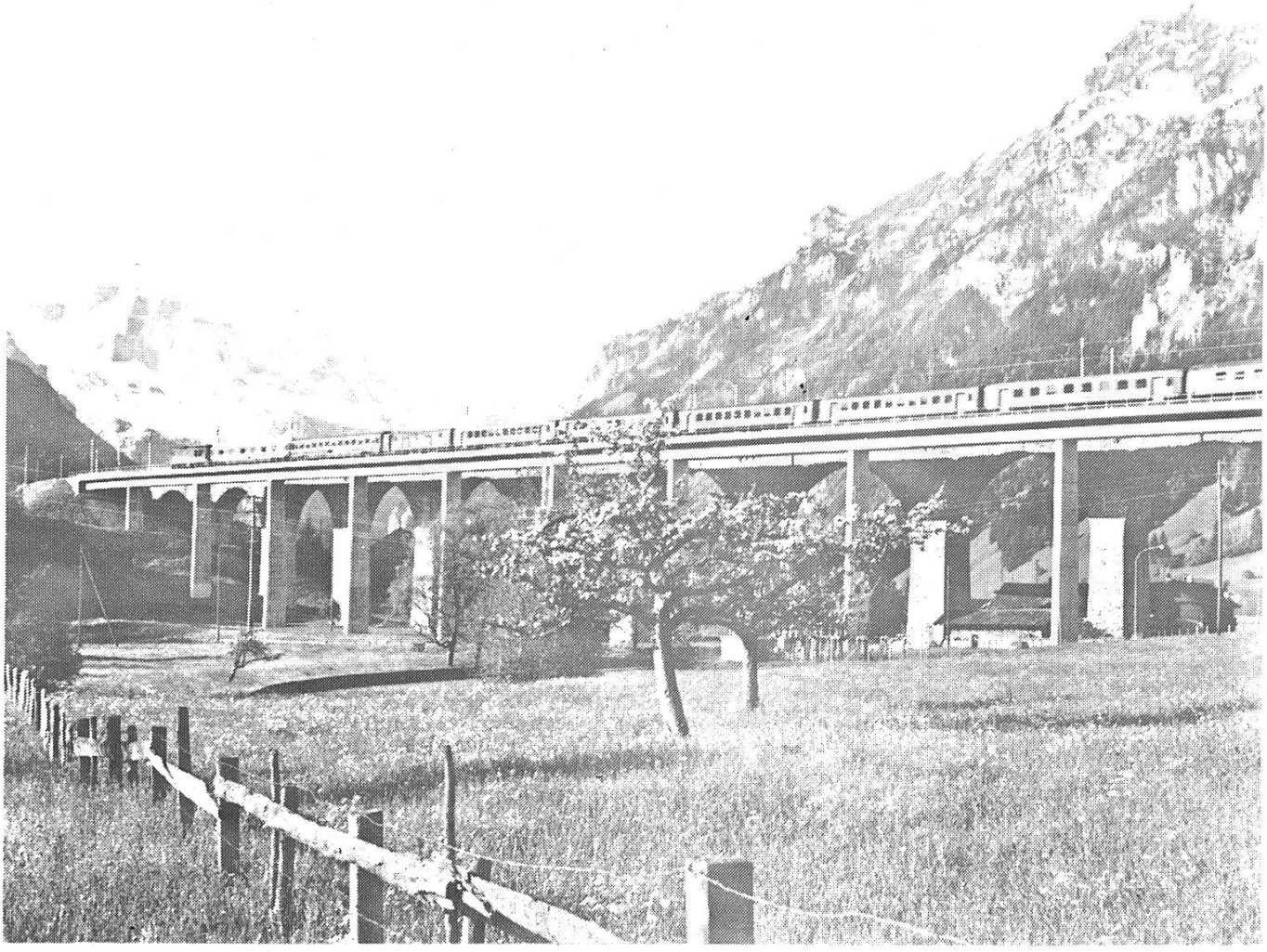
The double track program of the BLS

THE DOUBLE TRACK PROGRAM OF THE BLS
by Malcolm Hardy-Randall

In 1977 work began on the biggest project the BLS has undertaken since it began operating in 1913. The task was to completely re-engineer the main line from Frutigen to Brig so that two tracks could be laid instead of the present single line. It was planned to increase the capacity of the line from its present 4.5 million tons per year to 12 million tons per year. Thanks to the foresight of the original planners and engineers much of the preparatory work had been done, such as the construction of retaining walls, tunnels and bridge foundations. Alas the intervening 70 years has not been kind to the walls and foundations, but the tunnel work has proved to be a real bonus and has saved a lot of time and money. The parameters of the second track are the same as those for the first track in that it will follow the existing alignment thus matching the maximum gradient of 2.7% and minimum curve specifications of 300 metres. The second track, using SBB profile 54 Kg/metre rail, will be laid on the valley side of the original track.

Work on the removal of 250.000 cubic metres of excavated material has to be done in the 31 tunnels affected by the project, whilst 115 scheduled, and several special trains



An international express crosses the Kander Viaduct. Photo BLS.

pass each day. The maximum break between trains is 3 hours during the early hours of the morning. The Hondrich tunnel just south of Spiez has only one through track, the second track ends inside the tunnel and the continuation of the second track will have to be bored through. On the north ramp the rock foundation is such that only a few minor

difficulties were encountered. On the south ramp it is a very different story as several long sections of the new track bed have to be laid on new concrete platforms supported by pylons bedded into the rock. A new single track tunnel to bypass the Spiessgraben gallery is being built. At many sites on the south ramp the only access to the worksite is by cablecar, which had to be constructed prior to starting work. The massive Luogelkin viaduct which rests on solid rock will have its supports widened and an extra matching carriageway added to run alongside the original structure. The equally famous metal bridge at Bietschtal will have extra spans added to link the centre span to the supports. The centre span was built as a double track unit when the bridge was first constructed. The Lonza viaduct had to be widened by the use of reinforced concrete supports and cross spans. The Kander viaduct could not be widened, due to ground foundation problems, so a new single track 285 metres long viaduct had to be built alongside. In the section Frutigen to Brig, inspections and work assessment on a total of 19 bridges and viaducts was involved. Once again it is worth remembering that all this work had to be done without disrupting the traffic flow.

The trackwork at many stations had to be reorganised to extend or build longer passing loops and sidings. The layout at Goppenstein had to be lengthened to accommodate the longer trains. A few extra avalanche protection sheds on the south ramp section had to be built. The car loading facilities at Kandersteg and Goppenstein were both rebuilt to make them the most modern in Europe. At present 2000 cars are conveyed from these two stations every day. The record for one day was on February 28th 1981 when 9620 vehicles were transported.

All signalling on the section Spiez to Brig is being renewed or updated to bring it into line with the SBB Signalling regulations of 1982. Additional line signals will be installed at the crossovers which are being installed in the Loetschberg tunnel, in which traffic is already controlled by a multi block system. Frutigen, Goppenstein and Spiez signal boxes are being replaced by new push button signal control boxes. For the section Frutigen to Brig, all track will be signalled for two way working on both tracks. This will allow traffic to change from one track to another during repair or maintenance periods without disrupting the flow. Traffic will be monitored by the control centres at Spiez, Kandersteg and Goppenstein during periods when the intermediate stations are closed.

When the project was planned it was realised that the capacity of the present supply would be exceeded by a large margin, so plans were made to improve the supply of overhead catenary power. The small substations at Spiez and Kandergrund will be closed, as they are now obsolete. A new 132 Kv line will be built from the SBB substation located at Thun and will link up with the BLS substations at Wimmis (33 MVA), Frutigen (33 MVA) and Kandersteg (33 MVA) and via the Gemmipass to the SBB substation at Varen. Power will be fed to the south section of the BLS via the sub station at Gampel (40 MVA) which feeds into the overhead system at Hohtenn, and the existing station at Massaboden (20 MVA). The substation at Gampel is being rebuilt to increase it's capacity from 20 MVA to 40 MVA.

To handle the increased amount of traffic, ten more of the powerful Re 4/4 locomotives have been ordered and installed into service. These locomotives are capable of hauling a 680 ton load at 80 km/h through the Loetschberg tunnel. When two of these locomotives are working in tandem the maximum train load from Thun to Frutigen is 1820 tons, and for the ramp and tunnel sections a third Re 4/4 locomotive is added into the train at a point where the load on the third engine drawbar is 1100 tons.

The cost of the whole project is estimated to be in the region of £230 million pounds based on the present exchange rate. By 1989 a dream that was born in 1906 will become reality. This will give Switzerland two double track routes for freight from Germany to Italy, the SBB route through the Gothard (2.6% max) and the BLS (2.7% max) route through the Loetschberg/Simplon.

I would like to express my thanks for the huge amount of information and help given by Herr H. Barben of the BLS publicity department.