



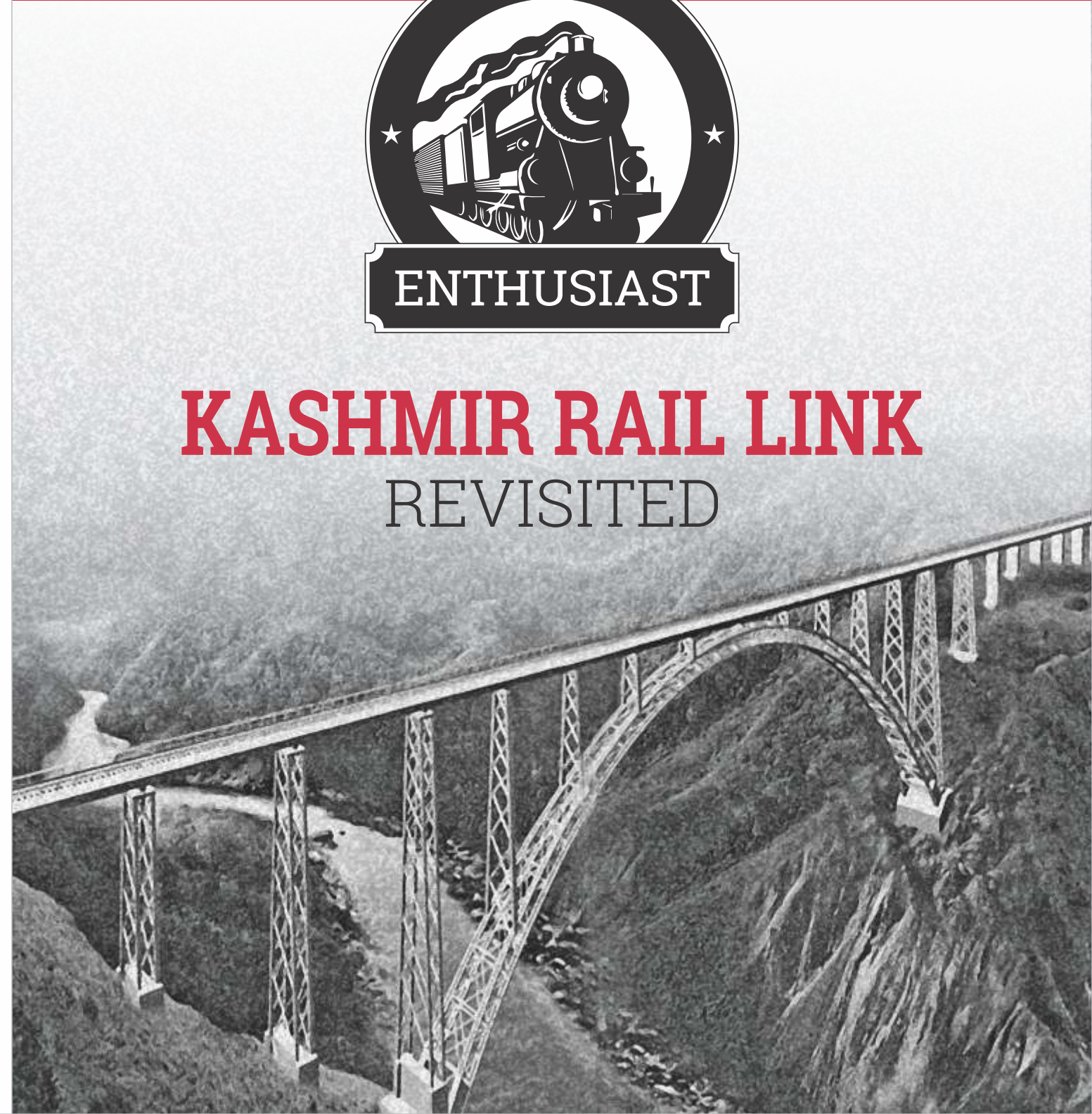
the rail enthusiast

Vol. 3 No. 3 October 2018

The Rail Enthusiasts' Society Quarterly



KASHMIR RAIL LINK REVISITED

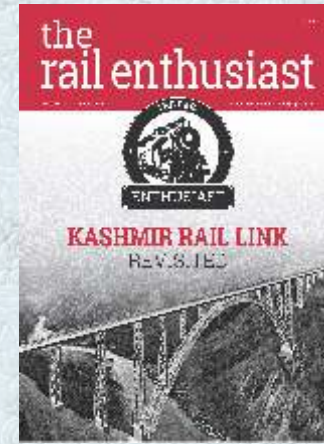


Durand Institute Asansol

Built in 1878, the Durand Institute at Asansol is one of the oldest on the Indian Railways. Initially christened “European Institute”, it was renamed the “Durand Institute” in 1925 in honour of Sir Durand, architect of the Durand line. In 1987, it was renamed as the “Vivekanand Institute”.

However, post independence, the institute suffered large scale neglect and degenerated into a marriage hall and occasional official rail functions.

The current Divisional Rail Manager of Asansol Division, Prashant Kumar Mishra, would have none of this. He has renovated the institute to its earlier glory and its majestic tower is once again a landmark of the town. In our next issue, we will be bringing you a detailed account of the rebirth of this once forgotten edifice.



A Magazine
of the Rail Enthusiast,
by the Rail Enthusiast &
for the Rail Enthusiast

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Musings of the Editor...

It doesn't require a Sherlock Holmes or even a mere amateur armchair detective to surmise that those of us who read this magazine love trains. In all likelihood, this love started when we were little boys (or girls). It is thus a natural corollary that we will all relate to the book **The Boy Who Loved Trains**. Penned by one of our members, Deepak Sapra, and published by Readomania, this delightful little book is likely to find place easily on the book-shelf of any rail enthusiast. Read a review of the book as well as a reproduction of a part of one of its chapters in this issue.

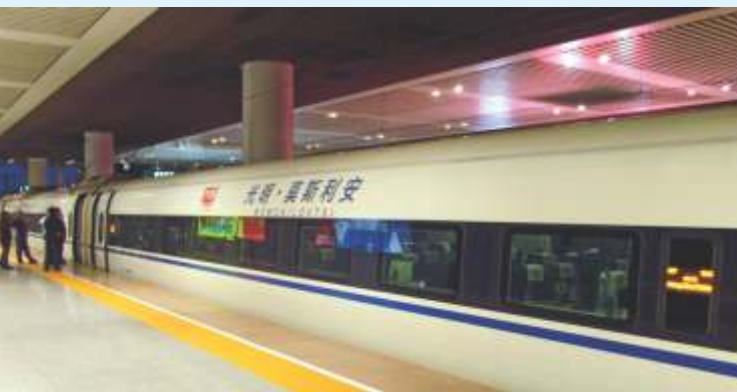
In our last issue, the lead article and the photo-feature gave you an insight into the construction of the rail link that will connect the Kashmir valley to the rest of the Indian rail system. Subsequently, 11 die-hards of the Rail Enthusiasts' Society visited various sites along the route where difficult tunnels are being bored through treacherous mountains and spectacular bridges being built across lofty gorges that will complete this rail line of national importance. Get an idea of this visit and the area where the Udampur-Srinagar-Baramulla-Rail-Link (USBRL) project is braving massive odds to construct the final part of an important and significant rail line. This part includes, inter alia, a 9-km. long tunnel and an incredible 359-meter high arch bridge. Leave alone being built, such a bridge, spanning the River Chenab, has not even been attempted before in the country. Currently, the rail line is operational up to



Steel arch of the Chenab bridge under construction

Katra, the rail head for the Vaishnodevi shrine. At the same time, trains are also running in the Kashmir valley from Banihal to Baramulla via Srinagar, but this is a standalone section not connected to the rest of the Indian Railways network. The area visited was the 111-kms. section between Katra and Banihal which is now under construction in what is perhaps the most inhospitable and difficult region of the country to build a rail line. Since even a single picture is better than any number of words, we have provided a large number of the former to convey the enormity of the work being done. The photo-feature in this issue also covers various aspects of the one and only Chenab bridge.

Follow these reports by two penned by V M Govind Krishnan. He has covered two diverse but equally interesting subjects – high speed bullets trains in China and the current status of the Nilgiri Mountain Railway (NMR). He has visited both recently so that his writings are not only relevant but also up to date. While questions are being



One of the high-speed trains of China

raised as to why we need bullet trains in our country, China already has over 22,000 kilometres of such lines, the highest in the world, and plans to build even more.

In the last few months, the steam scene in India has been very active and is taking giant strides towards becoming even more



The MG 'Sultan' in steam

active. We have tried to give you an overall picture of some of the significant developments. These range from a regular timetabled run by a steam locomotive every Sunday from Farrukhnagar to Garhi Harsaru to the resurrection of the massive Garratt locomotive on the South Eastern Railway, from commercial runs by EIR21 (the Express) to a coal-fired loco on the Nilgiri Mountain Railway, from the addition of the first WG class locomotive at Rewari to the revival of the iconic WP No. 7200 (Azad).

One of the most successful regular heritage steam runs in the world is the Puffing Billy in the state of Victoria in Australia. Ashok Sharma had the privilege of travelling on the Puffing Billy recently and has penned an attractive and absorbing account of his rendezvous with it. We in India can learn from the Puffing Billy and should definitely try and emulate it. As mentioned in the last paragraph, we appear to have made a start by having a regular timetabled steam loco run, albeit once a week only, on a regular train. This augurs well for the future.

With Meter Gauge and Narrow Gauge sections going the way of the dodo, several rail enthusiasts are trying to travel on the few that are remaining. Most such lines are either in the hills or are in parts of our country where population densities are low, leading them to be picturesque and isolated. In our previous issues, we have reported on such visits to the Miyagam-Dabhoi section, the Kalakund-Patalpani section (two trips) and the line from Pilibhit to Bahraich via Mailani. We even carried a report on a journey on the line from Pratapnagar (Vadodara) to Jambusar covered by a British enthusiast. In this issue, we bring you a report on a journey on the Bilimora-Waghai Narrow Gauge line undertaken by one of our members, Harshad Joshi.



The Puffing Billy

The condition of the stations of this line will indicate to you that it is neglected and forgotten and not likely to survive very long.

A rail enthusiast from Singapore, Nandakumar Narasimhan, is in the process of producing a book on the Meter Gauge (MG) lines of the Indian Railways. He visited Rewari recently to specifically photograph YP or YG locomotives in steam. He had already photographed the steam locomotives of the Nilgiri Mountain Railway. We present a brief report of his visit and some of the pictures that he took.

We have received good feedback on the last issue where we had a theme, viz. rail tunnels. This has encouraged us to go in for such themes in the future as well. We do not intend having a theme in all our issues but shall do so in at least one issue a year.

Happy rail fanning,

(J.L. Singh)

Editor



CONTENTS

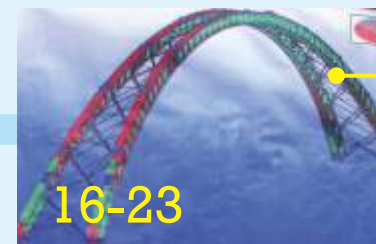


6-15

USBRL

Visiting the Kashmir Rail Link

A group of members of the Rail Enthusiasts' Society visited various sites of construction on the Katra-Banihal section, the last leg that will finally link the Kashmir Valley to the Indian Railway network. Read of stations atop bridges, long water-drenched tunnels, 90 meter high piers, and more



16-23

USBRL

Bridge No.44

One of the major segments of the Kashmir Rail link is the bridge across the Chenab, now under construction. Get an idea of what is going into the erection of the steel arch of the span in situations and terrain that are as treacherous as they are beautiful

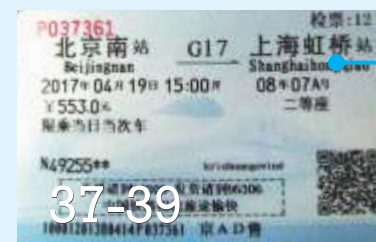


24-36

Photo-feature

Revisiting the Chenab bridge

You saw a set of pictures of the Chenab bridge site in our last issue. We present a different set showing the progress of construction, long cable travelling cranes, men at work, and so on



37-39

Railways in other Lands

Flying Trains in China

While the first high speed rail line is raising many eyebrows in India, China has built and is operating 22,000 kms. of such lines. V M Govind Krishnan tells us of the enormous network of high speed rail lines in the country, the longest in the world

40-43



Heritage

Nilgiri Mountain Railway

V M Govind Krishnan travelled on the Nilgiri Mountain Railway recently. He gives us an account of its current status and what more is required on this unique hill railway with a world heritage tag

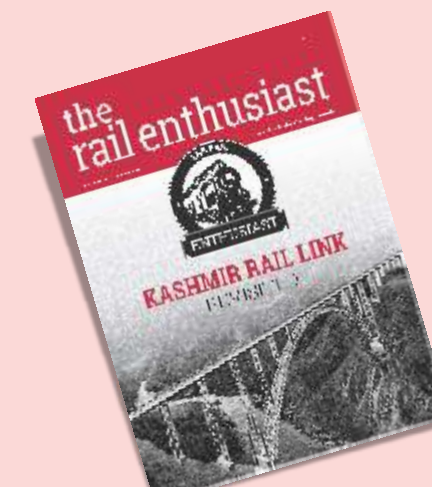
44-48



Steam Preservation

The Puffing Billy

One of the most successful sagas of steam preservation is the Puffing Billy in Australia. One of our members, Ashok Sharma, travelled on the Puffing Billy recently and has penned his experience for all of us to savour





49-51

Rail Trip Report

Bilimora-Waghai Narrow Gauge Line

The imminent closure of Meter and Narrow Gauge lines across the country has lead rail enthusiasts to try and travel on these lines before they disappear. **Harshad Joshi** recounts his trip on the Bilimora-Waghai line and its present status



52-54

In Search of Steam

Reflections at Rewari Shed

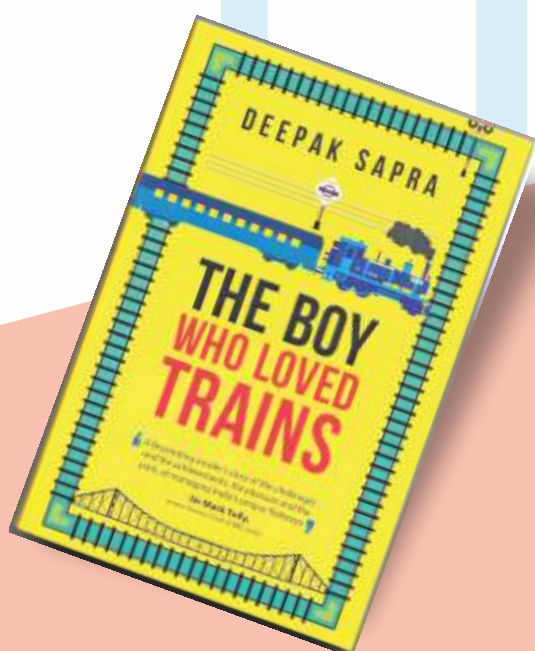
Nandakumar Narasimhan, a rail enthusiast from Singapore, is writing a book on the Meter Gauge (MG) lines of the Indian Railways. In that connection, he visited the Heritage Steam Loco Shed Rewari to photograph MG locos in steam

55-56

Book Review

The Boy Who Loved Trains

Recently released, *The Boy who Loved Trains* is a delightful racy book by one of our members, **Deepak Sapra**. Reviewed here, this book is a must read for all rail enthusiasts



56-58

Book Extract

Midnight's Children

A part of one of the chapters of *The Boy who Loved Trains* reproduced



59-62

News and Events

Get a picture of the large scale recent activity with regard to steam preservation and renovation. We also tell you of an event that the **Rail Enthusiasts' Society** sponsored in Kolkata

Feedback

Dear Editor

Your magazine of May 2018 is just out of the world. My friend, a Doctorate in Civil Engineering, was so impressed with it that he has taken it home for close study.

However, there is one discrepancy. In the inside back cover you have an article with the heading of Loco No. BK4 pertaining to the old Burdwan Katwa narrow gauge line.

The line was not taken over by South Eastern Railway but by yours truly in 1967 on behalf of the Eastern Railway. I had been strictly told by the administration of Eastern Railway to go to Katwa, take over the Railway and sack the 1000 or so employees of that Railway.

This news reached Katwa before I arrived there. There was a crowd of railway men belonging to Burdwan Katwa Railway, some with their wives and children. I did not have the heart to announce this sad news. Instead, I told them that all of them were being taken over by the Eastern Railway.

I became a hero there, knowing that I will become a zero when I report to Eastern Railway Headquarters.

Surprisingly, I was not fired and all the powers that be accepted what I had done. I was then the Divisional Mechanical Engineer of Howrah Division, looking after the newly arriving WDM2 class diesel locomotives.

Yours sincerely,

PCSen (received through email)

07.06.2018

Loco No. BK4 of the Burdwan-Katwa line



Iqbal Ahmed's working models—the Fairy Queen & the Morning Glory

Dear Editor,

This issue (Vol. 3 No. 1) was quite interesting and absorbing. Particularly the article on Iqbal Ahmad was unique. Description of working models made by him were simply mind blowing.

Among all the interesting articles, the two which fascinated me most were on the rail section passing through Dudhwa forest on Pilibhit-Mailani section and the one on Iron Horses.

Regarding Iron Horses, I too had the privilege of travelling innumerable times on steam locomotives in connection with braking trials while I was working as Chief Research Assistant at the Research, Design

& Standards Organisation of the Indian Railways in the mid sixties. Once I had the privilege of having dinner prepared on a steam engine courtesy the loco driver. The beauty was the way he prepared *tandoori roti* on his shovel. He rolled the kneaded flour paste between his palms, placed it on the back of his shovel. In went the shovel into the firebox and came out in a few seconds, fully baked on one side. The *roti* was then reversed and went into the firebox again. Out it came with both sides now roasted. The *tandoori roti* was ready to be eaten, so soft, tasty and delicious.

Yours sincerely,
M. M. Sinha (received through email)
07.08.18

Dear Editor,

The latest publication with railway tunnels is excellent. Yes, it is indeed a good idea to devote an issue to a particular theme.

The artist's impression of a tunnel in the cover, is it the same as the tunnel as you approach JMP, described in the issue? Uniquely, it is the second ever rail tunnel constructed in IR!

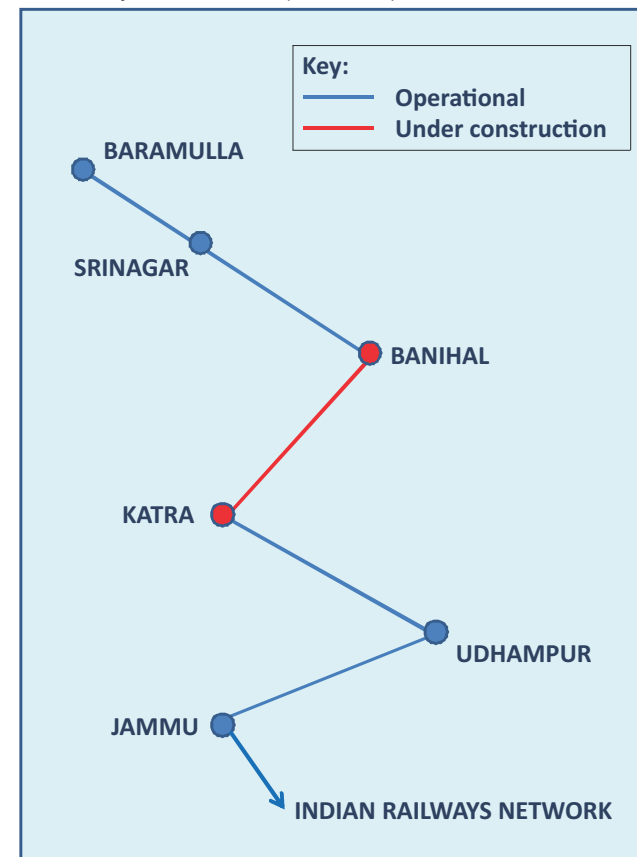
Yours sincerely,
V. Narayanan (received through email)
01.10.2018

Editor: Yes, the photograph of the tunnel on the cover is the Jamalpur tunnel

Visiting the Kashmir Rail Link

We came from different parts of the country. Although the bulk of us (six) were Delhi/NCR-based, we had two enthusiasts from distant Kolkata, another from Vadodara, one from the not so distant Jaipur and one from Udhampur itself. Unfortunately, one enthusiast from Vadodara had to drop out at the last minute. Congregating at Katra, the rail head for the Vaishnodevi shrine and the northernmost point connected directly to the Indian Railways network, the eleven of us got into vehicles of the Udhampur-Srinagar-Baramulla-Rail-Link (USBRL) Project in the early hours of the 23rd of June this year, en route to various construction sites of the

Schematic of Kashmir Rail Link (not to scale)



USBRL. This visit was on an invitation from the Chief Administrative Officer of the project for showcasing the work that he and his group were undertaking in very trying, arduous and demanding circumstances.

We got a feel of the kind of terrain we would be encountering on the last leg of the train journey from Udhampur to Katra itself. This 25-km. section of the project had been opened as recently as 2014 and was an independent engineering feat. The ten tunnels, covering 10.94 kms., more than 40% of this section, were an engineering challenge owing to adverse weather conditions, rain-induced seepage, learning from on-site trial and error and sinking in girders in a remote and tough terrain. There were various constraints such as allowable maximum speed, high gradients and sharp curves. The soft strata and seepage were also major problems. We noted that not only all tunnels but also the cuttings were lined and all long tunnels lighted. The beauty of the panoramic landscape was only a facade for the punishing engineering obstacles it imposed.

Driving Northwards from Katra, we were informed that work was now being undertaken on the 111-kms. Katra-Banihal section (See schematic of the area alongside). Beyond Banihal, the line has been completed all the way to Baramulla and trains are already plying on that standalone route. The section now being built passes through the Pir Panjal mountain range of the mighty Himalayas. This has resulted in an unprecedented 97 kms. (87.3%) of the line passing through 27 tunnels. 7 of the remaining 14 kms. comprise of 27 major and 10 minor bridges. That leaves only 7 kms. of flat open ground on the entire route. This means that there is virtually no place to build stations or anything else for that matter. We saw the effect of this at our first halt after leaving Katra at Bridge No. 39.



View of Bridge No. 39 from the Banihal end

The highest pier of Bridge No. 39



Comprising of 8 spans (6 spans of 64m each, with the 2 end spans of 40m and 53.15m respectively) this bridge is unique as it will have the Reasi railway station partly on the bridge itself, something like the stations you see on the elevated part of urban metros. The significant difference is that the height of the piers of Bridge No. 39 vary from 23.7m to over 90m and are spaced 64m apart. Compared to this, the piers of the metro stations are all of about the same height (about 10-15m) and spaced less than 30-35 meters apart. In addition, the Reasi station yard is much bigger than what you need on metros. The station, being built at the Banihal end of the bridge, is initially planned to extend to about half the length of the bridge but has provision for extension in case 24 coach trains are run in the future. When this is done, it will cover virtually the entire bridge.

A small part of the loop of the station extends into Tunnel No. 5 that begins where the bridge ends at the Banihal end. This is a 5.96 kms. long tunnel, the excavation having been completed up to around 5 kms. We drove into the tunnel on vehicles wearing safety helmets, gum boots and carrying umbrellas. We were also wearing masks as a protection against particulate matter and dust. We had read and were briefed about the massive seepage of water when excavating tunnels in this mountainous terrain. But seeing is believing! Driving into the tunnel was like rowing up a



Water gushing down Tunnel No. 5

gushing stream in a boat as the accompanying pictures show. When we arrived at the site of the actual excavation, water was dripping from the unlined parts to such an extent that the reason for the umbrellas and gum boots was not a mystery any more. We were told that the water seepage in this tunnel was at the rate of roughly 100 litres per second. In some other tunnels, the seepage has been as high as 500 litres per second. Pumps of 1400 HP capacity have been deployed for pumping out water from the tunnel. When the

Note the seepage of water and the need for umbrellas



Inside Tunnel No. 5

12-km. long Pir Panjal tunnel was being built (beyond Banihal towards Srinagar), the seepage was so high that at times you needed a boat to reach the site of excavation!

All tunnels that are more than 3 kms. long must have an escape tunnel. Tunnel No. 5 also has an escape tunnel of the same length. There is a connection between the escape tunnel and the main tunnel every 375m. While the cross section of the escape tunnel is 40 sq.m. that of the tunnel joining it with the main tunnel is only 23 sq.m.



Entrance to escape tunnel ▶

The next stop, where we spent the rest of the 23rd and part of the 24th of June, was the *pièce de résistance*, the amazing, picturesque and eye-catching bridge spanning the Chenab (Bridge No. 44). Nowhere near in length to the longest bridge of the Indian Railways being built across the Brahmaputra in Assam near Dibrugarh, in terms of challenges, obstacles and ultimate beauty, this span being built across the gorge through which the Chenab flows is in a class by itself. Just seeing the gorge takes your breath away. The fact that there are workers and artisans





Machinery for excavation



Safety board beyond which helmets must be worn

◀ Entering Tunnel No. 13

suspended three to four hundred meters above the ground doing work that is difficult to complete on solid ground proves, if any proof is necessary, of the dedication and tenacity of the workforce. A separate write-up on the bridge follows this article.

After experiencing the Chenab Bridge, there would appear to be nothing left to see. However, we visited Tunnel No. 13 and the site of Dugga station on the 24th. Both had characteristic features that only added to the challenges the project keeps encountering on a daily basis. There are times when new challenges get thrown up just as older ones were overcome.

Tunnel No. 13 is another long tunnel of 9.37 kms. As required for such tunnels, it also has an escape tunnel of the same length. The remarkable feature of this and Tunnel No. 12 (2.12 kms.) is that one of the stations on this line, Dugga station, is being built on a bridge between these two



Tunnel No. 12



Piers of Bridge No. 43



Light at the end of the tunnel



Dugga Station will be built over these piers

tunnels. There is a shallow valley between the two tunnels with a small ridge virtually at its centre. This ridge is being demolished to make way for the station. Piers for the line on which the station will be built are already being constructed. It was noted that all tunnels being built are designed for single line only whereas the Chenab bridge is being designed for a double line. The logic for this is that while an additional tunnel can be built without too much difficulty later when traffic increases, constructing another bridge of the type being erected now is too testing and demanding.

An interesting challenge came our way when driving back from Tunnel No. 12. A group of locals blocked the way. From what we could make out, they were demanding compensation for their lands and their livelihood that were being destroyed owing to the USBRL project. Thus, the terrain, the weather and the remoteness of the area are not the only threats that the engineers face; there are human obstacles as well.

Our last stop on the way back was the Bakkal end of Bridge No. 44. To get from the Kauri end to the Bakkal end is an

Closer look at the piers of Bridge No. 43



Welders at work inside the tunnel

hour's drive as you need to go down to the river bed level, cross the river and then climb up again. There is a viaduct at this end of the bridge as well. But while the viaduct at the Kauri end is part of the bridge, the viaduct at the Bakkal end is an independent entity designated Bridge No. 43. This is owing to the viaduct being a short distance away from the bridge and not contiguous with it. Bridge No. 43 is still under construction, the piers being built now.

We were all back on the Indian Railways network by the evening of the 24th of June to be on our way to our

respective destinations. A special mention must be made of the hospitality of the USBRL team. Whether it was meals or the stay at the USBRL Rest House at Bridge No. 44, we were as comfortable as comfortable can be. Thank you very much, all members of USBRL who made this visit one of the most memorable ones that members of the Rail Enthusiasts' Society have undertaken.

Photos: Courtesy various members of the Rail Enthusiasts' Society

USBRL Visit

Bridge No. 44

So, here we were! Eleven intrepid rail enthusiasts on the afternoon of the 23rd of June 2018, at the Udhampur-Srinagar-Baramulla-Rail-Link (USBRL) Project Rest House at the Kauri end (Banihal side) of Bridge No. 44 on the Katra-Banihal section of the Kashmir Rail link. The Rest House overlooks the viaduct that is part of the bridge and gives an excellent initial view of the chasm spanning which the arch of the bridge is being built. Everything and anything about Bridge No. 44 can only be described in superlatives. But before we do that, let us give a few facts and figures that will tell the tale of its current construction and what it will be like when it is ready for operations.

First, this is a steel arch bridge across the gorge of the Chenab River in the state of Jammu and Kashmir. Starting from Jammu station, this is the 44th bridge but by far the most striking and spectacular as well as an engineering marvel. Not a very long bridge, its 1315 meters is spread

over 17 piers and a massive arch. From the Kauri-end, it starts with a viaduct 530m in length. The arch itself is 467m in length. The piers include steel as well as concrete ones, the highest steel pier being 132m in length while the highest concrete one is 49m. The other side, the Bakkaal end, has Bridge No. 43 which is a viaduct similar to the viaduct that is part of Bridge No. 44 but unlike the latter is at a short distance away and not continuous with it. Hence, it is a separate bridge.

What Bridge No. 44 lacks in length is made up by its height. The centre of the arch is a stupendous 359m above the river bed level. This is 35m more than the height of the Eiffel Tower in Paris and almost 5 times the height of our own Qutb Minar. This makes it the highest railway arch bridge in the world, the 2nd and 3rd (both in China) being 310m and 275m high. A graphic in the photo-feature that follows this write-up leaves no doubt of the bridge's height.

The group of eleven. Person (2nd from left) is part of the project team and not a member of the society group

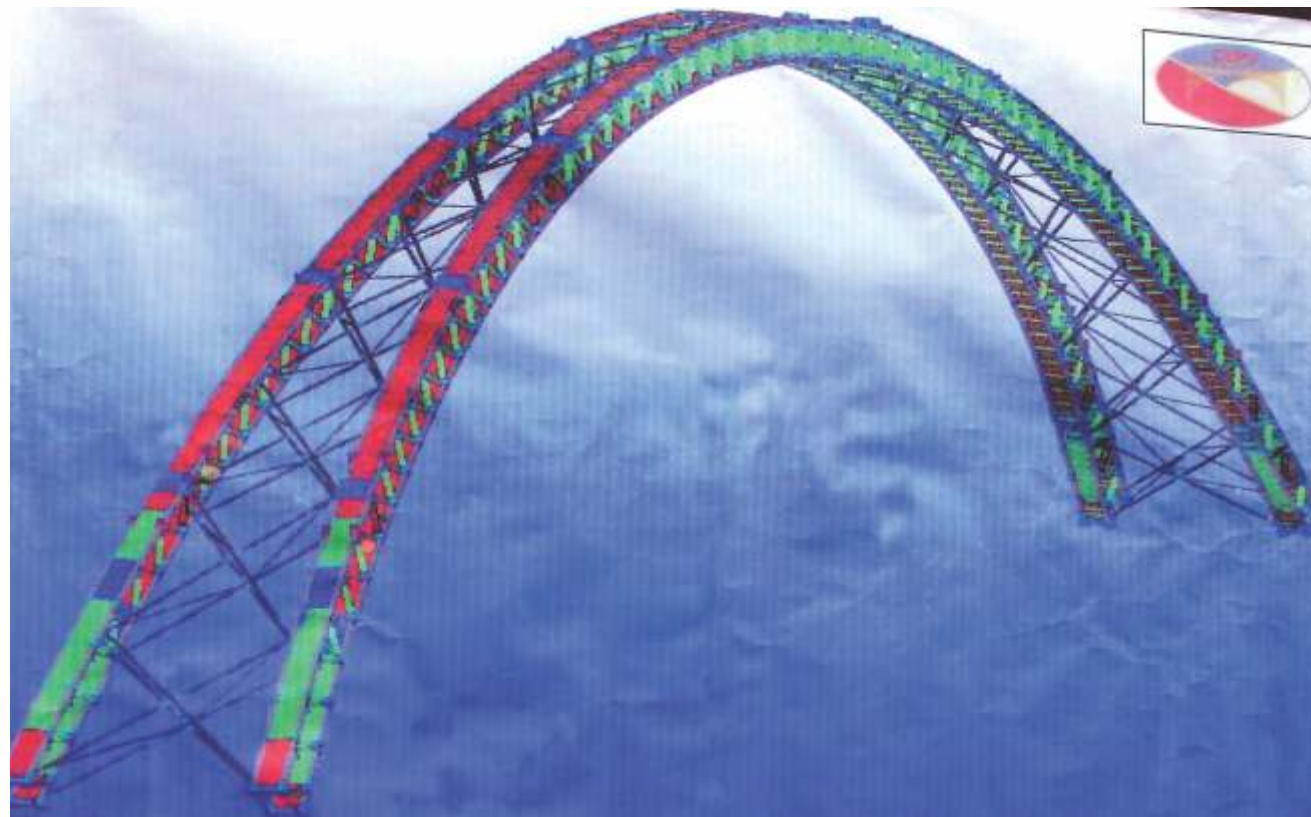


A model of one of the steel segments of the viaduct

End of the curved viaduct. Steel pylons for the travelling crane are at its end



Standing in the circulating area in front of the Rest House, the 530 meters of the viaduct covered our entire field of view. Looking to the left, we noted that the viaduct ended in what looked like a workshop. We learnt later that segments of the steel base of the viaduct had been launched from this blue-roofed workshop. Looking to the right, we could see the end of the viaduct from where the main arch over the river's gorge would start. At the end of the viaduct we could see a steel pylon well over 100m in height. We were told that it is actually 127m, virtually double the height of the Qutb Minar, which is a mere 72m high. There is a similar pylon at the other side of the river and cables to support a travelling cable crane have been strung across these pylons



A 3-D sketch of the bridge arch

to facilitate construction. The pylons are placed 915m apart, the longest for any such travelling cable crane in the world. Two travelling cable cranes can move between the pylons, each with a capacity of 20 T. Together, the two cranes can lift and move 40 T of material in one go. You can see pictures of this crane in the photo-feature referred to in the last paragraph. Thus, material for the arch will be suspended from a height of roughly 450m above the river bed. The engineers, artisans and workers on their part will be working at a height of around 350m. Even a minor slip will be fatal. As a standard precaution, any person – artisan, engineer, inspector or a visitor like us – must wear a protective harness that is then hitched onto one of the solid structures on which the work is being carried out. It goes without saying that items like safety helmets are a must. Simply looking at the pylons for the cable crane tends to cause vertigo; those working at these dizzying heights would need hearts as strong as the special steel that is going into the fabrication of the bridge components, to be able to remain suspended at this height over long periods.

The accompanying engineer told us that there are many firsts with regard to this bridge: for instance, the bridge has been designed to withstand a blast load in consultation with the Defence Research and Design Organisation (DRDO). In addition, sufficient redundancy is being built

into the design such that even if one pier is removed, the bridge will not collapse and can keep working at a restricted train speed of 30 kmph. It will also be fully repairable. Further, the bridge is being erected to withstand seismic forces that are likely in Earthquake Zone V, the highest in the country, although the area falls in Zone IV only.

As we stood in front of the Rest House, strong gusts of wind buffeted us. We were told that high velocity winds are common in the area. To ensure that the bridge can withstand the powerful draughts, wind tunnel tests have been carried out by Norwegian consultants on the terrain model, full bridge model, bridge deck and arch models. The bridge can face a maximum wind speed of 266 kmph as a result of these tests. This is well above the highest wind speeds recorded in the area.

Even if we do not take the precipitous mountainous terrain into account, the location is remote and in the wilderness. To get to the site and for carrying men and material, USBRL has built 22 kms. of roads for this bridge alone apart from about 180 kms. of more roads for the other work that they are doing at diverse sites of the project. We travelled on these roads to get to the bridge: these are not make-shift temporary roads – they are good roads that will be a boon to the local population well after the bridge is ready and the construction teams have returned to their bases.



The stabilized slope on which the arch foundation rests



Start of the arch at one end of the bridge

Soon after arriving, we were invited to attend a presentation of the bridge by the constructing agency, Chenab Bridge Project Undertaking (CBPU), a Joint Venture between AFCONS, ULTRA and VSL. Among the information given to us was that the bridge is located 49 kms. from Katra, a little upstream from the Salal dam on the Chenab. In fact, we had got a good view of the Salal dam on the way to the bridge. The bridge will have a carriageway of 14m, good for a double line track. Its designed life is 120 years. It has Tunnel No. 6 at the Kauri end and Bridge No. 43 at the Bakkal end. Bridge No. 43 ends at Tunnel No. 5.

The next morning, we visited the Kauri end of the bridge where work on the arch has just started. To get to this location, we walked over the curved viaduct that is already ready. The carriageway comprises of fabricated steel segments, a model of which can be seen in the picture on page 17. We understood that launching of such segments onto a viaduct that was partly straight and partly curved has not been attempted before in India. The curve itself, 2.74° at its sharpest, is also not uniform and involves a transition curve as well. Special techniques needed to be evolved to

Worker atop the arch



Applying protective paint

manage the launching of the segments. This has been successfully completed.

Standing on one side of the chasm that separated us from the opposite end of the bridge, we could see that work on the arch had been taken up simultaneously from both ends. We were also informed that the slopes at the two ends on which the arch bridge has its foundations could crumble





General view of the workshop at the Bakkal end

and have landslides. Thus, before the work of the arch foundations began, the slopes have been stabilised by rock bolting and other means. The rock bolts themselves are 11 meters long and 32 mm in diameter.

The bridge is ultimately a steel fabrication made up of welded segments and components. Thus, not only is high quality steel required but the welds have also to conform to the highest standards. Most of these segments and components are being fabricated at site itself. For this, two workshops have been set up at the Kauri end of the bridge, one for the manufacture of the viaduct segments and part of the arch fabrications. Another workshop at the Bakkal end is manufacturing the arch deck segments. Between them, these workshops will complete about 21,000 MT of fabrication. To meet the entire requirement, about 6,000 MT is being outsourced from WIL, Nagpur and AIML, Rajpura. We visited the workshops at the Kauri end and the workshop at the Bakkal end. The latter was visited during our return journey to Katra on the 24th. This is when we also visited Bridge No. 43.

To ensure welds of the highest quality and conforming to specifications and requirements, a site laboratory duly accredited to the National Accreditation Board for Testing

and Calibration Laboratories (NABL) has been set up. This is the first such accredited laboratory on the Indian Railways. NABL is an autonomous society providing accreditation (recognition) in all major fields of science and engineering. It has mutual recognition arrangements with Asia Pacific Laboratory Accreditation Cooperation (APLAC), Mutual Recognition Arrangement (MRA) and International Laboratory Accreditation Cooperation (ILAC).

The accompanying pictures and those in the Photo-feature that follows this write-up will convey the kind of work that is being done in connection with this bridge better than anything that can be written. As they say, it is better to see a thing once than to hear or read about it many times. We were fortunate to be able to actually see the project not after it is complete but in the process of being built and given shape.

The bridge is expected to be ready by end 2019 or early 2020. However, the line itself will not be operational before 2021, thus finally linking the Kashmir Valley by rail to the rest of the country. This will be a red-letter day in the history of rail development in the country as the last large area is brought onto the rail map.

Photos: Courtesy various members of the Rail Enthusiasts' Society



Sheets being gas cut to produce components for the arch



Final grinding

Photo-feature

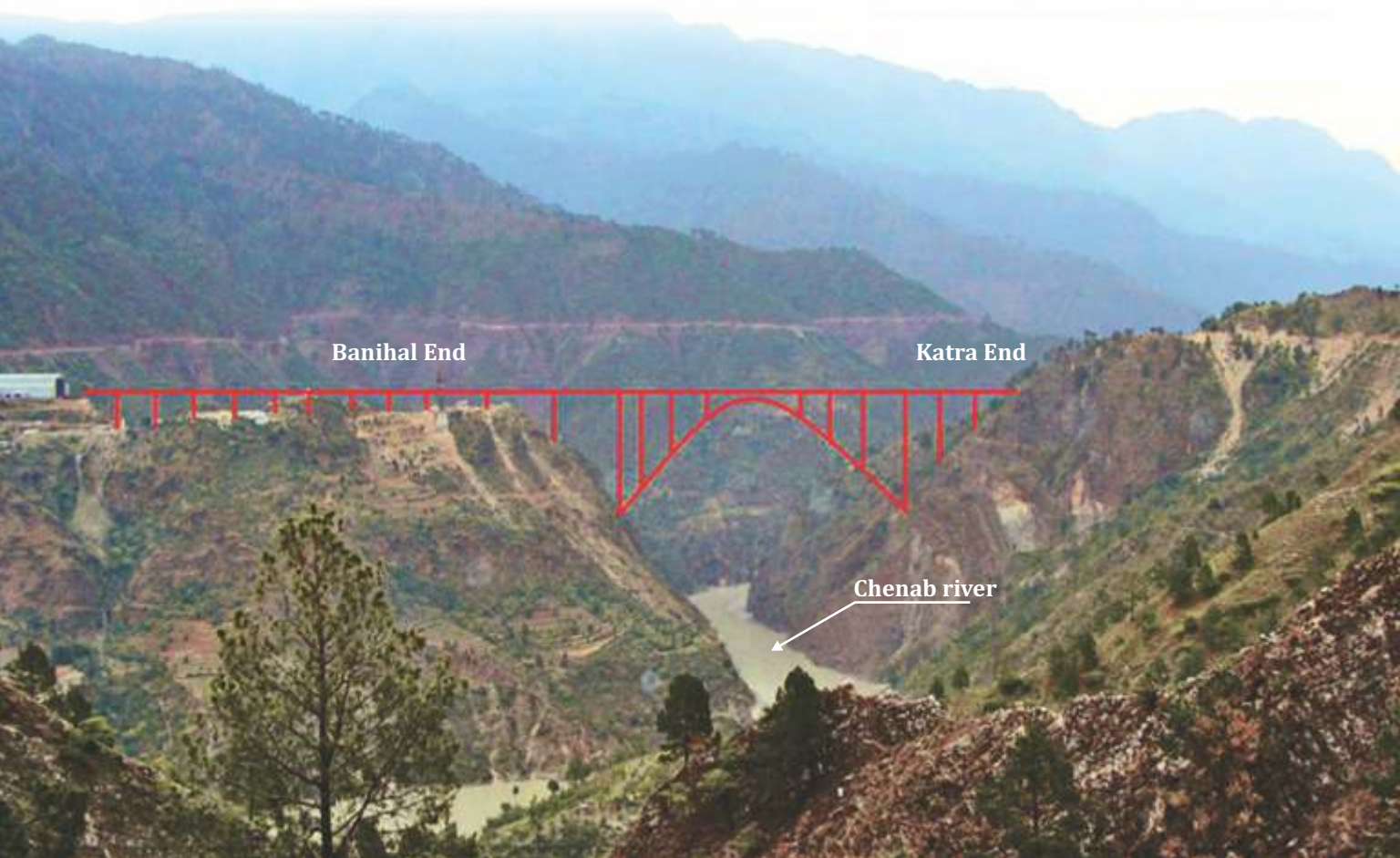
Chenab Bridge Revisited

There is beauty...
There is natural beauty...
There is rugged natural beauty...

On this rugged naturally beautiful terrain, the Udhampur-Srinagar-Baramulla-Rail-Link (USBRL) Project is superimposing an artificial structure – Bridge No. 44, the steel arch bridge over the mighty River Chenab. A manmade eyesore, you may well ask? Not Bridge No. 44. This edifice of steel is beauty in its own right – structural beauty, engineering beauty, beauty that is blending with the inherent charm and grace of the craggy landscape. As beholders, we accepted that this is not mere engineering: it is a work of art.

We bring you a pictorial tribute to the construction of a bridge that is as striking as the landscape in which it is being built. We had brought you pictures of this bridge being built over the Chenab in our last issue as well. The photographs on the following pages complement them and provide details that were not visible earlier. The bridge is still under construction but its symmetrical, streamlined and sublime beauty is simple and straight-forward to contemplate.

All photographs are from the archives of the Rail Enthusiasts' Society, except the conceptual drawings and diagrams which are reproduced courtesy USBRL.















Railways in other Lands

Flying Trains in China

V M Govind Krishnan

On July 1, 2011 a new high speed rail link was opened for commercial use between Beijing and Shanghai. This link cut the journey between the two cities to 4 hours and 45 minutes while regular overnight services took around 11 hours. The Beijing-Shanghai flight takes about 2 hours. But travel to the airports is in itself time-consuming and the busy air route is often subject to delays and cancellations, making train travel an attractive option. The Beijing-Shanghai high-speed railway is the world's longest high-speed line ever constructed in a single phase and is today the most profitable high speed railway in the country.

China has invested heavily in its high-speed rail network, which reached 8,358 kilometres (5,180 miles) at the end of 2010 and had surpassed 20,000 kilometres by 2016. It has a target of adding another 10,000 kilometres by 2020 and surpassing 45,000 kilometres by 2030. High speed trains on



Economy class ticket

the 1,318-kilometre Beijing-Shanghai route have carried over 600 million passengers since the line was launched in June 2011. China has put over 2,500 high speed trains into operation till 2016, accounting for 60 per cent of such global trains.

Photo Captions

Page 24	General view of the bridge. The viaduct is visible on the left	Page 32 (Bottom-right)	Even with the arch just starting, the workers are already at a great height
Page 25	A pictorial representation of the height of the arch	Page 33 (Top)	Rock bolting for slope stabilizing
Pages 26-27	Looking downstream it can be seen that the arch is being built from both ends simultaneously	Page 33 (Bottom)	Three steel piers sandwiched between pylons for the travelling crane and the foundation for the main arch at the Bakkal end
Pages 28-29	The completed viaduct and the settlement that has come up around the bridge	Page 34 (Top-left)	Kauri end slope seen from the opposite end
Page 30	End of the viaduct leading into the AFCONS workshop	Page 34 (Top-right)	In full harness, ready to climb up the arch
Page 31 (Top)	The other end of the viaduct	Page 34 (Bottom)	General view of Bakkal end with the workshop in the centre
Page 31 (Bottom)	On the way to the end of the viaduct	Page 35 (Top)	Cable crane pylons with 2 20-Tonne cranes at the end of their travel
Page 32 (Top)	One leg of the arch from the Kauri end	Page 35 (Bottom)	Travelling crane moving along the cables
Page 32 (Bottom-left)	Viewed from the Kauri end, the start of the arch from the Bakkal end can be seen	Page 36	Cable cranes working in tandem with a single load

Back Cover : Picture taken on 21st July 2013 by Sandeepan Mukherjee from Sealdah Station Outer Signal. The train is a down Bongaon Local in all probability.



To experience the journey aboard a Chinese bullet train is a must for any visitor to China and this is just what I did on my recent visit. On reaching the sprawling oval-shaped Beijing South (Beijingnan) railway station and buying a 553 Yuan (around Rs. 5500) economy class ticket for Train No G17 departing at 3 p.m. for Shanghai, I proceeded for a mandatory ticket-cum-security check at the designated gate marked on the ticket. The platforms are located below this level and because the train departs exactly on schedule with the doors closing automatically just before the train moves out, rail enthusiasts are advised not to wander about on the platform lest they be left behind. The carriages bore the word “Momchilovtsi” on the exterior, to mark the dairy festival in a village with the same name in Bulgaria's scenic Rhopode Mountains: the Chinese company “Bright Dairy” has been producing Momchilovtsi products for seven years now and is the organiser and sponsor of the festival.

Seating in the economy class carriages is 3 by 2 on comfortable seats with ample leg room; the internal appearance is similar to the Shatabdi express carriages on Indian Railways with open luggage racks on the sides above the seats. Train hostesses check the placement of luggage on the rack to ensure that it does not protrude beyond the edge of the rack and pose a danger to co-passengers. Television sets slung on the roof blare Chinese fare to entertain the passengers, and snacks and beverages are vended for a price by hostesses pushing trolleys. Language barriers do exist; it is a bit difficult to make the hostess understand what you wish to purchase. Help from others aboard, who were conversant with English, was sought.

The journey at 305 km/h was very smooth and free from the moderate jerks and swings normally noticed on trains at much lower speeds on Indian Railways. The wide windows afford a magnificent view of the rural landscape. Passing high-speed trains on the elevated parallel track vanished in a blur with a slight jerk felt due to wind buffeting the carriage as the other train sped past. During the journey, passengers can work on their laptops or listen to music or enjoy the scenery from the air-conditioned carriages. Better still, they have the option of moving into the more roomy dining area. The secret is to buy a pot of green tea, costing around 80 Yuan (around Rs. 800). Many say this is not a heavy price for accessing a prized location, which has plenty of food and drink to offer, along with a cushioned seat, as well as a table — all ingredients of a perfect work station. My video taken from the CRH train can be viewed on the link: <https://youtu.be/3VUGlpD6eAM>

Arriving six minutes ahead of schedule at Shanghai Hongqiao station, all passengers moved upstairs to the



F&B service aboard bullet train

Train	To	Departs	Gate	Status	Train	To	Departs	Gate	Status
C2231	天津	17:00	22	候车	G289	合肥南	18:35	9	候车
G153	上海虹桥	17:15	11	候车	C2085	天津	18:40	22	候车
C2079	天津	17:23	21	候车	C2087	天津	18:52	23	候车
G199	青岛	17:25	10	候车	G7	上海虹桥	19:00	7	候车
C2233	天津	17:31	23	候车	G1567	商丘	19:05	17	候车
G267	合肥南	17:38	12	候车	C2089	天津	19:06	20	候车
G157	上海虹桥	17:43	8	候车	G207	徐州东	19:10	10	候车
C2081	天津	17:45	19	候车	C2239	天津	19:26	22	候车
C2235	天津	17:52	18	候车	D313	上海	19:34	5	候车
G201	南京南	18:05	11	候车	C2091	天津	19:42	19	候车
C2813	天津西	18:06	22	候车	G333	济南西	19:52	11	候车
G8917	唐山	18:10	10	候车	C2093	天津	19:54	20	候车
C2083	天津	18:14	20	候车	G205	南京南	20:00	16	候车
G331	济南西	18:18	7	候车	C2095	天津	20:08	18	候车
C2591	于家堡	18:22	21	候车	C2241	天津	20:15	15	候车

Part of the train schedule display at Beijing South

large and spacious exit hall. From here one can move outside to the car park or take a metro train to the city. For those taking a flight, the Shanghai Hongqiao International Airport (SHA) is located just next to the railway station and accessible via a passage through the station building itself. The other main airport at Shanghai is the Shanghai Pudong Airport (PVG) which is accessible by metro, by road and also by a 7-minute high speed ride at 430 km/h on Shanghai Transrapid Maglev train. These trains operate early morning and late night, for safety reasons I am told. On my departure, I chose the last option to experience the smoothest and fastest journey between Shanghai Longyang Road station and Pudong Airport – a ride of around 32 kms. costing 50 Yuan which touched 431 km/h. Shanghai Metro trains also run to this airport from central Shanghai and from Longyang Road; the metro is a much cheaper option. Maglev trains glide about 100-115 mm above the track after attaining a speed of 150 km/h. It is a must to enjoy and experience this, the world's fastest train



Speed attained by Maglev train

in regular commercial service since its opening in April 2004. Of course, it was another matter that the flight on which I was to leave the city was inordinately delayed by over 4 hours giving me enough time to explore the vast airport!

While on a visit to the well-nown Great Wall of China outside Beijing, I was lucky to spot a slow moving Diesel Multiple Unit train comprising seven carriages and an engine at each end of the rake moving on the winding track through hills on a mild gradient towards Beijing. I captured the view on a video from atop the famous Great Wall; the video can be viewed on the link: <https://youtu.be/OzpCM9XHk0I>

China's high-speed network has been connecting the country's political and economic heartland with its border extremities, such as Urumqi in Xinjiang in the West and Kunming in Yunnan towards the South-West. Everything else in-between has been threaded into this dense and rapidly mushrooming network of 22,000 kms. — certainly

The author in front of the Shanghai Transrapid (Maglev) to PVG airport



the biggest in the world. Recently, China's high-speed technology crossed another threshold following the inaugural run from Beijing to Shanghai of the Fuxing train. Fuxing (or Rejuvenation) is the first entirely China-developed high-speed train. Fuxing trains are capable of clocking 400 km/h, and will gradually replace the Hexie (or Harmony) bullet trains when they are retired after a 30-year life span. Two Fuxing trains operated between Beijing and Shanghai with passengers for the first time on June 26, 2017, departing at the same time of 11:05 a.m. from Beijing and Shanghai respectively. Although the trains can go faster, there are currently no plans to change the running speed of 300 km/h, according to the China Academy of Railway Sciences, but from September 2017 plans are afoot to run bullet trains from Beijing to Shanghai at higher speeds to cover the journey in 4 hours and 30 minutes. Other routes would be added subsequently. An estimated US Dollar 360 billion has been spent on this, the largest high speed rail network in the world.

About the Author: The writer, a freelance photo-journalist, is a member of the Rail Enthusiasts' Society and IRFCA. He has also written a book titled “NMR (Nilgiri Mountain Railway) – From Lifeline to Oblivion”. He can be reached at vmgovindkrishnan@gmail.com

All Photos courtesy the author.

Heritage

Nilgiri Mountain Railway

V M Govind Krishnan

A train chugs up the rack towards Coonoor

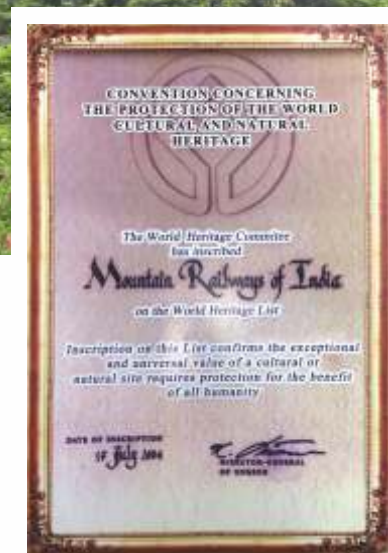
The 46-km. Nilgiri Mountain Railway (NMR), a UNESCO World Heritage site, is now in its 120th year (119th birth anniversary on the 15th of June 2018). But all is not well with this only Meter Gauge hill railway in the country. In spite of 7 steam locomotives now available, only a single solitary passenger train runs the entire route from Mettupalayam to Udagamandalam (Ooty). Even this train is invariably late. To add to the disappointment of steam buffs and the general rail enthusiast tourists, steam powers the train only for the 27 kms. till Coonoor. The last 19 kms. from Coonoor to Ooty are covered by a YDM4 class diesel. Of the 7 steam locos now available, 3 are vintage Swiss-built engines, while 4 new oil fired steam engines have been built in India by Golden Rock Workshop of the Indian Railways (IR) at Tiruchirapally. These are all equipped to work on the 20-km rack route between Kallar and Coonoor.

It will not be out of place to mention that the Salem Division of the Indian Railways that is responsible for operating this section, has consistently refused to operate more trains on the Mettupalayam-Coonoor section, citing safety concerns and the presence of wild elephants. In the 1960s, there were three pairs of passenger and three pairs of goods trains running on the rack section of NMR. Goods trains ceased to ply from 1982 when road transport of freight took over. However, in recent months, all mountain rail lines in the country are once again in the spotlight and efforts are on to improve and develop them with a view to cater to high-end tourism and to provide a quality service.

For instance, during the summer season in 2018, a "Heritage Steam Voyage" tourist train was introduced to run on weekends between March 31st and June 24th, running from Mettupalayam to Coonoor and back on the rack railway route. Fares, however, were high – Rs. 1000 for 1st and Rs. 800 for 2nd Class. One more such train was run for a short duration from Ooty to Ketti and back, hauled by a diesel locomotive. Initially, there was a good response to these trains, but subsequently, towards the end of the season, patronage was minimal on both. On these trains, passengers were served packed snacks and presented with a brochure on NMR.

Concerned citizens also organised a clean-up exercise through a band of school students from Timber Tops School, Coonoor. It was planned that on June 14 2018, trash would be picked up along the railway track at Coonoor station. The original plan was to trek along the rack-railway to pick up trash between Coonoor and Runneymede stations as well to increase awareness of the risk of polluting the terrain on the forested route. Unfortunately, the plan was shelved due to heavy rain on that day.

It is necessary that the romance of this hill railway is ignited once again. The 'Nilagiri Passenger' train on this route



covers a distance of 46 km (28.6 mi), travels through 208 curves, 16 tunnels and 250 bridges. The journey provides spectacular views of the Nilgiri Hills. Even without the unique rack portion of the line, the experience is definitely worth the effort. You start the journey at Mettupalayam, 1,069 ft (325.8 m) above sea level. There is a small locomotive shed here and also the carriage workshop for the line. A museum for NMR has been set up in a closed coal yard. Leaving Mettupalayam, the line is adhesion-worked and actually drops for a short distance before crossing the Bhavani River, after which it starts to climb gently. The second station is Kallar, 1,260 ft (384 m). This station is closed for passengers but is a watering halt for the steam engine. The rack railway begins here as the gradient is now a steep 1 in 12.50 (8.33%). The next station, Adderley, 2,390 ft (728.5 m), is also closed for passengers and is another halt for the watering of steam locos.

At Hillgrove, 3,580 ft (1,091.2 m), the next halt, refreshments are available for passengers. This is another halt for watering of the locos. Climbing up to Runneymede, 4,612 ft (1,405.7 m), the air is distinctly cooler. Again, this is only a water stop. Soon after passing Tunnel No. 13, we cross Kateri Road, 5,070 ft (1,545.3 m). Trains do not stop here at all as this goods station was shut long ago.

Soon, we are at Coonoor, 5,616 ft (1,711.8 m), 27 kms. from the start. This is the main intermediate station on the line and site of the locomotive workshop as well as the top end of the rack railway. Trains must reverse a short distance before continuing their climb to Ooty. Since 1995, steam has been replaced here by diesel traction for all trains. In

Hopper wagons at Coonoor



A view of Coonoor station

the era of steam, a single steam engine powered the train on the entire 46-km route.

Having climbed to more than 5000 feet, it is now very pleasant. We pass Wellington, 5,804 ft (1,769.1 m), Aravankadu, 6,144 ft (1,872.7 m), Ketti, 6,864 ft (2,092.1 m) and Lovedale, 7,694 ft (2,345.1 m). At a short distance beyond Lovedale after passing Fernhill (a long closed station, now a Railway Officers' Guest House), the line enters the last tunnel (No.16) and descends toward Udagamandalam/Ooty, 7,228 ft (2,203.1 m).

Hopper wagons were never seen on the Nilgiri Railway, but in 2016 two such metre gauge wagons were seen at Coonoor, with additional fitments of a hard bench, pressure gauge and a hand-brake. In 2017, one more such wagon was parked at Coonoor. However, these wagons are yet to be used on the line. A report in the press also indicated that Integral Coach Factory in Chennai is likely to build a new air-

conditioned coach for NMR similar to the one now plying on the Darjeeling Himalayan Railway. Presently, all the coaches in use on NMR have re-built bodies on vintage chassis. A rubber-bulb truck horn was in use on the leading carriage of the train on the uphill run till 2006 but has now been replaced by a battery-run screeching horn to disperse animals and people on the track.

As mentioned at the start, the fleet of steam engines available for use on the rack railway line are 7, namely three Swiss-built – X-37384 (still retained as coal fired but sparingly used), X-37391 and X-37392 (both converted to oil firing at Tiruchirapally); and four India-built oil fired steam engines numbered X-37396, X-37397, X-37398 and X-37399. Of these, Swiss engine X-37391 was completely refurbished by Golden Rock Workshop in 2015 after being out of service following a fire mishap near Coonoor on September 1, 2010. It is learned that the manufacture of two new steam locos is being taken up by the Golden Rock Workshop, Tiruchirapally. One will be coal fired and the other on oil.

As for the YDM4 class diesel locomotives, used only on the non-rack adhesion line between Coonoor and Udagamandalam, four such engines are parked at Coonoor and a new shed for maintaining them has been built in the yard near the Steam Loco Shed. As good quality coal is not available, the vintage Swiss-built steam engines were

Motive Power Depot, Coonoor



The mounted exhibits at Udagamandalam station

converted to run on furnace oil from the early 2000s, till four more new oil fired engines built by Golden Rock Workshop joined the fleet from 2011-2014. Subsequently, the engines built by Schweizerische Lokomotiv und Maschinenfabrik (SLM) at Winterthur, Switzerland, were gradually retired from service following frequent incidents of lack of pushing power on the uphill runs, and have become exhibits. Presently, the engine crew comprise personnel trained to operate both steam and diesel engines.

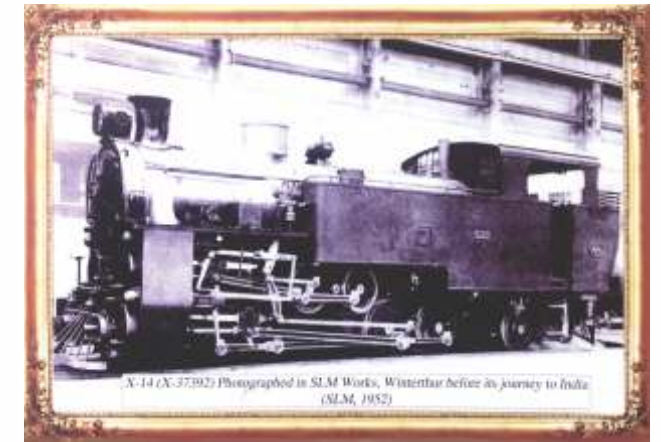
Thankfully, the vintage Swiss-built steam engines

withdrawn from service, have been saved from becoming scrap-metal and are now exhibits at various locations. X-37390 has been relocated in November 2017 from its earlier mount in front of Coonoor station to a new location inside. As a result, it is not visible to those driving along the main road! X-37386 is mounted opposite the platform at Udagamandalam station; X-37393 is an exhibit at Perambur; X-37395 at the Railway Museum, Tiruchirapally; and X-37389 at the entrance to Coimbatore station. X-37385 is on display at the National Rail Museum in New Delhi. Apart from locos, two old wooden composite carriages used on NMR are displayed, one at Ooty and the other at Ketti station.

Although a museum for NMR had been opened in a disused coal yard at Mettupalayam station in October 2015, one more museum has been set up in a room at Udagamandalam station on June 14, 2018 displaying vintage photographs, lanterns, leather pouch for ball tokens, a loco-pinion wheel and other equipment used on the line in the recent past.

In a bid to transform NMR into a financially independent body, the Southern Railway zone has created a dedicated heritage team. This team, comprising of three officials, has been entrusted with the responsibility of mobilising and marketing NMR traffic. "The return through passenger traffic was only 10 per cent of operational costs. The remaining expenses are borne by the railways. The NMR train operation would be made financially independent," opined a senior railway official. In addition to this, a Senior Mechanical Engineer/Heritage has been posted at the Zonal headquarters.

This hill route remains a tourist attraction in spite of all its travails. NMR trains in both directions are operated with full complement of passengers throughout the year. Particularly during summer, it is nearly impossible to get



tickets for the train. To enhance passenger traffic and to make it financially independent, the Indian Railways is planning to improve the services with new coaches and well maintained steam engines.

It is hoped that this World Heritage site does not slide into oblivion.

Photos: Courtesy the author, except the last two, which are courtesy Ravi Kochak



Mr. Bob Hill, Station Master, Ooty From 1909-30. The Photograph decorated the Present Station Master's room of over half a century.

Steam Preservation

Puffing Billy

Ashok Sharma

The story of the 'Puffing Billy' Railway began on the 18th of December 1900. This 29-kilometer single track railway line from Belgrave to Gembrook in Australia was constructed on a 2' 6" (762 mm) gauge in the remote area of picturesque Dandenong Ranges, 40 kms East of Melbourne in the state of Victoria. Its primary objective was to provide access to farmers of this underdeveloped region to the lucrative markets in Melbourne for their farm products and timber. Today, it has been developed into one of the best examples of steam locomotive preservation and successful rail tourism.

After more than ten decades of continuous working, by the middle of the last century, losses began and started mounting. To add to this, another disaster struck! In the year 1953, due to a landslide, the line suffered major damages and was officially closed by the Victorian Government in 1954.

The railway would have disappeared from the scene but for the sustained efforts of some die-hard Puffing Billy fans. They formed the Puffing Billy Preservation Society on the 8th of June 1955 with 45 members and took upon

Entering Menzies Creek station



Lubrication company taking advantage of the Puffing Billy to advertise

themselves the daunting task of keeping trains running regularly on this railway. After serious negotiations, the authorities agreed to reopen the line on trial for three months. The Society managed this primarily by arranging enough funds to provide a guarantee against any losses to Victoria Railway (VR) on account of insufficient ticket sales. The initial guarantee money that was raised amounted to £ 1750. This was sufficient to begin and within two months



Puffing Billy passing over the Monbulk Creek trestle bridge

The author in front of Loco No. 8A



of reopening around 10,000 passengers travelled on the Puffing Billy Railway, making the operation a resounding success. Till 1958, the Society operated on the usable track from Upper Ferntree Gully to Belgrave.

At this stage, VR decided to close the working section of the Puffing Billy on account of conversion to broad gauge and electrification. Although faced with imminent closure, the

Puffing Billy Preservation Society did not concede defeat. Till this time, members had acted as "safety officers" and were involved in promotional and fund raising work. They now decided to get directly involved in the process of construction and track work under supervision of VR and started work to bypass the landslide section to open a new route. The passion and dedication of the society volunteers received the blessings of VR and the Citizen's Military Forces. The first leg of the line from Belgrave to Menzies Creek was completed in 1962. Narrow-gauge train services were resumed in stages, finally reaching Gembrook in 1998.

From humble and limited beginnings, the Puffing Billy Preservation Society has grown from strength to strength and today has around 1000 dedicated volunteers and roughly 70 paid specialists. The volunteers play their role as Station Masters, selling and checking tickets, doing non-safety but critical maintenance on the trains and track supervision under the guidance of VR gangers. Every volunteer has a unique story of his love for the Puffing Billy

train. My friend, Tony Harris, is one such aficionado. Although he lives in Adelaide, he drives down more than 770 kms. to Melbourne in his own car to act as a co-pilot and fireman on the toy train purely as a volunteer a couple of times each year. The Puffing Billy team has in house training facilities to impart the necessary skills to both experienced and aspiring volunteers.

The Puffing Billy heritage railway is restored and maintained in its original form to give visitors an authentic taste of the Era of Significance from 1900 to 1930. The colour and design of the locomotives, carriages and railway station buildings as well as the uniforms worn by the volunteers represent the good old days of steam.

Owing to the fact that fans' interest in the toy train surged unabated and operations were a resounding success, the Victorian Government was propelled to pass the Emerald Tourist Railway Board Act in 1977 and set up the Emerald Tourist Board as a statutory Board to take over ownership and operations of the railway from VR as the latter was not into the preservation business. This decision proved to be a boon that pushed Puffing Billy on to a secure track to lasting success.

Puffing over a trestle bridge



Loco 8A ready to leave



With Ron Benneth, a member of the Darjeeling Himalayan Railway Supporters Association based in Sydney



A sign board at Gembrook station

The rolling stock fleet of the railway comprises of five (Nos. 6A, 7A, 8A, 12A, 14A) restored and one unrestored (3A) 2-6-2T NA class steam locomotives and one G class (G-42) locomotive. The NA locomotives were manufactured between 1899 and 1917. 6A is the oldest locomotive (built in 1901) in Australia that is still working. The carriages consist of 15 NBH open-sided carriages built specially for tourist traffic on the Gembrook line between 1918 and 1919 by VR and another 10 built later to the same or similar design.

They also have a number of closed carriages, both Saloon and Compartment Cars, obtained from Mount Lyell Railway in Tasmania after its closure in 1963. These carriages were named Mount Lyell, Double Barrel, Rinadeena and Teepookana, to reflect their Tasmanian heritage, and are now used as First class carriages primarily on the Luncheon Train and Dinner Train Specials.

The Puffing Billy operates daily, except Christmas day, a minimum of three services and up to six services every day. A full return journey from Belgrave to Gembrook costs Australian Dollars 75 for an adult and Dollars 38 for a child (4-16 years). For a family, a bargain ticket for two adults and four children is Dollars 150. The cost for meals on the



Cameras click as Loco No. 6A gets ready

Puffing Billy is Australian Dollars 79 for Natter Platter and Dollars 103 for a three course lunch or dinner.

The Puffing Billy is one of the world's finest preserved steam railways and is located only 40 kms. from Melbourne, about an hour's drive from the city. Perhaps the most loved narrow gauge railway in Australia, it makes for an enjoyable day trip for visitors. It is popular among children and oldies alike and a must-visit for railway enthusiasts. In the specially designed open-sided carriages, children are allowed to sit on the window ledge and dangle their legs outside to have

fun. Unfortunately, this arrangement is presently suspended owing to an accident involving a mini-van carrying tourists with the Puffing Billy in March 2018.

There are three trestle bridges on the line. When the train screeches and whistles as it traverses the most famous wooden trestle bridge over the road on Monbulk Creek, children go delirious with excitement. The excitement is enhanced as the bridge has been built on a curve. There is even a "Friends of the Trestle Bridge", a non-profit group, committed to caring for the Monbulk Creek heritage wooden bridge. It also looks after the lower Clematis Creek valley and its environment.



With the crew of locomotive 6A



Passing Gembrook station

Note the semaphore signal



The journey takes three fun-filled and exciting hours passing through picturesque scenery at a leisurely maximum speed of 24 kmph. There are 10 stations on the line. A Steam Heritage Museum is under construction at the Menzies Creek station.

The Puffing Billy is one of the few narrow gauge railways in the world that makes a profit. In its success story, there is a message for the Indian Railways to recognise its own steam heritage assets and focus its efforts towards using these resources for the mutual benefit of the railways themselves and to rail tourism.

About the Author: Ashok Sharma (Real India Journeys) is a member of the Rail Enthusiasts' Society. He can be reached at rtci.ashok@gmail.com

Photos: Courtesy Amit Sharma

Rail Trip Report

Bilimora-Waghai Narrow Gauge Line

Harshad Joshi

For quite some time, it was my wish to cover two Narrow Gauge Lines – Miyagam Karjan-Dabhoi and Bilimora(BIM)-Waghai(WGI). One fine day I got to know that the Miyagam line would be closed soon along with many other Narrow Gauge lines across the country. Hence, I decided to at least travel at the earliest on the BIM-WGI line before it met the same fate as other already closed sections.

Finally, on Saturday, the 18th of August earlier this year, along with fellow rail enthusiast, Khurshed Lawyer, I started off early from Mumbai by 22953 Gujarat Express up to Bilimora. 22953 is scheduled to reach BIM by 09.35 hrs. The connecting 52001 BIM-WGI Passenger leaves at 10.00 hrs. which meant that we had almost 25 minutes of spare time. 22953 had a slightly long halt at Valsad (probably for a crew change) and we reached BIM approximately 5 to 7 minutes behind the usual schedule. En route, we had a magnificent view of the Vaitarna river as our train passed over the bridge with the same name. We were overtaken by 12009 Ahmedabad bound Shatabdi Express at Umbergam Road, as slated and timetabled.

The moment we got down at Bilimora, we made a quick dash to the ticket counter and headed to the Narrow Gauge platforms on the other side. The rake was already stabled on the platform with its locomotive attached. After some

The stations were ramshackle and run down



We were surrounded by pleasant greenery all around us

quick photography at the station, we made it inside the coach by 9.55 and bang at 10 a.m., our power ZDM-5 #503 (Pratapgarr shed based diesel locomotive) started off our train with a long whistle.

BIM-WGI follows a 'One Train Only' system of working. Our train cruised through the tracks at about 30/35 kmph which is perhaps the maximum permissible speed of this section. There were numerous Caution Orders of 10 kmph en route. The same consist of the locomotive and the train rake does a total of four services in a day.

Along with the crew, there is also a gangman on board. At level crossing gates, the train used to stop some distance before the gate. The gangman would then get down and close the gates by halting the traffic to make way for the train to pass. The train needed to stop again once it had passed the level crossing gate so that the gangman could re-open the gate and get back onto the train.

We saw the guard issue tickets to the passengers who boarded at intermediate stations.

Once the ticket sale was done, the guard would exchange signals with a green flag with the loco pilot to indicate that the train was ready for departure. At the level crossings where there were no gates, there were 'STOP & PROCEED' boards placed a few meters prior to the crossing for informing the crew along with the usual W/L boards that advise the loco pilot to whistle.

Cruising at a steady pace of about 30 kmph as we left Bilimora, we were surrounded by pleasant greenery all around us. It was a visual treat to watch our train moving through such amazing scenery that we city dwellers miss.

We pulled into our first halt, Gandevi, a little late compared to the scheduled time. There is a dilapidated building structure which may have been the station building once upon a time.

At every station en route, we picked up quite a few passengers and proceeded towards our destination. Occupancy of the train was fair enough.

Since it was a 'One Train Only' system of working, we did not face any crossing like any typical single line section. Other stations like Chikhli Road and Dholikuva too offered some awesome scenic views. Like Gandevi, the stations themselves were ramshackle and rundown.

Due to time constraints, we ended our journey at Unai station. Unai is the 7th of the 11 stations (terminal stations included) on this route; we had covered about three quarters of the journey by this time.

Interacting with a few locals and the gangman, we got to know that a good frequency of buses exists from Waghai back towards Bilimora and the journey time varies from 2 to 2.5 hrs. We also learnt that for the last part of this journey, the train passes through some dense jungle areas.

After getting down at Unai, we visited the locally famous Unai Mata Temple. Somewhere near the station, we sipped



Loco No. 503 ZDM3 class at the head of our train

piping hot tea and had some biscuits for refreshment, as it was raining heavily and there were no good food options visible nearby. As the rains receded, we headed back to the bus stop right outside the railway station in search of our connection back to Bilimora. We learnt that there would not be any direct bus soon for Bilimora but we could take a bus till Chikhli and get ample alternatives towards Bilimora there.

Accordingly, at around 2 p.m., we boarded a bus for

A "Stop and Proceed" board



Chikhli and reached there in about an hour. At the Chikhli bus station, Platform-1 is dedicated only for Bilimora bound buses.

After waiting for a couple of minutes, we got our connecting bus towards Bilimora and reached there around 3:30. The distance between Chikhli and Bilimora was only 10 kms. and since we didn't face any traffic en route we reached our destination quickly. We looked around for options to sate our hunger and found one right outside the station. After a good lunch, we headed back to the station to commence our return journey by 12936 Surat-Bandra Intercity Express. Quickly refreshed in the waiting room hall (which was well maintained), we headed back to Platform-2 only to learn that our train was late by 15 minutes. Thanks to that, we could take a good video of Karnavati running through Bilimora at its maximum permissible speed.

Exactly at 5 p.m. our Intercity train entered BIM with Vadodara WAP-5 #30105 locomotive at its helm. We had the most amazing speedy return journey by this train as it has a tight schedule and an aggressive run.

The trip concluded at Andheri with some great memories of the Narrow Gauge journey and the aggressive Intercity Express ride.

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Photos: Courtesy the author



Loco No. 30105 WAP5 of Vadodara Shed that hauled our Inter-city train

Such buildings are a common sight on this route



Reflections at Rewari Shed

Nandakumar Narasimhan

Sometime in the middle of the year, the Rail Enthusiasts' Society received an interesting request. A Singapore-based rail enthusiast and member of the society, Nandakumar Narasimhan, was writing a book on the last meter gauge trains in India and wanted to photograph MG steam locomotives under steam. He had already photographed the X class locos of the Nilgiri Mountain Railway and wanted to cover the YPs and YGs. With the assistance of Northern Railway, a visit was organised for him to Rewari with a steaming YG available. Steam locomotives are an apt and suitable subject for Black and White photography: Nandakumar obviously believes in this.

Reflections of his visit in his words...

Anyone with a passing interest in the Indian Railways would have heard about Rewari. Not counting the hill railways, this is the only operational steam loco shed in the country. Resurrected from dilapidation and neglect, the shed houses a modest collection of broad and meter gauge locomotives that once criss-crossed the country, hauling passenger and freight services. I was privileged to have been given the opportunity to visit this shed and photograph it with a steamed up

locomotive no less, on the 19th of August earlier this year.

India does not have a very good record with preserving historical monuments and artefacts. The Archaeological Survey of India (ASI) is the least funded government body in the nation and it is fortunate they were not in charge of renovating the loco shed at Rewari. I was expecting a half-hearted attempt at renovation or a crumbling building due to neglect or misuse of funds. But I was happy to have been proven wrong. The manicured lawns and the well-painted

YG 3438 'Sultan'



Steaming away inside the confines of the shed

structure that was the Rewari steam shed was a pleasant sight on a humid Sunday morning. The railways had obviously made a conscientious effort to preserve the ageing shed and its gigantic occupants. This, together with a functional cafe for refreshments, meant that one didn't have to starve while spending hours gazing at the behemoths that were the steam locos of yore.

A barely audible hiss was emanating from one of the sheds and it got louder as I neared it. It was a meter gauge steam locomotive being steamed up for operation. YG 3438, called Sultan, was to perform today for the benefit of my camera, and boy, what a beauty it was. The paintwork had been done to make it look new and the coal in the tender had been refilled.

A very helpful gentleman, Mr. Katara, gave me details of the locomotive and also introduced me to the other extraordinary gentlemen who kept these beauties in working condition. The locomotive was to get ready in a couple of hours as the steam in the boiler was not up to the required level yet. I used this time to walk around and look at the other locomotives housed in the shed. I saw Akbar

(WP 7161) being serviced after it ran amok a few months back and derailed while being prepared. I also saw the other WP 7200 Azad with a beautiful new paint job.

The main purpose of my visit was to shoot photos of the meter gauge steam locomotives. There were four of them when I visited the shed. Three of them were the YG (freight) series named Sahib (YG 3415), Sindh (YG 4252) and Sultan (YG 3438), in memory of the three locos that hauled the first train to run in India. I felt this naming was inappropriate for two reasons. Firstly, the locomotives that hauled the first passenger train in India were broad gauge and these meter gauge ones were not related to them in any way. Secondly, a machine so beautiful and yet majestic should have been given a female name rather than a male one to honour the smooth mechanical movements and rhythmic sounds this locomotive makes when working.

Apart from the three YG series, there is a sole YP (Passenger) series locomotive that is not kept under the shelter but is in the open under the elements. This locomotive seems to have been neglected as the paint on it is peeling off and quite a few of the brake shoes seem to

have been removed or missing. This locomotive (YP 2151) is called Rewari King; a king that once was, is now a victim of weather damage and corrosion. I do hope the railways manage to find the resources necessary to dress up this king and keep him functioning.

Soon the YG locomotive was ready and the loco pilot, Ravinder Kumar, told me he could position the locomotive so as to allow me to photograph it well. He moved the loco to the far end of the shed so I could use the interior space comfortably to get some photos of the beautiful machine puffing out steam and hissing furiously. I managed to get some pleasing shots, some of which I am reproducing on these pages.

I was told that, unfortunately, funds are insufficient to keep all the locos in tip top condition. This is most evident when we see the meter gauge locos. They seem to be barely functional when compared to the well decorated broad gauge ones. I believe there are two reasons for this.

Firstly, the meter gauge locos are pretty much trapped in Rewari shed with barely 400m of track for them to go back and forth. That I assume is partly why they are not in pristine condition like the broad gauge locos that see action on the main line even if it is only for ceremonial runs. It is pitiful to see a machine that once sped across the country at

One of the pictures taken by the author on the Nilgiri Mountain Railway

75 kmph being restricted to a snail like speed in the confines of the shed.

Secondly, over and above ceremonial runs, the broad gauge locomotives are featured frequently enough in Bollywood and other Indian movies to ensure they are well taken care of. There is a list of movies outside the workshop office and every one of them was made with broad gauge steam locomotives. It could be because the meter gauge locomotives can't be hauled out to the main line or any line for that matter considering that the nearest meter gauge line is at least 500 kms. away in Rajasthan. Perhaps, a line between Delhi and Rewari could have been retained for meter gauge locos to have ceremonial and heritage runs. To the lay person, and perhaps even to the professional railway man, the YPs and YGs are just as impressive and have the same charm and nostalgia as their broad gauge counterparts.

Last but not the least, I must thank Mr. Kataria and all the staff at Rewari for being most cooperative and taking good care of all my needs. All they needed to know was that I was a rail enthusiast and a member of the Rail Enthusiasts' Society, and a virtual red carpet was laid out for me.

About the Author: Nandakumar is a Singapore-based member of the Rail Enthusiasts' Society. He can be reached at nanda@phocus.com.sg

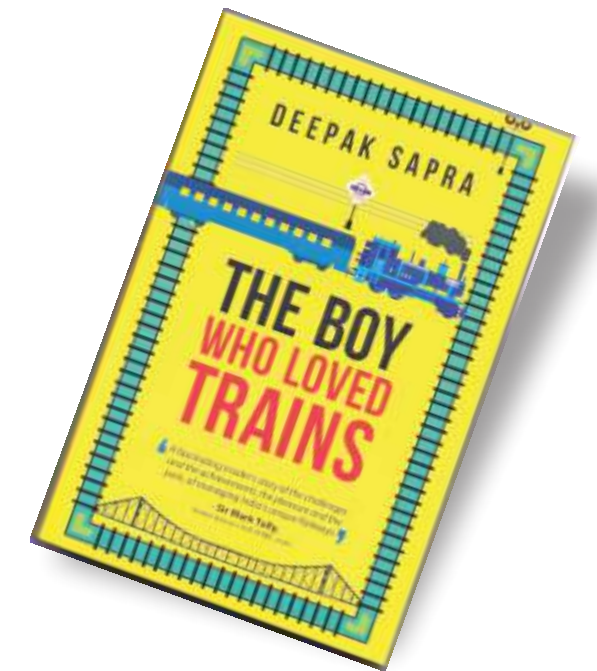
Photos: Courtesy the author

Book Review

The Boy Who Loved Trains

The "Boy" is none other than our very own Deepak Sapra. Traveller, blogger, writer and an active member of the Rail Enthusiasts' Society, this now middle-aged "boy" has produced a book that is easy to read, racy and, at the same time, informative yet engaging. Far from the writings of the likes of Shashi Tharoor, you will not need to refer to a dictionary every few minutes. While being a continuous narrative with a story line, each chapter can be read as a standalone and is complete by itself. As you enjoy the "boy's" adventures and escapades, you will be surprised at the amount of knowledge you are able to pick up about the Indian Railways and its idiosyncrasies. The quintessential and evergreen rail enthusiast, Sir Mark Tully, has endorsed the book with the words: *A fascinating insider's story of the challenges and achievements, the pleasure and the pain, of managing India's unique railways.*

Like all boys, our boy's love for trains began with a LIMA toy train set he was gifted at the tender age of three. Unlike other boys, his fondness for trains continued into manhood and blossomed into a lifelong passion. His story begins with his braving riots and curfews in Kolkata (then Calcutta) to catch a train en route to New Delhi for a UPSC interview for a railway placement. He then takes you through his



initiation into the Indian Railways as a Special Class Apprentice at Jamalpur and his travails of getting posted as an Assistant Mechanical Engineer at Andal on the Eastern Railway zone of the Indian Railways. He then covers his posting at Burdwan and finally the zonal headquarters at Kolkata. At each of these postings you will read of challenges, dangers, endearing moments and farcical

Release of the book at New Delhi on the 30th of June 2018. Sir Mark Tully is second from the left. Deepak Sapra is at the extreme right





situations. At no stage will you want to put the book down but will continue to read. Last but not the least, our boy writes about his audacious meeting with his girl friend on a moving train, albeit for a few seconds, taking her onto an under repair locomotive and finally ending in matrimony. The couple's stay at the Howrah station Officers' Rest House gives a good insight into life at the station and the rigours faced by a young couple in the sprawling Eastern metropolis.

Deepak Sapra is no more with the Indian Railways and today works with an MNC in Hyderabad. But his love for trains continues: he has contributed two articles for **The Rail Enthusiast**, one of a trip on a bullet train in Japan and the second on his visit to trains in the De-Militarized Zone (DMZ) between the two Koreas. He can be reached at deepak.sapra@gmail.com

Editor: An extract from a chapter from his book follows this review

Book Extract

Midnight's Children

*This is an extract from the chapter, 'Midnight's Children', of the book, **The Boy Who Loved Trains** by Deepak Sapra. The book is a fictionalised account from the life of a young officer posted on India's Eastern Railway.*

In this chapter, he sets out to attend his first train accident.

The book is available on Amazon and at leading bookstores.

Andal, Middle of the Night!

When it is not the time for a phone to ring but it does, it can mean only one thing—get ready for the worst. As an AME* at Andal, bad news could come in various ways. An accident, a loco failure, a theft or even a snake biting someone on duty. When the phone rang, my guessing game was: Which of the above?

'Sir, Asansol Control here,' said the voice signifying seriousness and urgency.

'Yes, please tell me.'

'Sir, Shatabdi Express has derailed. Between Durgapur and Waria.'

'Shit!' I exclaimed.

'Excuse me, Sir.'

'No, nothing. Please give me the details.'

'One accident relief train is starting from Asansol in thirty minutes. Another one is starting from Burdwan.'

'Ok, I am coming. I will reach the site by road as it is very close to Andal,' saying so I hung up.

I dialled Karim, the Carriage and Wagon Foreman, and asked him to accompany me to the accident site. Karim had spent over thirty years at various places on the Railways, and was highly experienced in tackling accident situations. Karim arrived at my place in ten minutes. He drove a jeep, and we set out in it towards the accident site. Karim was an expert jeep driver and maintained an unusual calm and equanimity. He was almost Buddha-like.

This was the first passenger train accident that I would be attending. I was nervous, I was sweating. I had very little experience of such real-world situations where human life

was at stake. This was perhaps the most severe test, for which I thought, I was thoroughly unprepared. The good thing was that I was with Karim.

Karim sensed my nervousness. 'Sir, are you alright?' he asked.

'No, I am not,' I confided. 'I wonder if there can be a bigger disaster than Shatabdi Express derailed. We don't know what has happened, people could be dead, and they could be injured. Wonder how you are so calm.'

Karim's response was completely unexpected. 'Sir, when you have been through some of the things that I have been through, seen some of the horrific sights that I have seen, such minor situations will not unnerve you,' he said.

'Minor,' I interjected. 'You call a Shatabdi accident a minor thing. Surely, you are joking, Mr Karim,' I said, agitated.

Karim continued, his calm demeanour intact, 'I have seen the biggest disaster of them all from very close. The scale, intensity and magnitude of what I have experienced, I pray to Allah—let it never be repeated again, let no one ever see it again.'

'And what was that?' I asked him.

'Sir, you know I was posted in Central Railway before.'

These rail-mounted cranes form part of Accident Relief Trains that are stabled and ready for use roughly every 200-250 kms. on the Indian Railways network. In this picture, the crane demonstrates the lifting of a loaded freight wagon



One of the rail-mounted breakdown cranes used by the railways for track clearance following an accident. This crane has a capacity to lift 140 Tonnes and is manufactured at the Railway Workshop at Jamalpur

'Yes, I do.'

'I was on night duty on 3rd December, 1984. I was posted at Bhopal station. And that was the night poisonous gas leaked from the Union Carbide plant. When the entire world turned upside down for thousands of people. Having been a part of that night's experience at Bhopal, derailments cease to bother me any longer,' Karim elaborated.

He was as calm as a monk. He narrated the spine-chilling events of that fateful night in Bhopal. All the while, he was maintaining a very steady control on the jeep, navigating the highway traffic with ease.

'Is there any particularly striking memory of that night?' I asked him.

'One!' Karim frowned. 'There are so many, Sir. Things I will never forget all my life.'

I nodded. I did not say anything. I just wanted him to speak.

'I can still visualise Dastagir sahib, the Station Master on duty, running up and down the platform, asking the driver of the Bombay Gorakhpur express to start his train and move it out of Bhopal, even though it was twenty minutes before its scheduled departure. Dastagir sahib had sensed something had gone horribly wrong, and to save the train, he wanted it to get out of Bhopal as soon as it could. He flagged off the train himself. It was a decision which prevented exposure to the passengers on board; it was a decision which perhaps saved thousands of lives.'

'And did the train move out?' I asked.

'Yes, it did,' was the reply.

*Assistant Mechanical Engineer



At an accident site – the crane in action

'However, about a minute after the train had moved out, Dastagir sahib collapsed on the platform. He was coughing, he was throwing up and having difficulty in breathing.'

'Gosh,' was all I could say.

Karim continued. 'Within minutes, though, perhaps out of sheer will power, he regained his composure to rush back to his office. He sent across messages to stop all train traffic coming into Bhopal, from all directions.'

'And what was the scene like on the platform? There would be many other passengers as well, isn't it?' I asked.

'Many were collapsing like flies. There was a mass exodus of people out of Bhopal. Whichever direction they could go in, people were desperate to just get out of the city.'

'What did you do then, did you also move out of Bhopal?' I asked him.

'It would have been so selfish to do so,' came his rejoinder. 'That was the time to act, not to run away.' Karim was calm again.

'Who else was there with you?' I asked.

'Several people. In fact, so many of our fellow Railway men died that day because they took a decision not to run away, unlike some other government departments. The signal men and the staff at the Nishatpura yard, the drivers waiting for the signals to turn green, the TXR* staff waiting to inspect the incoming trains, the booking clerks at the ticket windows. So many of my colleagues and friends.'

Karim's voice had started choking. 'I was lucky to survive, I still don't know how. I still don't know why. When I think of that day, I sometimes think it would perhaps have been better to be dead.'

*Train Examiner

We crossed Pinjarapol in the jeep. In a few more minutes, we would be at the derailment site.

Karim continued. 'Even though the civil administration had collapsed, the Railways raced back to normality within twenty-four hours of the accident. Scores of Railway men perished, and thousands of those who were there that night and survived still bear scars of that day. People like me always think it might have been better to die than to witness those horrific scenes.'

'What did you feel the most that time, Karim? Did you not think of your own safety?' I asked him.

'When we looked at each other, when we looked at what the likes of Dastagir sahib were doing, there was no way we could have acted any differently. There were too many things to be done than to think about my own safety,' recalled Karim. 'That day, that time, the objective was very simple—just keep doing what you are supposed to do, for no matter what happens, it is our duty to keep trains moving.'

Karim was not done yet. He continued after a pause, and raised his pitch, for the first time in the conversation tonight. 'This is our tradition, we stay on and try and do what we are supposed to do. Many years before you would have been born, Sir, India and China went to war in 1962. At that time, when the Chinese army invaded the north eastern part of India, the last civilian to leave Tezpur was the station master.'

People like Karim, nondescript to the extent that you would never give the guy a second look, a part of the category of usual pushovers in the office, left me bewildered at the sheer magnitude of their ability to rise to the occasion when it mattered the most, to stand up and be counted in the moments of truth. To act normally and do the ordinary things when circumstances were extraordinary — those were the attributes of heroes like Karim.

'I feel proud, Karim,' I told him, unable to control tears, 'To have met a brave heart like you.'

Editor: Footnotes and photographs have been inserted by the Editor and are not part of the original book.

Photos: From the archives of IRIMEE Jamalpur

News & Events

WG 10253

In the heydays of steam traction, before the steam locomotive was swept away by the more powerful, more efficient electrics and diesels, the mainstay of the Indian Railways (IR) were two classes of locomotives – the 4-6-2 WP for passenger services and the 2-8-2 WG for goods trains. With its bullet-nosed stream-lined design and distinctive deep whistle, the more visible WP was the pin-up item of the railways. It hauled all the important trains, be it the Kalka or Frontier Mail, Darjeeling or Punjab Mail, Howrah-Chennai or Gujarat Mail. Passengers tended to see only this loco as it pulled their train into the station or thundered past at full speed at some wayside location, spewing smoke and raising a cloud of dust. Between 1947 and 1966, IR procured or manufactured 755 of these black beauties.

The WP's cousin, the WG, was content doing all the hard work in the background without getting any of the accolades that the former got. The WG was the first locomotive built by independent India at Chittaranjan. The last Broad Gauge steam loco to be built there, aptly named "Antim Sitara", was also a WG. Other than Chittaranjan Locomotive Works (CLW), WGs were also procured from the USA, Europe and Japan. Commencing in 1951, CLW initially manufactured locomotives from imported parts. By 1953, 70% of the locomotives were domestically produced and by the mid-1950s, domestic production at CLW met the entire needs of the country. 2450 of these smoke-belching behemoths were either procured or manufactured by IR. In fact, the WG numbers are higher than any other steam locomotive class that ever worked on IR. This was the loco that was not in front of any of the glitzy mail and express trains; it did its work quietly and humbly pulling freight trains. Bulk of the freight that moved in the country in the days of initial industrialisation was moved by the WG. Thus, while it contributed to most of IR's earnings and subsidised the WP-hauled trains, it did not get the recognition the latter did.

As a locomotive, the WG was very similar to the WP. Like the latter, it was designed specifically for the low-calorie, high-ash Indian coal. Both had the same boiler working to the same steam pressure. Cylinder size, type of valve gear, grate area and most of the other parts were also the same. Both used the same tender. The difference was in their wheel



Loco 10253 WG in the Heritage Steam Loco Shed, Rewari, awaiting renovation and repairs

arrangement. While the WP had 3 coupled wheel sets, the WG had 4. This gave the latter the ability to pull a heavier load without slipping. At the same time, the smaller 1.562 meter diameter wheels of the WG implied that its speed was slower but the corresponding load would be heavier. The coupled wheels of the WP had a diameter of 1.702 meters. Apart from this difference in the coupled driving wheels, the carrying wheels also differed. While the WP had a 2-axle truck in front of the coupled wheels, allowing it to take curves more smoothly at higher speeds, the WG had a single axle set of carrying wheels in the front and a similar single axle rear carrying wheel set behind the driving wheels. The WP had a similar wheel arrangement behind the driving wheels. The diameter of the carrying wheels of both the locomotives, front and rear, was the same at 1.092 meters.

A comparison of the two classes of locomotives is given Table 1.

S.No.	Item	WP	WG
1	Length over buffers	24.45 m	24.45 m
2	Height	4.1 m	4.1 m
3	Gauge	1.676 m	1.676 m
4	Weight with tender	173.5 T	173 T
5	Tractive effort	136.12 kN	172.99 kN
6	Boiler pressure	210 psi	210 psi
7	Wheel arrangement	4-6-2	2-8-2
8	Driving wheel diameter	1.702 m	1.562 m

Table 1

It is interesting to note that although more WGs have worked on the Indian Railways than any other class of steam locomotives, the Heritage Steam Loco Shed at Rewari had no WGs. It began with two WPs and now has

three – Nos. 7200 (Azad), 7161 (Akbar) and 7000 (recently added). It was thus a red-letter day at the shed when at 14.15 hours on the 14th of July, 2018, the first WG, No. 10253, reached Rewari steam shed. This is a Chittaranjan Locomotive Works built loco and was put on line in 1955. It did regular service till 1992 on the Central Railway Zone of the Indian Railways and since then was placed on a pedestal at the Zonal Training School at Bhusaval. It was given its last Periodical Overhaul at Parel workshop of the Central Railway in 1990. During the bulk of its service this loco was based at Bhusaval shed. The latter was the largest steam shed in the country and in its heydays homed more than 275 steam locos, a large number of them being WGs.

A study of the steam locomotives on the Indian Railways showed that there were about half a dozen WG locos lying at various locations spread over the system. After examination it was found that this locomotive was in a position to be renovated and steamed. It has thus been brought to Rewari and it is expected to be in steam and running heritage trains by the end of this year.

The Rail Enthusiasts' Society visited Rewari on the 17th of July to have a look at this potentially steaming WG. Accompanying pictures will give you an idea of what the locomotive looks like now. Of course, what is more important is the condition of its boiler and the other internal fittings. All the best to the Northern Railway to put this locomotive back on line as early as possible.

Other Steam News

Steam revival has picked up steam in the last few months.

On the 25th of August 2018, EIR 21 "Express", the locomotive that has challenged the Fairy Queen (EIR 22) as the world's oldest working locomotive, had its first commercial run from Pondicherry to Chinnababusamudaram, a distance of



A view of 10253's footplate

At Rewari on the 17th of July 2018

15 kilometers. The loco has been doing heritage runs since 2010 on key days like national holidays but this was its first commercial run after 1909. The 35 seats provided on the train were fully sold out in spite of a fairly stiff price – Rs. 500 for adults and Rs. 300 for children. It is proposed to have this run on a weekly basis at 11.00 a.m. every Saturday. The first five trips were sponsored by the Tourism Department of Pondicherry.

Similarly, on Saturday, the 15th of September 2018, a steam locomotive hauled train, planned to run weekly, was flagged off on the 11-kilometer run from Farrukhnagar to Garhi Harsaru. The train was not a special train but the normal passenger train on this route. As a result, there is no special ticketing and you can travel on the train by buying a normal ticket. The train will run weekly on every Sunday with a steam locomotive. On the first run, the loco that hauled the train was WP 7200 "Azad".

On the 22nd of September 2018, India's, perhaps Asia's, heaviest locomotive, a Beyer Garratt, steamed between Kharagpur and Midnapur. The loco was a 2-8-0+0-8-2 Garratt numbered 811 manufactured in 1926 and procured by the erstwhile Bengal Nagpur Railway (now the South Eastern Railway zone of the Indian Railways) from Beyer-

Loco 7200 WP/P at Rewari. Note the wheel arrangement. This locomotive is currently doing the Farrukhnagar run



EIR 21 on its commercial run

Peacock & Company, Manchester, in 1929. It saw service for 40 years till 1969 when inevitable electrification led to it being withdrawn from service. It lay in the Kharagpur workshop of the South Eastern Railway till the 17th of November 2006 when it was revived and had a heritage run. After this historic run it languished once again and it is only now that it has been revived and steamed anew for this run. To the best of our knowledge, there are 3 Garratts available in India: No. 811, one at the National Rail Museum in New Delhi and a Meter Gauge Garratt at the Rail Heritage Park at Tinsukhia.

In a record of sorts, Graham William (30) and Silvia Plasic (27), married two weeks earlier, honey-mooned by chartering an entire train on the Nilgiri Mountain Railway on the 31st of August 2018. Their love for steam locos coupled with that for mountains attracted them to this romantic means to celebrate their marriage. The special

Beyer Garratt No. 811 in steam



chartered train was hauled by oil-fired loco No. X-37392 from Mettapalayam to Conoor and thence to Ooty by a YDM4 diesel.

Paryatan Parv

As part of Paryatan Parv, on 19th September, 2018, the Rail Enthusiasts' Society participated in an event called CHIABARI CONVERSATIONS, organised at Kolkata, under the auspices of the Indian Council of Cultural Relations, Ministry of External Affairs and Ministry of Tourism, Government of India. This is the second such 'Conversation' session held at the ICCR conference centre at Kolkata, organised by BAUL (Bespoken Architectural & Unique Legacies), an organisation of like-minded people which attempts to identify and encourage heritage tourism in West Bengal (www.thebaul.in).



Latest addition at Rewari, WP 7000, under repair and renovation



The program, sponsored by Chamong Tea Estate, Chiabari, Darjeeling, aimed at showcasing the potential of heritage tourism in the three industrial pillars of India TEA-PORT-RAILWAYS. This unique event was partnered by Kolkata Port Trust, India Tea Association, ITDC and several Hospitality groups including Welcome Heritage (ITC), East India Hotels (Oberoi Grand Hotel) and Rail Enthusiasts' Society, with speakers from each of these sectors.

The function was attended by more than 60 delegates from public sector enterprises, travel and tourism industry and, most importantly, by several senior diplomats, including His Excellency Taga Masayuki, Consul General of Japan at Kolkata. Ms. Kajori Biswas, Director, MEA (Eastern India) presided.

Sanjoy Mookerjee, head of the Kolkata chapter of the Rail Enthusiasts' Society, made a detailed presentation on the objectives and achievements of the society in encouraging the preservation of built and industrial heritage of the Indian Railways and the recent initiatives taken by the latter for developing heritage tourism. The diplomatic core inquired about the possibility of expanding rail-based tourism for foreign tourists in Eastern India. Many of the delegates showed interest in our magazine and complimented the society for its rich content and presentation. Mr. Jon Ward, Principal Commercial Officer, US Consulate, registered himself as a member of the society during the event.

An interesting feature of the event was its theme painting. Firstly, all participants were requested to apply a few brush-strokes to the white canvas randomly. Thereafter, a young artist by the name of Tapas completed the painting 'TEA-PORT-RAIL' as the proceedings progressed. It was displayed in the foyer of the venue. You can see the painting above.

Railways at Gold Coast, Australia

The 2018 Commonwealth Games at Gold Coast, Australia, will perhaps go down as one of the best performances by an Indian contingent in an international multi-disciplinary event. 66 medals, including 26 golds, would certainly indicate that sports in India is coming of age. Nevertheless, what is not so well known is the contribution of the Indian Railways in this remarkable achievement. The very fact that while comprising only 25% of the Indian contingent, rail persons winning 10 gold medals, or about 40% of the country's total, was notable.

Starting with weight lifting, ten of the lifters were from the Indian Railways and six got medals, five of them gold. In fact, the first two golds won by India were by two lifters, Mirabai Chanu and Sangita Chanu, incidentally both women. Golds were also won by Poonam Yadav, Satish Sivalingam and R V Rahul. Pradeep had to be content with a silver.

Coming to wrestling, seven rail persons represented the country in this discipline and all seven collected medals: five golds and two bronzes. Leading the gold rush was Sushil Kumar, India's only individual double medallist at the Olympics. He was joined by Rahul Aware, Sumit Malik and Bajrang in the men's freestyle wrestling. Among the women, Vinesh Phogat claimed gold. Two other women, Sakshi Malik, an Olympic medallist, and Kiran, bagged bronze medals.

Other than wrestling and weight lifting, in boxing, Manoj Kumar managed a bronze while in Athletics, Navjeet Dhillon added another bronze to the railway medal kitty. The railways final tally: 10 golds, 1 silver and 5 bronzes, 25% of the total medals won by the Indian contingent.

Photos: Archives of the Rail Enthusiasts' Society



RAIL ENTHUSIASTS' SOCIETY

(Registration No: S-E/792/Distt. South East/2015)

The Rail Enthusiasts' Society, incorporated on the 28th of December 2015, aims to provide a platform for rail enthusiasts to disseminate knowledge, air their views and exchange ideas regarding the railways in India or overseas. Its first activity was to publish a magazine whose 8th issue you have in your hands. Other than issue of the magazine, we have organised enthusiast's trips/hikes, visits to construction sites, debates and quizzes amongst school children on the need for preserving rail heritage.

On the next page, you will find details of how you can become a member of the society. In case you are interested only in the magazine, the subscription rates are as follows:

Single copy ₹ 150.00

Annual subscription (4 copies) ₹ 540.00

5-year subscription (20 copies) ₹ 2400.00

Note:

1. The rate for the E-copy has not been worked out yet but would be less than that for the hard copy.
2. For overseas subscribers wanting a hard copy of the magazine, the rate charged will be as follows (to cover packaging and postage):

a. Single copy USD 9.00

b. Annual subscription USD 32.00

c. 5-year subscription USD 148.00

3. For countries that do not deal in the US Dollar, please email a request to the Secretary of the society and we shall give you the rate in other currencies like the Euro or GBP.
4. The subscription rates for membership of the society for those residing in India include free delivery of the magazine as well. For members residing overseas, and wanting a hard copy, please email the Secretary and special rates will be fixed in each case to cover the cost of postage. Overseas members will get an e-copy free.
5. Libraries will be given an additional 5% discount over rates for subscription to the magazine.
6. Bonafide students' rates for membership, valid as long as they remain students, will be 50% of the normal rates. Such rates would not apply to Life membership.
7. For subscription to the magazine, please mail the completed form below to: The Editor, Rail Enthusiasts' Society, C-494, Defence Colony, New Delhi-110024 (India). A scanned copy can be sent by e-mail to railenthusiast2015@gmail.com

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Membership of the Society

Membership of the society is open to individuals as well as Corporates. While individuals have the choice of three types of membership, for Corporates we have only membership for life.

Corporate Membership

This entails a one-time payment of ₹ 200,000/-. Membership gives the following to the Corporate:

- Five copies of all magazines or supplements to the magazine that are published
- Concessional rates for any item such as artefacts, books or memorabilia on sale
- Invitation to 5 members of the organisation nominated by the corporation for any event or activity the society may organise
- Other benefits will be added in due course as and when more activities are added

Rate for Corporate membership for foreign organisations will be US Dollars 4,000/-.

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For individuals, we have 3 types of membership. The member gets all copies of the magazine and its supplements, if any, as and when they are published. Concessions for other activities will be announced as and when they are introduced.

- Associate member : This gives you membership for one year. Subscription: ₹ 500/-
- Ordinary member : This gives you membership for five years. Subscription: ₹ 2000/-
- Life membership : This gives you membership for life with a one-time payment: ₹ 10,000/-

For foreign nationals and overseas members, rates are as follows:

- Associate member : Subscription: USD 10/-
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- Life membership : One-time payment: USD 200/-

Please see the note on the previous page for overseas members wanting hard copies of the magazine.

Mode of Payment

Payment is acceptable by cheque, demand draft or cash. You can also do a direct bank transfer. All cheques and demand drafts should be payable to "Rail Enthusiasts' Society". For direct transfer to our bank, details are as follows:

- Name of bank : State Bank of India
- Branch : Personal Banking Branch, New Delhi
- Address of the bank : E-4, Defence Colony, New Delhi-110024 (India)
- Type of Account : Current
- Account Number : 65250409615
- IFS Code : SBIN0050634
- MICR Code : 110002751
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For enrolling as a corporate or individual member, all you need to do is send an email or a letter to the Secretary of the society. The address is: C-494, Defence Colony, New Delhi-110024 (India), while the email id is railenthusiast2015@gmail.com.

Visit our website : www.railenthusiastindia.org.in



grandfather CLOCKS

Visiting old railway offices and stations, one is likely to see many grandfather clocks in the rooms of sundry General Managers, Divisional Rail Managers, Station Masters, and the like. Even in this digital age, many of these relics from a bygone age are still working.

The Divisional Rail Manager of Asansol Division, Prashant Kumar Mishra, with a sharp eye for rail heritage, found such clocks lying as junk at various places. Appreciating their heritage value, he not only picked them up, but restored five of them and put them to use. Two restored clocks now adorn his office chamber. The one illustrated on this page, standing at five feet and eleven inches, is a John Walker clock built in London in 1885.

Photos: Courtesy DRM Asansol for both Inside Covers