

## Interlude

When the bulk of the most difficult design work was over my wife and I took a much needed month long holiday in Argentina and Chile during February / March 1980. Part of this was spent with Porta, both on the 750 mm gauge Ingeniero Jacobacci - Esquel branch of the Roca Railway in northern Patagonia (scenically one of the finest railway lines in the world, whatever Paul Theroux thinks) and on the Rio Turbio Railway. The latter line's headquarters and major facilities were at Rio Gallegos and Porta headed down there a few days ahead of us to prepare the arrangements for our stay and to get a locomotive in proper condition for a good demonstration. He stressed that locomotive performance had been far better during his time as the chief there and for some time afterwards, but the creeping decline which sets in whenever knowledge combined with discipline are absent had long since reduced the condition of the locomotives to the point where Porta had personally to put things right if 'loss of face' was to be avoided.

My wife and I took the plane down from Bariloche, a plane that seemed to land at every village airstrip to pick up the likes of grannies doing their shopping and which one was rather glad to leave due to the turbulence - both in the air outside and in one's stomach - which became ever more severe as the plane got further south. As the reader may recall, the possibility of my leaving the SAR to go to Argentina for the Rio Turbio Railway Mallet scheme had at one time been considered, but after touring Rio Gallegos my wife informed me that living there would certainly be grounds for divorce, even though with a reported ratio of 32 men for every woman in the town she would certainly have been made to feel welcome (but then again, perhaps *too* welcome). To be sure it was, and no doubt still is, a pretty wild place, a sort of cross between a frontier settlement and a wind tunnel.

A round trip to Rio Turbio was arranged for us, an accommodation coach being attached to a regular train of empties for the westbound trip and to a coal train for the return one. 2-10-2 No. 116 was the locomotive and Porta and I were in the cab for most of the way in both directions. Despite the outward leg being with empties it required harder sustained steaming than the return trip due to the generally adverse grades and a head wind which blew uninterruptedly at storm force. We set off gently around the sharp curve from the sidings next to the South Atlantic at Rio Gallegos and once on the straight the throttle was fully opened, the cut-off set to about 35%, and with a crisp exhaust 116 accelerated its sixty car train inland. 'Rock steady' was the way to describe the locomotive's performance. Boiler pressure was kept 'on the red' and the water level was maintained close to a full glass throughout a trip requiring about eight hours steaming with only very occasional respite due to downgrades or crossings. Although a mechanical stoker was fitted hand firing was used throughout, it having been found that char deposits in the smokeboxes of these locomotives were much greater with the stoker than with hand firing, pointing to the greater efficiency of the latter. An interesting practice was to leave a stoker trough slide near the

back of the bunker open so that if the stoker was used it did not take coal from the front of the tender where it was required for hand firing. Porta had doctored the firedoor so that it could not be shut, as was originally the case when the GPCS was fitted to these locomotives, but it was apparent that the crews were no longer used to this as all the firemen tried to shut it and registered surprise when they found they could not. It was a sign that by this time the secondary air normally used on these locomotives was not as much as it should have been, indeed no. 116 even had some of the tubular secondary air inlets blanked off. So even here, the birthplace of the GPCS, the secondary air area seems to have been reduced, probably as a 'cure' for less than perfect steaming which in turn was most likely caused by neglect of other parts of the locomotive or of the proper training of the crews. Certainly no. 116 steamed perfectly with the firedoor constantly open. Firing was 'little and often' and, I thought, not too different from the firing technique which would have been used with normal combustion burning coal with 35-40% volatile content such as that mined at Rio Turbio. The firebed was not very thick when we started and as on SAR locomotives with the GPCS it was built up gradually, although never seeming to reach the stage of being a true 'fifteen particle diameter' fire. There was just a light burst of smoke during spells of firing and the firebed condition using 15-20% ash coal was kept uniform by periodically rocking the grate whilst steaming.

As we steamed westwards storm clouds would form ahead which seemed certain to bring heavy rain. but the clouds were forever being dispersed by the wind and brilliantly clear sky would appear where moments before all had been black. Once a storm did come causing the only faltering of the locomotive's performance as it proved necessary to close the throttle somewhat to prevent slipping, but no sooner had the rain come than the clouds overhead were already being blown away. The ever-changing colours and wind-formed patterns in the sky were a fascinating contrast to the vast bleak treeless plains which the railway traversed. The land was used for sheep farming, individual farms covering huge areas and earning fortunes for the absentee owners living in luxury in Buenos Aires or abroad. Occasionally a lonely estancia building would be sighted and then Porta would give long blasts on the whistle as he considered it to be always necessary for human beings to greet each other in such inhospitable territory.

We stayed overnight at the Rio Turbio colliery guesthouse and returned the following day with about sixty loaded coal cars plus the coach in tow. Most of the trip was downhill but there was one uphill section where Porta drove and showed what the locomotive could do, giving a thrilling ascent. The fireman was clearly unused to such a method of working and he shovelled in more coal than was being burned so that the level of the fire rose appreciably, but steaming remained excellent - in fact it was so good that the water feed necessary to avoid blowing off increased the boiler water level by so much during one spell of steaming that priming occurred, and Porta later wedged the smokebox door open

a little to destroy the excess draught<sup>1</sup>. The smokebox remained clear of char but of course without a spark arrestor a fair number of sparks were emitted from the chimney.

The whole performance was extremely good and I was suitably impressed, whilst recognizing that two major factors were present there which favoured continuous high steaming rates with the GPCS. One was the Rio Turbio coal which had almost 50% of its combustible matter by weight in the form of volatiles<sup>2</sup> and which was very 'reactive' and available in optimum small-lump size, and in these respects ideal for the GPCS. The other was the frequent grate shaking possible without having to worry about blocking the ashpan air inlets or starting field fires. There were also other features favourable to the GPCS. The zero lineside fire risk allowed spark arrestors to be dispensed with, giving very low smokebox gas flow resistance which compensated for the relatively high firebox draught loss; the small grate was easy to fire by hand, and there were no coal distribution difficulties; and the primary air entry through the central ashpan chute allowed optimum siting of the clinker control steam pipes and eliminated any interference of cross winds with this steam flow. All these made this application of the GPCS perhaps rather untypical.

After returning home I wrote a memorandum to my superiors pointing out that certain features of the Rio Turbid Railway locomotives and their performance were in advance of normal SAR practice and suggesting that a mission could be sent there for study purposes. Unfortunately the reaction to this was not very positive and, as already mentioned in Chapter 1.6, no mission was ever sent.

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<sup>1</sup> One of Porta's techniques when testing was to deliberately make locomotives poor steamers by cutting holes in the smokebox in order to discover what firing tricks were required to combat the situation.

<sup>2</sup> Source: Porta L.D., "A Note on the Boiler Efficiency of Rio Turbio Locomotives" – Argentine (Buenos Aires), 1967 (unpublished).