

the rail enthusiast

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The Rail Enthusiasts' Society Quarterly



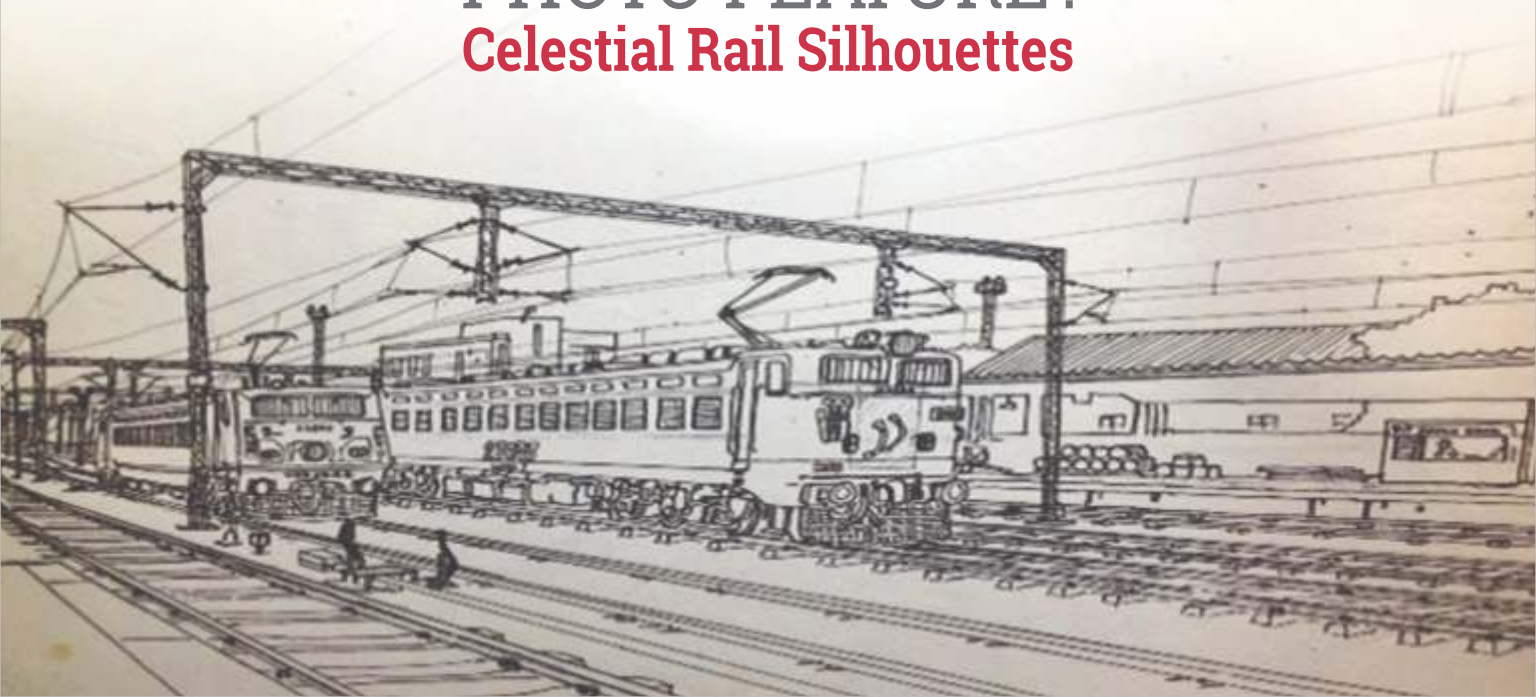
INTERVIEW

Iqbal Ahmed

HISTORY

The EMU Comes to Calcutta

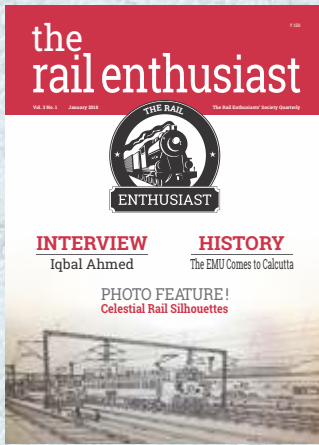
PHOTO FEATURE!
Celestial Rail Silhouettes



New Coaches for East-West Metro

On the 17th of January 2018, a team of members of the Rail Enthusiasts' Society visited the prototype coach that has been manufactured for the East-West Metro in Kolkata. The team also visited the Car Shed under construction at Salt Lake. These new coaches will be maintained at this Car Shed.





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

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Musings of the Editor...

A New Year! A new magazine!!

So, what's new in this issue, you may well ask? Well, for one, we have a new cover. All our previous covers were text oriented. While not deviating from the basic design, this one has a sketch, a pencil outline. Depicting a very typical view of what you are likely to see at most contemporary stations on the Indian Railways, the sketch has been rendered by Bharat Vohra, an ardent and avid rail aficionado. With both his father and grandfather being railway men, it is not surprising that rail enthusiasm is in his blood. You will see other of his sketches adorning our covers in future magazines.

Our back cover has also changed. In all our previous issues, we have depicted the last vehicle of a train moving away from the viewer. In this issue, we start a series showing a rising or setting sun in a rail setting. This issue's back cover picture has been contributed by Devendra Singh, a railway man and an active member of the Rail Enthusiasts' Society, with a love for clicking pictures at any time and any occasion. We will be bringing you more of his pictures hereafter in coming issues.



Smallest steam engine in the world

Another new feature in this magazine is designed to test your knowledge. In this and issues to come, we will be asking you 10 questions relating to the railways. Answers will appear in the same magazine. Attempt to answer these questions and see where you stand. The questions have been collected, assembled and presented by M A Siddique, a rail enthusiast and veteran quiz master. He is a railway man based in Kolkata.

Of course, most of our regular features continue. For example, we were privileged to be able to converse with Iqbal Ahmed, master craftsman and modeller, not only of railway locomotives but all kinds of vehicles and machines. He appears in the Guinness Book of World Records for manufacturing the smallest working steam engine in the world. Apart from extracts of our conversation with him, Ravindra Bhalerao has provided a write-up on this remarkable man.

Meter Gauge (1000 mm) lines are a dying breed in our country. Comprising of more than 25,000 kms. of route a quarter of a century back, looking for such lines today is like finding the proverbial needle in a haystack of Broad Gauge (1676 mm) lines. This did not deter Shashanka Nanda, Rajit Kumar and Vikas Chander to travel specially on one of the last vestiges of Meter Gauge in the country on the North Eastern zone of the Indian Railways. They covered the Pilibhit to Mailani and Mailani to Bharaich sections that run for the most part through tiger country. Shashanka has given us an animated account of this trip.

Along with rail-fanning, this group, particularly Vikas Chander, indulges in the hobby of astrophotography as well. Merging rail-fanning with the latter has resulted in some stunning and spectacular photographs of rail objects silhouetted against a night sky complete with stars and even the Milky Way. Our photo-feature, Celestial Rail Silhouettes, presents some of these pictures, the kind you are not likely to have seen before.

Warren Miller, an Australian enthusiast with a particular liking for India, has regaled us in the past with his trip on the Delhi Ring Railway and the wealth of information old rail timetables carry. He now tells Indian modellers of how he has been able to convert locomotive and other rolling stock models purchased from foreign sources into Indian look alikes through simple well-directed modifications and coats of paint.

The prolific Ranjit Mathur is always a pleasure to read. We reproduce the 'Foreword' he penned for the book written by Annavarapu Ramarao – Trailing Window. This foreword is perhaps the best summary of the history of the Indian Railways condensed to a few pages in the inimitable style of Ranjit Mathur. We also reproduce one of the essays from the book and the subject we have selected is the coming of electrification and EMUs to the Eastern part of our country. This is significant as the first electric train ran in Kolkata on the 12th of December 1957, the 60th anniversary of which we have celebrated last month.

Night sky at Dudhwa



Farrukhnagar Station

We tell our budding enthusiasts of the diesel locomotive in our series – The Train. While diesel locomotives are being replaced by electric, for a major part of our post independence rail history, it was the diesels that were able to transport the raw material and finished products of the country's industrial growth, since electrification being highly capital intensive, it was not possible to electrify all lines in a short period. It is only now that the bulk of our lines have been electrified so that diesels are on the way out.

We also take you to Farrukhnagar, a small station on a branch line of the Delhi-Rewari section. Built in 1901 to carry salt from the area to the mainline, it is now virtually a ghost station with minimal freight traffic and almost no passengers. The branch line takes off from the mainline at Garhi Harsaru station, which came into the limelight as the scene in the Attenborough film of the 1980s, "Gandhi", where the Indian barrister is thrown out of a train in South Africa, was shot at this station.

One of the iconic stations in the country is the Charbagh station at Lucknow. In the "Then and Now" feature, we tell you of the humble beginnings of this station and its transformation into the Indo-Saracenic style structure that you see today.

In all our issues till now, we have tried to give you as many aspects of the railways as possible. In our next issue, while many of our regular features will continue, we plan to have a major theme in the magazine covering one subject. The subject that we have in mind is "Railway tunnels".

Happy reading, till we meet again in the next issue,

(J.L. Singh)
Editor

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Budding Enthusiasts Aakash Kamble

It is heartening that there are many budding enthusiasts to take over from the veterans. One such enthusiast is **Aakash Kamble**. He tells us of his passion for building rail models



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Nostalgia Those Lovely Iron Horses

Nostalgia invariably takes you back to the days of steam. Octogenarian **V Narayanan** does exactly that and reminisces of the days he worked with those lovely iron horses



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Trip Report Chasing Trains in Tiger Country

Join **Shashanka Nanda** and his rail fan friends as they chase trains on one of the last Meter Gauge sections in the country through the Dudhwa National Park and Tiger Reserve

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Photo-feature Celestial Rail Silhouettes

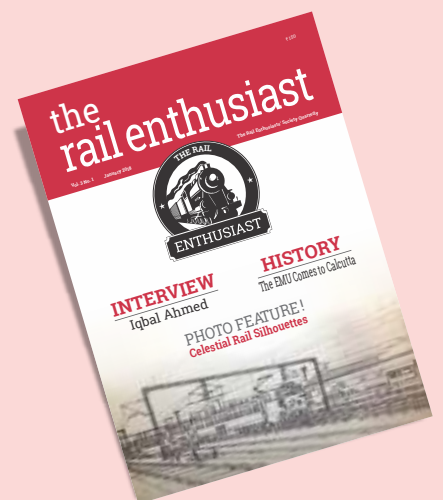
Night photography is not every photographer's cup of tea. Yet, **Vikas Chander** has blended the art of rail photography with that of the night sky resulting in some stunning silhouettes where the Milky Way is clearer than the rail vehicles

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Rail Modelling Modelling Indian Railways

Rail modellers in India do not have the luxury of ready made scale models of Indian rolling stock. Warren Miller, an Australian enthusiast, tells us about how he converted foreign models into Indian look alikes through innovative but easy means



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Nostalgia Up the Down Line

What's in a name? **Ranjit Mathur** feels very upset owing to the changes in train names and numbers



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Built to the Indo-Saracenic style, Charbagh station at Lucknow, is one of India's most magnificent railway stations. Read of its humble beginnings 'then' and what it is 'now'



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Off the Beaten Track Train to Farrukhnagar

The branch line from Garhi Harsaru to Farrukhnagar has virtually no passengers. That makes it a good line for rail enthusiasts to visit. **Prem Agrawal** did exactly that and toured Farrukhnagar station on a cold foggy morning

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Ranjit Mathur's Forward of the book, "Trailing Window", is not a mere forward but a virtual condensed history of the Indian Railways as well as a review of the book

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One of the essays from the book "Trailing Window" by **Annavarapu Ramarao**, traces the history of electrification in Eastern India and the start of EMU services in Calcutta



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Setting up the massive train passenger system in India was not an easy task. **Sanjoy Mookerjee** writes of the setting up of the system in Calcutta and the issue of the first computerised ticket there

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Feedback

Dear Editor,

I submit following comments/suggestions:
Surprisingly, the author of Pamban Bridge in your latest issue, after penning some unknown but welcome and rare details, mostly technical, inadvertently commiserates with the shocking idea (to rail heritage lovers like me) of doing away with this historic and iconic bridge. The history of its restoration in record time after 1964 cyclone, etc. and the role of the then XEN, E. Shreedharan (the great Metro man) is another fascinating feature. Many more tales about the great Pamban bridge. It reminds of another shocking note of an erstwhile CRB to do away with DHR as it had outlived its utility!! Thank God that when the present dispensation is very serious about preserving *Ram Sethu Samundaram* it will never entertain this fad.

You must give the vocation, email, etc. of contributors. For example, I would like to know who Warren Miller is and how he can be reached to compare notes with him. Similarly, how can we contact Vimlesh Chandra of WR to exchange ideas on his subject? You never know, there may be a few enthusiasts who would like to gift him their photo collection so that finally, a Coffee Table Book can be published for posterity! This will possibly increase the scope of rail enthusiasm too. After all, ours is not a closed group only for contributing or reading our journal.

Could you please publish Railway Quiz details in your next issue for entertainment and enlightenment of rail enthusiasts?

I have many more suggestions to convey, but for the present, I am only penning the few listed above.

Thanking you,

Yours faithfully,

BMS Bisht (through email)

03.01.2018

Editor:

Thank you, Mr. Bisht for your suggestions. We are implementing the suggestion to give the contact particulars of all contributors from the current issue of the magazine. Any contributor who is not desirous of sharing his contact details is requested to convey that to the editor.

BMS Bisht retired from the Indian Railways as the General Manager of North East Frontier Railway. He can be reached at bmsbisht@gmail.com

Dear Editor,

Many thanks for the November 2017 magazine that has just reached me. Once again, it's highly readable and nicely illustrated with an excellent selection of articles covering the whole of the railway scene. The Pamban Bridge is truly remarkable and I do hope it will remain in use.

It's very encouraging to read that the R.E.S. Kolkata Chapter is so active and hopefully this is just the start of many similar regional groups. Incidentally, I was pleased to read that Mr. Manu Goel is now the DRM at Howrah. For several years he was my contact with Rail Bhavan when he was Executive Director, Heritage, so I am sure the splendid museum at Howrah is in very safe hands.

I was especially interested in the Inter-School Quiz held at Howrah last November – and it's highly commendable that R.E.S. encourages this sort of activity. Back in 2006 our Society started a similar involvement with schools along the DHR. Our first prize-giving was held in the wonderful setting of Raj Bhavan, Darjeeling, with 200 children, DHR officials, some of our own members and with the prizes presented by the Governor, West Bengal, Shri Gopalkrishna Gandhi. Since then we have continued our support for an annual event and we have been aided most wonderfully by the ladies of



Prize distribution ceremony held in 2006 with Raj Bhavan, Darjeeling, as a fitting backdrop

the Inner Wheel Club of Darjeeling. My two photos show the 2006 prize giving plus a more recent one from November 2016 with some of the children about to enjoy a ride on the DHR Joy Train after a programme of quizzes, dancing and other activities on Darjeeling Station.

I think you can be proud of the progress made in Year 1 of the Rail Enthusiasts' Society and I look forward to meeting up with at least some of your members on my next visit – hopefully in November.

Best regards,

Paul Whittle (through email)

06.01.2018

Editor: Paul Whittle is the Vice Chairman of the Darjeeling Himalayan Railway Society, UK. He can be reached at paul.whittle@tinyworld.co.uk

Children waiting for a ride on the DHR train



Interview

Iqbal Ahmed

A working steam engine a mere 1.72 gms, 16 mm long and 6.8 mm high! Difficult to imagine leave alone visualise!! But you can actually see one in Nagpur. All you need to do is visit 71-year old Iqbal Ahmed, master craftsman and modeller, who has perfected the art of miniaturisation of almost anything that works, be it a locomotive, an automobile or a machine tool. He has built such an engine from scratch for which he has received recognition from the Guinness Book of World Records for making the smallest working steam engine in the world.

The Rail Enthusiast Society had the privilege to meet Iqbal Ahmed in December last year. Excerpts from the conversation...

Rail Enthusiasts' Society (RES): *How and where did you learn the use of a lathe and the skills needed for model making?*

Iqbal Ahmed (IA): As an insurance agent in the 1940s, my grandfather used to buy some vehicles that needed to be salvaged and get them renovated by mechanics he hired before offering them for sale. Later, my father took over the business. In the 1960s, insurance became very complicated, so that my father decided to set up a small workshop with a lathe machine, where he began taking up machining jobs for items like bushes, water pumps, and so on. The work was done by hired machinists. I learnt the use of a lathe by observing these machinists and soon began doing jobs myself.

At this stage, we felt that there was not much scope in this type of work. We, therefore, decided to take up specialised jobs. Since funds were scarce, we made attachments for our lathe. Among the attachments was one for milling, another for gear cutting and yet others for drilling, shaping, etc. We thus had one multi-purpose machine that could take up



almost any job. This is when we began taking up jobs like spares for printing machines, photographic equipment and, when new items like VCRs came into the market, even parts for them. This is how I honed my skills as a craftsman. It is these skills that I learnt that later developed into making of miniature models.

RES: *When did these skills get converted into the fascinating and absorbing hobby of miniature working model making?*

IA: Actually, my interest in machines in general and trains in particular started when I was still in my teens. In 1962 or so, my father presented me with an electric operated 13 mm gauge train set, a model of railways in the Swiss Alps. When we started our machine shop, I dismantled the engine completely, copied each part and manufactured my own

locomotive. Only, I gave it a WDM2 body. This was my first ever model. Sometime later, some friends presented me with model making books. One of the books had a model of a Simplex 0-6-0 tank loco. Drawings and other details were also given. I found the original dimensions given too big and decided to make my model half of the original size. This is how I got into miniaturisation.

RES: What prompted you to go in for the smallest engine?

IA: My first steam engine was a palm-sized 7" model. I always made working models and did not like static ones. Making models half size of this and finally, quarter size, I finally had a model that was about the size of a matchbox cover. It was then that it was suggested to me to go for a world record. I sent my request for a world record to the Guinness Book of World Records who rejected it stating that they had a smaller engine that was only 17 mm high and weighed as little as 1.8 gms. I worked hard and ultimately produced an engine that was 16 mm long and weighed only 1.72 gms. I sent my entry to the Guinness Book once again with a video of the working model as well as a weight certificate and other papers. This was accepted and I got a Guinness Book certification for my model.

RES: I understand that you visited Germany to study the models that they have produced.

IA: A relative from Germany presented me with some books, which mentioned Echtdampf Hallentreffen Steam Engine meet at Sinsheim near Heidelberg, where you can see the largest model steam loco fleet. This is a huge layout on 5" gauge. I was very keen to go there but did not have the resources. This was some time in 2004. I approached Murli Manohar Joshi, who was then Minister for Science and Technology, for assistance. He was very impressed by my smallest steam engine and agreed to sponsor my trip. That is how I was able to visit Germany. In the meantime, I had already made a working model of a locomotive that I named "Indian Glory". This was a generic design and not any specific loco. I demonstrated "Indian Glory" at Sinsheim and was appreciated for it.

RES: Tell us about various machinists' awards that you have won.

IA: Sherline Products Inc., located at Toledo, Ohio, in the USA organises a machinists' challenge competition regularly. The criterion for the competition is that the final product is of 4 inch cube size. It can be any item. I first made

Iqbal Ahmed at work



a stationary steam engine in this size and was awarded. In 2005, I made a working model of a lathe machine with all parts. For this, I got the second prize. The organisers also presented me with a model milling machine 18" high. I duplicated this with all its parts within 4". For this, I got the first prize.

Another regular event in the USA is the exhibition of the North American Motor Engineering Society. I wrote to them for permission to exhibit my models. They offered me space and furniture and nothing more. I then approached the Ministry of Science and Technology and they sponsored my trip to the US.

RES: Did you work only with steam and locomotives?

IA: No, I have delved into almost all types of machines. In 2007, I made a 4" model of an I-C engine. This was a working model with 250 parts. For this, I got the second prize.

This was not my only foray into the auto line. The Mercedes Benz distributor in Mumbai, Mr. Mohan Mariwala, invited me to Mumbai where I was shown the Mercedes Benz catalogue. I noted that one of the vehicles shown was the first 3-wheeler Mercedes Benz Motor Wagen, with a rear mounted engine. Why not model this, I thought? There was also a full-scale model of the Motor Wagen. I studied this and took photographs. I then made a model 1/4th the



Guinness certificate for smallest steam engine

1/4th working model of Mercedes-Benz Motor Wagen





Assorted creations of the maestro

size of the original. The model was fully functional and ran on petrol.

RES: How did you develop the Fairy Queen model?

IA: When I returned from Germany and having seen all their loco models, I thought I would introduce this to the then Railway Minister, Mr. Lalu Prasad Yadav. I wrote to him and he directed me to the Director of the Rail Museum, Mr. Sandeep Mehra. I demonstrated the Indian Glory at the museum in 2005. While at the museum, when I saw the Fairy Queen, it struck me to make this engine. I studied it from all sides. Luckily, it was in steam and I could see it in motion and studied the moving parts. On return to Nagpur, I began working on it and had the Fairy Queen ready in a little over a year.

On return from the US, I started work on the first Ford car. With the Internet now available, I could get a lot of information from there. The model was a 4-wheeler, twin cylinder petrol engine vehicle with an open body. This was to ¼ scale. I presented this at the exhibition the following year. Since I got no support from the government, I looked

for sponsors and was sponsored by Le Meridien through the good offices of Mr. Tarun Thakral.

For all these models, Sherline presented me with a gold medal and a Life-time Achievement Award.

RES: What are your plans for the future?

IA: I am currently working on a full-scale working model of the Benz Motor Wagen. Apart from that, I do not have any special plans. Some time back, a Britisher wanted a model South African Railway's 4-8-2 19D steam locomotive. I started working on it in 3½" gauge and when it was 99% complete, the Britisher backed out. This model is 3' long including the tender.

RES: How much do these models cost?

IA: The material cost for most of the models was of the order of ₹40-50,000. At today's prices, this will work out to around 1-1½ lakhs.

Editor: A write-up featuring Iqbal Ahmed by Ravindra Bhalerao appears immediately after this interview

Photos: Courtesy Iqbal Ahmed & Ravindra Bhalerao

Personalities

Profile of a Maestro

Ravindra Bhalerao

There is in Iqbal Ahmed's creations a flavour that is reminiscent of applied mechanics of the 18th and 19th centuries, bringing to mind the names of Watt, Cugnot, Trevithick and others of that time; men whose spirit of adventure and experiment brought about a revolution in industry and transport. We associate that age with clocks and refracting telescopes, Hargreaves' spinning jenny, Daguerre type photographs and Faraday's discoveries in the science of electricity and magnetism. Iqbal's creations, though sparkling new, hark back to those times. He uses his skills in fine mechanical engineering to create wonders from an age long past, the age when steel was beginning to come into use for ships, when the steam engine was coming into its own, providing the impetus for progress in nearly every field of endeavour.

There are two things that strike one as being remarkable when we think of Iqbal's creations. To begin with, his workshop is equipped only with a lathe which means that each of his mechanical gadgets has been hand-crafted with the aid of only a single machine tool. Secondly, he has no fascination for static models; he does not believe in creating models only for display. Each of his models is a working piece. Each is capable of performing with effortless ease the task intended for it.

Iqbal has been into constructing steam engines since a long time: stationary steam engines, beam engines, locomotives



Under gear of locomotive model "Indian Glory"

That pioneering age of discovery and invention is brought alive when we take a peek into Iqbal Ahmed's living room. If you wish to relive the age of steam road rollers, beam engines and early motor cars, a visit to Iqbal's home is recommended. He lives at one end of Residency Road in Nagpur where he has remained busy crafting an amazing variety of mechanical gadgets dating back to the days when the industrial revolution had begun to sweep across the world. And he is willing to let anyone with an interest in vintage machines visit his place and inspect his collection.



Model road roller

Locomotive model under production



and road rollers. It is a passion for him and he believes in turning out each piece with perfection. He had his first experience in model building when he constructed a Swiss electric HO gauge train in 1962. This was followed by a palm-sized stationary steam engine a few years later. Knowing about his fascination for working models, friends often give him books on model engine making and loco construction. "Often the dimensions listed in the book would lead to a model too large, so I generally scale down the parts proportionately," he tells us.

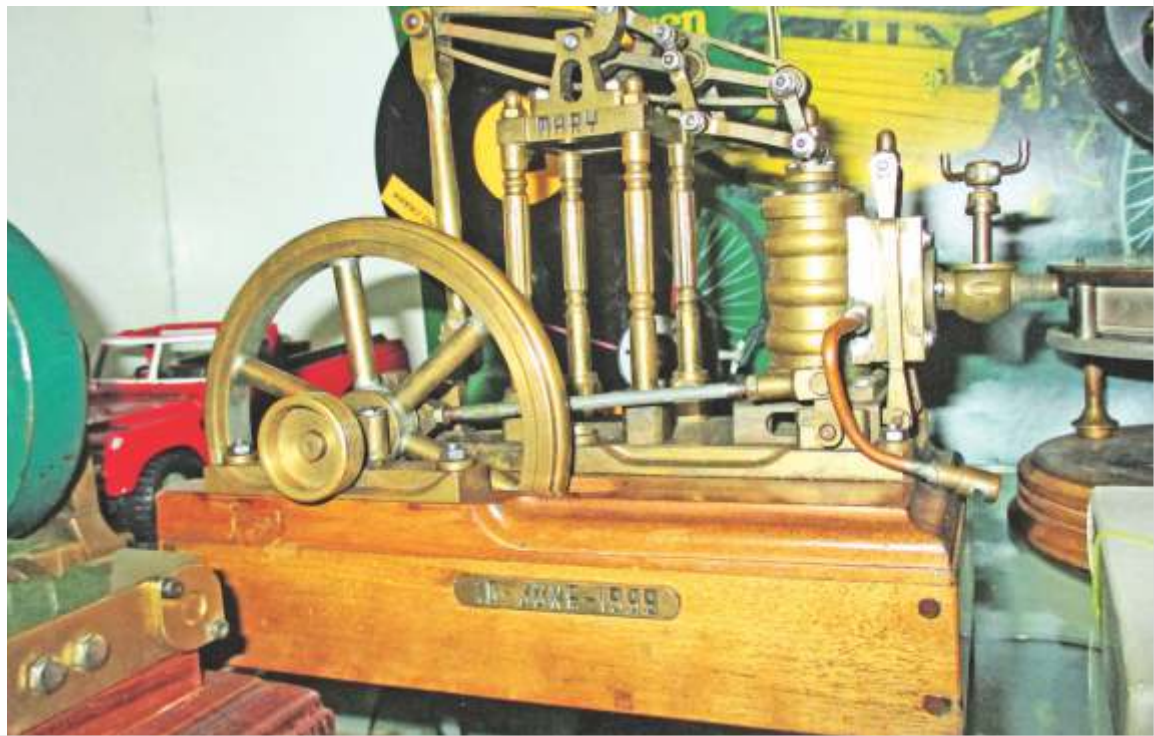
While the steam road roller pictured on the previous page is large and heavy, his passion for miniaturization led him to build a stationary steam engine so small, it could fit into a thimble. When fed with steam from a separate boiler, this engine worked splendidly, and being the smallest engine of its kind in the world, it soon became a celebrity. It earned Iqbal a place in the Guinness Book of World Records as the maker of the world's smallest stationary steam engine.

There are other honours he has received. Although his engine which earned him a place in the Guinness book is too small to be pictured here in detail, we may inspect his miniature lathe. He has been regularly entering his miniatures in the Sherline Machinist's Challenge Contest held in the United States, and has been honoured with the Lifetime Achievement Award in 2012 conferred by the Joe Martin Foundation for Exceptional Craftsmanship. His models of a Sherline lathe and milling machines won first and second prizes, a gold medal, citation, as well as a cash award in these contests, and he has been declared as one amongst the six top craftsmen of the world.

Despite the honours he has received, Iqbal remains a quiet and unassuming person calmly going about his daily



Model of a "Beam" steam engine – one of the earliest engines built





The Ford Quadricycle of 1896 is a scaled down version of the original



The Indian Glory

pursuits, spending the larger part of the day in his workshop on Residency Road. Amongst his recent creations is a 1:4 size model of a Ford Quadricycle dating back to 1896 complete with carburetor and petrol engine and running on solid rubber tyres; and an equally fascinating model of a Benz Motor Wagen of 1886, again equipped with both propulsion and steering. Parked in a corner of his living room, one would think these quaint looking automobiles of a bygone age were made to order for a customer, such is the degree of realism and detail he has succeeded in achieving.

Another noteworthy mechanical contrivance crafted by Iqbal in his workshop is the "Mary Beam Engine" we see on the previous page, representing an early form of steam engine that was developed and put into use in the 18th century. When Thomas Newcomen devised his beam engine in 1712, it was not his object to arrange for steam powered transport; this would have to wait for another 90 years when Richard Trevithick introduced high pressure steam in a cylinder to propel a road vehicle carrying passengers. Newcomen's engine was large and unwieldy: steam at atmospheric pressure was admitted into a cylinder and allowed to condense. The resulting vacuum caused the piston to move down under the action of atmospheric pressure acting on its top. The slow to-and-fro movement of the piston caused a transverse working beam to oscillate, imparting its motion to a pump used to empty out water from a coal mine.

The "Mary Beam Engine", although resembling Newcomen's invention, is not an identical copy, but is based on the modern principle of using steam at pressure in a cylinder, causing the beam to oscillate thereby causing a flywheel to rotation.



The intricacies of Iqbal Ahmed's models – the engine of the Benz Motor Wagen

Among Iqbal's many creations, "Mary" stands out as a touching example of one of the earliest attempts made by man to employ steam to perform useful work in the service of humankind.

It is going to gladden the heart of any rail heritage enthusiast to know that Iqbal Ahmed having dabbled all along with loco construction, has gained a remarkable degree of skill in building miniature working steam locomotives from scratch, and is now in a position to fabricate a model locomotive on order for anyone who is keen on possessing one.

Step into Iqbal's home and you will be pleasantly surprised with the sight of two pretty steam locomotives lying quietly

side by side on the floor of his living room. The first of these (seen to the right) is a 0-6-0 tank engine, dubbed "Indian Glory", measuring 34 inches in length, 10 inches wide and 14 inches tall. Standing next is the "Fairy Queen" of similar dimensions, being a replica of the legendary Fairy Queen 2-2-2 locomotive of 1855 vintage which has been reconditioned to haul tourist specials during the winter months.

Each weighing about 55 kg., Iqbal's steam locomotives are heavy and develop enough tractive force to haul along 5 or more adults seated on specially built open cars running on an oval rail track. "When Indian Glory was first built, I was doubtful if it would haul even a single person but this engine has amazed us all by its load carrying capacity," he says.

one large flue tube among 13 smaller smoke tubes provides ample room for the superheater element within, thereby effecting economy in the use of steam.

Both engines are coal fired, the flue gases rising in the firebox and passing through a set of smoke tubes set in a 3.2 mm thick copper boiler. A special pump delivers motor car engine oil to the cylinders for lubrication, whilst an axle pump brought automatically into operation when the engine is set into motion, forces water held in the tank into the boiler, this latter action being capable of being bypassed with a suitably designed valve when the gauge glass shows a full boiler.

Fairy Queen, being a scaled down replica of the full-sized engine, employs Stephenson's link motion to actuate the valves.



The Fairy Queen & Indian Glory lying side by side at Iqbal's residence

His engines operate optimally within a steam pressure range of 60 - 70 lbs/sq. inch, and a safety valve is provided maintaining steam within a safe limit of 120 lbs/sq. inch. Each is equipped with a blower, gauge glass, pressure gauge and cylinder drain cocks. Iqbal's care and attention to detail can be seen in the design of each small part that contributes to the performance of the machine: he provides the piston with a pair of piston rings with gaps staggered to prevent a straight line of escape of steam from one side to another, and his cylinders are kept steam tight with asbestos gland packings. The locomotives work on superheated steam:

How did Iqbal design Stephenson's motion for his engine? "While at the National Rail Museum of Delhi, I closely studied the working mechanism of the Fairy Queen, and even took photographs. My model is based on these photos and what I learned while at the museum," he tells us.

Indian Glory, on the other hand, works on the more familiar Walschaert's valve gear. Both machines use plain D-slide valves with external admission for steam distribution and are capable of running in both forward and reverse gear.

Iqbal's locomotives have given entirely satisfactory



Model of a lathe machine lying below one of the many certificates received by the expert



Pressure gauge and throttle of the Fairy Queen

performance until now; day-long demonstrations have been held at the National Rail Museum in Delhi as well as various other venues. Has he ever had occasion to replace a working part of the locomotive? "Wear is minimum here," explains Iqbal. "The cylinder, piston rings and connecting rod bushes are made of gun metal which is wear resistant. If a connecting rod bush wears away, I only need to replace it with a new one, but so far there has been no need for this. All external working parts are kept well lubricated manually with an oil can before a run."

Perhaps the only thing lacking is the facility for boiler inspection and washout. "From time to time, I clean out the smoke tubes to rid them of the accumulated soot, but there is no way you can open out the boiler for removing scale. All

we can do is fill up the boiler and empty its contents through a blow down valve," he says.

And so Iqbal's collection stands, a poignant reminder of the industrial revolution and of those adventurous times when men were tinkering with mechanical innovations, and physics had begun to unravel the secrets that underlay their successful operation. His hand-crafted miniature models constitute a unique collection that is bound to be of tremendous interest both to steam engine enthusiasts and students of industrial history alike.

Does he have plans to work on any new models? "At the moment, I am preparing a full-size model of the 1886 Benz Motor Wagen," says Iqbal. As for future plans, there are none in sight as yet. "When something interesting presents itself, I will begin to work on it," he quips.

Perhaps something interesting will turn up. Having made a great variety of engines, both large and small, it is hoped that he will turn his attention in due course to other innovations that made their appearance during the early years of the industrial age. Who knows what lies in store ahead—perhaps one day, Iqbal will surprise us with a model of an early printing press, a spinning jenny, or maybe even Lumiere's kinematograph!

Photos: Courtesy the author

About the author:

Ravindra Bhalariao is a rail enthusiast based at Nagpur. He can be reached at ravindrawp@gmail.com

Budding Enthusiasts

Aakash Kamble

After reading of Iqbal Ahmed, master craftsman and model builder, one wonders if the art of rail model making will die with him. It is heartening to note that it will not and there are many budding modellers with a passion for the avocation. Meet Aakash Kamble, all of 20 years old, and pursuing a course in mechanical engineering in Pune. Read about young Aakash in his own words...

My love for trains began since my childhood when I was just two years old. Staying in Mumbai I had a daily commute by local train with my mother from Bhayander to Charni Road as she went for a job there. I have always been fascinated by trains. I loved the speed, the way a train looks and runs. I would observe trains very carefully during the commute with my mother.

Then, in my school days when I was in 8th Std., I made my first model of my most favourite Mumbai local train made out of a cardboard box. As I grew up my perfection in making models improved as I understood most of the technical concepts of trains. I used to visit loco sheds, loco workshops for observing the construction of the locomotives and the details and I would implement this



Aakash with one of his models

Model of a suburban EMU coach





WP loco "Akbar"

knowledge in making models. All models are totally handmade right from bogies to wheels.

My models are not of any definite scale; all are of approximate dimensions. I make models using mount boards, foam board, aluminium sheet and some scrap materials like empty pen refills for pantographs and wheel axles, empty medicine covers for axle boxes, wires, etc. and use simple tools. Till now, I have made around 30-35 models

Model of a WCAM3 electric locomotive



which include Indian Railway locomotives from steam to electric, coaches, wagons, EMU trains and some American locomotives.

I have got great encouragement and support from my parents to develop my hobby and passion. Now trains are everything for me and I have always enjoyed making them.

Photos: Courtesy the author

Nostalgia

Those Lovely Iron Horses

V. Narayanan

In 1956, I joined the Indian Railways School (now Institute) of Mechanical & Electrical Engineering at Jamalpur as an engineering apprentice (better known as Special Class Railway Apprentices). Steam locomotives (fondly called iron horses) then dominated the motive power scenario. There were small tracts of electric traction in and around Bombay and Madras. There were virtually no diesel locomotives.

For every type of railway operation there were specific types of steam locomotives, be it for mail and express services, slow passenger, freight or very heavy freight. For commuter services, there was the tank engine that did not need reversal. The *numero uno* was the WP meant for running long-distance mail trains. A thundering WP hauling a 15-coach Kalka Mail at full speed on the Indo-Gangetic plains was indeed a magnificent sight. The WG was the mainstay for freight services then but the erstwhile East Indian Railway had massive XE1s with a fire-grate area 40% bigger than the WP/WG! These were equipped with mechanical stokers. Bengal Nagpur Railway, with greater freight loading potential and steeper gradients, opted for the even more powerful Garratts. Essentially, the Garratts had one boiler driving 2 locomotives permanently coupled. Saibal Bose, a railway mechanical engineer, was instrumental in restoring to working order one such Garratt. In 2007, I was privileged to foot-plate on a Garratt that had been restored primarily due to his efforts.

Engineering apprentices would debate endlessly and animatedly of the many unique and special features of the steam locomotive, such as “hammer blow”, innumerable valve gear designs, dreadnought and solid jet ejectors, plate and bar frames, etc.

Jamalpur Railway Workshop, as indeed many others, had a wide variety of manufacturing technologies such as machining, foundries, smithy, die sinking, rolling mill, etc. You name the component, and there was a way and willingness to make it in-house. For example, Southern Railway's Perambur Workshop manufactured snubber shoes for damping WDM2 bogies, a diesel locomotive. The same workshop modified a furnace to anneal bogie frames manufactured in the Integral Coach Factory for coaches exported to Taiwan. “Can do” and “will do” was the attitude that prevailed.



Elsewhere in the field, a variety of homing sheds had been developed, the most innovative being a round house, where a turn table is used to feed locomotive bays. One such shed existed at Erode (pictured above) while another was located at Bitragunta. Although now derelict, the latter still exists and can definitely be revived as an attraction for the rail fan tourist.

Times will and do change. Electric and diesel locomotives are infinitely more powerful and the increasing traffic demands required these new behemoths. Phasing out of steam locomotives was effectively completed by the early 1990s. The regrettable aspect, however, was how essential features for the successful and reliable operation of steam locomotives were sacrificed even at the design stage on the altar of economy, foreign exchange savings and all that mumbo-jumbo. Perhaps, if some of these aspects had been accepted, steam locomotive reliability would have been infinitely better, serving the railways well even as they made way for their more powerful and fuel-efficient cousins.

But my association with steam locomotives, the dedicated and innovative maintenance staff associated with them, the locomotive running staff who were so uniquely proud of the role they played in railway operations, gave me infinite joy. And I am happy to reminisce.

Photo: Courtesy the author

About the author:

V. Narayanan was a career railwayman and retired from the Indian Railways after 4 decades of service as General Manager of the South Eastern Railway. He can be contacted at vednarayan@gmail.com

Trip Report

Chasing Trains in Tiger Country

Shashanka Nanda

A *lmost every other week, one of the station staff sees a tiger around here. Occasionally, a leopard. Elephants, well in summer, they cross near the home signal in hordes!* That was the Station Master at Dudhwa introducing his station to us. Not that we were expecting any less at a station located smack in the middle of a national park. I for one was secretly hoping to come across one, even as we trekked in the dark towards the home semaphore signal. Alas! We didn't come across anything bigger than a jungle cat, but then wild animals don't turn up on a schedule. In these parts, even the trains were not running on schedule; a fact that we learnt quickly, while chasing trains in the Terai.

In the middle of the 18th century, the British cleared vast

swathes of jungle and swamp around Bareilly and Pilibhit for logging and farming. *Sal* from central India became the timber of choice, while mile upon mile of farmland grew sugarcane. All this produce needed quick transportation and to this end, railway lines were laid in the last two decades of the 19th century.

The Lucknow-Sitapur-Seramow Railway built the section up to Mailani, around the year 1887, while the Bareilly-Pilibhit Railway was built in 1884. The two railways were merged in 1891, to form the Lucknow-Bareilly State Railway. This system merged with the Oudh-Tirhoot Railway in 1943 and, post-Independence, the sections became part of the North Eastern Railway (NER) zone of the Indian Railways in 1952.

Train crossing bridge over the Sharda River near Palia Kalan





They continue to be in NER at the fag end of their service. Large portions of the system have now been converted to Broad Gauge. Bareilly-Pilibhit, Sitapur-Aishbagh-Lucknow have all been widened. What remains is the 200 kms. odd Pilibhit-Mailani-Bahraich section, and a few short spurs radiating from Pilibhit and Mailani.

The line from Pilibhit to Mailani runs in a South Easterly direction, passing mainly through farmland. A short stretch passes through an extension of the Pilibhit Tiger Reserve, near Mala. The proximity of farms with forest land has led to many skirmishes with wildlife. A tigress killed many humans in these parts recently. Needless to say, an encounter with wildlife at some of these remote stations was always on our mind.

But more than the danger of wildlife, it was the fear of Meter Gauge (MG) being lost forever that worried us most. The sight at Mailani Jn. confirmed the worst. Lines and

platforms were being uprooted to make way for Broad Gauge. Piles of rubble, mangled heaps of metal and the relentless drone of an excavator drove us away to the comfort of a signal box on the Northern end of the yard where we awaited the arrival of a train from Pilibhit.

The first service of the day leaves Pilibhit station





Loco No. 6531 YDM4 leads the service to Mailani past the abandoned Raj Narayan Pur station

Another arrival from Bahraich was expected, but was running late. We hoped to catch it at Raj Narain Pur, an abandoned station a few kilometers from Mailani. It once served as a crossing station when passenger and freight traffic was high. But with the demise of the latter, maintaining the station was deemed a liability, and the building was left to the elements in 2013. The building is now a haven for insects, snakes, monkeys and the occasional tiger.

The line from Mailani to Bahraich crosses the Sharda River near Palia Kalan, before entering the Dudhwa National Park. The bridge used to be a common path for both road and rail, before a new road bridge was inaugurated later in 2013 to separate the two. The rail bridge deck was further revised to remove the road portion at grade.

The Terai is irrigated by a large number of rivers and canals. The first train of the day crosses one such canal near Pilibhit





A morning service from Mailani heads towards Bahraich. The 150-odd kms. distance is one of the longest journeys one can make on Meter Gauge today



Travelling another 12 kms. North East, the line enters the Dudhwa National Park. The eponymous station serves as a crossing point for trains and as a means of entry for tourists and staff serving both the railways and forest department. Two colonies housing railway and forest staff flank the station.

The station has a refreshment stall manned by a contractor who lives in Palia Kalan who wasn't very happy with his returns. "I come in with the first train in the morning and leave by the last train in the evening. Nowadays, business is only with staff and the odd local person. Tourists hardly come in by train." With the breakup of the MG network, long distance connections to Dudhwa are virtually impossible, leaving road as the preferred mode of access.

There was plenty of action that evening at Dudhwa, including a few crossings. Far away from the city lights, the early winter sky was crystal clear. That allowed us to combine two passions – astro and rail photography. As we took leave from the station, a wild boar and a jackal crossed our path, reminding us who the real boss was here.

The lack of environmental clearances to build a Broad Gauge line through the National Park will keep this section alive for a few more years: a tiny fragment of a system that once existed from the border with Burma to the one with Pakistan.

Photos: Courtesy the author

About the author:

Shashanka Nanda is a rail enthusiast. Last November, accompanied by Vikas Chander and Rajit Kumar, he travelled over this area to photograph these MG lines for posterity. He can be reached at 13sticks@gmail.com



Wildlife along the track. Often more than mere rhesus monkeys



A heavy fog shrouds the bridge over Sharda River





The train is a lifeline for the locals. Wood collected from the forest outskirts is ferried back to the village by train

A Bahraich bound service slowly emerges from a grove of tiger grass near Raj Narayan Pur



Celestial Rail Silhouettes

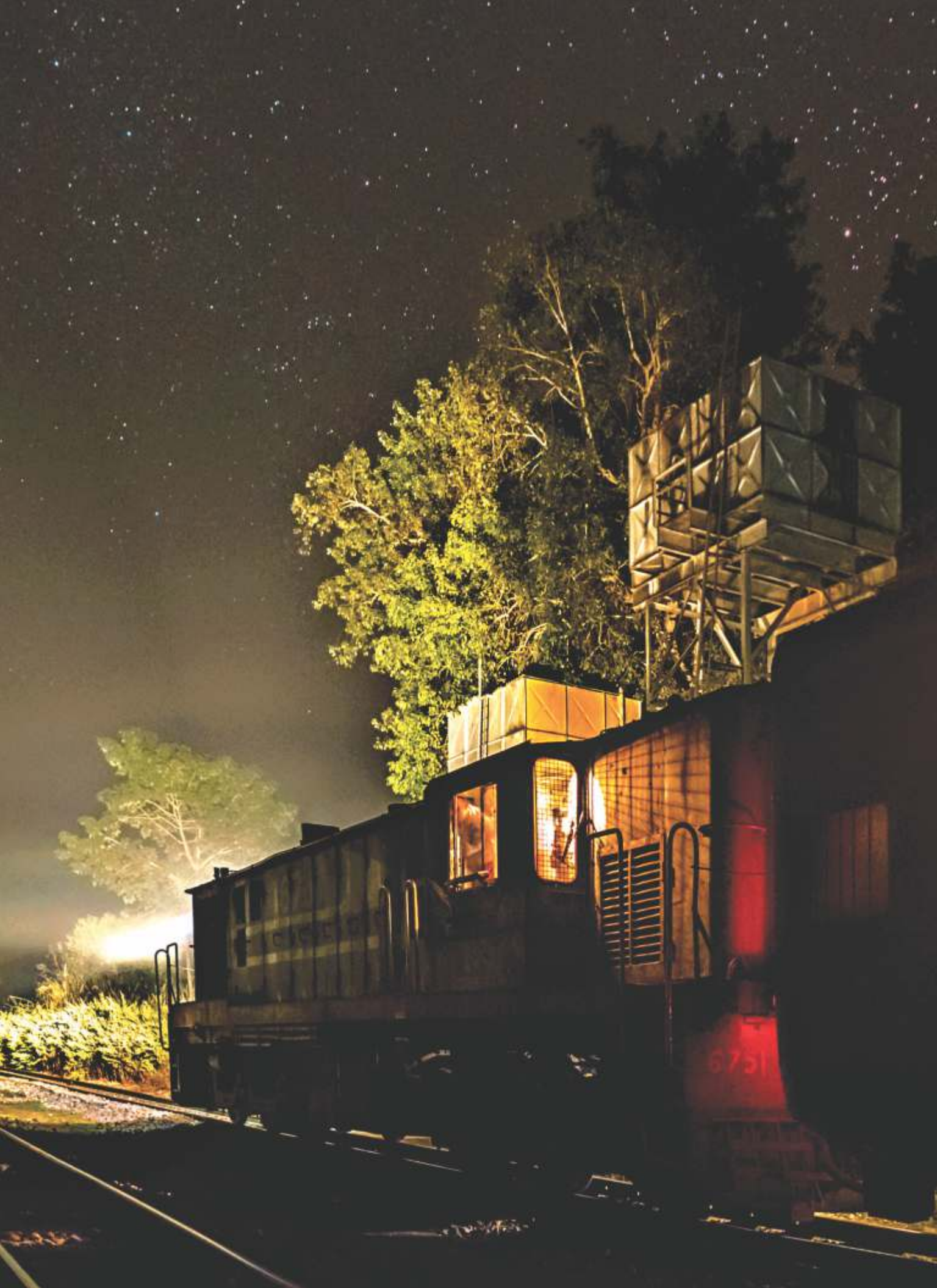
Peruse any rail magazine and you will find that more than 99% of the photographs are taken in broad daylight. But there are exceptions that prove the rule. Vikas Chander is definitely in this category. Not only did he take some stunning pictures of trains and rail infrastructure at night but blended them with some incredible mind-blowing photographs of the night sky. We present some of these pictures to you in this photo-feature. Readers

living in urban areas would have perhaps forgotten what the night sky looks like; these pictures are a good reminder that even in places like Delhi as recently as forty years back, the sky looked the same.

The pictures presented have all been taken in and around the Dudhwa National Park when Vikas and his railfan and photography buddies, Shashanka Nanda and Rajit Kumar, were chasing trains in tiger country.















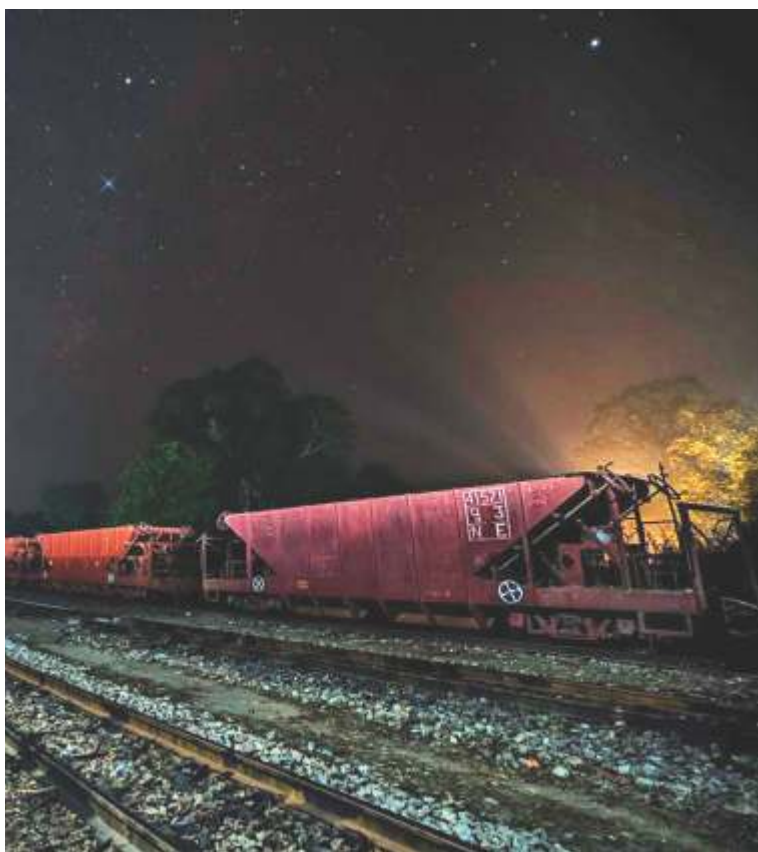


Photo Captions

- Pages 24* A hopper rake parked at Dudhwa station for departmental use
- Page 25* A sight never seen by city dwellers these days. A clear view of the Milky Way behind a rail signal
- Pages 26 & 27* YDM4 locomotive under the dark Dudhwa sky. The constellation Taurus is clearly visible above the trees
- Pages 28 & 29* Diverging lines with the lights of Dudhwa in the background
- Pages 30 (top)* Late arrival of a passenger train at Dudhwa
- Page 30 (bottom)* Railway to heaven. The lights are of the town of Palia Kalan
- Page 31 (top)* A semaphore signal in front of the constellation Cygnus
- Page 31 (bottom)* Rake of hopper wagons silhouetted against the night sky. There is virtually no other freight traffic on this section
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Rail Modelling

Modelling Indian Railways

Warren Miller

For rail enthusiasts in Europe, Australia or America there are plenty of commercial models, either ready-to-run or in kit form, of their favourite trains. However, for the modeller who wants to reproduce Indian Railways (IR), life is not so simple; you have to make them yourself! There are many outstanding railway modellers in India, and there was an active internet chat group devoted to modelling Indian Railways, though this has gone quiet in recent years, probably due to the emergence of other social media. Modellers in India have created some wonderful hand-built models using basic materials (wood, card, plastic, metal) and lots of skill.

Having enjoyed travels on IR, I like to reproduce Indian locomotives and rolling stock in model form as a 'working souvenir' of my trips. Being located in Australia means that I can usually find commercial models in HO scale that can be adapted to closely resemble IR locos and rolling stock. This makes construction a bit easier but still provides some challenges in 'kitbashing' (modifying a commercial model to represent something different) and detailing and painting. Of course, in HO scale (1:87), the track gauge of 16.5 mm is unrealistically narrow for broad gauge but this compromise is necessary if you want to use commercial models and track. The notes that follow give an outline of some of the possibilities.



This WDM2 was modified from an Australian class 45, which is a similar ALCO design. The main changes were adding cowcatchers and shifting the cab closer to the end



The original Australian model is shown on the right, and its conversion to a WDM2 on the left. The different roof profile of the WDM2 is evident, and the Indian colour scheme is much more attractive than the original

LOCOMOTIVES

For diesels, there are several Australian locos that are very similar to IR locos. This is not surprising given that they come from the same basic ALCO models. The once-common YDM4 diesel is nearly identical to the class 48 loco of the New South Wales railways. An inexpensive model of the NSW 48 class was available for many years under the Powerline brand and this is ideal for conversion to a YDM4. All that is needed is to remove the buffing plate, add a cowcatcher and re-paint the model. For complete accuracy some changes should also be made to the handrails and horns, but it's not a big job.

The widely used WDM2 and its variants can be modelled

based on the NSW 45 class (which was the ALCO DI541). A model 45 class was produced by AR kits as a ready-to-run model, and recently a highly detailed model has been produced by Auscision models. However, the cab on the NSW 45 class was a little further from the end of the hood compared to the WDM2, and since the cab on the AR kits model is removable, this makes it ideal for conversion. Some work is needed on this conversion. Apart from re-positioning the cab, the roof of the loco has to be built up with plastic sheet to match the WDM2 profile. Beyond that, it is a matter of replacing the buffing plate with buffers and adding a cowcatcher. The exhaust fan and body side ventilation grilles are also not quite correct for a WDM2 and these can be re-positioned by some very careful surgery to



The model YDM4 and the original model (right) of a New South Wales 48 class. Some details have been altered on the roof, but most of the work is simply in repainting.

a WAM4, but with some modification to the cab side windows, and the addition of protective grilles on the front windows and ventilation grilles on the body side, it looks a lot like a WAM4. Adding the correct type of headlight and pantographs, and a cowcatcher, improves the model a lot. Again, I painted it in the more common IR maroon colour with yellow and silver trim.

Steam locos are more challenging, though most modellers would focus on present-day traction I expect. However, I thought a model of the iconic WP class would be good, and I found that a model of an American New York central 'Hudson' loco could provide the basis for this. The model is an old one made by the Italian firm of Rivarossi. Although the model is a 'Hudson' (4-8-4 type) and not a Pacific, it has a bullet nose smokebox, a streamline casing over the



Cheap models of the Japanese Shinkansen coaches provide the basis for quite accurate models of many Indian coaches. The Shinkansen coach shown was marketed in a fictitious 'Santa Fe' livery, as a toy for the US market

the plastic body of the loco. Even if they are left untouched, the model still provides a reasonable representation of a WDM2. The big decision is what colour scheme to paint it! I've produced three of these models, one in blue/yellow/red livery (Erode shed?) and the others in the earlier maroon colour scheme which was very common.

For electric locos, some European models can be adapted to resemble IR types. To make a WAM4 electric, I used a model of a French Co-Co electric class 7100 made by a French manufacturer, Jouef. It is similar, but not identical to



Here is a model of an SLR made from a Shinkansen coach, which is fairly accurate, aside from the visible underframe, which does not exist on the integral bodied coaches built by Indian Railways

chimney and dome, and 'boxpoc' wheels, so those features give it some of the aspects of a WP. Given that the WP design incorporated the best features of American design at the time, the choice of a US model seems reasonable. In fact, much work was needed to alter the model, removing the side valances and front 'skirt', and building a new cab, and front footplate. These were made in thin sheet brass and glued to the plastic body of the model. It is not a fully accurate model, but it does look like a WP.

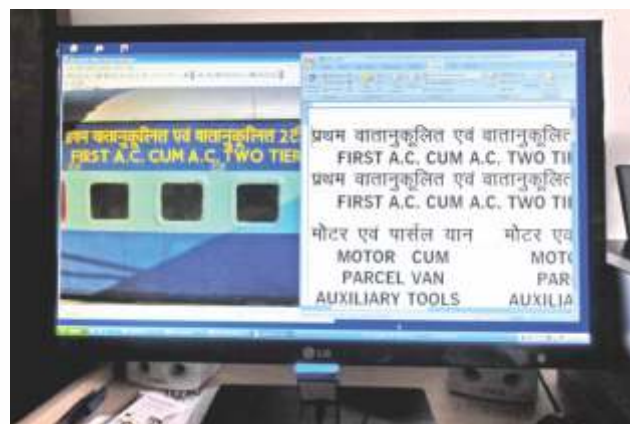
filled, resulting in fairly accurate coach bodies. The moulded roof ventilation detail was sanded smooth and ventilators added, or air conditioning grilles painted on in the case of AC coaches. For 3-tier AC, the roof had to be built up with strip plastic to represent the higher roof on these coaches. Unfortunately, the Japanese bogies on these models are quite wrong for IR coaches. I was able to salvage some suitable German-design bogies from other models and these look quite good, the IR bogie design being based on a German pattern. However, the bogies are



Another SLR in blue livery with full lettering. The WDM1 diesel in the background was converted from a model of an Australian 44 class, made by the Italian manufacturer Lima.

COACHES

I thought I'd have to build the coaches from scratch, and then I obtained some old second-hand plastic models of Japanese Shinkansen (bullet train) coaches. I noted that the window shape, size and spacing were very close to that of modern IR coaches. Even the body length was about right! So, this provided the basis for quite a few types of Indian Railway coaches. The models were altered by filling in some of the windows and doorways with plastic sheet, smoothing the surface, and then cutting out new doorways in the correct positions. Similarly, for different coach types such as SLRs and pantry cars, the unwanted windows were



The coach lettering was done on a computer using MS Word and Hindi (Devanagiri) fonts to produce a file from which decals were printed. Two windows are open on the computer screen, one showing the actual lettering on the coach and the other is the Word file in which it is copied. By carefully selecting the type size and spacing it was possible to match the coach lettering quite closely – a lot easier than painting by hand!

not a very visible feature of model coaches, so the original Japanese bogies could be retained without too much compromise.

As a non-Hindi speaker, the lettering on the coaches, which is a very distinctive feature especially to a visitor, might have been a problem. However, I had the idea of making decals using a computer, so I searched for suitable Devanagiri fonts on the Internet and found one that closely matched the lettering used by IR (the 'Marathi Sharada' font). I loaded that into Microsoft Word, was able to copy the lettering for different coach types and produce an image file that I then had printed onto a decal sheet, reduced to the correct size – problem solved! I also used this technique for loco lettering: it saves a lot of painting by hand and gives a very professional look to the models. I did take the trouble to ask



The Darjeeling NDM6 is made from a British Backwoods Models brass kit for the body and a scratch built chassis. The coaches are Worsley Works' kits



The WP steam loco started life as a model of a New York Central 4-6-4 made by Rivarossi. The front end (smoke box, buffers, cow catcher) was heavily re-modelled, but it looks like a WP if you ignore the extra wheel under the cab

a Hindi speaking friend to check the lettering, as simply copying the lettering by sight, without understanding it, has serious limitations! Anyway, I seem to have got it about 95% correct and it's unlikely any modeller in Australia will find fault with it.

NARROW GAUGE

When it comes to making models of the Narrow Gauge hill

railways, matters are much simpler, as several British model companies have produced excellent kits for the Darjeeling and Shimla railways. You need deep pockets though – they are not cheap.

Who could fail to love the Darjeeling Himalayan Railway (DHR) and not want to make a model of it? In OO scale (4 mm equals 1 foot) two manufacturers, Langley Miniature Models and Backwoods Models, have produced kits of the

DHR B class 0-4-0 locos, and Backwoods also produce kits for the DHR Pacific and Garratt. The Langley kit is for the body only; you have to make or modify a chassis yourself. Worsley Works produce etch brass kits for a number of DHR and Shimla carriages, and also a body kit for the NDM6 diesel used on the DHR and Matheran Railway. These models run on 9 mm gauge track, approximating to 2 foot gauge in OO scale. On my model train layout, I have a section of Narrow Gauge track, so I've made up several of these kits and they really capture the character of the DHR.

valve gear from an HO scale model of a small Bavarian Mallet (0-4-4-0). However, the chassis had to be made from scratch, with added gearing to drive the rack wheels (which rotate at twice the speed of the adhesion wheels). To put it mildly, it was a complex job. The body was made from sheet brass and tube, and it was fortunate that the side tanks provided plenty of space to house the motor and gearing. The loco looks quite impressive in operation, with the rack wheels spinning around above the adhesion wheels while the loco moves along at a fairly slow speed. I photographed



The WAM4 electric was originally a French model and, while it is not really accurate, it looks quite good

Indeed, when I was visiting the DHR some years ago, I was able to obtain a small jar of blue paint from the workshops at Tindharia; my models have some degree of authenticity as to colour. Of course, this is an illusion; the shade of blue used in real life varies from time to time, depending on the paint purchased by the railway!!

The other great hill railway, the Nilgiri line, is equally attractive as a subject to model, but with its unique locos and rolling stock, there are no commercial models that even loosely resemble it. So, if I wanted a model, this meant scratch building – quite a challenge given that the locos have 4 sets of valve gear and an extra set of wheels for the rack gear. I found that I could source the motor, wheels and

the model with suitable lighting and superimposed it on a scene taken on the actual railway. I was pleased to find that it really does look like the real thing. The Nilgiri railway is a wonderful line and the construction of 4 new steam locos for the line by IR in recent years should mean that it has a bright future ahead.

CONCLUSION

The variety of locomotives, rolling stock and operations found on Indian Railways is an inspiration to the modeller. Though time and money for hobbies are limited, the use of models of non-Indian locos and coaches can provide a means to create good models and still provide some



When the model X class loco is superimposed on an actual picture of the station at Coonoor, it really looks the part. The steam that is visible was from the real loco that was in the original picture.



The HO model of a Nilgiri X class 0-8-2 rack loco. This was scratch built, apart from the wheels, motor and some of the valve gear. At this stage the body had not been fully painted



The DHR train seen on my layout. The bridge is not correct for the DHR which avoided major engineering works on its line



Darjeeling delight! This is the Backwoods kit-built model of the B class which is challenging to assemble but makes up into a very detailed model

rewarding challenges for the modeller. Most of the models used for conversion can be found second-hand on the Internet. The projects I've outlined here have all been described in more detail in articles in the British magazine *Continental Modeller* (CM), so I'll list them in case anyone wants further information.

WP class (steam) CM January 2004; WCM5 and SGS (steam) CM January 2005; WAM4 and coaches CM February 2009; Darjeeling Railway NDM6 CM December 2010; Locomotives WDM1, WDM2, YDM4, D2 4-6-4 (steam) CM August 2012; Various coach types CM October 2012; Nilgiri Railway coaches, etc. CM May 2015; Nilgiri Railway X class rack loco CM December 2016.

Photos: Courtesy the author

About the author:

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Nostalgia

UP THE DOWN LINE

Ranjit Mathur

“Hello, R! Can you get me a berth on 2 Down? I need an AC 1st to Allahabad – a coupe, please: traveling with my dog, you know.”

It was my old friend ML on the phone and I was thrilled.

For one thing, he still trusted me to help, although I had retired from the Railway ages ago. And then, he described the train simply as 2 Down.

2 Down! What memories those words conjured up!

2 Down was the Kalka-Howrah Mail. One of my greatest delights when posted in Asansol was to hop on to the locomotive of a night train – usually 3 Up or 9 Up – for a punctuality drive or signal inspection to Dhanbad, get off, sleep for a few hours in a Dhanbad colleague's carriage kept conveniently for my use, simply in order to ride back on the footplate of the locomotive of 2 Down.



Those were steam days. The experience was multi-dimensional. The red-hot firebox warmed one cheek while the on-rushing pre-dawn air cooled the other; aluminum mugs of tea heated on the firebox lid warmed one's hands and the cockles of one's heart; and then, as we clattered over the Barakar bridge into West Bengal, came the sheer thrill of riding into the sunrise. The spectacle was always unique: the sun rose at different angles at different months

with myriads of different cloud formations painting the horizon with colour patterns that only nature can. The river below us also took on different hues. Now the fireman would inject just a few more shovels of coal into the firebox and adjust the damper for the correct draught into the firebox. The driver then shut off the regulator and the handsome WP locomotive would be left free to coast through Barakar, Kulti and Sitampur – a short toot and a wave by the driver to each Station Master – and finally glide to a perfect stop at Asansol. It was with the feeling that “all's right with the world” that I would bid the driver farewell and jump off the footplate.

It was a similar feeling of exhilaration that accompanied me on the longer run from Asansol to Jhahja on the footplate of 5 Up or 11 Up. My heart would lift as the brave WP negotiated the gradients that topped Madhupur, Jasidih and Simultala, before dropping steeply off the plateau to Jhahja. Invariably, Beethoven's Minuet in G would come to mind: that run and that piece of music have become forever inextricably interwoven together. To this day, when heard or rising in my sub-conscious, the Minuet takes me back to the symphony created by the hissing locomotive, coal being shoveled into the firebox and the steady beat of the track.

I did those trips later on electric and diesel locomotives; but the feelings generated – and the comradeship only the footplate of a steam locomotive can give – were never again realized.

And have those trains also gone for ever? Their names and their numbers were retained for three decades after steam was phased out, but late in the 1980s along came computerisation of the passenger business and all train numbers had to be changed to suit the behemoth. We worked day and night. Though my heart ached, I was a party to the exercise. Still later, increase in trains made them do the exercise all over again and it seems to me that now, though many train names remain, everything else has gone quite out of hand with this brand new 5-digit numbering. 1 Up/2 Down Kalka Mails have become 12311/12312. 5 Up Howrah Punjab Mail is now 13005 Howrah Amritsar Mail.

You will notice that the word 'Mail' has been retained, although you will not find the old post-office-red-bodied mail van on these trains. The Bombay Mail via Allahabad used to have very special numbering: it was 3 Up from Howrah to Allahabad, and 8 Down from Allahabad to Bombay VT. This was because all trains reaching Bombay (as also Howrah) were Down trains; those on Eastern Railway with even numbers. Now this train retains its number 12321 throughout its journey. This means that a train with an odd number runs into Mumbai CST – what a sacrilege! Even on “my” old Eastern Railway, where all Up trains (towards Mughalsarai) had odd numbers, I find a train from Dibrugarh and one to Ahmedabad traveling “Upwards” with even numbers (15924 and 12948). Where are we going?

These 5-digit numbers really seem to have no character at all. In our (“good old”) days the long distance trains had single or two-digit numbers, thus elevating them to a higher status: 1Up/2Down Kalka-Howrah Mail, 3Up/4Down Howrah-Bombay Mail, 5Up/6Down Punjab Mail, 9Up/10 Down Doon Express, 11Up/12Down Delhi Express, to name a few of the elite of my Eastern Railway. Even where a few old names have been retained, some of the picturesque and dramatic gloss that those names invoked seems to have got rubbed off by quirks of change: the Taj express no longer

terminates at Agra, the Rockfort Express no longer terminates at Trichy. 7Up/8Down Toofan Express is now 13007/13008 Udhyan Abha Toofan Express, if you please. BB&CI's Frontier Mail retained that name on Western Railway even though Partition denied its journey to the Afghan border. It no longer exists. 13Up/14Down, the old Upper India Express via the Sahibganj Loop (where it was hauled by the majestic HPS class steam locomotive) has also disappeared completely.

Also missing from our Time Tables is the quaint old injunction: “For Up trains read down; for Down trains read up” as it seems no longer relevant.

But I must end these musings.

I obtained the reservation for ML and met him with the ticket. “I hope you'll get your coupe – but fighting the computer is not easy.”

“By the way,” I added, “The train is now not 2 Down: it is 12312.”

“Somehow that doesn't sound right,” he said.

I agreed.

Front cover sketch: Courtesy Bharat Vohra

Back cover photo: courtesy Devendra Singh

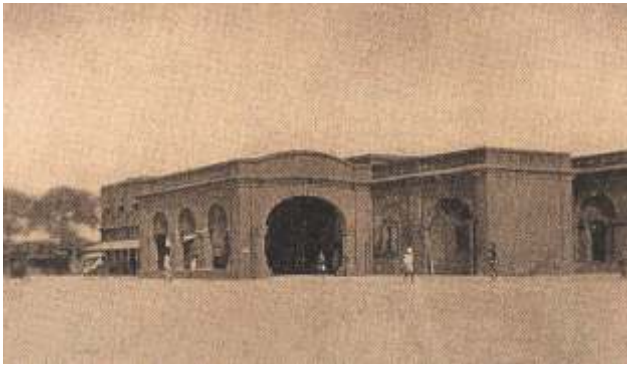
Charni Road Station, Mumbai

More than two centuries back, in the 1820s and 30s, the fort area in Mumbai (then Bombay) was very congested, as a result of which cattle from there used to graze freely at the Azad Maidan (then Camp Maidan). This was an open ground opposite the Victoria Terminus (now Chhatrapati Shivaji Terminus). Such grazing had to come to a halt in 1838 as the colonial government introduced a 'grazing fee' which most cattle-owners could not afford.

Sir Jamshedji Jeejeebhoy came to the rescue and invested ₹ 20,000 (a considerable sum in those days) for purchasing some grasslands near the seafront at Thakurdwar. Cattle could graze freely at this location. Soon, the area came to be known as "Charni" meaning grazing. When a railway station on the Bombay Baroda & Central India Railway was constructed there, it was named Charni Road. Charni Road station still exists on the suburban network of Western Railway between Churchgate and Grant Road stations.

Of course, you do not see any cattle around the station any more. Only slow suburban trains stop at the station, the fast ones going through to Grant Road.





Original Lucknow station

Bramall described the Station building thus: “The exterior is a low, unimposing, barrack-like structure of red brick, quite devoid of any architectural feature of note. Access to the platforms is gained through the booking hall – a gloomy cheerless chamber, and with its iron railings, more suggestive of a prison than a railway station”. At the time, there was one pair of Mail trains running between Calcutta and Peshawar, which arrived at 09:27 AM and left for Mughal Sarai at 09:40 AM and in the opposite direction the train arrived at 03:37 PM and left Lucknow Jn. at 04:00 PM towards Bareilly. Another Mail train ran between Lucknow and Bombay with the train leaving Lucknow at 09:42 AM for Bombay and the train in the opposite direction arriving Lucknow Jn. at 09:50 PM in the evening. Apart from these Mail services, there were four pairs of services between Lucknow and Benares via the Main Line, four pairs via the Faizabad Loop, four pairs between Lucknow and Bareilly and another four pairs between Lucknow and Cawnpore on the O&RR lines.

Photos: Archives of the Rail Enthusiasts' Society

Now

Today, over 350 different train services pass through Lucknow Jn. including daily, weekly, bi-weekly and other services.

In the early 1920s, O&RR decided to build a new station at 'Charbagh' more appropriate to the size and importance of the city. By the time the new station was built, O&RR had been merged into the East Indian Railway system. The concept of the new station building and its detailed design was developed by architect John Hanniman who took inspiration from the rich architectural traditions of the Nawabs of Oudh. It was built in the Indo-Saracenic style with several domes, kiosks and minarets, which were intended to harmonize with the important historical buildings in Lucknow. Some of the outstanding features are the large entrance portico, the grand entrance hall with its impressive pillars and high ceilings, broad platforms and covered sheds. The layout of the Refreshment Rooms and the Waiting Rooms on the first floor with beautiful tiled floors and wall panels were designed on a grand scale. The station lay out had been planned meticulously with generous proportions. The drawings that have been left behind by John Hanniman are a piece of art and depict the detail in which each facility at the station was planned. The station was opened on 19th December 1926 by the Governor of the United Provinces.

Facilities since then have been regularly expanded and upgraded and modern information systems put in place. Yard remodeling and augmentation of maintenance facilities in order to handle more trains has been an ongoing exercise. Even after ninety years the station retains its grandeur and continues to be the pride of Lucknow.



Off the Beaten Track

TRAIN to Farrukhnagar

Prem Agrawal

The Delhi-Rewari rail line was constructed and opened for use as a section of the Rajputana-Malwa Railway (RMR) way back in 1873. It was, in fact, the first Meter Gauge (MG-1000 mm) line in the country. Lord Dalhousie, the then Governor General, often credited with the introduction of the railway in India, was in favour of the Broad Gauge (BG-1676 mm) and all the initial lines in the country were laid to this gauge only. It was only by 1871 that MG was finally accepted and the Delhi-Rewari line was constructed. After being part of RMR, the line was subsequently taken over by the Bombay Baroda & Central India Railway, and finally, during re-organisation of the railways after independence, became part of the Bikaner Division of the Northern Railway zone of the Indian Railways. Today, it remains on the Northern

Railway but as part of the Delhi Division. It was earlier a Meter Gauge double line. As a consequence of Policy Unigauge of the Indian Railways, one of the two double lines was converted to Broad Gauge in 1994 and the other in 2006. Thus, it is now a Broad Gauge double line.

In 1901, a short branch line of 12 kms. was opened from Garhi Harsaru station on this line to Farrukhnagar, primarily to carry salt from the latter to the mainline. At that time, salt was obtained in the area around Farrukhnagar from wells that had saline water. This salt was aptly named "Sultanpur Salt" after Sultanpur, the largest salt-works of the region. However, salt production fell and in 1923 production was prohibited by the British. Today, Sultanpur is well-known for its Bird Sanctuary. There is virtually no freight traffic on the

Sea of yellow





Manned level crossing with locked cabin

line today and only one passenger train and two DEMUs ply per day. Even their running is irregular: our trip to the station on the 31st of December 2017 showed that there were just 2 old ladies waiting for the morning train around 11 a.m., only to be told that the train had been cancelled for want of traffic.

Except for locals living in the area, no normal rail passenger travels on this branch line. There is an excellent road from Gurugram to Farrukhnagar, so that the need to travel by train has ceased to exist. It was for this reason that along with two of my rail enthusiast friends, J L Singh and Ankit Goel, we planned to trek from Garhi Harsaru to Farrukhnagar on the last Sunday of 2017, which happened to be New Year eve as well.

We left Gurugram at 05.30 in the morning in two cars. The plan was to drive to Farrukhnagar, about 25 kms. away, drop one car there, then drive back 12 kms. to Garhi Harsaru, drop the second car and thereafter commence our trek after having a good look at the station. At the end of the trek, we would explore Farrukhnagar station, pick up our car parked there and retrieve our second car while driving back to Gurugram via Garhi Harsaru.

But man proposes and God disposes. We had just gone over the rail over bridge at Basai on the outskirts of Gurugram when, out of nowhere, a dense fog descended on us, reducing visibility to less than 20 meters. This reduced driving to a crawl, so that instead of reaching Farrukhnagar by 7.00 a.m. as planned, we had covered only half the distance at 7.30. If we followed our original plan, we would not start our trek till at least 10.30 or so. Since we were near the Sultanpur Bird Sanctuary, we decided to have a look at the birds there till the fog lifted enough for us to continue to Farrukhnagar.

In spite of the poor visibility, we did manage to see a fair

number of ducks, geese, herons and other birds. When the fog finally lifted, it was quite late so that we decided that we would restrict ourselves to visiting Farrukhnagar station and then return to Gurugram.

Farrukhnagar station is located outside the city in the middle of mustard fields. A sea of the yellow flowers of the mustard is in full bloom at this time. The station is an island in the middle of this sea.

To get to the station, you drive off State Highway 15A

Main station building



Waiting Room





Shunting signal with manual inter-locking

towards the right when coming from Farrukhnagar town, the railway line being about 30 meters from the highway. At this point, there is a manned level crossing (we found the gateman's cabin at the side of the crossing locked). You turn left just before the level crossing and drive along an unpaved dirt road for about 150 meters to get to the entry to the station. There is no place for parking or any other facility that you would normally find at even small stations.

We found the station totally empty and closed. It comprises of one long platform and three lines, a main line that comes in from Garhi Harsaru and two loops. The main line and the loop towards the platform extend about 150 meters

Fixture for loading vehicles



beyond the station to dead ends. The station has a small building which we found locked. The platform and the station premises were neat and clean but that's about all. There was absolutely no activity. On one side of the building there is a small shed with a sloping tin roof that serves as a waiting room. At the side of the waiting room are three water tanks so that the station certainly has water. Since all tanks are at ground level, one of them bears the legend in Hindi: "Do on climb on the water tank". The building itself has a ticket window and a board giving you the ticket rates to various destinations.

Demolished portion of station building





One of the abandoned buildings

The track itself was in good condition with concrete sleepers. The shunting signals and points were manually interlocked though. The line is not electrified so that any train coming here must come in with a diesel loco only. There was a plan some time back to run steam heritage specials from Delhi to Farrukhnagar but that does not appear to have taken off. On the side opposite the station building is a broad well-paved area from the road near the level crossing to the middle of the station where we found a fixture which is obviously used for loading vehicles on to rail flat cars. The paved area and the good condition of the fixture indicated that latter must have been in use recently. We understand that it is used for loading Maruti cars manufactured at the Maruti plant at Gurugram. Since the road from Gurugram to Farrukhnagar is very good, the Maruti company found it convenient to do the loading at the latter station as there is no congestion or delays here as compared to doing the same thing at Gurugram or any of the other busier stations. This is the only freight traffic that moves out of Farrukhnagar. About two trains carrying cars operate each week.

The rear of the building appears to have been partially demolished. The area is otherwise completely bare except for the mustard fields. Some buildings that you can see around the station are all abandoned. The only building that appeared occupied was opposite the demolished portion of the station building, but we did not see activity for the little over an hour or so that we spent at the station. We understand that this was once an Officers' Rest House.

A sad end to what must have once been an active station and an active line. The line has no intermediate station

except for a passenger halt near the Sultanpur Bird Sanctuary. The location of the sanctuary and some of the monuments at Farrukhnagar itself could make this an interesting line attractive to tourists but the way things stand today, the days of the line are numbered. For the record, we did visit two monuments at Farrukhnagar: one is a stepped well and the other a monument named "Sethani ki Chhatri", literally meaning "Umbrella of the Sethani". *Sethani* is the wife of a rich trader or merchant. Farrukhnagar also has a small fort and other attractions but we did not visit them.

Photos: Courtesy the author & JL Singh

About the author:

Prem Agrawal is an IT professional with interests in social work, hiking, rail enthusiasm, bird watching, etc. He can be reached at prem.agrawal@gmail.com

Sethani ki Chhatri



Calcutta's *First Computerised Ticket*

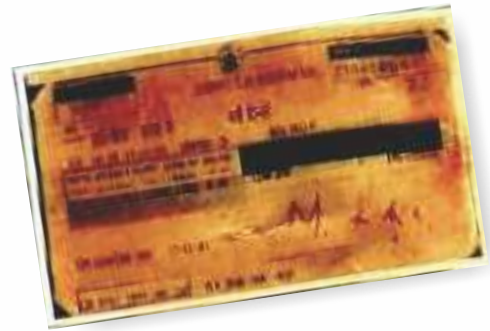
Sanjoy Mookerjee

Arguably, this is the oldest computer printed ticket in India. For 29 years, it was kept in the personal custody of Sanjoy Mookerjee, ex-Financial Commissioner of the Indian Railways, now a diehard rail enthusiast and a very active member of the Rail Enthusiasts' Society. As reported in one of the earlier issues of "The Rail Enthusiast" he had handed over this ticket to the General Manager of the Eastern Railway zone of the Indian Railways for safe-keeping in the Eastern Railway's Heritage Gallery. This was the inaugural ticket that had been issued to the then Minister of State for Railways, Madhavrao Scindia. The ticket had been issued by Mookerjee and he had it autographed by the Minister.

On the 7th of November 2017, the Passenger Reservation System (PRS) at Calcutta (now Kolkata) completed three decades, having been formally inaugurated 30 years earlier on 7th November 1987. This was the second reservation computerisation project undertaken by the Indian Railways, the first having been set up at New Delhi in 1984. The Calcutta project demonstrated that long distance digital connectivity for such complicated software involving large-scale financial transactions could be implemented over microwave and satellite channels, without the danger of loss or fraud. This led to the system spreading all over the country and today there is seamless reservation possible from almost any station in the country to any other station from any third location.

Sanjoy Mookerjee tells us about the beginning of the system in Calcutta...

On the 17th of July 1986, I joined the Passenger Reservation System project in Calcutta (now Kolkata) as System Manager (Operations). This was a pet project of the then Prime Minister, Rajiv Gandhi, as well as the then Minister of State for Railways, Madhavrao Scindia, and it was only after my joining that the Ministry of Railways was able



to convince them that the project had, in fact, taken off at Calcutta.

Till then, only one other officer had been posted to the project, and together we began to take the first small, hesitant and shaky steps towards developing one of the largest commercial computer networks. A network of this size for passenger reservations had not been attempted earlier anywhere in the world.

Today, after three decades, the PRS has evolved into the Unified Ticketing Network, through which the Indian Railways handle 22 million passengers everyday – equal to the population of Australia and many other countries!

The first challenge was to draw up a cost estimate and the technical specifications for a global tender. Such an exercise had not been undertaken in the country till then. We needed a system to handle a minimum of 200 networked terminals with an assured response time of 3 to 5 seconds for every hit. The minimum clock speed of the CPU was needed to be stipulated in the tender papers.

These tasks may not sound very daunting today, but this was 1986. At that time, we didn't have the benefit of the Internet; we were without the versatility of MS-Office or the myriads of other aids and systems we have now. We toiled through literature from various software houses to compute that illusive figure of the computer's clock speed.

Working late into the night, sometimes by candle light (those were the days of "load-shedding" in Calcutta), we finally "cracked the code" – the minimum clock speed of the

CPU would have to be 4 million instructions per second. With the technical specifications ready, we were able to float and award the global tender amounting to ₹ 200 million in the short period of two months.

This was only the beginning. The infrastructure of the computer centre, the six main reservation offices and six satellite offices were to be built and this work was taken up at breakneck speed. Over 7000 programs were to be written and the database of hundreds upon hundreds of commercial data, rules and regulations were to be populated. A very tall order indeed!

It was at this juncture that we first heard the word PNR (Passenger Name Record) Number, the unique identity for each reservation transaction. Today, this is a household word. It took a motivated team from the Eastern and South Eastern Railway zones to work day and night to ensure a live run of the system became a possibility on the 30th of June 1987.

Every evening, as soon as the reservation offices in Calcutta shut, began the uploading of reservation data into the computer system. Our target would be to “fire” (the jargon used for uploading into the database) at least one new train each day (rather each night), till 6 a.m. irrespective of the duty hours. This went on for over 9 months.

Madhavrao Scindia was to formally inaugurate the Calcutta project on November 7th 1987. Elaborate arrangements

were made at the newly renovated reservation office at the New Koilghat building. But, at the very last moment, the Minister, because of paucity of time, decided to inaugurate the system at Howrah station and proceed to New Delhi by the Rajdhani Express.

The project team was struck by a tsunami: there was no facility for data connectivity at Howrah then. The venue was the site of the new Howrah station building, then under construction and with no roof. While temporary reservation counters got built at breakneck speed, the greatest hurdle was to provide data communication across the river Hooghly between Calcutta and Howrah. The imported antennae for digital communication in PRS were yet to arrive; there were no spare antennae with Eastern Railway.

It was time to innovate. One of the signal and telecommunication engineers procured a *gamla* (a dish-shaped aluminium bowl) and re-engineered it to form an antenna. The Minister would never know that he purchased his ticket for the Rajdhani Express through a system costing millions of Rupees but was dependent on a humble aluminium *gamla* that cost less than ₹ 10.

About the author:

Sanjoy Mookerjee, rail enthusiast, is a very active member of the Rail Enthusiasts' Society. He retired in 2017 as Financial Commissioner of the Indian Railways. He can be reached at sanjoymk1@gmail.com

“Test your Rail Knowledge”



Starting this issue, we will be asking you 10 questions in each issue for you to be able to test your knowledge of the history and other aspects of the railways.

1. SULTAN, SAHIB & SIND. What role was played by these three names?
2. Which is the only Indian Railway station that has been declared a World Heritage Site by UNESCO?
3. What does “N” in PNR stand for?
4. What is unique about Bhawani Mandi railway station of West Central Railway?
5. What is the name of India's longest railway tunnel?
6. With which famous Indian would you associate Pietermaritzburg railway station?
7. Name the train that runs the longest distance in India?
8. Name the train and the railway station from where 'Netaji' (Subhash Chandra Bose) made the historic great escape in 1941?
9. A railway station was named after this great Indian's surname whereas the town in which the station is located was named after his first name. Name the railway station.
10. Train No 17303/17304 Mysore-Yesvantpur-Mysore Daily Express was renamed in 2011. It is said to be the first train in India named after a fictional town. Name the new name of this train.

Answers

1. These were the names of the 3 locomotives that worked the first train on Indian soil on 16th April 1853 from Bori Bundur to Thane.
2. CSTM (Chhatrapati Shivaji Terminus at Mumbai). It was originally called the Victoria Terminus or VT.
3. “N” stands for ‘Name’. Full form of PNR: Passenger Name Record.
4. This is a station where commuters buy tickets in the state of Madhya Pradesh and board the train in the state of Rajasthan. The station has been built at a location where its ticket booking counter falls in Mandsaur district of Madhya Pradesh whereas the actual station falls in Jhalawar district of Rajasthan.
5. The Pir Panjal Railway Tunnel or Banihal railway tunnel. It is 11.215 kms. (7 mile) in length and is located in the Pir Panjal Range in the state of Jammu and Kashmir.
6. On June 7 in 1893, M. K. Gandhi was thrown off the train with his bag and baggage at Pietermaritzburg railway station in South Africa, an event that changed the course of his life.
7. Dibrugarh–Kanyakumari Vivek Express. In 82 hours and 30 minutes, the train covers a distance of 4,233 kilometres (2,630 mi) and traverses seven states in India. The train has 57 halts across its route.
8. Kalka Mail, Gomoh railway station.
9. Tatanagar (The town is Jamshedpur – Both named after Jamshedji Tata).
10. Malgudi Express (“Malgudi Days” was written by R.K. Narayan).

Questions researched and presented by Ashad Siddiqui

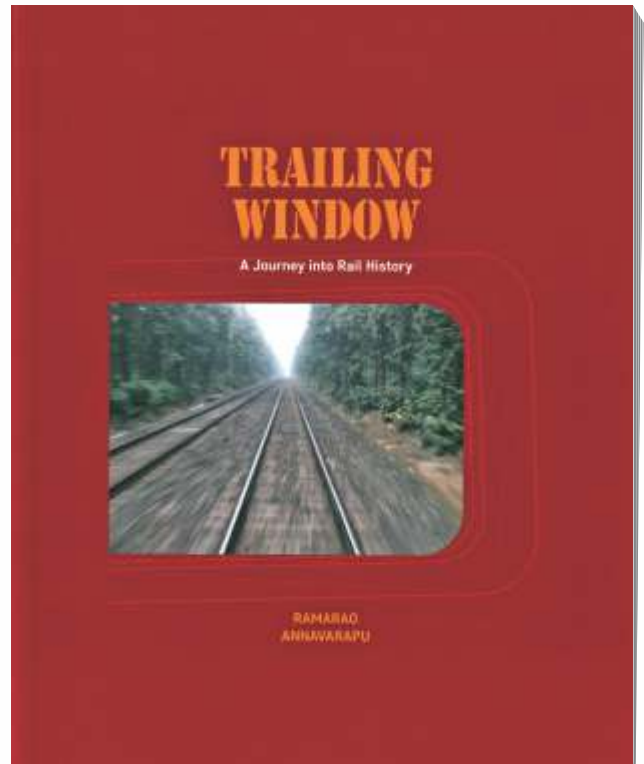
Book Review

Foreword of "Trailing Window"

Ranjit Mathur

Published in July 2016, "Trailing Window" by Annavarapu Ramarao is a journey into rail history, mostly of the Eastern part of our country, recorded comprehensively in a series of well-researched articles and writings. The author, in his acknowledgements, writes, "No words can fully express my gratitude to Sri Ranjit Mathur, formerly Member (Traffic) Railway Board, my senior and long-time associate on the Eastern Railway, for writing a very informative and evocative foreword to this book, enhancing the value of this otherwise mundane effort by several notches. I will not be surprised if the interest of rail enthusiasts to read this book is aroused more by the foreword than what follows..."

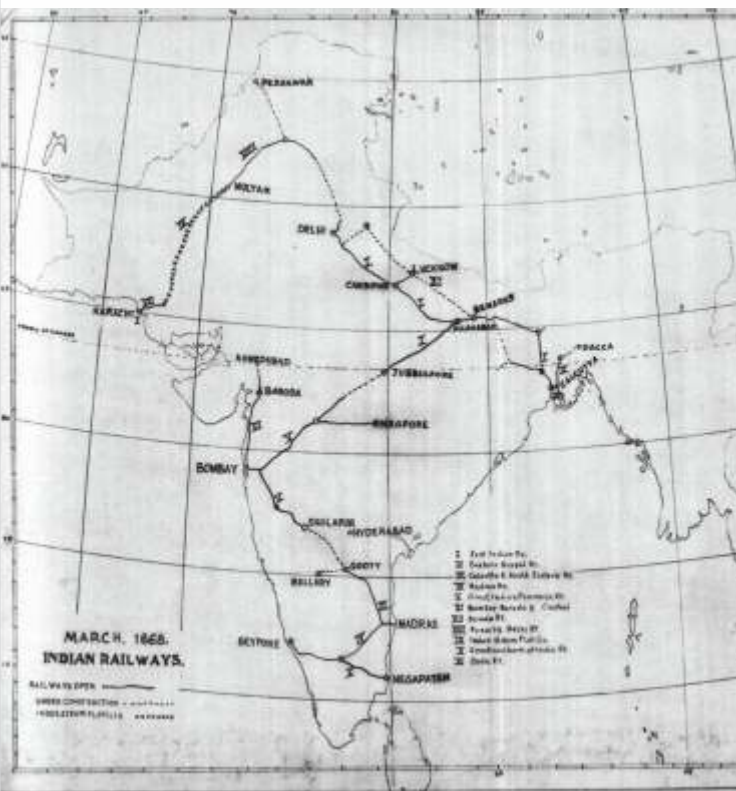
With the permission of the author and Ranjit Mathur, we reproduce the Foreword, written in March 2016, of the "Trailing Window"...



Never will it be said that enough has been written about the Indian Railways. Indeed, stories of its development and operations are so many and so exciting that it is unfortunate that so very little has been brought out to enthral readers. Mr. Ramarao's effort "Trailing Window" is thus a most welcome addition to this inadequately covered portion of our history.

The history of the world in the latter half of the 19th Century is interwoven with the history of the construction of the railways. In all the continents this became the greatest industrial activity. In the Indian sub-continent construction started in 1850 from Calcutta (now Kolkata) and from Bombay (now Mumbai). As you know, the first train on the sub-continent ran on 16th April 1853.

In 1861, 1,587 miles had been opened – all were naturally finger lines emanating from the three ports of Calcutta, Bombay and Madras (now Chennai) as rails and steelworks were imported.





A new bridge was constructed on the Sutlej at Phillaur to facilitate double line working. The work of constructing the piers can be seen in the photograph, taken in 1909. Note the rudimentary means used for construction. The old bridge is in the background

By 1881, the trackage was 9,723 route miles: Lines from Howrah had reached Delhi, Lahore and Jabalpur; lines from Bombay had met the Northern line at Delhi and Jabalpur and had met the line from Madras at Wadi; lines from Madras had reached Bangalore, Shoranur and Tuticorin; and the Karachi-Lahore line had been opened.

By March 1902, a total of approximately 25,200 miles had been opened on the sub-continent. The network was not much different from what we inherited in 1947. In the words of Paul Theroux, 'the railways had come to possess India and make her hugeness graspable'.

A project of the magnitude and complexity represented by railway construction in 19th century India required millions of workers with different kinds and levels of skills. The work ranged from the drawing board of a structural engineer in London designing a bridge of a size and nature not seen in his home country to the demanding work of a site supervisor and to the simplicity of an unskilled worker moving earth in the hills of Bengal. Railway construction is heavily labour-intensive and much more so in those earlier days. The vast majority of workers were Indian: manual labourers, unskilled diggers of earth and rock cutters, gangers and petty contractors. Senior foreman, engineers, contractors and planners were usually British. The workforce was available in India. Wood for sleepers, stone for ballast and piers, lime, clay and mortar for bricks and brick work were also available. But the capital and most of the value-added products of heavy industrial engineering, such as rails, bridge girders and work engines (stationary and locomotive) came from Britain. Considering the enormity of the task – assembling the workforce, locating and collecting material, reaching it to the worksites and supervising construction, often through inhospitable and

difficult terrain – one can only marvel at the tenacity and dedication of the pioneers for what they achieved and at what speed.

British capital sponsored and directed the building of railways in India. It is estimated that about 200 million pounds sterling of British capital – private and government – was invested in India's 19th century railways, making this 'the largest single unit of international investment in the 19th century'. Most private shareholders must have been uninvolved in the direction of the railway companies; but from the very start the Government of India was closely



involved in the supervision and control of the construction process in various ways – guarantor, or partner or proprietor, etc. – and, by the late 1860s also began to build and operate a railway system. Every contract permitting the construction of a railway had clauses which gave the Government of India extensive powers over most aspect of railway development, construction and operation on the sub-continent.

Of the approximately 25,000 miles of railways in March 1902, the length owned entirely by the Government was 8,700 (including NWR's 3,780 and EBR); 4,000 miles on railways purchased by the Government from companies but leased to the latter to work (i.e. EIR, GIP, BB&CI and SIR);

British learnt man-management and to adapt and learn from India and Indians. A measure of what they learnt is the fact that they subsequently applied techniques acquired in India and from Indian labourers to railway construction in Africa and South-East Asia.

Workers, specially those skilled in brickwork (mainly from Bengal) and in welding and carpentry (from Bihar, UP and Punjab) were taken to other construction sites where fresh talent got inducted. Of the nearly 5,000 men (including 1500 artisans who by now had 20 years' experience at bridge sites) who worked for 2 years on the Sher Shah bridge on the Chenab, about 1,000 were taken from 1890 to 1893 by Executive Engineer J E Spring of the NWR to



A view of the line through the Bhore Ghat. Note the steep hill side along which the line was built

6,100 miles on railways promoted by companies on the guarantee of the Government (e.g. BNR, MSM); 3,300 miles on native state railways (e.g. Nizam, Jodhpur); 1,200 miles on independent railway companies (e.g. RKR, Bengal and North Western); 1,200 miles on railways financed by companies with assistance from local bodies (e.g. DHR, Dibru-Sadiya).

Though the railways were bringing great social and economic change to India, and skilful carpenters, welders, brick-makers and bricklayers were emerging, the overriding interest of the British builders was strategic: to hold and to guard the far-flung empire. But in the process, the

Vijaywada where he built the bridge across the Krishna as Chief Engineer.

Bridge construction sites became little colony townships of up to 6,000 inhabitants, complete with housing for officials and foremen and huts for workers, a brickfield, a workshop, a warehouse, hospital and marketplace. Tramlines were laid linking stores, workshops and the actual bridge site. Of course, despite “reasonable” sanitation, epidemics and loss of life through sickness and disease were not uncommon.

Though Rudyard Kipling sets his short story, “The Bridge Builders” on the Ganges at Benaras, his inspiration for the piece actually came from when, as a journalist to the Civil

and Military Gazette of Lahore, he visited in 1887 the construction site of the Kaiser-i-Hind bridge across the Sutlej near Ferozpur. He wrote of the workmen: 'the very look of their toil, even in the bright sunshine is devilish. Pale flames from the fires for the red-hot rivets spurt out from all parts of the black iron-work where men hang clustered like bees'.

Equally hazardous was the surveying and construction of "ghat" sections. They involved earth and jungle-cuttings, culverts, bridges, sharp curves, many of them reverse curves, and tunnelling through the most inhospitable and difficult terrain. Every "ghat" section is testimony to the great engineering acumen and tenacity of our railway forbears and some, like the crossing of the Bolan Pass into Quetta must rank amongst the foremost of railway engineering feats. I have not travelled on that section, but I have on most others (window-trailing and on the footplate) and have marvelled not only at the sombre scenic beauty but also at the spectacular and dangerous construction: the Thal and Bhore ghats that pierce the Western Ghats out of Bombay, the Londa-Goa and Hassan-Mangalore sections, also through the Western Ghats, the Bhopal-Itarsi section through the Vindhyas and the Gurpa-Gujhandi section on the edge of Bihar's Chota Nagpur plateau where stands a memorial to a great railwayman, of whom you will read more in this book.

You will also read of Nehru's visit to Howrah station. (**Editor: an article that includes this visit is reproduced immediately after this foreword**) I was not present there. But I was the assistant officer to receive him at Bolpur station when he visited Shantiniketan without mishap in 1960. That year I monitored the building equipment, stores, steel, stone material and cement that was transhipped for the Brahmaputra Bridge. Earlier and later we were all involved in the exciting business of helping to build some of Nehru's Temples of Modern India: the Damodar Valley project, the Durgapur Steel Plant, the Kulti Steel Works, the creation of IISCO by the amalgamation of two smaller units, the Durgapur Coke Oven Plant and the expansion of

Chittaranjan Locomotive Works, initially to make India self-sufficient in steam locomotives.

Alas, the steam locomotive (about the advent of which the author has a chapter) started getting phased out by 1980, so present-day railwaymen are denied the sheer exhilaration of seeing and riding upon these great iron horses. No one who has ridden on the footplate of a steam locomotive can forget the comradeship that develops while sharing tea out of aluminium mugs heated on the firebox lid or the excitement when passing at night through a station on a single-line section where the flare of a *mashaal* located the hoop that cradled the token. Along with the steam locomotive, single-line token working, four-wheeled wagons and the cobweb of coal and industrial sidings have all gone forever.

The book also has a chapter on Electrification. When electrification came to Asansol, I was in the thick of it. Here, dear reader, please permit me a little immodesty: the template for the switching sequence is mine and I have left a permanent mark for all time by a simple solution: a symbol to guide train crew to the nearest line-side telephone socket to establish communication with the control room staff in the event of a mid-section mishap. Earlier such communication was through overhead telephone lines which had to be replaced by underground cables with electrification. Much of our rail network is now electrified and if you care to look closely at the masts that support the overhead wires, then, in addition to the mast number, you will see my symbol of an arrow and a telephone handset.

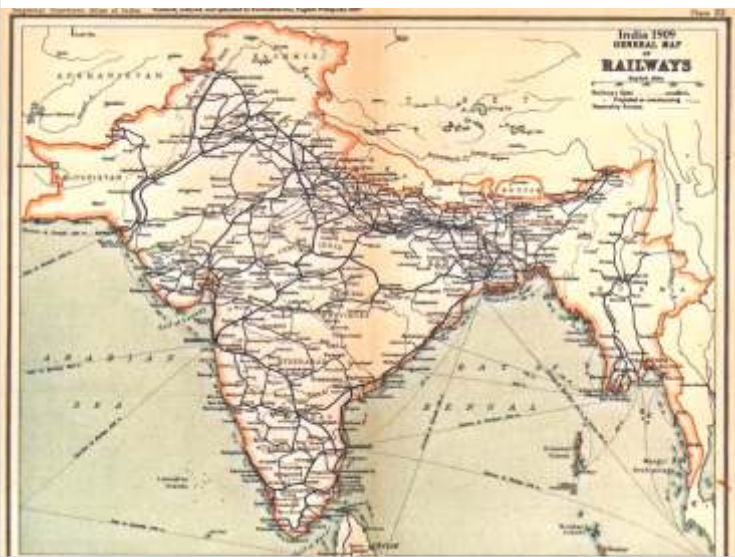
Lost in a mist of nostalgia, I could go on and on...but I must not, as this is merely a foreword to the book of my colleague and friend, Mr. Annavarapu Ramarao. By his asking me to write this foreword, I am beholden to him for many reasons. Firstly, I have been able to make my immodest assertion, then I have been able to use some out of the plethora of information I have on my shelves and which I have been too lazy or pre-occupied to get into a book, and finally, by his writing, I feel the pressure with which I had burdened myself to write on a somewhat similar theme has been eased. So my friend, thank you for your book.

Photos: Archives of the Rail Enthusiasts' Society
Maps: Courtesy the National Rail Museum

About the author:

Ranjit Mathur, a career railway man, retired as Member Traffic of the Indian Railway Board.

A prolific writer and chronicler, he continues to regale readers with historical and anecdotal stories. He can be reached at ranjit.mathur@gmail.com



History

The EMU Comes to Calcutta

Annavarapu Ramarao

*(Reproduced from the book **Trailing Window*** by the same author)*

The Golden Jubilee of Railway Electrification in Eastern India was observed on 12th December 2007. India entered the railway age less than 30 years after the steam locomotive invented by George Stephenson in 1815 was put to commercial use in 1825. However, Calcutta (now Kolkata), then the capital of British India and the hub of its activities in the East, fell behind Bombay (now Mumbai) by sixteen months.

Electric trains also came to India within 30 years of their first run on the Baltimore-Ohio line in the USA in 1895. At the time of independence, 388 route kilometres of the Indian Railway network was electrified on the 1500 Volt Direct Current (1.5 KV DC) system, based on the technology available at that time. This time Calcutta was left far behind. It took as many as 32 years after the first electric train ran in Bombay in 1925 for it to appear in Calcutta. Even Madras (now Chennai), far less populated and comparatively unimportant, had stolen a march over Calcutta. No mishap could be blamed for this delay.

The sheer pressure of traffic in the East, however, forced the British railway companies to look to electrification as a possible alternative to steam traction to move the large volumes involved. A report submitted in March 1914 by M/s Merz and McLellan recommending electrification of the Sealdah-Kanchrapara section of the East Bengal Railway had to be shelved because of World War I. After the war, the Railway Board asked the Agents of the three railways based in Calcutta, viz. East Indian Railway (EIR), East Bengal Railway (EBR) and Bengal Nagpur Railway (BNR) for their views on electrification of the railways around Calcutta. A committee was appointed in 1920 to study rail transportation problems in and around Calcutta and in 1923 M/s Merz and McLellan was asked to revise and update their original report. The BNR at this time suggested electrification of the Howrah-Uluberia and Howrah-Ramkrishnapur-Santragachi sections while EIR toyed with the idea of diverting suburban traffic via Bally Bridge to Sealdah and developing an electrified railway line from Sealdah to Dalhousie Square. Discussions continued until 1930, when worldwide economic depression forced the government to shelve the report submitted by the consulting engineers.

In 1936, attention was diverted to electrification of the freight-intensive Asansol-Gaya route but World War II overtook events and a further delay occurred. In 1946, M/s Merz and McLellan conducted surveys for electrification of the Howrah-Mughalsarai section and the Calcutta suburban area, but did not find it financially feasible.

Early in 1953 the Government of India revived the old electrification proposals and appointed a project officer to formulate a comprehensive scheme for electrification of Calcutta suburban services as well as freight intensive sections of both Eastern (ER) and South Eastern (SER) Railways. The first phase of the scheme, which envisaged electrification of the suburban system between Howrah and Burdwan was sanctioned in June 1954. It was decided that the traction system should be substantially the same as prevailing in the West and the South, except that instead of 1500 Volt DC, the system would run on 3000 Volt DC.

The work was completed on schedule and running of suburban trains between Howrah and Sheoraphuli formally inaugurated by Jawaharlal Nehru on December 12, 1957 at a glittering function held at Howrah station. More than a hundred years thus passed between the running of the first train from Howrah and the inauguration of electric traction for suburban trains between Howrah and Sheoraphuli railway stations.

Funds were an obvious constraint during the war years and their aftermath. It is to the credit of the administrators of modern independent India that electrification schemes were pursued with determination and funds were provided in the Five Year Plans. The second Five Year Plan (1957-62) was meant to usher in industrial revival of the country with the focus on the Eastern region where steel and fertiliser plants were to be installed, production of coal was to be augmented and thermal power plants set up for meeting the power needs of these industries. Steam traction, that had served the railways in India faithfully for over a century, was considered

**For the uninitiated, senior railway officials inspect track and other trackside infrastructure by viewing them from a window built at the rear of a specially built carriage. The title "Trailing Window" is thus very apt as the author is viewing various aspects and events that have trailed his experience in this book.*

inadequate to haul the heavy mineral loads that would have to be run. Railway electrification became the obvious choice to augment railway capacity.

Meanwhile, the French National Railway (SNCF) developed a new technology of high voltage AC traction at 25 KV with current supply on industrial frequency of 50 cycles per second (50 Hz.). This was a revolutionary achievement but with the exception of the Soviet Union, no other country was willing to try it. The rest of the world, steeped in the lower voltage DC system mind set, refused to accept the French system. Indian Railways (IR), tied to the aprons of British Railways by tradition, followed the British example. As a result, 3000 Volt DC traction was adopted for the extension of electrification on IR too. But within a short time, electrical engineers of IR realised the potential of the

new mode of electric traction and in a bold decision that has since been proved correct, approved electrification of a short branch line in the iron ore belt of SE Railway with the new traction system. With the successful completion and testing of the work in December 1959, 25 KV AC 50 Hz. traction arrived in India, the second country after the Soviet Union to accept the technology from SNCF.

Electrification on the 25 KV AC system proceeded with frenetic speed. Soon, the Howrah-Gaya-Mughalsarai route on the ER and Howrah-Tatanagar-Rourkela-Durg and the Tatanagar-Adra-Asansol routes of SER were electrified mainly to cater to the needs of the three new steel plants in the public sector built during this period – Bhilai, Rourkela and Durgapur.

"Lokmanya", WCM5 class, the first 1500 V DC locomotive built by Chittaranjan Locomotive Works. The locomotive can now be seen at the Rail Heritage Park at Howrah



A lot of equipment had arrived in the interim, for electrification projects on the 3 KV DC system. These were transferred to the Bombay area where DC system was still in vogue. Simultaneously, keeping the possibility of converting the 3 KV DC areas also to 25 KV AC traction in the foreseeable future, the fittings were provided with adequate margins for conversion. This proved to be a decision of great vision and foresight as the conversion was accomplished smoothly in contrast with the painful and slow pace of conversion on the Central and Western Railways.

Production of electric locomotives was simultaneously taken up indigenously in 1960 at Chittaranjan Locomotive Works (CLW) and *Lokmanya*, the first 1500 Volt DC electric locomotive for Bombay area, was flagged off by Prime Minister, Jawahar Lal Nehru, on October 14, 1961. The manufacture of Electrical Multiple Units (EMUs) required for Calcutta suburban services was taken up indigenously at Integral Coach Factory (ICF), Perambur, and the first EMU rolled out during September 1962. The first 25 KV AC electric locomotive turned out from CLW, named *Bidhan*, in honour of Bidhan Chandra Roy, first Chief Minister of post-independence West Bengal, was inaugurated by Nehru on 16th November, 1963. The author was privileged to be present on the occasion and to escort the Prime Minister's special train from Durgapur to Chittaranjan and back.

It is worth going back in time to recall the events of that red letter day when Calcuttans had their first glimpse of an electric train, a day full of glitter and glory, hope and joy, but, alas, not unmixed with tragedy.

During the Second World War, Howrah station handled large-scale movement of troops, for whom waiting areas were provided in several enclosures erected in the concourse of the station. After partition of the country in 1947, these enclosures became convenient for lodging a part of the flood of refugees from the newly created East Pakistan, many of whom formed village communities in each enclosure and made the station their permanent residence. Other refugees settled on the pavements and roads around the station. Every inch of space was occupied and the premises were used for all activities – bathing, washing, cooking, eating and defecating, and even performing marriage ceremonies!

This was to be the venue of the elaborate function involving the Prime Minister, the Railway Minister, Governor of West Bengal and other dignitaries. It took all the ingenuity, perseverance and tact of the team led by DV Reddy, Divisional Superintendent (now called Divisional Rail Manager), Howrah, to restore the station concourse to its former expansive state.

This was achieved in the shortest possible time along with the completion of electrification work.

The 3-coach EMU which was to carry the Prime Minister and his party on the inaugural run was stopped at Sheoraphuli for repairs by the German suppliers. A substitute rake consisting of ten freshly painted first class coaches, dining car and inspection car, hauled by an electric locomotive was immediately pressed into service.

The police had made elaborate arrangements for security. Platform 9 was protected by a strong barricade to prevent a sudden rush of spectators on to the platform. The result of all these efforts was so amazing that when the Prime Minister saw the station, he exclaimed, "What! Is this Howrah station? I can't recognise it. How beautiful it looks. Better than the best marriage *pandaal* I have ever seen."

In his characteristic way, Nehru wove the metaphor into his speech. Speaking from the rostrum edged with chrysanthemums, he said that the function looked like a marriage ceremony. It was indeed a marriage, he said, a marriage between the old regime and the new regime, a marriage essential to the progress of the nation, which in the long run meant welfare and well-being of the teeming millions of India. Elaborating the metaphor, he said, "We want to usher in the new regime not by removing the best things of the olden days but by preserving and enhancing our own ancient heritage and traditions and at the same time trying to go ahead with the nation from progress to progress through the assistance of modern science and technology."

After the speech, Nehru pulled a miniature lever to show a green signal to an electric train standing on Platform 9. As he did so, all the locomotives standing in the station yard blew their whistles together to announce the inauguration.

Despite all the planning, the arrangements proved inadequate as the organisers had miscalculated on the size of the crowd and Nehru's charisma. As he ambled on to the ceremonial platform, Nehru saw the thousands of people waiting to see him on other platforms. "Jawaharlal Nehru ki Jai," they called out in a roar.

He waved to them and before his official escorts could gauge his intentions, he rushed to the nearest fencing and in a flash climbed to the top. Perching precariously, he waved to the crowds with his right hand while clutching the fencing with his left. The crowds cheered wildly and taking it as a signal, surged across the barrier on the ceremonial platform, thus upsetting the arrangements. The invitees struggled to get out of the platform and many of them had to go home without getting the promised free ride to Sheoraphuli and back.



The first electric train leaves Howrah on 12 December 1957

Eventually, when the Prime Minister was escorted to the locomotive, the train could not start until the milling crowds on the platform and in front of the locomotive were pushed out of harm's way. In the words of D V Reddy, the Prime Minister who was enjoying himself "like a school boy on an outing" took keen interest in the technical aspects of the locomotive, which were explained to him by a representative of the English Electric Company, and "like a child would do" wanted to know how the hooters worked.

The train left four minutes behind its scheduled departure time of 4.30 p.m. and took 50 minutes to return to Howrah, including a few minutes spent by the Prime Minister to inspect the EMU shed at Sheoraphuli.

The crowd "appearing like a thick swarm of flies" occupied the train compartments and spilled over on to the footboards and around the locomotive. For the first couple of minutes the train had to crawl to avoid running over the crowds on either side of the track. The train picked up speed thereafter and passed Liluah at 40 kmph.

That was when tragedy struck!

As the train approached Liluah, there were scores of people hanging from the train, clinging to the handle bars. Some had even tied themselves to the handle bars with napkins. At Liluah, there was another mad rush of people wanting to board the train, unaware that the special train was not scheduled to stop there. The rush forced the train to a brief stop, but not before several persons standing on the edge of the platform were hit by the coaches. Two men fell off the train at Hind Motor and Konnagar. During the journey, three were killed and twenty five injured.

The Prime Minister was visibly shaken when informed of the tragedy at Sheoraphuli and upbraided the officials for the slack arrangements.

The matter did not rest there, however. The Press played up the loss of lives the next day. *The Statesman* featured a picture of a smiling Nehru looking out of the electric locomotive framed by a screaming headline which declared: 3 DIE, 25 HURT IN NEW TRAIN TRIP.

The matter also came up for discussion in Parliament, which was then in session. The Home Minister exonerated the railways and blamed the state government for the mishap.

When the train reached Sheoraphuli, the mob once again milled round to get close to the Prime Minister. In the process, he got separated from the other VIPs and, what was worse, from his grandson, Rajiv. After another show of Nehruvian temper, which spread panic amongst the



Prime Minister, Jawaharlal Nehru, pulling a miniature lever to inaugurate electric traction in the East

officials, the youngster was found sulking because he was left behind when the Prime Minister went to ride on the locomotive. He could be placated only on the promise of a reversal of roles with him riding in the locomotive and his grandfather left behind in the inspection car!

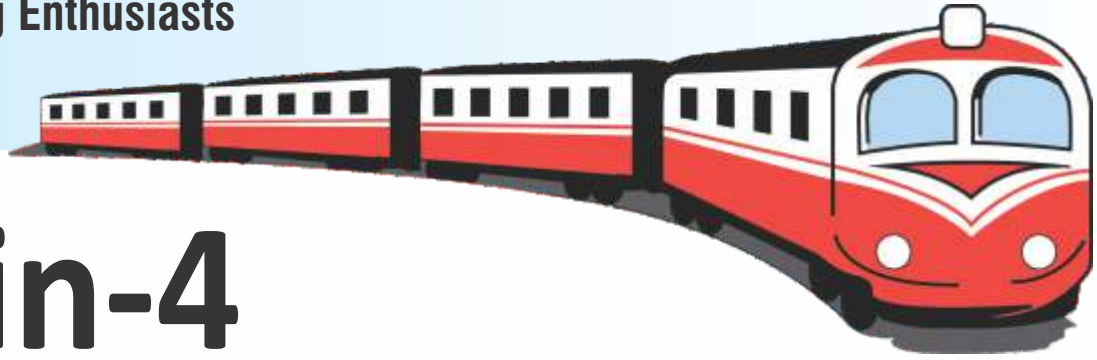
The crowds at Howrah awaited the Prime Minister's return from Sheoraphuli and made it difficult for him to alight and reach his car. At one stage he was seen walking in the wrong direction until the police escorted him back to his car.

All in all, the events of the day seemed to be in keeping with the chaotic conditions of suburban services then prevailing around Kolkata.

Photos: Archives of the Rail Enthusiasts' Society

Photo of Nehru: Courtesy the author

About the author: Annavarapu Ramarao, ex-railwayman & rail historian enthusiast. He can be reached at 8008044637



The Train-4

Diesel Locomotives

This is the 4th write-up in a series where I have been telling you about “The Train”, i.e. myself. In Train-1, I told you about railway track; in Train-2, I talked of bridges and viaducts; in Train-3, I wrote that I normally comprise of a locomotive that provides the power that pulls (sometime pushes) rolling stock that comprise the rest of me. If I am passenger carrying, the rolling stock is referred to as coaches, while if I am carrying only freight, the rolling stock is referred to as wagons. For more than half of the time that the railway has been in existence, the locomotives have been steam powered. As traffic increased, requiring the ability to pull heavier loads at higher speeds, steam power was not enough to serve the purpose. Enter diesel and electric locos. Today, I will tell you about diesel powered locomotives or “diesels”, in short.

A diesel obviously has a diesel engine (Refer Diagram 1). This is the power unit. The power is transferred to the wheels through what is called a transmission.

sections, all diesels that are now operating on the Indian Railways have electric transmissions, but the first diesel to work mainline trains in the country was a hydraulic transmission loco. Inducted in 1955, this was the YDM1 built by the North British Locomotive Company and worked trains on the sections around Gandhidham and Kandla. This loco had a Voith hydraulic transmission. A hydraulic transmission is essentially a fluid coupling or a torque converter whose input shaft is the output shaft of the diesel engine. The amount of torque that is transmitted from the input to the output shaft of the torque converter depends on the pressure of the hydraulic fluid that is pumped into it. The output shaft of the converter then drives the wheels directly or through a gear box.

Another diesel-hydraulic loco but one that was used for shunting services primarily was the WDS4 series. This also had a hydraulic transmission but used the property that while such transmissions are very good at low speeds,

Diagram 1



The size and type of diesel engine depends on the type of service, the power required, maintenance needs, and so on. On the Indian Railways, two types of transmissions have been used, viz. hydraulic and electric. For the kind of power that is required to be transferred from the diesel engine to the wheels, a mechanical transmission of the type that you have in automobiles would be too big and cumbersome.

It is interesting that barring a few on Narrow Gauge

direct mechanical transmissions are better beyond certain speeds. Thus, this loco started and worked through a hydraulic transmission and at a pre-set speed, a direct coupling took place between the input and output shafts of the converter to take advantage of such an arrangement. This transmission system was devised and patented by an Indian Railway mechanical engineer, M M Suri, and bears his name, “Suri” transmission. WDS4 locos were



A WDM2 class locomotive hauling a passenger train on North East Frontier Railway

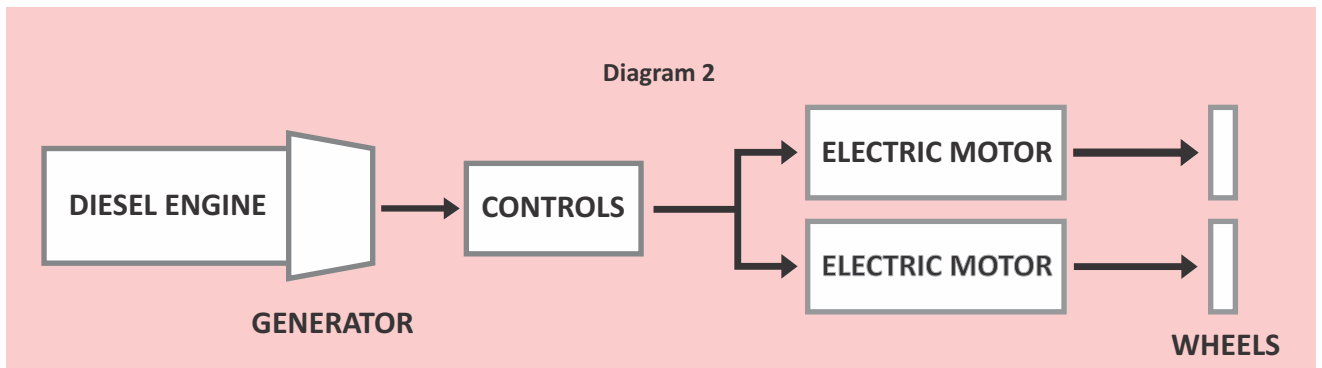
manufactured at the Chittaranjan Locomotive Works between 1968 and 1994. In one of its previous issues, this magazine included a photo-feature where the death of the WDS4 was recorded photographically.

While there are no diesel hydraulic locos running on the Broad or Meter Gauge sections in India today, the diesels running on Narrow Gauge (762 and 610 mm) are with hydraulic transmissions.

Diesel-electrics are diesels with an electric transmission (See Diagram 2). In such locos, the diesel engine drives an electric generator which produces electric current which

through suitable controls drives electric motors. The motors then drive the locomotive wheels. The number of motors varies and could be one per wheel set or one motor driving more than one wheel through suitable gearing.

Electrification of rail routes for running direct electric locos is a highly capital intensive process. While the Indian Railways intended to electrify all high traffic routes as early as possible, it was a slow process and even as late as 1980, only about 5000 kms. out of a total route length of more than 62,000 at that time had been electrified. Therefore, during most of this period, the primary traction of the



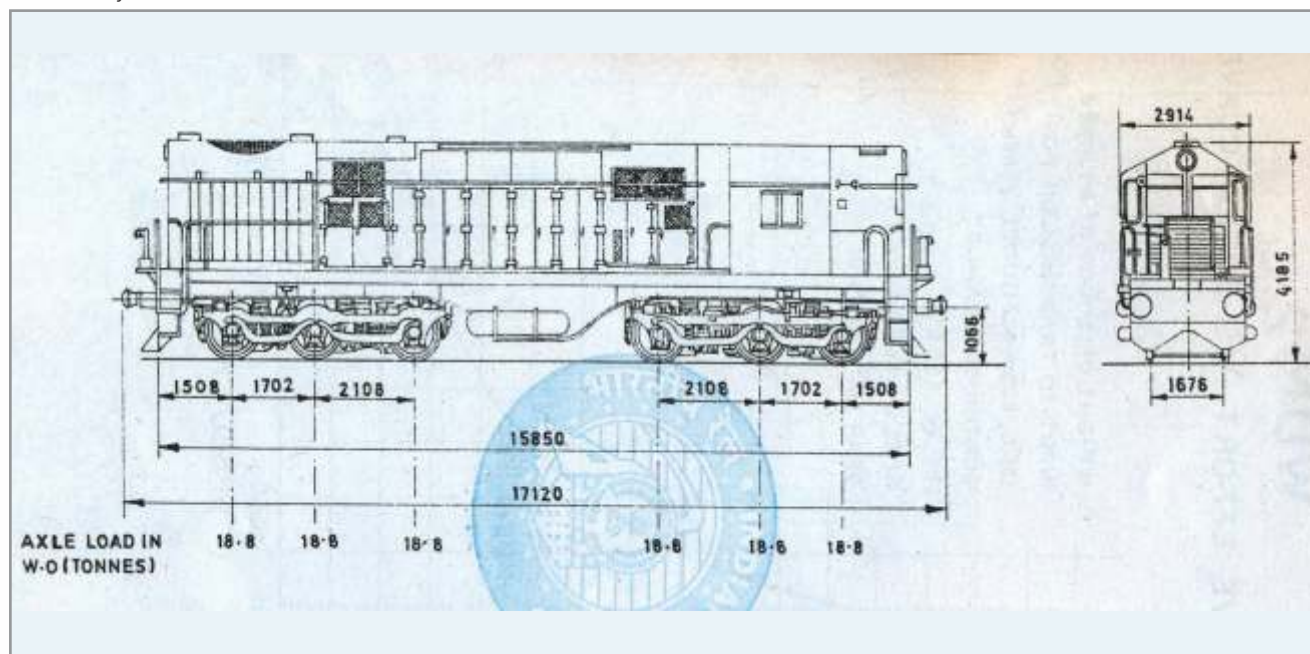


Stamp issued in 1976 showing a WDM2

Indian Railways was the diesel and among the latter, the workhorse was the WDM2 locomotive. The 'W' in the nomenclature means that this is a Broad Gauge (1676 mm) locomotive, the 'D' shows that it is a diesel, the 'M' indicates that this is a mixed traffic loco. The last means that the loco can be used for passenger as well as freight services. The '2' is only a model number. A schematic of a WDM2 is given below.

The WDM2 was an ALCO design loco that the Indian Railways began building at the Diesel Locomotive Works (DLW) at Varanasi. While 232 WDM2s had been imported, the first to be built in India, No. 18233, was turned out from DLW in 1964. With a 16-cylinder V-engine of 2600 HP, 2400 HP was available at the wheels. About 2800 of these locos were built at DLW, making it the most common locomotive on the Indian Railways in the late 1970s and early 1980s.

Schematic of a WDM2 loco



Later, the engine was upgraded to 3100, 3300, 3500 and even 3600 HP, the upgradations being done in house. Other changes such as conversion to air-brakes were also carried out giving rise to a series of diesels of the ALCO family.

The Meter Gauge (1000 mm) variant of the WDM2 was the YDM4, with a 1350 HP 6-cylinder inline engine. Even today, this is the main locomotive on the few Meter Gauge lines that are left in the country.

As of now, the main diesel locos that are working in India is the DLW-built EMD-design WDP4 and WDG4 series. The 'P' series is designed for passenger services while the 'G' series is for freight services. Fitted with a 4000 HP engine, these are the locos that have replaced the ALCO series. All these locos are diesel-electrics.



A WDM4 class loco. First loco to haul the Rajdhani Express

Diesel and electric locos are quite different from the old steams. For one, there is no need to reverse the locomotive even in the case of a single cab loco. Second, the cabins are enclosed so that the loco pilot is not exposed to the elements as he was on the footplate of a steam loco. In spite of their higher power, driving a diesel or an electric is easy: it is like driving a car with automatic gears that does not require steering. The loco pilot is required to be able to judge braking well as the trains are heavier and more difficult to stop when compared to the old steam-hauled ones.

It is not my intention to give you details of all the various types of diesels running in our country. The intention is to give you an idea of what a diesel loco is and the broad categories that you are likely to come across or read about.

The future of the Indian Railways with regard to locomotives is the electric loco. In the next issue of the magazine, I will tell you about these locos.

A WDG4 class locomotive



A diesel-hydraulic WDS4B class loco, fitted with Suri transmission

Photos & Diagrams: Archives of the Rail Enthusiasts' Society



Live “Steamers” at Chittaranjan Locomotive Works



The Dalai Lama rides behind the 1/8th model steam loco in 1957

The average railway man in India gets so engrossed in his day to day work that he has little time being aware of the railway's heritage, leave alone its conservation. One of the members of the Rail Enthusiasts' Society, Sanjoy Mookerjee, who visited Chittaranjan Locomotive Works (CLW) in January this year, was pleasantly surprised to find invaluable conservation work being done by the General Manager of CLW and his team for preserving heritage items there. Apart from regular operation of the WP class prototype, the “Fairy Princess”, which was restored in 2012 and is running every Saturday at the CLW loco park, CLW has now restored the 1/8th steam model loco and put it in running condition, literally from scrap!

The “Fairy Princess” is a merry-go-round toy train hauled by a steam engine named 'Fairy Princess' – a miniature prototype (1/4th of the original size) of the WP class steam locomotive. This miniature steam loco run toy train is the only one of its kind in the Indian Railways which is still in

The 'Fairy Princess' with the team that restored it



running condition. It was originally built by students of the Technical Training Centre of CLW in 1964. Age and lack of spares took their toll and the loco was not in use for a number of years. It was restored in 2012. Some of the salient technical details of this miniature are listed below:

Horse Power	: 20
Tender Capacity	: 1000 litres
Coal Carrying Capacity	: 500 Kg.
Gauge	: 1.45 ft
Length	: 3.5 m
Breadth	: 0.3 m
Height	: 1.5 m
Max Speed	: 40 kmph
Working Pressure	: 110 pound/sq. inch

The 1/8th model steam locomotive is another feather in CLW's cap. Built prior to 1957, it had reached a stage where the boiler was heavily corroded and all links and transmission spares were missing. Although no data is available on the date of its original manufacture, there is an old picture of the Dalai Lama and Panchan Lama riding behind this loco in 1957. It is for this reason that it is surmised that the loco was built before this year. In November 2017, the locomotive was brought to the shop floor and its boiler and all other parts painstakingly restored and repaired. In less than a month, the miniature locomotive was given a trial run on 2nd December 2017 and is now in regular working order.

Apart from this, the General Manager, V.P.Pathak, has brought the oldest ZDM5 class Narrow Gauge (NG) loco No. 501, originally built by CLW, back to Chittaranjan and is planning to keep it running as a toy train at CLW. Till recently, this locomotive was running on the Vadodara-Dabhoi section. NG coaches for this train are being brought from Nagpur where a number of NG lines have been converted to Broad Gauge or closed. It has been suggested that NG track released by Vadodara Division, where also a number of NG lines have been converted or closed, be brought to CLW so that the entire setup has intrinsic heritage value.

ZDM5 class loco being repaired at CLW



Final touches to the 1/8th model of a steam loco

For the record, CLW was the first in house Production Unit of the Indian Railways and was operational within three years of India becoming an independent country. It was initially set up to manufacture steam locomotives, the last steam loco being turned out in 1972. It was converted to manufacturing electric locomotives, which it is continuing till today. Between 1968 and 1994, it manufactured diesel hydraulic locos as well.

Kudos to CLW for this much-needed contribution to the preservation of our rail heritage.

Photos: Courtesy CLW

National Steam Congress

The Indian Steam Railway Society (ISRS) organised the 15th National Steam Congress at the National Rail Museum on the 2nd of December 2017. Unlike previous years, the Congress was held in the afternoon instead of the morning. The theme this year was various types of traction systems used on the railways.

The keynote address was delivered by Richard Peck of the UK, who gave a delightful account of the building from scratch of an A1 Peppercorn Tornado steam locomotive. Other presentations covered electric locos by Luc Verset of

Iqbal Ahmed displaying his model before the original Fairy Queen



Model of B-class loco made from elephant dung paper

Alstom, train sets by the Integral Coach Factory, restoration of steam locos by Tarun Thakral and the building of a B class loco scale model from elephant dung paper by T Raghunandan.

Other features of the Congress included a display of working steam loco models by master craftsman, Iqbal Ahmed, and the release of a book "Steaming On" that reproduced selected writings from ISRS Newsletters and Journals of the last 20 years. A run from Delhi to Rewari behind the Fairy Queen was organised on the 23rd of December to complete a successful congress.

Photos: Archives of the Rail Enthusiasts' Society

HUMOUR ON RAILS



In the hierarchy of a railway repair workshop in India, the head is the Chief Works Manager (CWM). He is assisted by a number of Deputy Chief Mechanical Engineers (Dy.CMEs), the number depending on the size of the workshop and the type of work. Dy.CMEs are normally referred to as Deputies in everyday jargon. The Deputies are assisted by Works Managers (WMs) and Assistant Works Managers (AWMs).

One of the hardworking WMs of the Locomotive Workshop at Jamalpur in Eastern India was having problems with a supplier in Kolkata. In spite of his best efforts and a number of visits to the supplier's premises, the supplies were neither good nor coming in time. Having failed at his level, he asked his Dy.CME to accompany him the next time he went to Kolkata to resolve the issues.

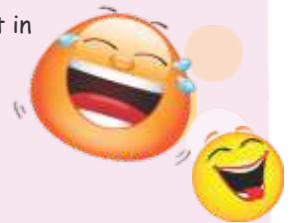
When they entered the room of the head of the supplier's unit, the WM introduced himself.

"I am the Works Manager from Jamalpur," he said, "And, this is my Deputy."

Needless to say, much to the discomfiture of the WM, the Deputy was asked to wait outside while the meeting was continued with the WM.

Titles and designations can be confusing. The railways in India have the Divisional system of working where the Division is the unit that actually runs the trains. It is headed by a Divisional Rail Manager (DRM) who has various Divisional Officers reporting to him for different functions. One of these Divisional Officers is the Divisional Mechanical Engineer (DME). There are two levels of DMEs: one, called the Senior DME (Sr.DME) is in a higher grade than the other, the DME. It just happened that at an operations meeting, a Sr.DME was having an argument with a DME who happened to be next in line for promotion to the Sr.DME's grade.

At the end of a heated discussion, the DME lost his cool and blurted, "You may be a Senior DME, but I am the senior-most DME."



Trains 'n' timetables

If an apologist of the infamous Emergencies referred to it to be a period when trains ran on time, none had the gumption to point out that when the iron horse started its first run in the Indian sub-continent, be it mails, expresses or goods trains, they all stuck to their timetable. In so many words the trains ran on time long before the darkest hour of democracy descended on India. The timetables may not be as old as the hills but one cannot deny the fact that their ephemeral nature notwithstanding, these dogeared books provide a wealth of information about not only train timings but also passenger facilities, catering, conditions of travel to name a few. Bradshaw became a synonym for a timetable. The August movement and its convulsions are etched in letters of gold in the nation's history. But the timetable of The Madras & Southern Mahratta Railway's of 1942 helpfully suggested to the travellers whether "boiled" or "fried eggs" are required. The telegraphic code of a breakfast of fish, bacon and eggs was FBT or FBC, with T being tea and C standing for coffee. In these times when newspaper headlines bring little cheer, such quaint nuggets of information is provided by The Rail Enthusiast magazine. The name of this smart magazine speaks for itself. Having completed an year of glorious existence in August, it is chugging along steadily. The present issue turns its focus on a century-old Dibru Sadiya Railway in Upper Assam together with Pamban Bridge which connects Rameshwaram Island to the Indian mainland. Away from home, a write-up on the steam engines of Norway and Finland makes interesting reading. Many a travel writer may have been appalled by the dirt and squalor of Indian trains, but the network of the railways which long before democracy took firm roots have been a great equalizer between the prince and the plumber. Now the whistle has been blown, the flag waved, full steam ahead. The Railway Enthusiast is proceeding

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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 6th 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/-
- Ordinary member : Subscription: USD 40/-
- 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
- Swift Code : SBININBBFXD

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

New Coaches for East-West Metro

1 Automatic closing doors

2 Place for a wheel chair

3 Route Board inside the coach

4 Interior view of the Car Shed



Photos: Courtesy Sanjoy Mookerjee

