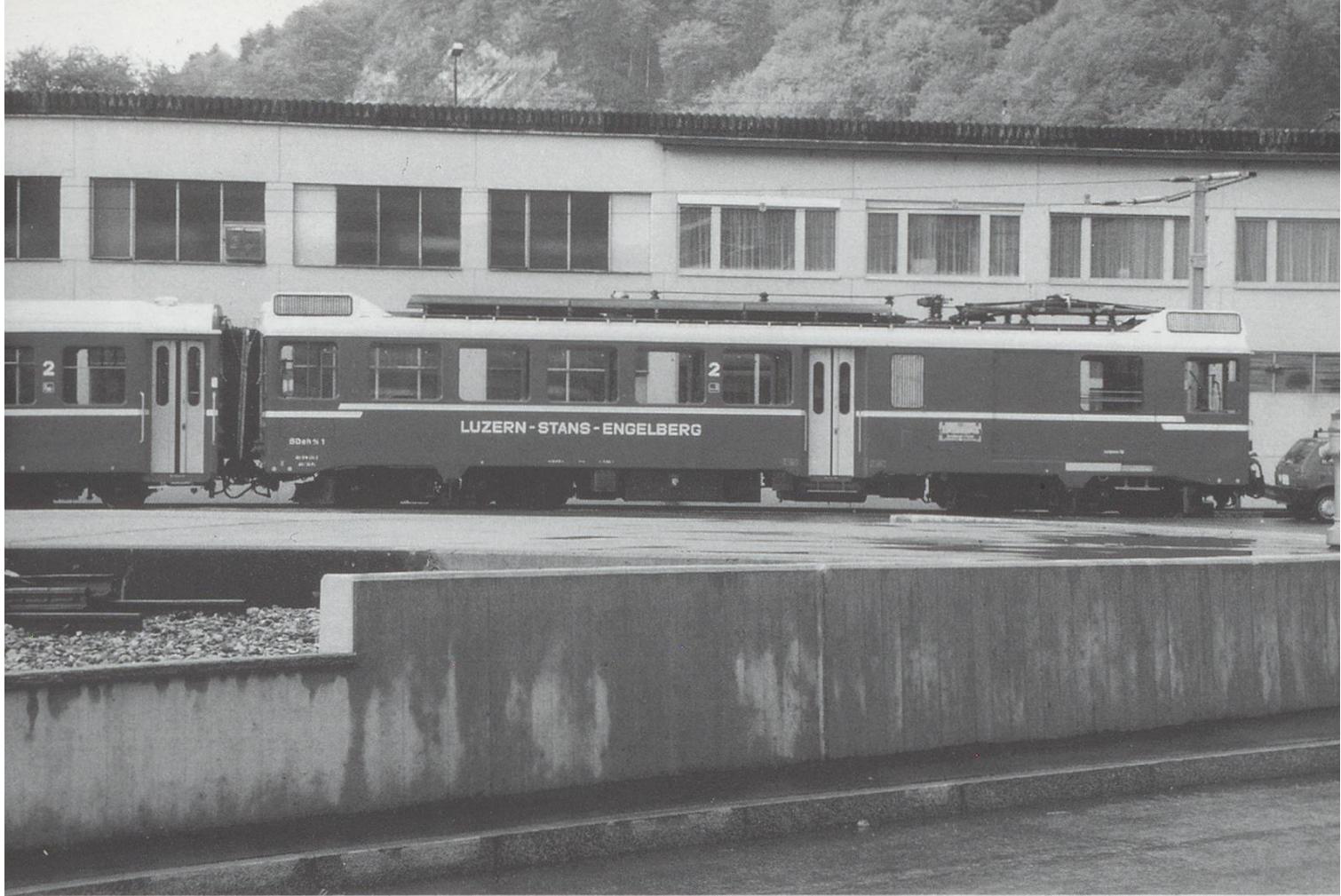
In 1890 a concession for building an electrified line from the jetty on the Vierwaldstättersee at Stansstad to Engelberg was obtained. By 1893 an electric tramway had been built as far as Stans, but it was not until the formation of the Stansstad-Engelberg-Bahn (StEB) in 1897 that construction on the remainder of the route commenced. Because of the projected steep gradients on the approach to Engelberg, it was decided to adopt a mixed rack and adhesion system. Three phase electric power, the system already adopted for the Jungfrau and Gornergrat Bahnen, was chosen as being the most suitable. The line was opened throughout in 1898 and at

Above: De 122 at Luzern station about to leave for Engelberg.

the time it was the longest electrically operated line in Switzerland. It was also the first railway to have electric locomotives capable of both rack and adhesion operation.

The tramway service from Stansstad jetty to Stans ceased in 1903; an alternative service being provided by the StEB. Traffic developed steadily over the years resulting in a steady increase of rolling stock. However, the economic depression of the 1930's and the resulting drop in tourist traffic put a halt to investment from which the StEB never really recovered. Following World War II the railway did not have the resources to embark upon a modernisation programme, but above all it was at a disadvantage because of its isolation from the main rail network with the journey from Luzern to Engelberg taking over two hours.

For many years the StEB had pressed for a direct connection to the SBB Brünigbahn, and this seemed to become a reality when in 1956 the Confederation granted a concession to build a line from Stansstad to Hergiswil. With the StEB



Above: BDeh 4/4 1 at Stans depot.

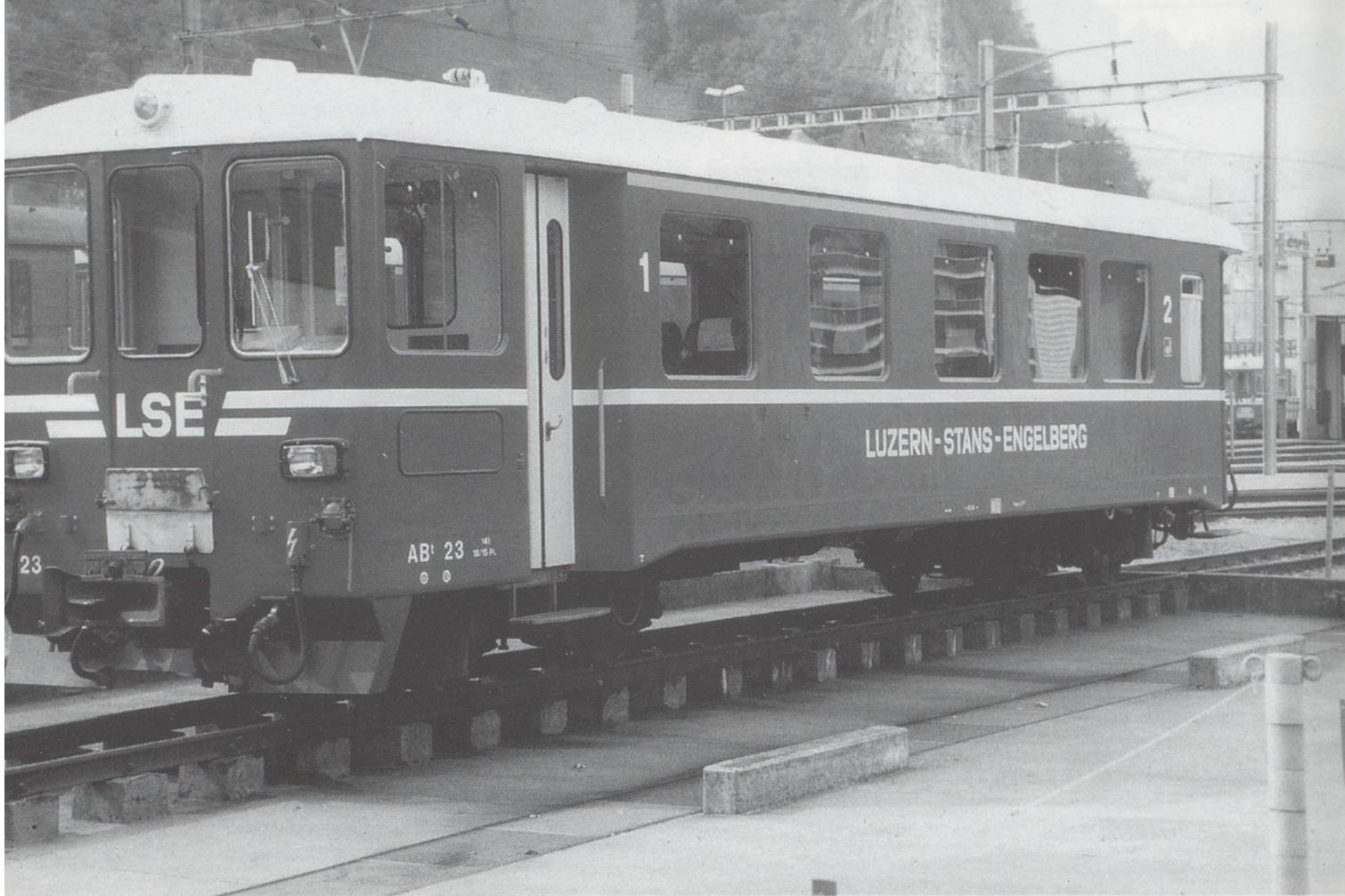
in financial difficulties and the pressure from a strong anti-railway lobby a proposal was put forward for liquidation of the railway company. This did not take place and the company was put into administration. The construction of the Loppertunnel II and the Acheregg Bridge proceeded and physical connection was made between the StEB and the SBB Brünig line. At the same time a major modernisation programme was implemented on the StEB. The section from Stansstad jetty to Stansstad was closed and a new workshop and depot built at Stansstad. New permanent way was laid and the current system changed to the SBB standard at the same time as the catenary was renewed. In order to complete all this work the railway was closed for three weeks and on 19th December 1964 the first train ran on the newly named Luzern-Stans-Engelberg-Bahn (LSE).

From the beginning of the new organisation the investment in the LSE has resulted in success. Both passenger and freight traffic have increased and the company reaches its centenary in 1998 in

a very healthy position. A further investment is currently in hand which by means of a diversionary route through a new tunnel the very steep rack section between Obermatt and Gärst will be eliminated.

The through service on the LSE, stopping at all stations, is hourly and is operated by rack fitted railcars throughout the day; the journey time being 59 minutes to Engelberg and 60 minutes to Luzern. These are supplemented on Sundays during the skiing season and in the summer by three non stop morning trains from Luzern taking 40 minutes and two non stop evening trains from Engelberg taking 45 minutes. Local trains run at peak periods between Luzern and Stans and are usually hauled by the acquired converted Brünig line locomotives. Freight traffic is modest, but of significant importance is the transportation of aviation fuel in standard gauge wagons carried on rollbocken to a transfer facility at Stansstad.

From Luzern the trains share the metre gauge track of the SBB Brünig line as far as Hergiswil. branching off here the line passes through a tunnel and then crosses an arm of the



Above: Driving trailer ABt23 at Stans depot.

Vierwaldstättersee before reaching Stansstad. The line follows the Engelbergertal on relatively gentle gradients before reaching to Obermatt. Immediately after this station the train engages on the rack and climbs for a distance of 1.78km to Gärst having risen in the process some 296m. The final run to Engelberg is on gently graded line.

Length: 24.8 km
 Gauge: 1000 mm
 Rack system: Rigggenbach
 Voltage: 15kv 16 $\frac{2}{3}$ Hz AC
 Maximum gradient: 51‰ (adhesion)
 250‰ (rack)

Depots: Stansstad, Engelberg
 Works: Stansstad
 Nearest SBB station: Luzern (shared)
 Kursbuch table: 480

Powered Stock (livery: red, locomotives: brown or red)

Class	Numbers	Built
BDeh4/4	1 - 5	1964
BDeh4/4	6, 7	1970
BDeh4/4	8	1980
Tm ^I	100	1931
Tm ^{II}	101	1964 (1995)
Tm ^{II}	102	1961
Tm ^{II}	103	1967
Ge4/4	111	1950
De4/4	121, 122	1942 (1992/4)

Notes

- 100 ex SBB-Brünig Tm 591 in 1968
- 101 ex SBB Tm 734 (std. gauge) in 1995
- 111 ex Lohia Cement, Finland in 1974
- 121, 122 were ex SBB Brünig Deh4/6 905, 907 in 1991 (rebuilt by Stadler)



MIB

Meiringen-Innertkirchen-Bahn

Unlike the majority of private railways the MIB was built as an industrial line. A water storage hydro electric scheme in the Oberhasli and Grimsel region with power stations at Guttannen and Innertkirchen resulted in the proposal being made in 1921 to build a railway from Meiringen to Guttannen for the transport of works materials. The projected lack of future public traffic caused this to be cut back to Innertkirchen where an aerial cableway would be used up to the Grimselnollen with a branch to the Gelmersee. Construction between Meiringen and Innertkirchen, authorised by a concession of 1919, involved the boring of a 1500m tunnel near Aareschlucht (Aare Falls) to avoid the gorge through which they pass. Connection with the Brünig line at Meiringen is end on through a non electrified siding.

The line, operated by the electricity undertaking, Kraftwerk Oberhasli AG (KWO), was opened throughout for freight traffic in 1926 using a pair of Mallet steam locomotives acquired from the

Above: The newset vehicle on the MIB Be 4/8 at Meiringen in 1997.

Rhätische Bahn (RhB G2/2+2/3 Nos.23 & 24). These remained in service until their withdrawal in 1934. In 1931 the company purchased a 12 seat battery railcar (CFa2/2 3) for the carriage of staff and their families. This was reclassified as a tractor when it was replaced by a larger 22 seat battery railcar (CFa2/2 4) in 1939. Following the completion of the power station works in 1944, the company obtained in 1946 a 30 year concession from the Confederation to operate a public passenger service and in 1949 a further 22 seat battery railcar (CFa2/2 5) was placed in service. It is interesting to note that all three of these early battery railcars are in preservation; 3 is in Germany, 4 at the VHS and 5 is plinthed at Innertkirchen.

The expiry of the concession in 1976 prompted the company to undergo an extensive refurbishment of the railway including electrification at 1200v DC. A new concession was granted and the line was reclassified as a light railway, commencing service with electric



traction in November 1977. Three former trams were acquired from Mannheim in Germany. One of these cars was used for spares, the other two being rebuilt at the SBB Meiringen works. Each was fitted with an auxiliary diesel engine for traction on non electrified lines and the connecting line at Meiringen. These remained in service until being replaced by a new railcar in 1996.

Although connected to the Brünig line at Meiringen, the MIB trains terminate at a roadside halt some 300m distant. The daily passenger service, although approximately hourly does not operate on a regular interval basis. On non working days there is a long gap in the timetable at lunchtime as well as a lack of early morning and late evening trains. The line has four stations and two request halts. During the week traffic is local in nature, but at weekends it is well used by walkers for visiting the Aareschlucht and surrounding area. Trains are one person operated with tickets being issued by the driver. There is a small amount of freight traffic which is either handled by the main service railcar or the recently acquired former RBS railcar.

Above: One of the earlier battery railcars plinthed at the works at Innertkirchen.

Length: 4.8 km
 Gauge: 1000 mm
 Voltage: 1200v DC
 Maximum gradient: 20 %
 Depot: Innertkirchen
 Works: Innertkirchen
 Nearest SBB station: Meiringen (Brünig line)
 Kursbuch table: 474

Powered Stock (livery: orange & cream (6 & 8) or red & grey (8) or blue and white (74))

Class	Numbers	Built
Bem4/4	6, 7	1952 (1977)
Be4/4	8	1996
Be4/4	74	1961

Notes

6 & 7 are ex OEG, Mannheim 63 & 65 in 1977
 71 is ex RBS in 1998