

RAIL CANVAZ

A TrainTrackers' Initiative

August 2024



40 Years of Circular Railway - Kolkata



August 2024

RAIL CANVAZ

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This Independence Day has assumed greater significance like no other when it comes to railways of the nation. This year marks the 171 years of introduction of railways in India along with 40 years of introduction of the country's first Metro system in Calcutta, now Kolkata. But such significant milestones of railway historical events have overshadowed another landmark occasion – the 40th Anniversary of the commissioning of Eastern Railway's Circular Railway section, one of the major lifelines of Kolkata's urban rail network, operated by the Sealdah Division. Thus, to recognize this nearly unnoticed, yet consequential four-decade journey of the Circular Railway, we have chosen to dedicate our Fourth Anniversary Issue to it.

Calcutta – the City of Joy or the Cultural Seat of the country also used to be the seat of government until 1911 implying its significance and importance. This shift in power dynamics could not quite take away the sheen of the metropolis though. Its ever-expanding nature did not take a beating and the growing city was pressed with a demanding need for a better commute in order to connect its fringes with elan and ease. But the twin fact of location of most offices in a particular arena, i.e., the Central Business District at B.B.D. Bag or Dalhousie and the availability of only 5 percent of surface area for the entire city for transportation not only made equations dicey but also added to the woes. It does not take to be a rocket scientist to realise the fact of unidirectional movement of traffic during the working hours and vice versa further upsets the apple cart. To get rid of this riddle, an underground transportation system modelled on the 'Tube' or the London Underground was proposed which was initially shelved with an alternate proposal for a 'Dum Dum - Kalighat' dispersal line. That 'dispersal line' proposal though did not find any favour but ultimately saw the light of the day in early 1984 in the form of 'Circular Railway'. With nation's first metro also becoming a reality in the same year as well, '1984' can be referred as a year of double boost in Kolkata's urban rail grid.

'Circular Railway' was a unique concept in those days, primarily developed to ease intra-city traffic movement. It turned out to be a panacea for most of the traffic hazards. The immense pressure of handling a mammoth footfall at Sealdah station during peak hours received a fair relief. After completion of the entire route, the northern and southern frontiers of the city came closer in no time. But Kolkata's Circular Railway had had its own set of hurdles and controversy. It is reported that some traders of the Central Business District tried to thwart the move of introducing Circular Railway for it was alleged to have hindered their operations by moving the Hon'ble High Court which was declined, following which operation of the Circular Railway started immediately. With its introduction, the concept of Circular Railway soon became a tour de force.

Kolkata's 'Circular Railway' though cannot boast of being the first of its kind concept in the country. The Delhi Ring Railway is a front runner in this front! Initially constructed in 1975 to specifically manage the freight traffic to bypass the congestion of Old Delhi, New Delhi and Hazrat Nizamuddin railway stations, the network was upgraded for passenger traffic before the 1982 Asian Games with introduction of 24 new services to cater to the need of the hour. The track popularly known as DAL or the 'Delhi Avoiding Line' further got a revamp of its 7 stations before the 2010 Commonwealth Games. But with the coming of age of the fast-expanding network of the DMRC, in and around the National Capital Territory, the Delhi Ring Railway has gradually lost its relevance. Be it for the ride comfort or for the management of running on-time services, the Delhi Ring Railway has long done away with its pertinence. The introduction of RRTS further proving to be the last nail in its coffin.

This state of gradual demise of nation's pioneer Circular Railway though lies in stark contrast with the fortunes of its counterpart in Kolkata. A buoyant growth in services along with its getting transformed into a connecting hub for most of the upcoming metro routes of the city has worked wonders for it. Its importance will further go up once all the metro routes of Kolkata get operational. The depiction of this success story of Kolkata's Circular Railway with its historical perspective has been elucidated through three articles on the subject by **Soumitra Pal, transport hObO & Rudranil Roy Chowdhury**. The positivity of this concept has rubbed off to other cities as well since Jaipur and Bengaluru are set to rationalise the concept on a much broader scale. The introduction of Circular Rail also manifests the keenness of the men in power hailing from that era to institute an effective measure for redressing serious issues of urban transportation.

Moving out from the loop of the Circular Railway, we host a cluster of articles with contrasting flavours which involves two articles on train accidents but from completely distinct point of views.

While **Nabayan Dutta** works on a curious case study on the goods train collision at Ondagram, **Om Prakash Narayan** emphasises on the act of Karma through his personal experience of surviving a train accident. These two articles depict the ethos of science and those beyond science. Continuing with analogous vibes, **R. Bhalerao** scripts *The Lady under the Tree* emphasising on the fact that railfanning has more to it than only spotting trains.

In our journey of life, we often recall the past while keeping an eye on the future. Our next two articles echo similar thoughts as **Jakob Stilling** recounts the steam days of yore in *Darbhanga by Chance* through yet another report from his multiple visits to this country for archiving steams of Indian Railways and **Somanko Tiru** writes home about his maiden visit to the Integral Coach Factory.

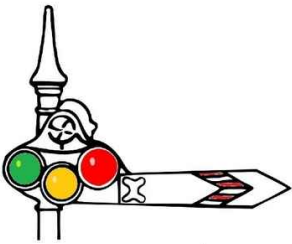
Furthermore, we have **Sanjoy Mookerjee** presenting a work of fiction *The Station Master's Tale* which is an account on the incidents that took place while constructing the Barog Tunnel on the iconic Kalka-Shimla Heritage route. We also have a book *Between the Lines : A Railman's Journey* by *Annavarapu Ramarao* reviewed by **R. Bhalerao**. Next, **Anamitra Bose** pens *25 Years of WAP7* class of locomotives and how they have emerged as the principal haulers of prestigious trains in the country. **Anamitra Bose** has another article to his credit as he teams up with **Sourav Dutta** to jot down *WAP4 : Resurrection of Flying Colours* which is on the efforts of Team TrainTrackers along with some other ferroequinologists about presenting different liveries on WAP4 Class Locomotives of Howrah ELS. We wind up with this issue with an article by **PK Mishra** on *Water Management Initiative at the Modern Coach Factory, Raebareli*.

We part by paying homage to the departed souls of those unfortunate passengers and railway running staff who lost their precious lives in the recent spate rail accidents across the nation. We perorate with high hopes that our national carrier recovers its lost glory – sooner rather than later. We remain expecting....

Somsubhra Das

Our Readers and Rail Users can ventilate their views and submit articles and writeups with relevant photographs for publication in the e-Magazine, if found apt at railcanvaz@gmail.com.





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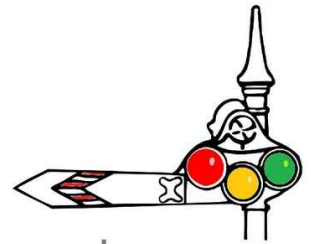
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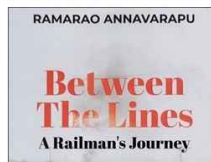


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The Station Master's Tale

Sanjoy Mookjee

Dusk was rapidly descending upon us. The birds had already settled down into the comfort of their nests for the night. Only the sound of the diesel locomotive punctured the solitude of the surrounding forest, as the red and yellow narrow-gauge train began rolling out of Barog railway station of the historic Kalka-Shimla Railway. The train was on its way to Kalka, the base station of this heritage mountain line where the Shivalik hills touched the plains of north India.

My friends and I had arrived from Shimla a few minutes earlier on this very train. Right now, we were sitting on comfortable cane chairs thoughtfully laid out on the covered balcony surrounding the railway retiring rooms nestled against a hillock opposite the quaint, cottage-shaped station building. Our eyes were glued to the camera viewfinders, clicking pictures of the train as it disappeared into the murky recess of tunnel number 33 at the end of the station yard, piercing the bowels of the hill in front. Other than a trail of diesel fumes left behind, the only remaining trace of the train was its tail lamp flashing red, as it faded into the inky darkness. Out of more than a hundred tunnels which dotted the 96-kilometre-long UNESCO listed World Heritage railway

that wound up the Himalayan foothills to Shimla, the state capital of Himachal Pradesh, at an altitude of 2169 metres above sea level, this was the longest one.

Our halt at Barog station that evening was an impromptu decision. Having reached Shimla city on a dull and clammy morning at the end of a gruelling trek in Kinnaur, my friends, Anku, Prasanna, Tapu and I were utterly exhausted and needed a couple of days' rest. On arrival we realised that in the drained-out condition that we were in, Shimla could not be an ideal retreat. A fresh blanket of late winter snow had suddenly resulted in a large influx of revellers from the plains, reducing the Himalayan town into chaos. We desperately needed to get away from there. But the question was, where to?

All four of us were railwaymen, recently retired from service. Yet, our affinity to trains remained unbroken, reflecting the oft-repeated saying, 'Once a railwayman, always a railwayman'. So obviously our legs led us to the Shimla railway station in search of a solution. We were in luck. For, at the entrance we found our old friend and colleague, Ashwini Kumar, the Traffic Inspector of the station on duty.



His solution to our problem was immediate. 'Barog,' he exclaimed without hesitation, "If you wish to unwind, there's no better place than Barog, the prettiest station on the line. There are a few railway retiring rooms there which I'm sure you will find quite cozy." His words sent a wave of cheer through our exhausted bodies.

"The Station Master there, Munshi Ram is a wonderful chap. Should I ask him to book a couple of rooms for you?" he asked grinning, "Once you are there, nobody will find you even if they wished to, as the access of Barog station from the highway is not that easy." The place appeared to be exactly what we longed for. Ashwini at once got through to Munshi Ram over the railway control telephone and booked us on the two o'clock train to Kalka.

I felt a surge of elation while the little train twisted and turned, clinging precariously to the sides of the wooded slopes on its way downhill. As the tiny diesel engine negotiated the bridges and tunnels along the track one after another, the echoes of its boisterous hoots sent a flutter of excitement through me.

The full import of Ashwini's words dawned upon us only after detraining at the stunningly beautiful railway station at Barog. This was indeed the Shangri-la that we were craving for, remote, peaceful and enchanting. Being at a much lower altitude and protected from the spine-chilling winds from north by the lofty deodars and hilly terrain all around, the climate here was much more convivial. Apart from the century old colonial style station building with a sloping roof and the retiring rooms perched along the hillside, the only man-made structure here was the longest tunnel on this line, a fine example of mountain railway construction. The wooden balcony surrounding the retiring rooms looked most inviting. And so, we made a beeline for it with our cameras in hand, eager to capture through our lenses the receding train before it disappeared into the darkness beyond.

Shortly after the train's departure, Munshi Ram, the ever-smiling Station Master of Barog joined us. The next train was

Barog station



two hours away. So, he had time in hand. Following him was Chhotu Singh, the platform tea stall vendor carrying a tray full of hot onion fritters in one hand and a giant thermos flask full of tea and a bag of earthen cups in the other. This was a heavenly sight for our chilled bodies. We couldn't thank him enough.

Chhotu Singh was a giant of a man well above six feet in height, with a luxuriant beard, impressively flowing down to his chest. He wore a light blue turban, a knee-length, deep blue woollen tunic and white salwar beneath, true to the followers of the Sikh faith. While we all stared at this striking 'Sardar ji', as the turbaned Sikhs are reverently called, Tapu, the good boy-scout that he had always been, rushed to help unburden Chhotu Singh's load.

The Station Master was thrilled to have company, especially since we were friends of Ashwini. He was glad that at least he would have an opportunity to chat with human beings that evening. "I am gradually losing my speech, out in this remote, God-forsaken place you know" he laughed, "I seem to be happier talking to birds nowadays!"

As we sipped the hot, life-giving drink, Munshi Ram explained that it was rare for tourists to stay overnight in this station so far from civilisation, especially during the cold season. "In fact," he informed us, "the restaurant attached to the station has been shut down for the winter and you will have to manage with Chhotu's culinary skills during your stay." We were only too happy with basic food and told him so. Chhotu departed down the creaky, wooden stairs and made his way towards his tea stall on the platform opposite.

Pointing to Chhotu while he was crossing the track, I asked the obvious question. "Munshi Ram ji, why is he named 'Chhotu'? He is such a big man, and if I'm not mistaken, 'Chhotu' means young or diminutive in Hindi, isn't it?"

"You are absolutely correct, Shome Saheb," replied the Station Master. "I am told that Chhotu was found in the woods abandoned as a child and rescued by the earlier tea vendor of Barog station, Vilayat Singh. Vilayat and his childless wife, Rajjo Kaur willingly took in the helpless baby, raising him as their son. Since the elderly couple considered the boy as God's gift to them, they named him Gurdev Singh. When Gurdev grew up, he began assisting his foster father in the station tea stall. From then on, to distinguish son from father, everyone started calling him Chhotu, the youngster. Even after Vilayat's demise, when Gurdev took over his father's commission at Barog station, the name remained stuck. By now, I suppose Chhotu must have forgotten his real name!" laughed Munshi Ram.

"I rather like this place," said Anku excitedly, "Especially during the off-season. It is so serene; so tranquil."

"You are right, But, during the cold weather, only bird watchers and those rare railway fans who wish to visit Colonel Barog's grave, spend time here," explained Munshi Ram. "Which of the two interests do you folks subscribe to?"

"Grave!" exclaimed Prasanna, rubbing his palms to keep

them from going numb. "Is Barog the name of a person? I thought it was the name of a nearby town or village!"

"Oh! no," replied Munshi Ram, grinning from ear to ear. "Colonel Barog was the British engineer who was detailed to bore this tunnel, but failed. In fact, there is an unbelievable legend linked to the building of the tunnel."

"Really?" I asked, excited at the prospect of hearing an interesting narrative. "Do tell us." With the twilight disappearing, the chill was descending upon us fast. Anku went into the retiring room and brought us blankets to cover our freezing bones. At that instant, we heard the creaking of the staircase once more. Chhotu Singh was back, this time with an electric heater. This was indeed a life saver. Thanking him once more, we settled down to listen to the Station Master's narration, while trying to revive the blood circulation of our hands over the heater.

Munshi Ram brought out a comfortable cane chair from the furniture store behind, and facing us, planted himself upon it. As we watched him in anticipation, with great dexterity, he wrapped his woollen muffler securely around his neck, following it up by meticulously adjusting the railway regulation hat upon his head. It was quite apparent that our host had related this story to hundreds of people and enjoyed narrating it every time. Pouring tea from the flask into an earthen cup, he gulped the entire cupful in one go and began to unfold the Colonel's saga, after whom this railway station and the tunnel had been named.

"The British had established themselves in Shimla (then spelt Simla), on a saddle of the lower Shivalik hills of the Himalayan range, shortly after the First Anglo-Gurkha War, which was fought between 1814 and 1816." The narrator paused. "By the 1830s, Simla town had developed into a major settlement. It was declared the summer capital of the British Indian territories and the Headquarters of the Indian army in 1864. The idea of connecting this strategically important town by a railway system came up shortly thereafter. But due to the mountainous terrain, it took almost four decades for the railway to become a reality."

Munshi Ram popped a couple of onion fritters into his mouth and continued. "Ultimately, a narrow-gauge railway line named the Kalka-Shimla Railway, KSR in short, was opened to traffic on 9th November 1903, connecting Simla to its base station at Kalka, where the broad-gauge line from Delhi terminated. With a track only 2 feet 6 inches wide, the railway's unique architecture even today boasts of several multilayered stone masonry arched bridges built along the design of the aqueducts of ancient Rome and over a hundred tunnels, the longest one located at Barog. With a length of 1.14 kilometres, this tunnel, when completed in September 1903, was supposed to be the second longest rail tunnel in the Indian subcontinent at the time."

"What about Colonel Barog?" asked Tapu eagerly.

"All in good time, my friend; all in good time," replied the Station Master paternally, relishing the growing curiosity



Barog Tunnel

among his guests. "Barog station, as you see, is 54 kilometres from Shimla along the track. The tunnel out here was constructed between July 1900 and completed in September 1903. Mind you, this was not the original alignment proposed by Colonel Barog, a railway engineer. In fact, boring this tunnel proved a colossal challenge since the surrounding mountains were full of fissures and unstable rocks. Although this tunnel is only 1.14 kilometres long, originally, in the year 1898, a two-kilometre-long tunnel on a separate alignment was planned under the supervision of Colonel Barog." Munshi Ram looked at Tapu, who was listening with rapt attention.

"After meticulous calculations, the good Colonel got his labourers to dig the cliff from both ends so that the two could meet in the middle. He needed to speed up the work as he knew that this crucial tunnel was holding up the commissioning of the line. But alas, the Colonel's calculation misfired and the two tunnels went askew, never to meet in the hill-centre as intended." Our host stopped for breath, while we replenished our cups. "The railway company let him off with a token fine of one rupee. But Barog couldn't cope with the dishonour. It is said that after his humiliation, the Colonel lost his sense of humour, went into depression and started acting strangely. On a full moon night, while walking his dog in the woods nearby, he shot himself near the mouth of his ill-fated tunnel. His body was buried at the very site as a homage to him. The grave remains there ever since!"

We sat huddled together in the cold, as we listened to the Station Master's tale spellbound, trying to imagine the despondency that the unfortunate Colonel must have felt, which had led him to take such an extreme step. Munshi Ram seemed to have read our thoughts. Clearing his throat, he said. "I really wish you could have met Vilayat Singh, Chhotu's foster father. He was a great raconteur. In fact, Vilayat's grandfather, Hoshiar Singh was a camp follower of Barog. When Vilayat was a young lad, Hoshiar used to regale his grandson with numerous stories about Barog. He would describe the Colonel as a tall, blond, well-built person, who

used to work very hard from daybreak till sunset and even at night in his tent under a kerosene lamp. Apparently, Hoshiar was present in Colonel Barog's camp that fateful evening, when the latter walked away into the woods with only his dog and pistol. After about an hour or so, the stillness of the night was broken by the sound of a single gunshot which continued to reverberate for a few minutes through these hills and vales. Thereafter, an eerie silence ensued!"

Munshi Ram's narration was so realistic, that sitting on the station balcony, we could almost hear the echo of the gunshot even after the lapse of a century! "It was too dangerous to send search parties at night as the mountain trails were covered with slippery pine needles and the forest was infested with Himalayan brown bears. So, at first light, several groups from the camp fanned out in search of the Colonel, travelling in different directions. Hoshiar Singh was leading one such party. When they approached the mouth of the abandoned tunnel, to their horror they found Colonel Barog lying prostrate in front of the tunnel arch with a bullet hole in his head. His pistol was lying on the ground beside him."

The Station Master looked sad. Addressing me he sighed. "You know, Shome Saheb, Hoshiar Singh had narrated a meticulous account of the good Colonel's funeral too. According to him, till the senior railway functionaries arrived from Ambala, Hoshiar and his camp-mates made a coffin out of local pinewood and lowered it into the grave at the mouth of Colonel Barog's beloved tunnel. The following day the funeral service was conducted in the presence of a priest, accompanied by the last post sounded by a Police contingent. The grave was finally plastered by the stones obtained from the tunnel."

The Station Master stretched himself. He was wistfully staring towards the dark mouth of the tunnel, now hardly visible in the gathering mist. We all turned to look in that direction. A shiver went down my spine and I grabbed my earthen cup to empty the half-cold tea. "Several locals have told me on oath that often on full moon nights, they have seen the apparition of a Britisher with a dog beside him, peering into the mouth of the unfinished tunnel!" The voice of our host was hardly audible.

A pin-drop silence ensued. I was sure that the tale was still unfinished. So, I asked, "Munshi ji, what was the Colonel's full name?"

The Station Master grinned. "It is strange you ask this question, Shome Saheb," he replied, "I have searched high and low. But nobody seems to know Colonel Barog's full name. I've heard people doubting whether such an individual at all existed. That's why there is a feeling in some quarters that the ghost story might be a result of someone's wild imagination. But the fact remains that a grave indeed exists on the spot even today."

All of us sat motionless, deep in thought. Only the chirping of crickets in the surrounding bushes broke the stillness of

the night. At long last, Prasanna broke the silence. "Munshi Ram ji, you haven't yet told us how the tunnel was finally built."

"Oh yes!" replied the Station Master, sounding apologetic. "After the Colonel's death, the Chief Engineer of the KSR, H. S. Herlington took over the responsibility of constructing this tunnel. He selected a site almost a kilometre away from the Colonel's chosen alignment. It is believed that at the time, a local mystic by the name of Baba Bhalku, who was supposedly endowed with supernatural engineering skills, guided Herlington to find the best possible alignment by merely banging the hillsides with a wooden staff and listening to its echoes! Quite an amazing fable, don't you think?"

We all nodded vaguely, our minds hardly able to reconcile this story with the modern scientific concepts that we had grown up to live with. Munshi Ram had read our thoughts. He must have chaired several such sessions in the past with Doubting Thomas's like us. Looking towards me he smiled sardonically. "I can feel what's going on within you," he said, "but I have an entirely different point to make today. Do you realise that the oddest part of the declared railway history of this region is that no authority, neither the railways nor the Government have formally acknowledged the sterling contribution of the real builder of this iconic tunnel, who used rudimentary equipment and spent months in such a forbidding terrain?" There was a touch of emotion in his voice. "The name and deeds of Mr Herlington, who crafted such an engineering feat in these mountains over a century ago, is simply lost amongst the dusty, yellowing railway records, never to be brought out before the public eye!"

There was pain etched on Munshi Ram's countenance. "I don't grudge naming this station after the person who failed to build the tunnel in spite of his best efforts; it is tragic that he had to sacrifice his life in remorse. I also feel happy that Baba Bhalku's contribution to the project is now recognised by naming the railway museum in Shimla after him. But as a railwayman, it hurts me that the contributions of Mr. H. S.

Baba Bhalku's idol @ Shimla



Herlington and hundreds of other nameless railway persons who toiled night and day to make this project a success by dint of their labours in such adverse circumstances, should go unrecognised.”

We remained quiet, frozen on our chairs, trying to empathise with Munshi Ram. There was no doubt that the Station Master had uttered a bitter truth.

Minutes passed without a word till Anku broke the ice. “Have you seen the Colonel’s ghost?” he asked of our host. “Ever felt its presence?”

“Never; never,” replied the Station Master, his voice booming emphatically, “Not even once during my two-year tenure here,”

“Well, you might laugh at me, but once upon a time, I did have a tryst with the supernatural!” It was Anku’s voice. Everybody turned to look at him, bewildered. His eyes wore a penetrating look. “At a place far, far away from here! But that was many years ago.” His words faded away.

“Really? Why don’t you tell us?” We all cried out together,

suddenly energised.

His eyes softened. A mischievous grin appeared upon his face, “That’s another story.” Anku got up from his chair, covering his head with his blanket, “Maybe sometime later; maybe, maybe...!” he kept repeating to himself.

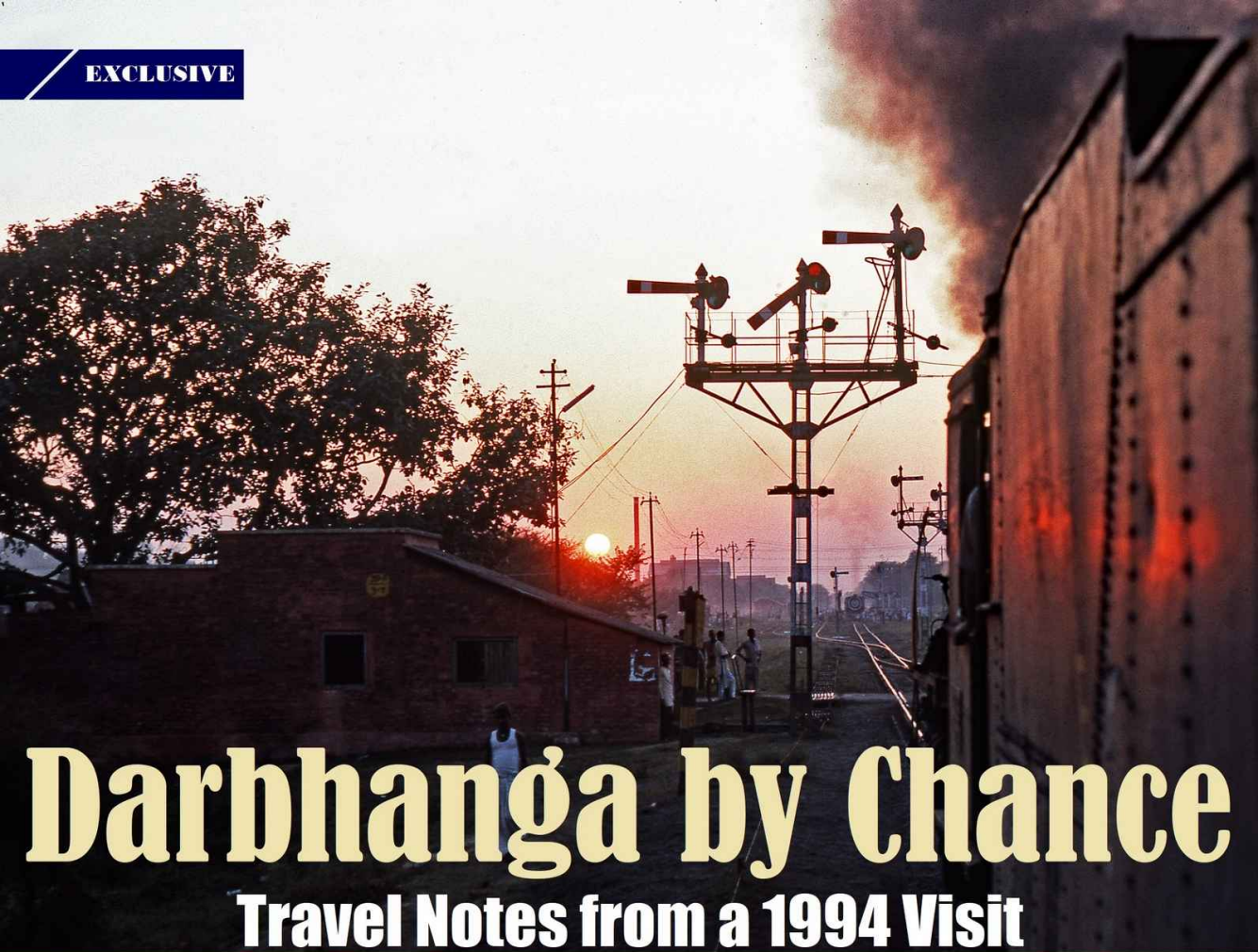
Anku’s last words intrigued me. Did he really have a paranormal experience, I wondered? But I hesitated to ask.

It was getting cooler by the minute. The electric heater in the balcony was quite useless now. So, we all hurriedly dived to our rooms and took refuge under heavy quilts, waiting for Chhotu Singh to call us for dinner.

DISCLAIMER: 'The Station Master's Tale' is a work of fiction. Other than the technical aspects of the Kalka-Shimla Railway and the names of Baba Bhalku, Col. Barog and Mr. H. S. Herlington, any resemblance to the incidents and other characters in the story is purely coincidental.

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Darbhanga by Chance

Travel Notes from a 1994 Visit

Jakob Stilling

In November 1994, we were back on track and heading for a second grand tour of North India. Actually, we started out our "Subcontinent No. 2" tour by visiting the Pakistani part of Punjab for a few intensive days of branch line steam featuring BESA types SGS and SPS in the Malakwal area. Travelling on, via Lahore, we crossed the Indo-Pak border at Wagah and revisited the Jalandhar area where the WLS were still running. Our plan had been to continue via Saharanpur and Moradabad where we felt that we had spent too little time in the previous autumn. This time, we were travelling 4 guys together, one of us had travelled out a few days in advance and phoned us on our day of departure to inform us that Moradabad and Saharanpur steam sheds had closed during the summer and that the whole southern part of NR was now steam-free.

Our initial plan was to have a quick look at the NER Meter Gauge action in the north of Bareilly. Johs and I had visited Bareilly on our first trip and the magazines reported that steam still ruled on the branches around Pilibhit. So, plans were changed and we stayed on the overnight train in Moradabad and went directly to Bareilly to change for an MG

Express working over the loop to Lucknow. We thought that Bareilly could be covered on the way back to Delhi. Thus, we were confident that there was MG steam ahead as we left Bareilly Junction. During the stop in city where the shed had been full of steam engines, one year previously, we saw only an empty space – the shed had closed! We thought that the situation would be better further north and stayed on the train. Pilibhit was equally empty – and the Station Master confirmed that the branches had been diesel for a few months. We had to make a quick decision and opted for staying on the train to Lucknow. Intensive checking of Trains at a Glance and of the Bradshaw helped us drawing up a plan. By changing in Lucknow to a connecting express we would be able to arrive, rather late in the evening, in Gorakhpur where the magazines also reported intensive steam activity.

Arriving at Gorakhpur, we checked into a retiring room dorm for a good night's sleep. Already, quite far away from the area we had planned to visit, we had studied the maps and timetables and it seemed that it would be possible to continue east on the broad gauge, change for the MG in

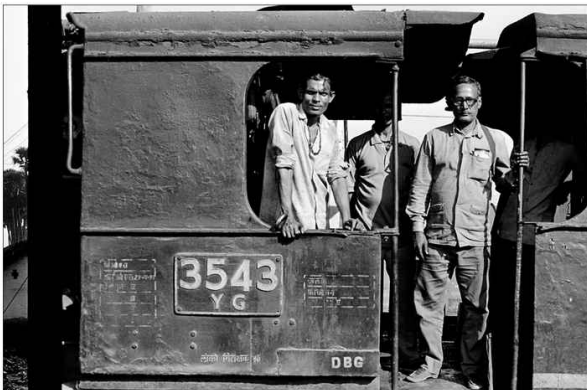




Samastipur and reach Darbhanga, another supposed NER steam-center, late the same evening.

First of all, Gorakhpur was to be investigated. We were ready to check the early morning trains on the MG part of the station, which turned out also to be diesel hauled. Station staff confirmed that some of passenger workings were still steam. The MG steam shed, north-west of the station was next in line. The Shed Master welcomed us and served tea and was happy to confirm that there were still a handful of YG and YP in service – mainly for shunting duties. We were allowed to roam the big roundhouse where most engines were cold and under some sort of repair. However, two engines were in steam by the coaling stage and one engine helped moving the cold engines to and from the turntable. The shunter promptly disgraced itself by derailling on the turntable and blocking any more action for the next few hours. The message from above was clear that there would be little more action in Gorakhpur, so we made a hasty farewell, picked up our luggage from the retiring room and opted for our plan 'B' which was to continue east by a mid-morning express which carried a First-Class AC Chair Car for Samastipur – a journey of some hours. We bypassed the site where the sugar mill probably still used 'Tweed' for shunting which we had not taken into consideration.

In Samastipur, at sundown, we were very relieved to see a



YG waiting for its train in a siding and to couple up to the Darbhanga bound evening passenger. Bihar was very dark at night in those days and the carriage lights were not working. Darbhanga Station was brightly lit when there was power or when the station generator was working. We were put up for the night in the deluxe 4 person retiring room.

Darbhanga turned out to be a real MG gem. No traces of widening were to be seen and only the top expresses were diesel hauled while most stopping trains were handled by well-kept YG and YP engines from the shed. The level crossing in the north end of the station was a very busy market where the vendors only cleared the immediate trackside part of the stalls, seconds before the passage of a train. We had heard about the Nepali Railway, the Janakpur-Jaynagar NG line which was supposedly still steam-worked. As it was not that far way, we decided to travel to Jaynagar the following days, spend the night there to see the NG in the morning and return to Darbhanga. Darbhanga was the junction where the mainline to Narkatiaganj continued to the north-west while a branch leading to Sakri tuned east.







We arranged a taxi for some and were dropped off in Sakri and travelled further east on the MG behind steam. At Sakri Junction, a line ran east while the other line turned north and went to the Nepal border at Jaynagar where there was a connection to the NG Janakpur Railway, a Nepali company. Darbhanga had several platforms and carriage and goods sidings and a steam shed just north of the station building. North of the level crossing, a huge pond with water lilies separated the two lines to the north.

Returning on another steam hauled train and changing to the evening train to Jaynagar, it was also steam-worked. We were allowed to travel on the engine – one at a time. On arrival at Jaynagar, everything was very quiet – it turned out that the following morning was festival and that almost all shops were closed in preparation for the procession to river at sunrise the following day. Our hotel managed to arrange a tray meal – which arrived from the restaurant, accompanied by a representative of the Bihar Police who was insisted that we planned to cross the border the following morning. I had just had a shower and was wearing only a towel while



discussing this issue with the high-ranking policeman!

Our night's sleep was rather short as everyone in the town was wide awake and joining the procession to the river at the first crack of light. The beauty of this festival in the early morning light is clear in my memory to this day. It was the 'Chhath Festival'. Enlightened, we were ready in the NG station for the arrival of the morning train from Janakpur which long before actual arrival was heralded by the sound of a very diesel horn. New shiny diesels had been running for a few weeks and thus once more we were just that tiny fraction of time too late.

Thus, we caught the first available train back to Darbhanga where we spent one more night before making our way back to Delhi. The first night was spent in the Samastipur retiring room and part of next in quota berths in a 3 AC Sleeper from Lucknow. During our visit the breakdown train, complete with steam crane, departed for a derailment somewhere to the north. Before the departure of our westbound express, we also visited the MG shed in Samastipur.

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Kolkata Circular Rail

40 Years of Service

Soumitra Pal

The Prelude:

Transportation has been a perennial problem in the city of Calcutta, now Kolkata. Since 5 per cent of the surface area of the city consists of roads, it is difficult to keep the city moving. Traffic moves at a snail's pace. In the 1950s, a plan for underground network in the city was dropped due to its worst soil conditions. So, what was the alternative?

The planners came up with the idea to have Dum Dum Kalighat dispersal line. The idea did not make much headway as in 1972 construction began on the Dum Dum Tollygunge Metro Railway. The metro construction had a tardy start. In early 1980s with A.B.A. Gani Khan Chowdhury as the Railway Minister, the construction gathered momentum. So, the plan for the dispersal line was forgotten. As luck would have it, in early 1984, the Railway Minister brought the dispersal line out of the cold storage and declared that

Calcutta would have a Circular Railway using the abandoned 14 kilometre railroad, from Majerhat to Tala, of the Calcutta Port Commissioners in six months. The critics said it was impossible!

Then, there is a proverb 'Where there is a will there is a way'. If memory serves me correctly, the work began with a meagre sum allocated out of non-plan expenditure. Hundreds of workers toiled hard, day and night, to meet the deadline. The will had its way. The deadline was met as on 15th August, 1984 as Eastern Railway ran the first diesel hauled Circular Railway train from Princep Ghat to Bagh Bazar via Eden Gardens, BBD Bag, Burra Bazar, Sovabazar Ahiritola – each having new platforms and swanky stations. Today on the 40th year of its run, the Circular Railway is providing yeoman's service to thousands of daily passengers to the central business district bypassing Sealdah.



Scenic Prinsep Ghat Section of Circular Railway, Kolkata



Initial History Through a Dateline

transport hObO

What is now known as the Circular Railway in Calcutta, is almost always considered to purely be a port railway, whereas in reality, it owes its development to an array of operators with intriguing operational factors. Although part of it was indeed constructed and later owned by the Port Commissioner/Trust, it actually recoiled out of a complex amalgamation of railway network between the Eastern Bengal Railway (E.B.R.), Calcutta Municipal Garbage Railway and the Port Commissioner for trans-shipment of goods to the riverfront warehouses and stores. Of course, this often resulted in bitter legal battles between the parties over ownership and right of way as well as for operation, but that is another story for another day.

Considering the initial reason behind the construction of the route, it is not surprising and obvious that it dealt exclusively to goods traffic- that too for more than 100 years although attempts were afoot to convert those tracks for

passenger traffic with the first committee being set up by the government on 23rd January 1953. However, scathing pressure of river borne traffic with trans-shipment at warehouses abutting the riverfront and the location of the port were considered to be the prime reason why it took another 31 years for part of the network to rail passenger trains along the river till Prinsep Ghat. By then, the riverine traffic was as good as dead.

The following is a brief dateline of the beginning of the present-day Circular Railway in the late 19th and early 20th century (while keeping the original spellings from that era)-

A. The Riverbank section from Cossipore/Chitpore to Majheraat-

1. The northernmost section from Cossipore Gun Foundry Road to Baghbazaar was opened on 1st June 1878. With this section, the Circular Canal, just north of Baghbazaar was bridged with a lock gate underneath that controlled the ebb



The Lock Gate bridge. Confluence of Belaghata Canal & the river.

and flow of river water onto Circular Canal. This bridge enabled the traffic to reach the then Chitpore terminus next to the river, the ruins of which are still visible.

2. Baghbazaar to Meerbohur Ghat was opened for traffic on 11th January 1875 and was actually the first section to be opened for traffic along this stretch. Meerbohur Ghat was located between the present day Howrah Bridge (Rabindra Setu) and the earlier pontoon bridge that connected Howrah with Calcutta. Although one may be baffled by considering this section to be isolated when constructed, but in reality, it was connected with the Eastern Bengal Railway (E.B.R.) network via a spur next to Sealdah station with the Calcutta Municipal Garbage Railway that ran from Baghbazaar to Theatre Road along the length of the eastern periphery of the Circular Road (A.P.C. Road & A.J.C. Bose Road of today) with branches spreading out towards the dumping ground in the east. The Calcutta Municipal Garbage Railway, completed in 1868, was also built at 5' 6", hence the connections at Baghbazaar in the north or at Sealdah never called for a gauge-break or needed any trans-shipment of goods.

3. The next section, a very short one, between Meerbohur

The Posta region



Ghat to Railway Jetty, located just south of the erstwhile pontoon bridge, was necessitated owing to trans-shipment of goods to and from the Howrah station warehouses on the opposite bank and was opened on 1st June 1878. It was also practical to have a jetty south of the pontoon bridge (opened in 1874) as the bridge only used to remain open for river traffic during designated hours of a day.

Old Warehouses



4. Further south, the Railway Jetty to Chandpal Ghat section was thrown open on 1st December 1880. With the present-day port still a few years away, the area between the pontoon bridge and Chandpal Ghat was the place where several jetties were built to berth ships. This was done in conjunction with the establishment of the Port Commission in 1870.

5. The following section between Chandpal Ghat to Khidderpore Graving Docks was the first section that was laid with the sole purpose of constructing the port at Khidderpore. Although this section was opened on and from 1st January 1887, it was used only to carry materials for the docks and was opened for general goods traffic in 1891.

6. With E.B.R.'s Ballygunj to Budge Budge route (opened on 1st May 1890) just a stone's throw away, it was more of a formality to link the short distance between the Graving Docks and Majheraat (present day Majherhat) in 1893. It also had an extension up to Chetla with separate tracks for the port railway- opened in the same year. Sealdah to Ballygunj portion was already functional since 1862 as part of the Calcutta & South-Eastern Railway's route to Port Canning. Hence, with the connection at Majheraat, the port railway

was also connected with Sealdah South and the other port at Canning.

7. Passenger train services on the erstwhile port railways was inaugurated on 15th August 1984 between Bagbazaar and Prinsep Ghat. By January 1985 [source: <https://eparlib.nic.in>] the passenger services were extended till the now defunct Ultadanga Road station and on 17th June 1990, passenger train services on the Circular Railway's northern portion was extended further to reach Dum Dum Junction.

8. In the south, although the erstwhile port railways network was connected with Majherhat station since 1893, a fresh connection was planned to connect Prinsep Ghat with Majherhat to run passenger services. This portion, built mostly on a flyover, was inaugurated on 30th January 2006.

B. The Yards & Connections from Cossipore/Chitpore to Dum Dum/Dum Dum Cantonment-

Up north, beyond Baghbazaar, several complex connections were built after a huge tract of land, initially earmarked for a wide canal, was diverted for railway construction. The main line of Sealdah to Ranaghat via Dum Dum of E.B.R. was already functional since 1862 and soon several connections started spreading all over south Dum Dum towards Chitpore and Cossipore in the early half of the 20th century.

1. The very first extension around this part of the network was from Cossipore Gun Foundry Road to Belgachhia Bridge

which served as a marshalling yard while the terminus of Chitpore (not to be confused with Chitpore/Kolkata terminus of today) was used primarily for trans-shipment of river borne goods. This was constructed in phases between March and September of 1903.

2. Another route, now lost in time (presently, converted into a road) was constructed between Dum Dum Cantonment and Patipooker avoiding Dum Dum Junction altogether and was opened on 1st August 1904.

3. Patipooker to Chitpore connection was established on 4th December 1910.

4. Finally, Dum Dum Junction was connected with Chitpore in two phases between December 1913 and October 1914.

C. The Goods Bypass Connecting Two Sections of Sealdah-

1. The last connection via the Kankurgachi Chord in the east was thrown open on 1st February 1907. It finally established a direct main line connection between Sealdah's Main and North section with the South while bypassing the Sealdah station area altogether.

There are several other smaller sections in what was known as the Port Commissioner's/Trust's Railway, but since they did not form or become a part of the later year Circular Railway, will keep that for another day.

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Circular Railway Kolkata

A Pictorial Journey Through the City of Joy

Rudranil Roy Chowdhury

In the entire country, Kolkata can boast of such an active, unique mass transit system – the CIRCULAR RAIL. The entire 36 km route is dotted with 20 stations, many small bridges, an elevated corridor, all of which are witnessed by the city's versatile and rich culture vindicated by many illustrious and architectural wonders. The period between the inception and electrification of Circular Rail, the truncated stretch from DumDum Junction to Prinsep Ghat was frequented by passenger coaches powered by WDS4Ds or WDS6Rs of BWN shed which were completely taken over by the EMUs after the entire route got operational, post-electrification. The route keeps the northern and southern fringes of the city connected thereby exempting the commuters from the hassles of daily traffic snarls that engross the city. To put it differently, CIRCULAR RAIL has been one of the lifelines of Kolkata.

“Man lives for the dreams he aspires to achieve....” In the same lines, Dr. Bidhan Chandra Roy, the First Chief Minister

of West Bengal dreamt of a railway connection circumnavigating and encompassing the former capital of India to help facilitate communication and change the face of the City of Joy completely. Metros and Bullet Trains were reality of a few nations of the western world, when Dr. Roy thought about this concept extra-ordinaire – the CIRCULAR RAILWAY. This long-cherished dream saw the light of the day with the completion of the elevated Majerhat-Prinsep Ghat section traversing through the Kolkata Port thus enabling the Circular Railway to come full circle in 2001. Though the line from DumDum Junction to Prinsep Ghat was commissioned much earlier on 15th August, 1984.

The history of 'Circular Railway' dates back to 1947 when Kolkata Terminal Committee recommended construction of a railway network for Kolkata from DumDum Junction to Majerhat and back to DumDum Junction in a circular loop. The stretch from Kolkata station to Majerhat station was dotted with warehouses and marshalling yards and were

knitted together with freight lines for loading and unloading goods when the Kolkata Port was in her prime. Those lines became gradually redundant with the passage of time resulting in total reconstruction for running the Circular Railway in the said stretch.

The Circular Railway bridged the northern and southern fringes of the city on one route - suburban timetables were re-written and history was made. The stations enroute include DumDum Junction → Patipukur → Kolkata (erstwhile Chitpur) → Tala → Bagbazar → Sovabazar Ahiritola → Burrabazar → BBD Bag → Eden Garden → Prinsep Ghat → Khidderpore → Remount Road → Majerhat → New Alipur (erstwhile Kalighat) → Tollygunge → Lake Gardens → Ballygunge Junction → Park Circus → Sir Gurudas Banerjee Halt → Bidhannagar Road and back to DumDum Junction. Though the Circular Railway Timetable mentions stations starting from Majerhat upto DumDum Junction but the circle is incomplete and inconsequent without the entire route as depicted above. Besides the stations mentioned above, there used to exist a station named Ultadanga just beneath the Bidhannagar Road station which was later dismantled and done away with. Again, the railways had a plan to construct a station between Park Circus and Sir Gurudas Banerjee Halt at Tangra - platforms under construction from decades, but it has not yet seen the light of the day.

The Circular Railway has proved to be a path-breaking idea that has revolutionised the way of public transport in Kolkata and will continue to serve the cultural capital of the country in times to come.

Let's start a tour down the Circular Railway to relive the flavour of this cosmopolis. Dumdum junction - a pivotal station which works like a fulcrum in the Kolkata Circular Railway Network. The station is of prime importance as it not only serves as the junction to various suburban sections of ER but also hosts the first ever Metro corridor of India -- the Blue Line (from Dakshineswar to New Garia). The Circular

DumDum Junction



Patipukur station...

Railway journey both begins and concludes at this juncture.

From Dum Dum side, Patipukur is the first station on one's journey on the route. This area is famous for the fish-market after its name and attracts customers from all over Kolkata. This station acts as the gateway to the Kolkata Station which is metres away. After leaving Patipukur, the line takes an acute turn and passes right under the Sealdah mainline. From this point the line branches out in two sections - a passenger line leading to Kolkata station & a dedicated freight line towards Chitpur Railway Yard & the Electric Locomotive Trip Shed.

Next comes Kolkata station. Formerly Chitpur station, now rechristened with the name of the City of Joy. This station was opened to public in its present form in January, 2006 to ease the ever-increasing load of Sealdah and Howrah stations and was carved out of the famous Chitpur Rail Yard. This is also the one of the two stations of eastern India from where the international train services to Bangladesh operates, viz., the Kolkata-Dhaka Maitree Express and the Kolkata-Khulna Bandhan Express; the other being the NJP-Dhaka Mitali Express. The luxury train, 'The Maharaja Express' also

Under the mainline





Circular rail @ Kolkata station

started its maiden journey from this station on 20th March, 2010. The Circular Rail EMUs usually operate from Platform 1 & 2 only of Kolkata station.

Immediately after Kolkata station is Tala. This station owes its name from the famous Tala Tank which happens to be the World's Largest Overhead Water Reservoir which was commissioned on 9th November, 1909. This century old structure extra-ordinaire towers, 10 storeys tall and is still the lifeline of water supply in Kolkata. Thus, the station earns its name by dint of its close proximity to the said tank. This station also formed a part of the famous Chitpur Rail Yard.

As we move towards next destination the line passes over a bridge and from this point onwards, the Circular Railway tracks run parallel with the Bhagirathi or Hooghly river from Bagbazar to Prinsep Ghat stations. Breathtaking scenes of belief, grief, joy and faith can be witnessed in this stretch of the journey as all the stations in this stretch are flanked by the holy river. It is from this very point that the Circular Canal or the Creek or the Beliaghata Canal originates. According to some geological accounts, Beliaghata canal used

Tala station



Scenic Ganges...

to be a natural water course, more precisely, a distributary of the river Hooghly. For some reasons, it had been flowing eastward and met with the eastern lake channel near Dhapa and finally merged with the Bidyadhari river. The British gadgets of early 18th century say that a small creek passed by the north of Dharmatala flowing from Chandpal Ghat to Beliaghata, Salt water lake or Dhapa. This creek drained through Hastings Street, Bentinck Street and Wellington Square. During that period, a branch of the river Bidyadhari flowed through the Salt water lake – the present Salt Lake City. This river Bidyadhari met the river Matla and finally emptied in the Bay of Bengal. This channel was then navigable. The Creek Row and the Canal Street of Kolkata still carry the name of this creek. As this creek passed through Etly (pronounced Entally by the British), it was named as Entally canal. The area where the canal met the salt water lake was known as Baliaghat, and according to this, it is named as Beliaghata Canal. At this very point there is a lock-gate to regulate the flow of water into the canal maintained by the Kolkata Municipal Corporation.

Now a days, the Beliaghata Canal is only a drainage canal but once upon a time it was a major creek of inter-Bengal

The Lock-gate Bridge





KMC Water Treatment Plant @ Baghbazar Outer

It witnessed many historical facts like Job Charnock's coming to Kolkata, Bargi attack, Siraj-ud-Daulah's attack during the British rule etc. All the canals including Beliaghata canal in and around Kolkata are not utilized in a planned manner. Almost all the canals have lost their character by way of getting transformed into drainage canals. Due to non-maintenance & siltation, water has got stagnant in these canals & has got totally polluted to become hot-bed of hazardous diseases.

The train next enters Baghbazar. This place is considered to be one of the earlier seats of Bengali culture which derives its name from two words - 'Bag' meaning flower garden and 'Bazaar' meaning market. There used to be a famous flower market in the area. Baghbazar also witnessed the first Durga Puja being held outside a Zamindari household in Kolkata. Eminent personas like Sri Ramakrishna, Sharada Maa, Swami Vivekananda, Sister Nibedita, Swami Brahmananda, Swami Saradananda, Harinath Chatterjee (later Swami Turiyananda), Gangadhar Ghatak (Gangopadhyay) (later Swami Akhandananda), Girish Chandra Ghosh, Balam Bose are in some way or the other have a connection with

Baghbazar



Baghbazar Ghat adjacent to the station

Baghbazar. The office of Udbodhan, the magazine founded by Swami Vivekananda, is also located in Baghbazar. Baghbazar has also seen a battle - on 16 June 1756, a small force under Ensign Piccard repulsed an advance guard of Siraj-ud-Daulah from the north. The station is on the bank of the Hooghly and is at stone-throw distance from all the reckoning places at Baghbazar. In close proximity of the station is the Maayer Ghat previously well-known as Pagla Baboor Ghat, a place where holy mother Sharada Maa spent her last days. It is reckoned as one of the many ancient ghats on the Hooghly River. It was earlier called Roghoo (Raghu) Mitter's Ghat after Raghu Mitra, son of Gobindram Mitra, the black Zamindar, and once one of the wealthiest and most influential natives of Kolkata during the early days of British Raj. A steamer jetty next to Baghbazar Ghat ferries passengers to Howrah and other points of Kolkata.

From Baghbazar we will now proceed to our next destination towards south, Sovabazar Ahiritola - the ever-vital hub of traditional Bengali culture, 'the native area', Sovabazar is all about this and much more. This area contains a fascinatingly cosmopolitan blend of the seemingly incongruous

Sovabazar Ahiritola





Sovabazar Ahiritola

architectural forms (from Islamic to Baroque, from Victorian to Bengali) which made up the old-world dwellings of the city's wealthier Bengalis. The British had decided to build the new Fort William at Sovabazar - that's when Sovabazar came into prominence. Maharaja Nabakrishna Deb had built his Rajbari (palace) at Sovabazar. The former Governor General, Lord Clive preside over the Durga Puja at Sovabazar Rajbari after Battle of Plassey. The station also hosts the adjoining Ahiritola Ghat on the Hooghly River which has ferry service to Howrah and other neighbouring ghats dotting the river. The former Governor General, Lord Clive preside over the Durga Puja at Sovabazar Rajbari after Battle of Plassey.

From Sovabazar the Circular Railway line proceeds towards the busiest & most congested part of the city - the Burrabazar area. Here confluence of cultures can be witnessed, as one can trace the origins and remains of the varied communities that hung their boots and made Calcutta home. While passing, one can notice how the Armenians, the Anglo-Indians, the Muslims, the Marwaris, the Biharis and many more made this city a great melting pot of diverse cultures.

Congested Posta area....



Burrabazar

Etymologically and as the name suggests Burrabazar implies 'Big Market'. Practically, the erstwhile Sutanuti Haat (Market) which was famous as a yarn and textile market eventually took the shape of the modern Burrabazar or Barabazar. It is regarded as one of the largest wholesale markets of the country with the traders, merchants crowding the place throughout the day. This market has seen the legacy of big merchants like the Basaks, the Seths and the Mullicks to name a few in their heydays. This single-platform station is located on the river bank near Posta area of the market.

Leaving Burrabazar or Posta (name of the adjacent area), the Circular rail moves towards its next scheduled station - BBD Bag. It is in this stretch that one can find the Rajsthani haveli-type dormitory or dharmashala built by Seth Surajmal Jalan Trust on Jagannath Ghat, the corinthian columns at Mutty Seal Ghat, the typically British Rashmoni Ghat with cast iron pillars and timber louvres and the simplicity of Chotelal Ghat. These are all splendid pieces of architecture lying in utter neglect. Apart from the ghats, there are four Victorian warehouses located along Strand Road. One of them, the Fairlie warehouse, has been restored by the

Scenic Circular Railway





Scenic Howrah Bridge & Circular Railway Tracks

Kolkata Port Trust (KoPT) and converted into a Maritime Archives and Heritage Centre. The other two warehouses Canning and Clive remain in decrepit state. Strand Warehouse, which was architecturally the best of the lot was completely gutted by a devastating fire in Feb 2010.

In this stretch, the Circular Railway tracks travel under the iconic landmark of Kolkata - the Howrah Bridge. Built between 1936 to 1942, by Cleveland Bridge and Engineering Company Ltd in collaboration with The Braithwaite Burn & Jessop Construction Company of Calcutta, the Howrah Bridge is a structural marvel and is of immense heritage value. For more than seventy years now, it is recognised as the living symbol of the City of Joy, sharing a totemic relationship with its growth and evolution.

Commissioned in 1943, it is a suspension type balanced cantilever truss bridge with central span 1500 ft. between centres of main towers. The Anchor arms are 325ft. and the Cantilever arms are 468 ft. long at both ends. While the middle-suspended span is 564 ft., main towers are 280 ft. high above the monoliths and 76 ft. apart at the top Bridge deck width is 71 ft. with two footpaths of 15 ft. on either side. It was the third-longest cantilever bridge in the world at that time. It consumed 26,500 tons of high-tensile steel delivered by Tata Steel and its construction amazingly did not include the use of nuts or bolts. Interestingly, the first vehicle to use the bridge was a single-bogied Tram-car - though Tram services has been long discontinued for adding years to the bridge. On June 14th 1965, Howrah Bridge was renamed as 'Rabindra Setu' after the first Asian nobel laureate Kaviguru Rabindranath Tagore.

After passing under the Howrah bridge our train enters BBD Bag station. The name is actually an acronym for Binoy, Badal and Dinesh - the three young Indian independence activists who on 8th December, 1930 shot dead the Inspector General of Prisons, N.S. Simpson, in the balconies of the Writers' Building. The place is also well known as Dalhousie Square even today after Lord Dalhousie, the Governor General of undivided India from 1847 to 1856. The area is the Central Business District of Kolkata. The station is on the fringe of the Hooghly river and not far away lies the General



Beautiful BBD Bag station

Post Office - referred to as GPO, the Royal Insurance Building, the Eastern Railway's office at Koilaghat, erstwhile the headquarters of the Bengal Assam Railway & the office of the Reserve Bank of India. The headquarters of the Eastern Railway, erstwhile the headquarters of the East Indian Railway is located here. The head office of the Kolkata Port Trust, and a number of other government offices, including the historic Writers' Building, previously the seat of the Government of British India and later of the Government of West Bengal lie nearby. The Royal Exchange Building which houses the Bengal Chamber of Commerce and Industry, the Calcutta Stock Exchange, the Standard Chartered Building and many financial establishments dot the area.

From BBD Bag the circular rail continues its journey along the Hooghly River bank towards its next destination Eden Gardens meandering through beautiful green corridors. Going by the name, Millennium Park came into being on 26th December, 1999 in the wake of the new millennium.

BBD Bag station building





Millennium Park

The Circular Railway line runs next to the park which is also a part of the Kolkata Riverside Beautification project. The park is located midway, in between the B.B.D Bag and the Eden Garden stations. As the circular rail proceeds further, it passes by the Floatel which is a unique eco-friendly floating hotel constructed on the river Hooghly. This floating hotel is the first of its kind in India. Nestled by Hooghly River, Floatel offers captivating view of the surroundings including the majestic Howrah Bridge.

Shortly after passing Floatel, the lively sounds of the ferry ghats and bathing ghats could be heard just below the railway bridge. A beautiful pedestrian bridge runs parallel to the tracks, leading us to our next stop - Eden Garden station. The name refers to one of the largest cricket grounds in the world. The State's New Secretariat, the Calcutta High Court and the Netaji Indoor Stadium lie next to the iconic ground. On getting out of the station, one can see almost all these superstructures crowding the skyline of the city on one hand with the river Hooghly on the other hand. The famous Babooghat is a few yards from the station. Further to the

Serene Eden Garden



Eden Garden station

east are the Legislative Assembly of East Bengal, the Town Hall of the city and Raj Bhavan – the seat of West Bengal's Governor.

The station mainly serves the adjacent areas of the famous Babooghat - originally known was Baboo Raj Chandra Ghat - built in 1830 by Rani Rashmoni in memory of her husband Baboo Raj Chandra Das (Zamindar of Janbazar). The imposing colonial structure with Doric-Greek style pavilion & huge pillars will mesmerize the viewers. But sadly, like most ancient ghats of Kolkata this one is also in a state of decay and derelict. But still Babooghat ghat is bustling with crowds since morning till late evening with people who use it for bathing, puja, religious ceremonies, massage and leisure. The station is always bustling with passengers who use adjacent Babooghat to cross the river to reach Howrah Station and also other areas of Howrah, ferries for which are available at frequent intervals, which take off from the jetty connected to ghat. The water ferry is run and maintained by the Inland Waterways Corporation. Ferry services are available from Babooghat to Howrah Station, Chandpal Ghat,

Baboo Ghat entrance





Beautified Riverside adjacent to Circular Rail Tracks

Telkal Ghat, Bally Ghat, Sovabazar, Bagbazar, Belur Math & Dakshineswar ghats. Also, just outside the station there is a bus terminus. From there one can find interstate buses plying to Bihar, Jharkhand, Odisha and to the interiors of West Bengal. There is another bus terminus as well from where one can find buses going to some destinations in Kolkata and its neighbourhood.

As we leave Eden Garden, a beautiful green corridor welcomes the passengers while the train moves towards its next destination. The several sprawling stretches of lush greenery around this place along with beautified river bank make it ideal for a leisurely walk. The street vendors here offer Kolkata's most mouth-watering snacks like Jhaal Muri (Masala Muri) & Fuchka (Paani Puri) along with Papri Chat, Pao Bhaaji etc. Filled with pleasant conversations and happy chatter, a peaceful stroll along with a leisurely boat ride will certainly complete one's evening here. There is food junction named Scoop, famous for its ice-cream parlour, near Prinsep Ghat that has been serving for over 40 years now. The restaurant once served the best pizza in town. While proceeding towards Prinsep Ghat station on the right side

The Gwalior Monument



James Prinsep Memorial & the mammoth 2nd Hooghly Bridge (Vidyasagar Setu)

one can locate the famous Gwalior Monument just before the Judge's Ghat. Built around 1850, this memorial was erected in the memory of British Officers and other ranks who perished in Maharajpur and Punniar, during the British expedition against the Maharajah of Gwalior.

Gradually, the circular rail smoothly traverses into the most scenic station of this section - the Prinsep Ghat (PPGT). The station is located adjacent to the ghat built by British in 1841. Located along the banks of the Hooghly, away from the hustle and bustle of Kolkata the ghat is surrounded by greenery & perhaps the oldest recreational spot in Kolkata. This marks the last station on the bank of river Hooghly. It is located between the Water Gate and the St George's Gate of the Fort William. The place is named after the eminent Anglo-Indian scholar and antiquary - James Prinsep. A Palladian porch monument rich in Greek and Gothic inlays, designed by W. Fitzgerald was constructed in 1843 in his memory. Overlooking this monument stands the imposing structure of Vidyasagar Setu or the second Hooghly Bridge. Near this station there exists a jetty called the Man-O-War jetty that belongs to the Kolkata Port Trust and it

Scenic Prinsep Ghat Station





Beautiful Landscape @ Prinsep Ghat

commemorates the role played by the port in the Second World War. The jetty is mainly used by the Indian Navy. This station now has two platforms, whereas previously, there was only one located adjacent to Strand Road. There used to be two tracks: one for regular use and another for shunting. Additionally, some abandoned tracks were present, but they were mostly removed during the recent redesign.

As the train leaves PPGT, be ready to enjoy an undisturbed & mesmerizing view of the river along with the engineering marvel - the Vidyasagar Setu. This bridge named after the eminent 19th-century Bengali educationist reformer Pandit Ishwar Chandra Vidyasagar. It is the first cable-stayed bridge of India and the longest as well with a total length of about 823 metres at that relevant point of time. Construction began on 3rd July 1979 and the bridge was commissioned on 10th October, 1992 by the Hooghly River Bridge Commissioners (HRBC). The Hooghly River is a major crowd-puller near PPGT every day during a flurry of typical activities begins at the river from the crack of dawn. An evening spent with boating on the river is bound to fill one with a sense of wonder. Witnessing a panoramic view of the city with the two

The Panoramic View



Vidyasagar Setu & Circular Rail Tracks

spectacular bridges – the Howrah Bridge and the Vidyasagar Setu connecting Kolkata with her twin city Howrah, is a moment to cherish. Leaving the breathtaking views of Prinsep Ghat behind, Circular Rail now moves further south and crosses the Adi Ganga bridge before getting on to the elevated tracks. If mythology is to be believed, then the Adi Ganga used to be the original course of Ganga in the ancient period. The bridge marks that point from where the Ganga switched route to its present course over time. Many old literary works like Manasa Mangal and others bear testimony to this fact. The Adi Ganga is also famous as Gobindapur Creek, Surman's Nulla, or Tolly's Nulla.

In the eighteenth century when it marked the border of the Gobindapur village, it was called Gobindapur Creek. Edward Surman, the leader of the British Embassy to Delhi in 1717, had carried out dredging in the river. Adi Ganga is referred to as 'Tolly's Nulla' after a British Major, William Tolly, who took the endeavour and connected the Adi Ganga River to the Circular Canal in 1773. In 1775 he connected it to Vidyadhari. At present it flows by a number of places like Alipore, Tollygunge Azadgarh, Rani Kuthi, Netaji Nagar,

The Tolly Nulla & Hooghly river confluence





Starting of the Elevated Corridor

Bansdroni, Naktala, Garia, Rathtala, Boral, Narendrapur, Mahamayatala, Harinavi, Rajpur, Changaripota, Kodalia etc. The holy and famous Kali temple of the city at Kalighat is located on this river. It flows on to Jaynagar and finally joins the Bay of Bengal.

After getting on to the elevated corridor, the Circular Railway line finally bids adieu to the Hooghly River and takes a left circular turn towards Khidderpore. With moderate speed limit, the train proceeds towards its next destination & enters the Khidderpore Dock area. While the train enters the Khidderpore Dock area, one can witness the historical Swing Bridge built in 1891 which can move 180 degrees for letting trawlers and other vessels access the port. The bridge was built by London based West Wood Baillie & Co. and connects the turning basin with main Khidderpore Dock No 1. While passing through the elevated corridor, the Kolkata Port which is the only riverine Major Port in India is fully visible. Situated 232 kms up-stream from the sand heads with arguably the longest navigational channel amongst Major Ports of India, its navigational channel is one of the longest in the world. The Port which was once considered the most

The Dock Area...



Khidirpur Dry Docks

important port in the country still remains the premier port which has been rightly called the gateway to eastern India and is the guiding factor to trade and commerce of vast hinterland comprising of the entire eastern India including Bihar and eastern Uttar Pradesh and the two land-locked Himalayan countries of Nepal and Bhutan. Apart from eminent cargo ships, well-known Passenger Ships like MV Akbar, MV Nicobar, MV Harshavardhan regularly pay visit to this port. KoPT, now named after late Syama Prasad Mookerjee, a national leader, has the one of the largest dry dock facilities in India. These dry docks cater to the diverse repair and maintenance needs of the vessels calling on the eastern ports of India. In addition, re-shipbuilding facilities are also available in these dry docks. All the dry docks are inside the impounded dock system. There are five dry docks of which three are in Khidderpore Dock. Apart from these, the Indenture Memorial – a monument installed at Garden Reach, Kidderpore Docks to commemorate indentured workers who left India for plantation colonies is also present. A newly refurbished clock tower, known as the Demerara Clock Tower, placed alongside the port memorial indicating

Khidirpur Dock





Overhead the KPT Area

the connection with the sugar colonies in the Caribbean can also be seen.

Then comes Khidderpore station – the nomenclature of the place dates back to the 19th century when Lord Kyde, an engineer, who designed and supervised the building of the lock gate that connects the port to the Hooghly River. Because of his excellent work, the port took came to be known as Kyderpore or Khidderpore (Khidderpore). Khidderpore also houses a Tram Depot and lies on the Purple line of Kolkata Metro (Joka-BBD Bag Corridor), presently under construction. This is one of the two elevated stations of Circular Railway. Just yards away from the station is situated the swing bascule bridge, Nazrul Setu named after rebel poet Kazi Nazrul Islam, across an inlet of River Hooghly in the dock area which has been a unique landmark of Kolkata. This historical drawbridge or collapsible road bridge spans across the Khidderpore dock with Andaman dock on its side marking the boarding point for Port Blair bound passengers. The Headquarters of South Eastern Railway (ex-BNR or Bengal Nagpur Railway), located around the precinct of Metiabruz, the last abode of Wajed Ali

Khidderpur Station



Bhukailash Temple

Shah, the exiled Nawab of Oudh in the mid-19th century, is also visible beyond the Kolkata Port skyline. It is here that the ambience of Nawabi Lucknow has been recreated, the most famous manifestation of which is the favourite biriyani of Kolkata.

The visible temple just before the Khidderpore station is a small replica of the Jagannath Temple of Puri maintained by the Odisha community. In the neighbouring area one can find the Bhukailash Rajbari estate built by Zamindar Joynarayan Ghoshal more than 200 years ago. The temples came up soon after Joynarayan Ghoshal shifted his estate from Fort William to Kidderpore. The Bhukailash Rajbari here used to sprawl over 150 bighas. Two temples were built in Khidderpore's Bhukailash Rajbari estate in 1781. The 18-foot-tall Shivalinga installed in the temple has been carved out of a single kashti stone and is believed to be the tallest Shivalinga of its kind in Asia. The Shiva temple in Khidderpore lay neglected for decades. Declared a heritage site by Kolkata Municipal Corporation in 1996, the twin temples were on the verge of crumbling when the urban development department launched a massive restoration drive not only to restore the lost glory but also to popularize the place of worship. The temples – Krishna Chandreshwar and Rakta Kamaleshwar were dedicated by Joynarayan Ghoshal to the names of his father and mother. Besides the twin Shiva temples, the estate also houses an ancient Kulodevi Patitpabani Durga temple which was built in 1782. The Durga idol here is made of astadhatu (eight metals). The name "Bhukailash" was given by mystic Ramprashad when he came over the place.

After leaving the busy port area and the Khidderpore station, the elevated tracks continue to take further left turn and move towards Remount Road with warehouses, godowns, containers and trailer-trucks crowding the area. Remount Road is the second elevated station of Circular Railway. The CISF Unit of the Kantapukur Morgue lies next to the station.

*Remount Road*

This station has a solo platform like Khidderpore station. The 2.5 km stretch of elevated viaduct from Prinsep Ghat to Majerhat for Circular Railway was commissioned in the year 2001. With this extension, Circular Railway covers the periphery of entire Kolkata, thus helping thousands of commuters both from northern & southern suburbs of Kolkata.

After alighting from the viaduct, the circular rail enters Majerhat station. This station appears on the Sealdah-Budge Budge Suburban line in the South section of Sealdah. The Circular Railway merges with the Budge Budge line and continues upto Park Circus. The Circular Railway double-discharge single platform has actually come up much later, i.e., after completion of the elevated stretch of the route. The lines towards the EJC Junction (East Dock Jurisdiction) under KDS (Kolkata Dock System) Railway governed by the Kolkata Port Trust also diverge from this point. The East Dock Jurisdiction Marshalling Yard is located just beyond the Majerhat Station. The station got a fresh corporate look only after its inclusion in the list of model railway stations in 2009 railway budget. It was classed under Category C of

The Elevated Corridor of Circular Railway, Kolkata*Majerhat Junction*

model stations and got modern new look accordingly with moderately sound amenities which includes very neat & clean station & platform area, brilliantly lit passenger display boards with nice & clear computerised PAS. After the circular railway elevated tracks completed followed by the opening of the entire circular railway route Majerhat got uplifted to junction status, from where Budge Budge line & Circular railway line diverges. Recently the Majerhat metro station of the Purple Metro Line also came up overhead the circular railway tracks.

Next the Circular Rail reaches further to New Alipur station. Previously this station was known as Kalighat. To avoid conflict of name with another station of the Kolkata Metro Blue Line with same name, the station was rechristened as New Alipur (Kolkata). The name was also in congruence with the locality. This station also hosts an adjacent goods yard for unloading various materials. The erstwhile Kalighat Falta Railway (KFR) used to run from this point. On 28.05.1917, the KFR got operational from Ghoshapur of Behala to Falta which was extended to Kalighat station. The entire stretch of 26.95 Km railway was under the ownership of a British firm

New Alipur Station



Kalighat Temple replica @ New Alipur

headed by Mcleod & Co. Post- independence, the firm closed their business which prompted the route to be dismantled in 1957 and the land was reclaimed by the then Government which ultimately paved way for the present James Long Sarani.

Between New Alipur & Tollygunge, the Circular Rail once again crosses the Adi Ganga. Adi Ganga or Tolly Nullah is considered a holy river amongst the locals. It has been mentioned in ancient texts like Manasamangal of Bipradas Pipilai. It is said that the famous merchant Chand Saudagar sailed through this river once. However, it may have a splendid past but the present condition of Adi Ganga is very much pitiful. It has practically turned into a stinking, filthy and dirty sewer. The reasons are manifold. First of all, the constant negligence of the concerned authority and state government is to be blamed. The other major reason is constant population growth and lack of planning in the urbanization process. The extension of Kolkata Metro Railway Blue Line from Tollygunge to New Garia worsened the situation further as the extended portion is entirely on elevated tracks, which is built over this centuries old creek

The Tolly Nulla Cross-over



Tollygunge

only to avoid land dispute with illegal occupants.

The route then rolls into Tollygunge station. The area earned its name from Major William Tolly - who in 1775-76 started a project to excavate and dredge the Adi Ganga also known as Tolly's Nullah. The Bengali Film Industry popularly called Tollywood is not far away and is beside the Tram Depot. The Blue Line of Metro Railway intersects this line with its station called Rabindra Sarobar, sharing the same station building.

The Lake Gardens and Tollygunge stations are separated by a mere 450 meters. Probably, no two stations of Indian Railway are stationed so close to each other and these set of stations may be referred to as Twin Stations!!!

Leaving Tollygunge station, the circular rail takes another left turn and reaches Lake Gardens station. As the name suggests the area is near to a lake and its adjacent gardens. The tracks here run parallel with the only large water body of the city - the Rabindra Sarobar or more popularly the Dhakuria Lake. Lake Gardens is a very decent, peaceful & premium locality of Kolkata with abundance of greenery which is ideal for jogging and morning walks and a great respite from the hustle & bustles of the city life.

Lake Gardens





The Lungs of South Kolkata - Rabindra Sarobar

While proceeding towards Ballygunge Junction from Lake Gardens, on the left one can observe the beauty of the Rabindra Sarobar area. The place houses an artificial lake, children's park, gardens, auditorium & a football stadium. The thickets in its vicinity are more than 100 years old. Winters witnesses the arrival of migratory birds in numbers here. There are umpteen varieties of fish in the lake, however fishing is strictly prohibited. The fish sanctuary is under the steel suspension bridge, on the southern flank of the grove, connecting to an island. On the west front of the lake, there are big cannons of Nawab Siraj-ud-Daulah – the last independent ruler of Bengal. The Lake is the hub of many sports activities and a number of rowing and swimming clubs can be traced within the Rabindra Sarovar compound. Rowing clubs are located to the north of this lake and swimming clubs are located to its south. The Calcutta Rowing Club (CRC), presently one of the oldest clubs in India, was founded in 1858 for promoting rowing activities in Kolkata. The Rabindra Sarovar has an undying fame attached with it for years but the glory is on a decline due to pollution and other depredation. For this reason, the lake has been taken under the National Lake Conservation Plan by the government.

After leaving Rabindra Sarobar, while the train further moves towards Ballygunge one can notice on the left, the only Japanese Buddhist temple of Calcutta, built by Nipponzan Myohoji, on the southern border of the Rabindra Sarobar complex. The Nipponzan Myohoji Temple or the Japanese Buddhist Temple is a lesser-known shrine to the inhabitants of the city though its historical background is rich enough to get into the must-see list of the city.

The Japanese had been practicing Buddhism since long. Nichidatsu Fujii, a Japanese monk was deeply influenced by the writings of Nichiren, a Japanese Saint. Nichiren wanted to popularise the Lotus Sutra of the Buddha in India and this thought prompted him to visit Calcutta (Kolkata) in 1931. He walked the streets of the city beating his drum and chanting "Namu Myoho Renge Kyo", which translates to "I take refuge in (devote or submit myself to) the wonderful law of the Lotus Flower Sutra". This chant or mantra may still can be seen above the door of the Nipponzan Myohoji Japanese Buddhist Temple. Fujii's endeavour caught the attention of Industrialist Jugal Kishore Birla, son of Baldeodas Birla and



The Japanese Temple

he offered the Japanese monk the piece of land where the temple came up in 1935. But as the WW-II broke out, the people of Japanese origin who happened to be living in countries controlled by Allied powers, found themselves at receiving end. The British colonial government in India ordered all Japanese people to leave the country and had plans to take over the Japanese temple on Lake Road. But owing to a stiff resistance from Swami Dhirananda Shastri, a Hindu monk, the British ultimately had to back off. The architectural features of Calcutta's Nipponzan Myohoji Japanese Buddhist Temple are quite unique. The top resembles the design of the Sanchi Stupa and surrounding it, on the top tier are four low, Stupa-like structures. Similar smaller structures are seen on the four corners on the lower tier as well. The columns that support the roof do not conform to any classical school of architecture, as is commonly seen in many of Calcutta's older buildings. Inside, a seated idol of the Buddha is seen in white marble. In front of the temple, a beautiful garden has been laid out that looks well-tended. In the garden, a vertical pillar-like structure has Japanese inscription on it which is guarded by two golden lions.

Then we move further two reach Ballygunge Junction – the most important junction in the south section of Sealdah. The Budge Budge route along with the Circular Railway tracks converge with the routes leading to Canning, Diamond Harbour and Kakdwip among other important junctions enroute like Sonarpur, Baruipur. The place also has a Tram Terminus right next to the station.

Next in line is the Park Circus station from where the lines bypassing Sealdah emerge out only to meet the lines coming from Sealdah North section. Thus, the bypass line acts and serves as the connecting link between the North and South sections of Sealdah. The bypass line did not have any platform earlier until it was decided by the railway authorities to add two separate platforms to the existing double-discharge single platform of late. The area is dotted with tanneries. Park Circus also has a Tram Depot.



Park Circus

The super structure that stands tall just beyond the station premises is the longest flyover of Kolkata – the Park Circus-Parama Island Flyover which was rechristened as the 'MAA' Flyover, meaning mother. This main flyover spans 4.5 Km while its flanks and ramps stretch it to 9.1 Km.

Between Park Circus & Sir Gurudas Banerjee Halt one can notice the unfinished platform – the proposed site for a railway station which is supposed to come up for the adjacent Tangra area. Tangra is a region in east Kolkata that traditionally housed a large number of tanneries owned by people of Hakka Chinese origin. "47 South Tangra Road", may be the most confusing postal address as it used to cover the whole of Chinatown Tangra with over 350 tanneries. Most of the standing structures have been built by the industrious Hakka Chinese people upon marshy and reclaimed low-lying land. Over the past several decades, the area has served as the location of Calcutta's Chinatown. Food from Tangra is a distinct variety of traditional Hakka Chinese cuisine adapted to Indian ingredients and the Bengali palate. This has spread to the rest of India along with the recipes earlier unique to Tangra. Tangra is still the most popular destination for Chinese food in town.

Under construction Tangra station



Sir Gurudas Banerjee Halt

Proceeding further and just before entering the Sealdah mainline is Gurudas Banerjee halt. Going with the name, Sir Gurudas Banerjee was the first Indian Vice-Chancellor of University of Calcutta who also was an eminent judge in the Calcutta High Court. The adjoining areas of Sealdah are served by this station. The South section bypass line meets the North section lines beyond this station.

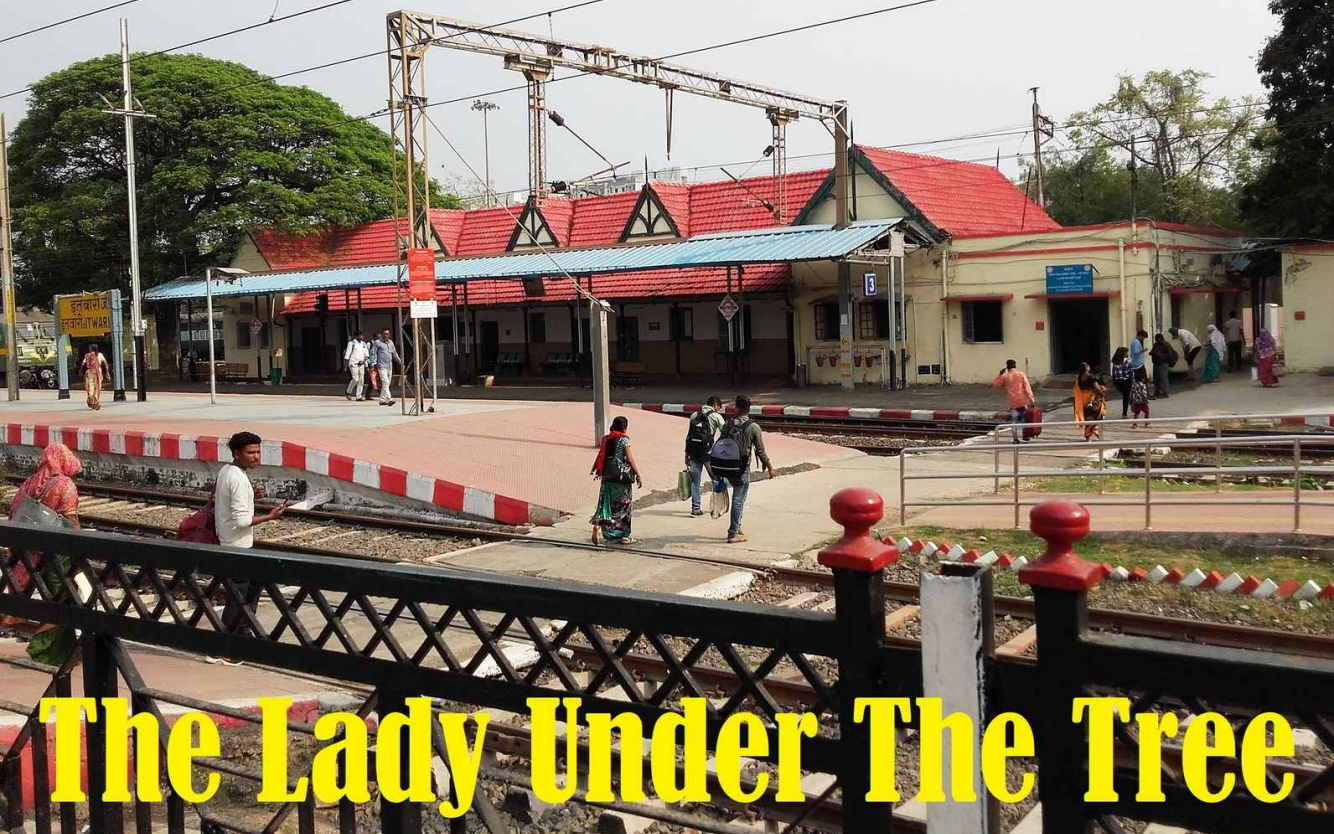
Then comes Kankurgachi Road – a junction of Indian Railways without any commercial station, except a relay cabin situated between Sealdah & Bidhannagar Road station. The south line of Sealdah division including the Circular Railway line & Kolkata Port line meets with the Sealdah main line at this juncture bypassing Sealdah.

The station which immediately follows Sealdah (North Section) and Sir Gurudas Banerjee Halt on the bypass line is Bidhannagar Road. The station serves as the gateway to the Saltlake City which was founded by the Ex-Chief Minister of Bengal, Dr. Bidhan Chandra Roy. The area and the station are named after this Bharat Ratna awardee who was an alumnus of the Calcutta Medical College and the University of Calcutta. Bidhannagar also hosts a Tram Terminus just parallel to the station.

The Circular Railway comes a full circle and terminates at Dum Dum Jn. This is the station that comes next to Bidhannagar Road. As mentioned earlier, the station acts as the interchange point with North-South Metro Corridor (Blue Line) which shares the same station complex just like their earlier crossing at Tollygunge station and Rabindra Sarobar station. Different suburban lines linking different destinations branch out from here connecting places like NSC Bose International Airport (line discontinued for Metro construction), Barasat, Bongaon, Hasnabad, Dankuni, Barrackpore, Naihati, Bandel, Bardhaman, Ranaghat, Krishnanagar City, Murshidabad, Lalgola, etc. Thus, the journey that started from Dum Dum Junction has also ended here circumnavigating Kolkata thereby knitting several pivotal quarters on a single string of rail network facilitating seamless travel across the heart of the City of Joy.

Images courtesy: TrainTrackers. All images are copyright protected.

Disclaimer : A number of places in Kolkata are spelt through different spellings down the years. However, for the sake of uniformity, a single spelling for these places has been used.



Ravindra Bhalerao

There are many places in the world where we would love to take train videos. There are points and crossings where trains make a big noise, there are bridges and viaducts of great beauty and there are fine sweeping curves we would like to train our cameras on. Not all of these places are easily accessible to us unfortunately. Security personnel on duty are always prowling around eager to prohibit us from taking picture in stations and yards, eager to shoo us away. It's a sad reality all rail enthusiasts are familiar with.

And hence arises the need to look around, to make visits and explore places, looking for good railway spots. Only last month I had been to Itwari – a distance of nine kilometres away by train. Today I decided to redo the trip, this time using my trusted Atlas. No Metro rides this time, no train ride. Just two wheels powered by human effort. It felt a bit scary and I was worried.

After a hasty and substantial breakfast, I proceeded to polish and oil the Atlas. Having pumped up the tires with air I set out on my adventure trip with nothing more than cash, my glasses, a bottle of water and a map. There are maps like

Google maps and others giving directions to places in a city. A careful study of these maps had revealed to me that after leaving Itwari the train takes a curve, and alongside is a kuchha road that stretches all along a basti. I had seen videos of train rides made by people who took a train along this line. The people living in this area are not actually slum dwellers, they are people belonging to the ranks of plumbers, masons, fruit sellers, motor mechanics. These are simple homes where simple folks live.

But not all of the people living here are poor by any means. Amongst a line of old-style dwellings, one may ever so often come across one single home built handsomely, standing proud amongst its neighbours. It's a home built by someone whose success in his chosen field of endeavour makes him stand out as a hero. And for this reason, everyone living nearby looks up to him with a sense of awe and reverence.

This then was the place I had set my sights on. And it meant a nine-kilometre ride along tortuous and crowded roads to get there. Cycling at a slow leisurely pace it took me an hour and a half to reach Itwari station. With the bike

parked at the stand, I stepped into the station just to check up any changes in the timetable. A friendly samosa-wala was around and as I was beginning to get hungry, I settled for a few of these. It was noon time by now, and I had not carried any lunch along.

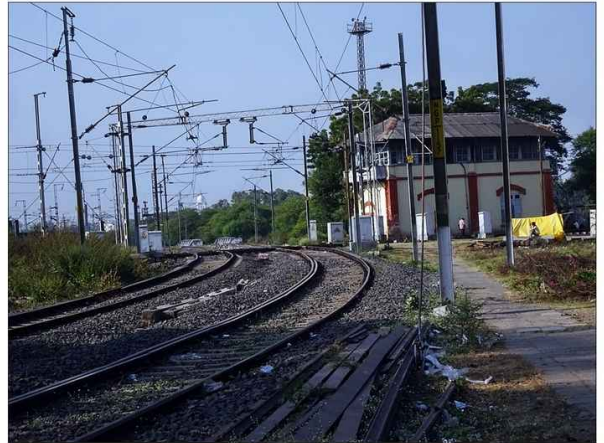
The station is swarming with security men just as it is swarming with passengers, so there's not much scope for taking picture here. I rested for a while, filled up my water bottle from a cooler and sat down contemplating my next move.

I was beginning to wonder if my long-haul trip was to be a failure after all when I remembered the spot where the train passes close to the basti. It was a happy thought. With hope renewed I got the bike out of the stand and began to make my way towards the basti. On the way we have brightly painted offices of the Senior Section Engineer, Permanent Way and other officials working for the train lighting department. We pass close to railwaymen's quarters, bright and clean and laid out in rows, and so forth, till at length the presence of the railway colony begins to fade. We are now in the basti. But not all of the railway has faded away. The railway line itself is but a few yards from the kuchha road.

I cycled along in the heat of noon, till I came upon several large trees in a clearing and here I halted. It was cool under these trees, and not many people were around. Homes nearby seemed mostly shut, coolers whirring. Few would like to stir out of their homes in the heat of noon.

A MEMU honked, and by the sound I could see it would soon come round. I had opened my bag of samosas and was busy munching away, but hearing the MEMU, I hastily put back all foodstuffs and got the mobile ready. It was a fine sight, the Itwari Gondia MEMU making a big noise as it pulled out of Itwari Junction and effortlessly set out to attack a grade not far away.

Here then is a spot where one gets not only a fine sweeping view of a train, he is also treated to some of the finest track



sounds ever. It lifted me into a state of ecstasy. I would not depart from this place soon. It was a dream spot for anyone wishing to take a train video. I would wait here for more trains to come along. How many more could be expected to come this way during the next hour?

I was lost in thought for a while when I heard a faint rustle beside me. I turned to look and saw an old lady wrapping thread around the trunk of a tree next to me. I felt a bit worried, I thought she might object to my being there. She was a petite woman, white saree, all fair skin and wrinkles but still going strong. I asked her if she wished me to leave.

"No, no," came the reply, "I never said such a thing. I am only doing a bit of pooja"

"Serving God is a good thing," I said to the lady. "When we serve God, the Lord above is pleased and he blesses us...."

The old lady was overjoyed with this remark. With her pooja done, she stayed on chatting with me under the tree. She wanted to know where I came from. I obliged her with a few details. I said I was a rail enthusiast and was looking for good spots for train photography. She got interested and wanted to know if I had a family. When she came to know I had none of my own, she got more curious. "You didn't marry?" she asked. I shook my head. I prefer to remain this way, I said.

From here we moved on to other topics. She wanted to know if I had brothers and sisters, who did the cooking at home, what was my yearly income, and if I was doing my part helping the poor and needy. One by one, the questions came pouring in. And I felt no displeasure in answering these questions. She was also curious about what would happen to my assets in later days. I know well enough how lawyers and chartered accountants charge heavy fees for even a shred of advice they have to offer, so I told her that the best way to dispose of one's assets is by making a will using the services of a lawyer. I was willing to part with any information the poor lady might need. If she needed guidance, I would help

her without charging a fee.

A train honked. I hurriedly got my mobile out preparing to take a video. The old lady was beginning to leave and folded her hands in a namaste. I folded my hands too, and said "Okay madam...."

The express came along with a slow and purposeful rumble. It was the LTT Kurla Shalimar Express, all of twenty-four carriages behind a bright red electric engine. Yes, it was the Shalimar express on the way out of Itwari, out of Nagpur. I could not possibly miss that. This was my fourth video made at the spot, probably the last one for the day. I put back the mobile in its case, and wheeled my bike wearily over to the kuchha road.

As I rode back, I pondered over the events of the day, over this trip to a far-off station. I thought of the fine videos I had captured at one of the finest railway spots in town. I thought of the prospect of a nine-kilometre bike ride in the hot sun

that lay ahead. I also remembered a poor soul beneath a tree who wished to know how a home could be disposed of when she was no longer around.

Ferroequinology is thus sometimes not about trains only, it's about knowing people around and sharing their emotions and sentiments as well.... Ferroequinology is often the way of life....

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Ravindra Bhalerao studied engineering science in Delhi and has been a versatile teacher all his life taking classes in Physics, Film Photography, English and lately, Computers. Now retired and living in Nagpur, he finds time to indulge in his lifelong passion for railway heritage and photography.

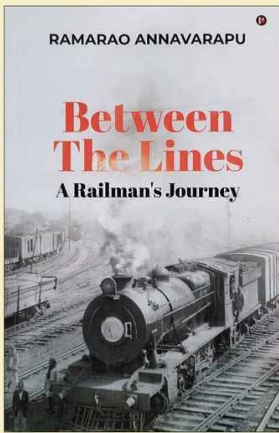




Railway Sketches

Sambit Chatterjee





The Invincible Railway Traffic Officer

Between the Lines: A Railman's Journey, by Annavarapu Ramarao

Ravindra Bhalerao

There was but a narrow strip of roadway that led out eastward from the town of Kamptee leading on to the small village of Kanhan that lay beyond the river. The roadway, which was never too busy a hundred years ago, passed through the cantonment of Kamptee, running beside the railway line to Bilaspur, before passing over the mighty bridge that spanned the river Kanhan. This road bridge, running alongside a parallel rail bridge and built of several sandstone arches still stands, although now lying forlorn and abandoned on account of its advancing age. Its decorative iron railings are still in place, carrying underneath its sweeping arches the quiet waters of the meandering Kanhan.

On this bridge could be seen many years ago a simple young lad, about ten years of age, satchel in hand, trudging back home on weekends with his siblings and friends after attending the Hindi primary school in the nearby town of Kamptee. The walk along the solitary roadway was a leisurely exercise and always great fun; the boys laughed, treating themselves to tidbits. A little way down the line they halted and hurled stones at fruit trees, picking up guavas that dropped to the ground.

The young lad whose fortunes seem to us worthy to record here belonged in fact to a family of railwaymen. His father served as Station Master of Kanhan Junction, a station on the Bengal Nagpur Railway; and what is even more remarkable, his grandfather too had served on the railway at one time in the distant past.

And so the boy with the satchel walked on under the sun, his gaze darting hither and thither, thinking of his games and laughing with friends, lost in a world of his own. Who would have ever imagined in his wildest dreams that the lad, frolicking with his friends on his way home would go on to hold the office of Chief Operating Superintendent on the railways one day!

The book under consideration here is an autobiographical account of an Indian Railway Traffic Service Officer, beginning with young Ramarao's boyhood days spent in railway quarters in Kanhan in the late nineteen thirties and early nineteen forties. Within its pages is woven a narrative

that sets forth events of the author's days beginning with home life, education, and his selection for railway service, and going on to describe in considerable detail his subsequent career as a senior Officer of the Indian Railway Traffic Service.

Growing up in railway quarters in Kanhan in the forties, Shri Ramarao tells us that railway families in small towns often reared cows for milk and he fondly remembers the time when he and his brothers played with toy trains which the boys had made themselves using matchboxes and torch batteries. His tryst with the primary school in Kamptee soon over, the lad was sent to Nagpur, a bare twenty kilometres away, to attend high school, to be followed by college education. There were trials and privations to be endured along the way but with understanding and supportive parents the boy emerged victorious in a few years' time armed with a master's degree in Chemistry.

The young man now stood at the crossroads of life. His very first assignment would take him to Jabalpur where he found work as a college lecturer in Chemistry. Fortune favours the brave and the ambitious, it is said, and the young Ramarao possessed both these attributes in no small measure. The turning point in his career would come when he appeared for the Central Services Examination in 1956. The outcome of this bold move was by no means certain. If he succeeded, it would propel the young man on towards a bright and promising career. Would he succeed in clearing the much-dreaded UPSC examination?

Annavarapu Ramarao did perform well, both in the written test as well as the interview that followed. A year later there came a letter through the post. It was an appointment order asking him to report to the Eastern Railway Headquarters in Calcutta. Ramarao had been appointed to the Superior Revenue Establishment of the Traffic (Transportation) and Commercial Establishments of the Indian Railways, the forerunner of the Indian Railway Traffic Service, and to begin with, would serve as a probationary officer on the establishment.

Much like a train that begins to pick up speed soon after it

has cleared the yard, the book really begins to take off from here. We now begin to see how a trainee officer in the railways learned his trade from scratch. Other than familiarising himself with the General Rules, the new entrant had to learn basic train operations from goods clerks, station masters, yard masters, guards and others. Trainees were made to work as goods train guards, even travelling on locomotives of coal pilots that shuttled between the yard and the several collieries situated in the coal belt of eastern India. They were required to keep meticulous notes of the yards and signal cabins they visited, their progress being carefully monitored by senior officials assigned with the task of supervision.

The author's first posting was as Assistant Commercial Superintendent holding charge over Howrah station and Parcel sheds. It was an imposing responsibility and one of the first things he would discover on his arrival here was that there was a great deal he had yet to learn. And yet, learn he must, if he would succeed. He ploughed on steadily, growing in stature whilst at the same time establishing a reputation for himself as a sincere and honest official. In the meantime, he would also go on to make new friends, get to know trade union leaders and familiarise himself with the system as a whole.

As the reader can well imagine, the scope of activities at Howrah station was tremendous and the organisation itself, a vast one. Reading this account one can almost sense the frenzied rush on Howrah station, the ceaseless flurry of activity at the goods sheds, and the surging, restless crowds that characterised the working of this busy terminal on Eastern Railway.

The early chapters of the book are going to find great favour with steam locomotive enthusiasts, for Shri Ramarao's assignments would lead him to spend a great many years in the coal belt of eastern India. His first job here would take him to Asansol on the post of Divisional Operating Superintendent (Goods). Here in the very heart of the coal

mining industry, we are told that as many as two thousand wagons loaded with coal would originate each day. There were over 300 sidings on the division serving mostly underground mines. Empty wagons drawn out from major yards in the division would make their way to these sidings each day, hauled by steam locomotives. The coal pilots, as they were known, were loaded with coal at the sidings and would return to the yard for onward despatch of coal. As may be expected, the air was thick with coal dust, and although electrification was in progress, steam locomotives were still very much in operation.

Following a serious train collision at Dumraon station in the early sixties, safety had become a matter of paramount importance. We may savour the pleasure of accompanying Shri Ramarao as he travelled on motor trolleys carrying out station inspections within his jurisdiction to assess if station staff were conversant with safety procedures and rules. He would also go on to inspect yards and sidings, looking for possible causes leading to shunting accidents.

Asansol West Yard, in particular, was the site of frequent derailments and would afford the young railwayman his first opportunity to put his investigative skills to use. He turned his attention to study the problem closely and soon made the discovery that the prime cause for these mishaps occurring on the 'king point' of the yard lay in the poor visibility of the summit of the hump from the yard cabin that mechanically operated the points. It had been a recurrent problem for years. Shri Ramarao had the system altered by having locally operated points installed close enough to the offending point, thereby eradicating the trouble altogether.

As a traffic officer Shri Ramarao would show himself to be a great innovator, his analytical mind teeming with new and unconventional ideas. He possessed the uncanny knack of devising ingenious solutions to problems which often presented themselves as insurmountable barriers in the field of railway operation in those times.

He recalls his days from his being posted as the Divisional Operating Superintendent of Eastern Railway, Howrah, when an opportunity presented itself where he tried out a new innovation he had devised to speed up the clearance of parcels on the station. Being the busiest terminal on Eastern Railway, Howrah had to deal with a large number of trains each day. Unloading parcel vans and handling deliveries was proving to be an ordeal with the whole process taking place amidst the mayhem resulting from passengers having to pick their way through heaps of packets strewn all around the platform. Given these conditions, dealing with parcel vans was necessarily a time-consuming affair resulting in considerable detention to trains arriving at the station. This in turn often led to perishable products like fish and vegetables going bad, besides causing detention at signals to incoming trains for want of platform space.



It must be understood that this was a perennial trouble at Howrah station in those days and operating officials were in despair, there being no clear way out of the trouble in sight. But this time Shri Ramarao held charge, and he was not one to easily accept defeat. In consultation with his colleagues, he instructed the Chief Yard Master of the coaching yard to shunt out each arriving passenger train within minutes of its arrival without touching the parcel vans, uncouple the train in the yard, and hustle away parcel vans to the parcel shed platform where goods could be handled without hindrance of any kind.

The method was first applied to the Doon Express and later extended to other trains. It was an unconventional procedure by all accounts but proved to be a great success winning the appreciation of Railway Board Officials besides freeing the main platforms of Howrah of the persistent problems of congestion and filth.

There were numerous other instances, no less demanding, where Shri Ramarao would be called upon to bring his superior abilities and judgment to bear upon situations of a serious nature which had baffled rail transport officials all along and which apparently did not admit of a solution.

The book dwells at great length on the subject of Mughalsarai, home to India's famed marshalling yard and we may take a fascinating tour of the yard and study its evolution and working. Towards the 1960s, new kind of goods wagons, called BOX wagons had begun to make an appearance on the railways. These were fitted with four-wheeled bogies and modern coupling arrangements designed to withstand larger stresses. The new centre buffer couplers (CBC), as they were known, were a great improvement on the screw couplings found on older four wheeled wagons, but with this advantage came the drawback of having two different kinds of wagons to deal with in the goods yard. Steel devices, known as transition couplers were designed for joining wagons fitted with CBCs to screw coupling wagons.

Wagons fitted with CBCs proliferated in the 1970s, with the introduction of covered eight-wheelers (BCX) and covered four-wheelers (CRT) and their incompatibility with screw coupling stock led to serious congestion in railway marshalling yards across the country. Transition Couplers were in short supply because they were prone to theft. Shri Ramarao, posted at the time in Mughalsarai as Joint Director, Rail Movement could see the source of the trouble and put forward the idea of collecting CBC wagons on a separate line in the sorting yard and thereafter re-sorting them into groups according to destination, but his proposals were turned down by the Eastern Railway Officers.

Shri Ramarao had also identified another pressing issue, namely, a huge wastage of both time and engine power resulting from changing electric and diesel locomotive of all

trains at Mughalsarai, this being an interchange point between Eastern and Northern Railways. His attempts to convince higher officials to change the system was treated with indifference. The intrinsic value of his ideas could only be gauged by a man of the genius of the legendary M S Gujral, who was then posted as the Director General (Transportation) in the Railway Board. Taking the cue from Shri Ramarao, Gujral introduced two path breaking innovations, namely, the running of CBC fitted covered wagons in full train loads named Jumbo rakes and secondly, the abolition of locomotive changes to some trains at Mughalsarai. These innovations became the starting point for Gujral to extend these ideas on an all-India basis when he took over as the Chairman of the Railway Board, a couple of years later.

The new system, when put into practice, led to a phenomenal improvement in the performance of goods yards at a time when Indian Railways had sunk to an abysmally low level of performance and forms in large part the basis of goods train operation to be found on the railways today.

As a railway traffic official Shri Ramarao was unexcelled in performance. He possessed a profound understanding of the railway yards under his charge and when faced with challenging situations he was ever prepared to abandon conventional wisdom and adopt new contrivances, if they offered the promise of better returns.

But other than delighting us with tales of his exploits in the field, Shri Ramarao also gives the reader enough historical context to give him the feel of the times, thus conveying a vivid portrayal of the work culture and social milieu to be found on the railways of the time with particular reference to the eastern zone.

Relations between senior railway managers and subordinates were often characterised by an overbearing 'rule of the master' attitude in the early days, a legacy undoubtedly inherited from colonial times. The author having had a firsthand experience in this regard while serving as a probationary officer himself, vowed never to achieve subordination amongst his juniors employing such demeaning conduct when the occasion arose.

The reader will come upon a delightful account here describing how different cadres in the railway organisation arose: the traffic and transportation department, the engineering wing, the Special Class Railway Apprentice 'Gymmy boys' of Jamalpur, as well as other services. Feelings of superiority amongst staff were bound to arise, as they do in any organisation, leading to barriers that impeded the growth of healthy interpersonal relationships between staff belonging to different cadres of the railways.

We also have a picture here of civil disturbances, industrial

We also have a picture here of civil disturbances, industrial unrest, gheraos of railway officials, workers' grievances and trade unions in the railways. The protests periodically launched by workers' unions could seriously disrupt rail services leading to significant repercussions elsewhere.

We read of a time when a flash strike was launched by railway staff in Dhanbad in the sixties bringing train operations to a dead standstill. Taking along a few trusted Traffic Inspectors with him, Shri Ramarao rushed to Kusunda where the men took over the despatch of coal trains, coupling wagons and setting points and signals all by themselves. Being a successful traffic officer on Eastern Railway clearly called for both presence of mind and a wide range of skills.

During the span of his career, the author had twice been on deputation to the Fertilizer Corporation of India to serve as a Traffic Manager. In his later days, he would be called upon to visit Ghana as a member of a RITES team sent to infuse new life into an inefficient and shabbily run railway system. With its economy in shambles, Ghana was served by a narrow-gauge railway that seemed to be on the brink of collapse with poorly maintained engines and rolling stock, unremunerative operating practices and the absence of telephonic links. The team got to grips with the battered railway and improvements soon began to follow. A major concern was the consistent derailing of trains and on close examination this was traced to improper choice of gauge of locomotive wheels during manufacture. Henschel of Germany, who had manufactured these locos, were called in and following negotiations, agreed to replace the wheel tyres free of cost.

Shri Annavarapu Ramarao had a chequered career, serving four terms as Divisional Railway Manager in the Eastern and North Eastern Railway zones, besides holding top ranking operating positions all throughout his career.

His final assignment was as Chief Operating Superintendent of Eastern Railway, Kolkata, an office that was shortly afterwards renamed as Chief Operations

Manager. He had begun his career with Eastern Railway, and it was fitting that he should end his career at the place where he had begun. He cast his gaze over the station he had known for so long. It had been through a major refurbish-



ment under Shri Ramarao's own direction some years ago during his tenure as Divisional Railway Manager here. The facelift given to Howrah station had included both cosmetic changes as well as vastly improved passenger amenities, resulting in a monumental transformation that had drawn effusive words of praise from all quarters. Now with only a few more years to go, Shri Ramarao could look upon the edifice of the station with a sense of pride and satisfaction. This would be his last significant contribution towards the functioning and betterment of this great railway he had devoted his life to.

Unquestionably a work of great educational value, Shri Ramarao's narrative is also an action-packed drama with exciting events unfolding before the reader's eye as he goes along. The student of railway history would do well to devote himself to a thoughtful study of this masterly work that issues from the desk of one who has been an ardent and highly skilled practitioner of the art of railway traffic management.

About Shri Ramarao

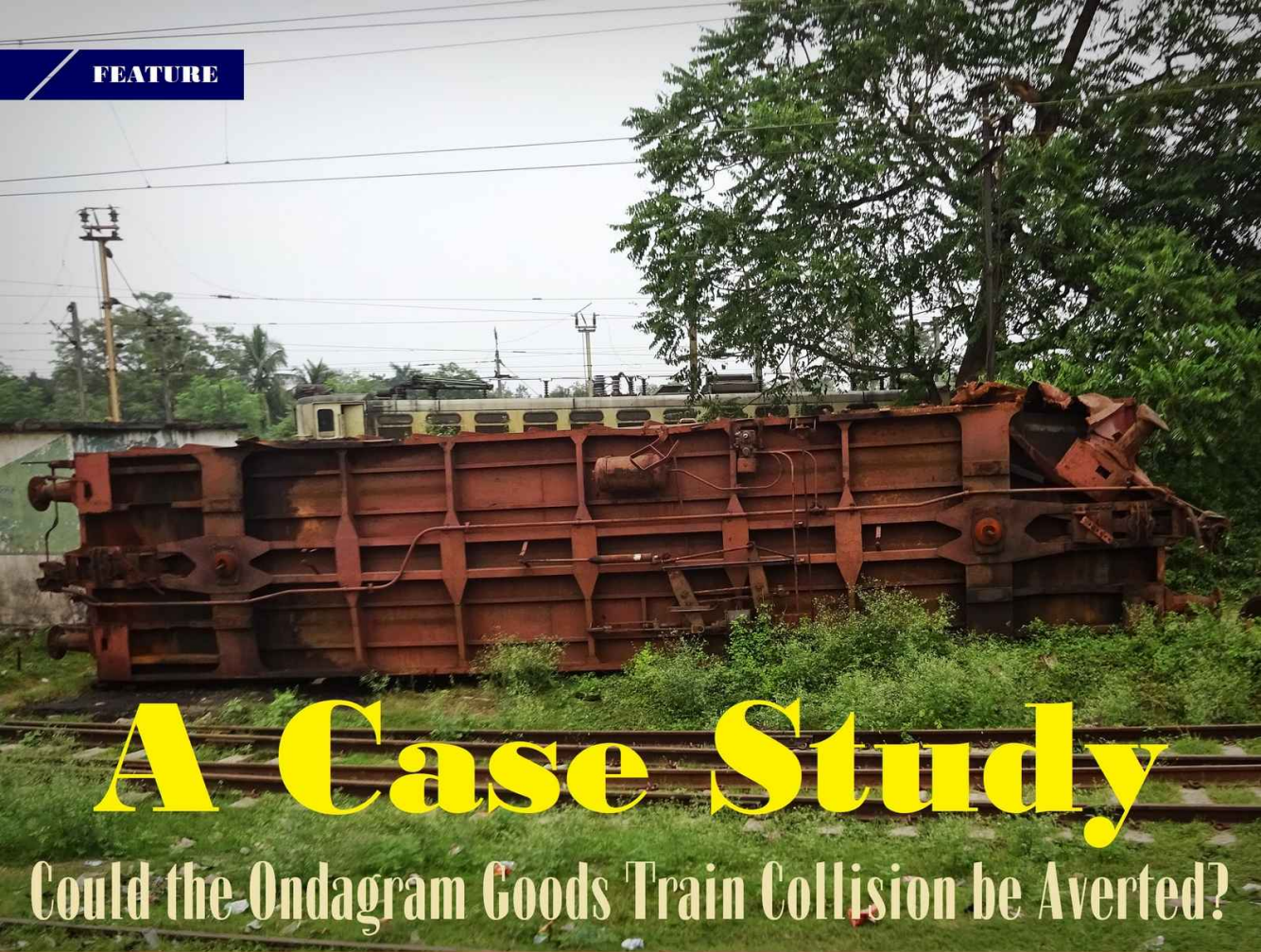
Shri Annavarapu Ramarao (b. 1933) retired from the Indian Railway Traffic Service in 1991 as Chief Operating Superintendent of Eastern Railway. Other books on railway themes authored by him include Line Clear to India, Trailing Window : A Journey into Rail History, Nemesis : A Tale of the Emergency and The Emergency and The Tiger of Bhanwar Nalla and Other Stories. Now settled in Bangalore, where he and his wife live with his younger son and family, Shri Ramarao spends most of his leisure in reading, writing and watching cricket on television.



All photographs provided by the author.



Ravindra Bhalerao studied engineering science in Delhi and has been a versatile teacher all his life taking classes in Physics, Film Photography, English and lately, Computers. Now retired and living in Nagpur, he finds time to indulge in his lifelong passion for railway heritage and photography.



A Case Study

Could the Ondagram Goods Train Collision be Averted?

Nabayan Dutta

Whenever an accident occurs, primarily bad track conditions, S&T Failure and SPAD (Signal Passing at Danger) are blamed. In the modern era of interlocking, Head on, Rear Collision or Side Collision is next to impossible as interlocking means an arrangement of signal apparatus that prevents conflicting movements through an arrangement of tracks such as junctions or crossings and is made in a completely fail-safe manner so that even if a system fails, viewers cannot be misguided until and unless that was manipulated from the relay room. The worst example of this is the recent Bahanaga Bazar accident in Odisha. What if there is a violation of SOP (Standard Operating Procedure)? The answer will be a big YES. Let's analyze.

What is SOP? Standard Operating Procedure (SOP) is a set of step-by-step instructions compiled by an organization to help workers carry out routine operations. SOP's aim is to achieve efficiency, quality output and uniformity of performance while reducing miscommunication and failure to comply with industry regulations. In Indian Railways, SOPs are prepared as General & Subsidiary Rules (G&SR). All workers under IR have to thoroughly follow the G&SR. The case was like this,

on 25.06.2023, around eight wagons overturned after a 42 BCN/E derailed and collided with a 37 BRN/E at the Ondagram railway station in the Bankura district of West Bengal. The incident took place when the shunting of the 07 BRN/E was under way. The 42 BCN/E overshot the home signal at on position, did not stop and collided with the 37 BRN/E, stabled at loop line around 4.05 hrs. in the morning. A typical SPAD case was accidentally done by the loco pilot of 42 BCN/E. I won't dwell much on that SPAD as it was a complicated and debatable issue. I would rather try to find another fact by which the collision might have been averted.

Situation during shunting

According to the written statement of all on duty officials of Ondagram station, around 3.30 hrs. 7 BRN/E was ready to shunt from line no.5 to line no.1. At first, they started shunting of 7 BRN/E towards down main line by a diesel locomotive attached at the Kharagpur (KGP) end. In the mean time, 42 BCN/E had left Bankura (BQA) after getting a go ahead from Ondagram. Then 7 BRN/E stopped after clearing the shunt signal no. SH 3 which is at down main



line KGP end. Eventually, the on-duty panel SM set the point no. 24A and 24B in reverse condition from normal and then set a route from SH 3 to line no.1 which is already blocked by 37 BRN/E. By the time the SM observed, the 42 BCN/E reached and overshoot the home signal at on position then negotiated the point no. 24A/B which are in reverse condition and hit the stabled 37 BRN/E from behind. Then total shunting process got stopped. 7 BRN/E with diesel locomotive remained at the foot of SH 3 signal.

Could the collision be averted?

Before giving my observation on it, contextually I would like to mention three G&SRs of IR.

GR 8.05 Chapter III column C says that, In class 'B' station, when Line Clear has been given, no obstruction shall be permitted outside the station section but shunting within the station section may go on continuously, provided the necessary signals are kept at 'On'.

GR 5.16 says that, when signals have been taken 'off' for an incoming train on to a line which is not isolated, no shunting movement shall be carried out towards points over which the incoming train is to pass.

GR 5.23 along with Railway Board's Letter no. 2012/Safety(A&R)/19/1 says that, if any stabled load/vehicles are in loop line that load must be chained and padlocked properly at both end. At least 6 wagons at both sides should be hand braked. Points on that line should be



set, clamped and padlocked against adjacent running line and towards dead end or derail switch.

Let's take a closer look at the situation now. Attachment detachments of some BRN/E by a diesel locomotive were in progress within the Ondagram station section itself. The resulted as per GR 8.05 on-duty SM provided its previous station with line clearance for 42 BCN/E. During that shunting process the on duty SM down home Signal did not 'Off' for 42 BCN/E as per GR 5.16. Because, as per movement plan 42 BCN/E would be routed through Down Mainline by negotiating point no. 24B and 18A. So long was right but the problem was created surrounding the attachment of 37 BRN/E stabled on the loop line with 7 BRN/e standing at the SH 3 signal on the down Main Line. When standing on a loop line in a locomotive without a stable load as per GR 5.23 along with Railway Board's Letter no. According to 2012/Safety(A&R)/19/1, it should be properly secured so that it does not roll down and even if it rolls down accidentally, then it should not go up to the main line. Contextually the Derail Switch in the station yard is a device

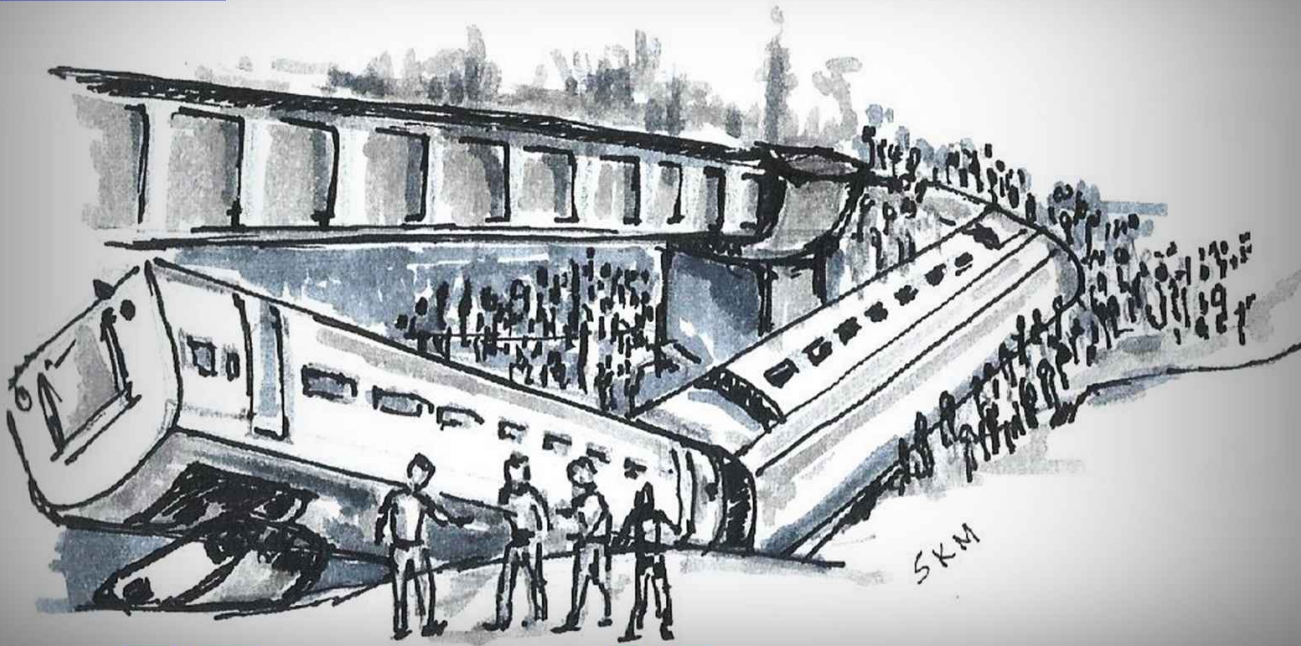


Contextually the Derail Switch in the station yard is a device to isolate a particular line from adjacent running lines to avoid infringement by the train or a part of the train which overshoots the signal or accidentally from the yard. This is exactly what happened in Ondagram that day. If the on-duty SM didn't put the point 24A/B in reverse position during shunting, the collision could have been avoided. I would like to uphold a statement of on-duty SM of that day that, "Set point no. 24A/B reserved condition to prevent derailment of 37 BRN (Which is already on line no.1)". Our question is, How could that 37 BRN/E which are on loop and properly secured as per GR 5.23, be rolled down towards Derail Switch 24A by the attachment impact of 7 BRN/E with diesel locomotive and if accidentally so, then, why to stop the derailment? Derailing Switch is meant for derailing of uncontrollable vehicles by isolating main running line. In this incident, the on-duty SM cut the isolation and set the path towards approaching direction of 42 BCN/E JSW. When the

7 BRN/E are ready to attached with 37 BRN/E on loop, in the same time 42 BCN/E JSW are on Calling On track of Down home signal. If that SPAD case didn't happen that day and if that 37 BRN/E became uncontrollable then it could be rolled down towards 42 BCN/E standing on home signal via point no. 24A/B. Not everything depends on a machine-based solution. Safety consciousness along with correct anticipation is what really matters most.

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Mass Karma

The Thread That Links Different Lives

Om Prakash Narayan

Some years back, on 22nd June 2001, I was traveling in Train No. 6602 Mangalore - Chennai Mail when the train plunged into the Kadalundi river near Calicut, killing 52 persons. Even though I miraculously escaped, I could never sleep in peace for months/years thereafter. Many times, I woke up with nightmares of the scenes I had witnessed during the accident. Even though I had no time to think while helping the many passengers in the heavy rain at that time, I also happened to witness many a heart wrenching scene. There was this young couple whose one and a half year old child had drowned. Then there was this Gulf-returned youth who was visiting his parents after many years in the Gulf – his relatives were asking as to why they had to wait for so many years to receive him at the airport just some hours back, only to see him die in that accident. Then there was this colleague of mine, Shri Gangadaran, who gave lunch to me that very afternoon – and in the evening, he was dead. Like this, there were many stories which I found very moving and touching.

I often wondered – why should persons who have no

connection at all with someone else, die together in a tragedy? I also heard of a story where some passenger, who was booked to travel by this train, was delayed heavily by some strange events at a temple – he was cursing his fate that he was wasting his hard-earned money by not boarding the train and the next day, he saw the news and was relieved that he lost only money and not his life.

But all this, had set me thinking on the lines of 'Karma'. I could understand individual karma where something happens to a person because of his past karma. But it took me quite some time to understand that the individual karma of many persons can combine to produce mass karma and similar individual karmas somehow get together.

It was then, that I realized that almost everything in this world can be explained through the Law of Karma. Even a person who “heads” an organization carries the load of organizational Karma and he/she also transmits his/her Karma to the organization and vice versa.

The good and bad karma need not necessarily reflect the present personality – for example, a very evil person may

experience a lot of good things even after doing evil because he/she may have a very good Karma from the past – and a very good person may suffer a lot because of previous bad karma – so the present personality is rendered irrelevant unless a person reaches a point in his/her life where the good karma equals bad. I believe such points are achieved by every individual and such points in one's life are some of the best periods – for marriage, new job, death of a relative, for a new venture, for remoulding life, for a transfer, etc.

Karma guides various individuals in various time/space spheres and at some place, one's individual karma may overlap another. When this happens, mass karma is attracted. A group of individuals, who otherwise would have never travelled by the Mangalore – Chennai Mail, came together by the power of Karma – they travelled together by the power of Karma – their collective mass karma acted upon the various factor and the tragedy took place when the mass karma assumed the right proportion. Perhaps the place also has karma – the accident could have happened anywhere – why Kadalundi? The answer lies in the Karma that the place carries. (It is said that there is a small circle, with a diameter of about a foot, in a temple in Cannanore, Kerala, that has never seen death – this was a King's wish which was granted by the Lord). The combination of an individual's Karma with that of the place, jointly decide the person's fate. In an accident, a person may die just out of shock and another may not die even after terrible physical injuries – according to their individual karma.

Since Mass Karma attracts individual Karma of similar individuals, not only tragedies, prevention also can be attributed to mass Karma. We have come across many averted disasters where the mass Karma must have been very strong in preventing a disaster.

When 9/11 took place, even though it was a terrorist attack, there were reports of people who were saved by a second in the 9/11 disaster – again, perhaps, Karma at work.

But such Karma can only be explained by rebirth and theories of rebirth and reincarnation. It is believed that Napoleon, who vowed that he would destroy England, did exactly that when he was reborn as Churchill – it was during Churchill's regime that the sun set over the British Empire when many English colonies gained freedom. Sri Sri Paramahansa Yogananda has said that Judas, who betrayed Lord Jesus, was reborn many times before he became a great saint many centuries after the advent of Jesus Christ.

Theories of Karma and Re-incarnation give hope to a suffering world – we can seek solace in such hopes that our next life on this earth will be better, by living righteously in this life and that our Karma will one day, save us.

*Cover photograph courtesy: Sudakshina Kundu Mookerjee
Below photograph courtesy: TrainTrackers*

All photos used are symbolic & not connected to the above article in any ways.





A Visit To The Birthplace of India's First Semi High Speed Train

Somankot Tiru

The Historical Perspective

The Integral Coach Factory (ICF) is Indian Railways' one of the most important Production Units which has brought radical changes to the country's railway system. Setting up of ICF was started in 1952. On its completion, ICF was inaugurated by the first Prime Minister of India, Sri Jawahar Lal Nehru, on 2nd October 1955 and its furnishing division was inaugurated exactly 7 years later, i.e., 2nd October 1962.

ICF started with producing around 74 coaches in 1957-58 which has now gone upto nearly 3,000 coaches per year. It also exports rolling stocks to various countries like Thailand, Burma, Taiwan, Zambia, Philippines, Tanzania, Uganda, Vietnam, Nigeria, Bangladesh, Mozambique, Malaysia, Angola and Sri Lanka. ICF has rolled out more than 175 types of coaches (including self-propelled rolling stocks) and till date ICF has earned the distinction of having turned out 75,000+ coaches since its inception, which is the highest by any passenger coach manufacturer in the world. Recently, ICF achieved the milestone of rolling out the 75000th Coach, a Vande Bharat Coach, on 27th June 2024.

ICF & The Vande Bharat Story

The first Train-18 trainset or Vande Bharat (VB) was rolled

out from ICF in 2018 & was pressed into the service in February 2019 after thorough trials and necessary clearance from concerned departments. Dr Sudhanshu Mani, the then GM/ICF, with his team gave us our first semi high-speed train. The first VB service introduced was between New Delhi and Varanasi which was flagged off by the Hon'ble Prime Minister of India, Sri Narendra Modi, on 15th February 2019. The design of Vande Bharat is such that it became a craze not only in India but abroad. Till 31st July, 2024, a total of 75 (2 V1.0 rakes + 73 V2.0 rakes) T-18 trainsets have been rolled out by the ICF. The Vande Bharat rakes are either of 8 or 16 or 20 Coaches. Initially rakes of 16 Coaches were rolled out followed by production of 8-Coach rakes. As per Railway Board's letter of 10th January, 2024, ICF was asked to manufacture 15 T-18 rakes of 20 Coaches out of which 4 to be equipped with High Rise Pantographs. Until now, only Chair Car type Vande Bharat rakes are manufactured by the ICF. After the success of these Chair Car Vande Bharat trains, the Ministry of Railways planned for a sleeper version which is being manufactured in BEML Unit, Bengaluru. Till 31st July 2024, 51 pairs of Vande Bharat trains are running which are augmented with special services to meet demands.



Rupanagudi is a very enthusiastic person and is very supportive of Rail Enthusiasts and he posts photos by Railfans in his Social Media accounts. As Mr. Venkatesan was set to retire in May 2024 and during that time Vande Metro was under fabrication as well, Mr. Rupanagudi proposed a tour of ICF which can be done later as per convenience. As things turned out, after 3 months, on 25th July 2024, four Rail Enthusiasts (Firoz Islam, Sourav Dutta, Soham Das and myself) from Eastern and South Eastern region landed in Chennai for a visit to the ICF.

Exploring ICF

Since the launch of Vande Bharat Express, many Rail Enthusiasts and Tech Buffs have visited the Integral Coach Factory on different occasions to learn more about the planning, manufacturing and rolling out procedure of Vande Bharat. Post COVID, I also got in touch with Integral Coach Factory and the officials really coordinated with us, helped us with many technical and statistical data. When I visited ICF in April 2024, Sr. PRO, Mr. GV Venkatesan, described about our passion and our attachment with Railways to Mr. Ananth Rupanagudi, the Financial Advisor of ICF. Mr.



Mr. Rupanagudi was there to help us with our permits through the Secy. to GM/ICF, Mr. Senthil. Our permits were issued and Mr. Silambarasan, Publicity Inspector, took us to the LHB Unit, Furnishing Division of ICF to witness the manufacturing of Rolling Stocks including Vande Bharat.

We started the tour from Furnishing Division Shop No. 19 with Mr. Silambarasan guiding us. As we entered the shop, we saw the underframe of rolling stocks being welded as per requirements.



Moving ahead, we got to see a piled-up side bodies of coaches. On enquiring, Mr. Silambarasan clarified those being the ones for Vande Bharat.

We took a closer look at them and by no means a person can decipher that these side bodies are of which rolling stocks, unless pointed out by an expert.





Continuing, we got to see a LHB Pantry Car in making. While moving to the next shop, what we witnessed was just amazing. Vande Bharat coaches, Kolkata Metro Coaches for Rake MR - 419 and AC EMU Coaches all in queue and both the interiors and the exterior being furnished.

We got inside the rolling stocks and saw how the workers, with precision, working with the fittings and furnishings as ICF puts Passengers' safety and comfort as the first priority before everything else.



Spoke with one of the workers who was furnishing a Kolkata Metro Coach and learnt that there are 3 shifts of working hours in ICF and their rosters are made accordingly.

When asked whether he liked his work, he smiled and said "Yes, I do as his work will ensure the passengers to get a comfortable ride....".



Mr. Silambarasan also showed us the unit where coaches undergo water leakage tests and quality test. During this time, he also enlightened us with the time taken for an 8 Car Vande Bharat Rake to get manufactured, how ICF deals with the orders they receive from the Railway Board.

We also asked him about Vande Metro, the latest addition to Indian Railways. He told us that a prototype was rolled out from ICF and another one from Rail Coach Factory, Kapurthala. As we were keen to see the manufacturing of Vande Metro, we queried about any rakes being manufactured in ICF, then. He explained that as both the ICF and RCF Vande Metro rakes are under trials under the supervision of RDSO, they will start full-fledged manufacturing of Vande Metro only after RDSO gives full clearance to the prototypes. As the Vande Metro rake was not in ICF during our visit we missed to cover it but we were helped





collision system, Diffused Lighting, Route Indicator Displays with the windows to have roller blinds. Vande Metro rakes are capable to be operated at 130 KMPH. The fully air-conditioned Vande Metro is expected to provide comfortable ride at a lower cost than regular AC trains and Vande Bharat and will mainly connect Tier 2 and 3 cities with Urban Centres.

Then, at the end of our tour inside the Furnishing Division, we were guided to the final assembling section where we got to see LHB Coaches ready for Southern Railway, a Non-AC EMU rake almost ready for Eastern Railway, Amrit Bharat SLRs with no zonal markings and yes, a Vande



by Mr. Silambarasan about the details of Vande Metro. Both the ICF and the RCF Vande Metro rakes were allocated to Western Railway. The first Vande Metro was rolled out from ICF on 31st May, 2024 but RCF unveiled the first Basic Unit (4 Coaches consisting of 1 DTC, 1 TC and 2 MC) of their rake on 30th April, 2024. Vande Metro are planned for short Intercity travel (distance upto 250 Km) and have provision for standing passengers. Each Vande Metro will have 12 Coaches and will have 2 DTC, 6 MC, 3 TC and 1 NDTC. Vande Metro trains will have Automatic Entry and Exit Doors for passengers, Mobile Charging Sockets, KAVACH train anti-



Bharat rake was being assembled in order and TNP WDS 6 36541 was helping to assemble the rake. We took photographs of the non-furnished interiors of Vande Bharat coaches, Kolkata Metro Coaches and the ones which were ready for roll out as we left the Furnishing Division of LHB Unit. Mr. Silambarasan then took us to Padi Rotary Bridge from where we saw the newly turned-out Vande Bharat Rakes, at ICF Yard, ready for being transported to their respective base. A 20 Car Rake was also parked there.



As we were mostly done, Mr. Silambarasan guided us to Thirumangalam Metro Station to conclude the wonderful day at the ICF Chennai.

It is worth mentioning that the Chennai Rail Museum, right next to the ICF Furnishing Division, which has some essential historic exhibits is maintained by ICF as well and is a must visit place.

Leaving with A Heartful of Thanks

I would like to thank Mr. Rupanagudi (FA & CAO (G)/ICF), Mr. Senthil (Secy. to GM), Mr. Silambarasan (Publicity Inspector/ICF), Mr. Venkatesan (ex Sr.PRO/ICF) and Mr. Don Bosco (Chief Office Superintendent/Furnishing/ICF) for all the arrangements of our ICF visit.

I also thank the Ministry of Railways for the introduction of Vande Bharat, Amrit Bharat and other new category of trains thereby bringing a substantial change in railway transportation of the country.

Last but not the least, a big round of thanks and applause to Dr. Sudhanshu Mani (ex GM/ICF) and the whole team of Integral Coach Factory for whom we got India's first Semi High Speed Train – Vande Bharat.

We left ICF with a bagful of fond memories and a wonderful experience that will last for ever. We wish ICF keeps the nation rolling with its achievements in years to come.

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P K
Mishra

Presently the General Manager of Modern Coach Factory, Raebareli is a distinguished member of Indian Railway Service of Mechanical Engineers. In addition to his technical acumen, Shri Mishra is an ardent rail enthusiast, historian and researcher. While working as the Divisional Railway Manager in the Asansol Division of Eastern Railway, Shri Mishra has restored several heritage structures and artifacts in the Division, including the famous Durand Railway Institute (built 1878), now renamed as Vivekananda Institute. As AGM of SWR, Shri Mishra led the Heritage team of the railway to create a Museum at Hubballi, apart from improving the Rail Museum at Mysore. He has assisted many non-railway organisations to restore various heritage artifacts including the famous 130 years old clock of the main tower of the Karnataka University at Dharwad. One of the foremost Railway historians of India, Shri Mishra has put on paper several unknown facts of yesteryears through his invaluable books and articles on the Indian Railways.

Water Management Initiatives at the Modern Coach Factory, Raebareli

Construction of Rain Water Harvesting, Bore Wells & Ponds

Water is a precious resource essential for all life on Earth. It is our prime responsibility to take proactive steps towards conserving this valuable resource. Remember, every drop counts when it comes to water conservation. Inspired by the Hon'ble Prime Minister's vision to conserve every drop of water, MCF as part of the *Jal Shakti Abhiyan* planned water conservation strategy &

developed 100 million litres water conservation capacity in 2023-24. In financial year 2023-24, Modern Coach Factory Raebareli, had executed five Rain Water Harvesting projects having recharge potential of 30.20 million litre per year. To optimize cost of water conservation, innovative Rain Water Harvesting concept through Recharge Bore digging along the periphery of existing pond has been developed in which concrete and brick work has been totally eliminated – an innovative green water recharging concept. Ten recharge bore wells had been constructed along periphery of existing pond further increasing water recharge

capacity of 33.12 million litre per year.

In addition to above, one existing pond in Joggers cum Eco Park had been enlarged resulting increase of water holding capacity by 18 million litres. Three ponds having water holding capacity of 12.49 million litres have also been excavated. Diversion of rain water passing through Mathana Nala in MCF premises has also been executed. This is going to be a game changer as rain water of large catchment area covering dozens of villages will be tapped and used for rain water harvesting.

A mega water conservation plan has been adopted and four ponds of total holding capacity 30.49 million litres and five rain water

harvesting & ten recharge bores along periphery of existing pond having total 63.22 million litres recharge capacity was created during the FY 2023-24.

With 100 million litres water conservation capacity generation in 2023-24, total water conservation capacity of MCF has risen to 530 million litres. MCF has further planned to create 100 million litres water conservation capacity in the current FY 2024-25.

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25 Years of WAP7

Silver Jubilee of the White Stallion

The Passenger Class Locomotive That Took the Nation by Storm

Anamitra Bose

:: THE ADVENT ::

Three-phase technology saw its advent in electric rolling stock technology in 1993 only with the Bo-Bo speedster WAP5 and the heavy freighter WAG9, from Adtranz (ABB), Switzerland. But soon the longer and heavier trains started losing time with the mighty Swiss beast. Rather the ever-dependable WAP4 proved to be much better with heavy passenger loads. The brains at RDSO and Chittaranjan Locomotive Works (CLW) searched for a modern and efficient solution of the problem of 20+ coach load at higher speeds. Cut to May 2000, a white beast with orange single stripe rolled out of the shop of Chittaranjan, fondly named as Navkiran and flagged off by the then Railway Minister. The locomotive was made out of the WAG9 freight locomotive with modified software and gear ratio. This was quite an audacious experiment by the Indian engineers as the software code of the WAG9s was secured and Adtranz did not

agree to handover the software code. The engineers had to spend a lot of sleepless nights unlocking the German machine-language code and making them into downloadable files. A traction software upgradation lab had been setup in CLW already and countless efforts were done to tweak the software in the Indian computers. Finally, the efforts and sweat gave rise/birth to a new locomotive class called WAP7, made for Indian conditions for haulage of heavier loads at semi-high speeds negotiating gradients and curves. Soon after this hustle and bustle, it was discovered that even after with six-powered axles and heavier body, WAP7 could not give the required tractive effort at the wheels. Again, it was back to drawing board to dig out the root cause. Finally in 2002, the team of CLW engineers, managed to tweak another layer of the software code, where gear ratio was coded. Till this time, WAP7's computers showed tractive efforts much greater than the actual application, whose root cause was



WAG9's gear ratio was being applied from the software. The team modified the gear ratio and tractive effort in the code, uploaded the software into locomotive's computer and voila! The result was there. The modified locomotive stunned everyone with the swift acceleration of 24-coach Prayagraj Express delivering 6350 horsepower of starting power and 6125 horsepower continuously to the tracks! The tractive effort applied is 323 kN and the locomotive weighs 123 tonnes. With this, the success story of the WAP7 began to roll.

Now, it's 2024, when almost all the passenger electric locomotive holding sheds houses the white beast along with some diesel loco sheds! WAP7 has emerged as the mainstay of passenger train operations in the nation. It has witnessed a lot of changes since 2000 – from GTO to IGBT, from MICAS VCU to TCN VCU, from HLC couplers to HOG IV Couplers. Even if it can be spotted every quarter of an hour in a busy section, still the amazing acceleration and blistering aggression attracts a lot of railway enthusiasts and some fellow passengers as well. From Chittaranjan Locomotive Works being the test bed and the birthplace of the locomotive, now the Banaras Locomotive Works (erstwhile Diesel Locomotive Works) and Patiala Locomotive Works (erstwhile Diesel Loco Modernization Works) turn out the majority of the new WAP7s.

The 3 phase AC drive system i.e., the propulsion system is like an inner organ of a human body, it has a brain and heart. Here, brain is the software, viz., VCU (Vehicle Control Unit), the lungs as the transformer, the heart is as hardware viz., the Traction Converter, Auxiliary Converter and in cases, the Hotel Load Converter. The mechanical bogies, wheels, shells are like the bones and skin of the body which keep the shape of the body together and execute the functions which the brain drives.

At first, coming to the heart, i.e., the hardware part of the AC drive system, it is the main driving force driving the wheels on the rails with thousands of tonnes of load. Like many compartments of the heart, it consists of different converters

for different purposes. Now, what is a converter? A converter is an electrical equipment which takes the voltage from secondary winding as input and gives voltages as required, as its output. The converter which is directly associated for moving the wheels, i.e., powering the traction motors, as the name suggests, is traction converter. The converters which run the ancillary and auxiliary equipments in the locomotive like blowers, lights, battery charger is auxiliary converter. And in locos like WAP7, the converter which powers the hotel load demand by the coaches for lights, AC without using the EOG, is the hotel load converter. In fact, the success of Head on Generation technology pushed WAP7 to a new height. The trains which were not fully air-conditioned no longer needed two EOG cars thereby saving a huge cost on the expenditure of generator fuel. The acceleration factor had already made WAP7 a star but with the provision of Hotel Load Generation system, WAP7 was hailed as a superstar.

Traction Converter:

In the modern three phase locomotives, three phase asynchronous motors are used widely for their high efficiency, easy control, low maintenance cost and regenerative capability. WAP7 uses three phase asynchronous squirrel cage induction motors. To control the speed, both traction and braking effort of the traction motors can be controlled by varying the voltage and frequency of three phase AC voltage. To derive to this requirement from single phase 50 Hz AC output from the secondary winding of the main transformer, we need traction converters.

The fundamental limitation of three phase induction motor is inability to start with huge load from zero speed. This is due to inability of supplying high torque at a fixed frequency. This have been solved with the advent of modern power electronics module like GTO, IGBT. The frequency of output voltage to traction motors is lowered in order to maximise the rotor torque at the starting and gradually frequency is increased to accelerate rapidly. The amplitude is also adjusted correspondingly to maintain constant torque at the rotor. This technology of varying both frequency and voltage



of output of the converter to feed the traction motors is known as Variable Voltage Variable Frequency (VVVF) drive.

Before knowing the details of traction converter, we should know a bit about the power electronics devices, i.e., GTO, IGBT, SiC etc. As conventional locomotives had tap changers, chopper controls and later thyristors, the basic unit of converter units is the power GTO/IGBT. GTO is Gate-Turn Off Thyristor which is a fully controlled bipolar semiconductor device.

Fully controlled means its turn on and turn off both can be controlled by adjusting the gate current. GTO requires a quite high negative gate current to turn off the device.

IGBT, the Insulated Gate Bipolar Transistor is a modern power device which has an excess minority carrier region to decreasing the ON resistance, thereby decreasing transition

loss. It has minimum power loss but a little greater switching time during turning off. IGBT is mostly preferred now over GTO in all converter applications for its easy driving and more controllability.

Now back to converter, a traction converter has three main stages : Input stage or Line converter (NSR), Intermediate stage or DC link, Output stage or Drive Converter (ASR).

Line Converter: It takes input from the secondary winding of the main transformer as constant frequency single phase AC input and converts it into a constant DC link voltage of about 2180V. As it is a 4-quadrant PWM converter with GTO or IGBT, it has almost a unity power factor and snubber circuit is not required.

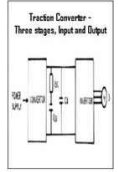
DC Link Stage: This stage has a filter circuit to filter out unwanted second-order harmonics and then a DC link capacitor in the middle for handling the high DC link voltage and also providing constant DC in case momentary power failure at the input side. It supplies reactive power to the induction motors. There is also a over-voltage protection unit. This is an electrical buffer between ASR and NSR.

Drive Converter: It is a single-source voltage inverter that converts the DC link voltage into three phase voltage with variable frequency and variable amplitude. Hence it is a VVVF converter that drives the traction motors. The voltage can be varied from 0 to 2180V and the frequency from 0 to 160 Hz. The firing of the GTOs and control of IGBTs is done by control electronics.

During braking effort, the traction motors act as induction generators by controlling output frequency through negative slip value. The resultant generated 3 phase power is converted to single phase AC through the DC link and then fed to the catenary. This is efficiently done by the converter and thus acts also as a voltage stabiliser.

To control the speed of the locomotive, the tractive and braking effort needs to be adjusted accordingly by varying the voltage and frequency of the traction motor which is efficiently done by the traction converter.

Now all new locos are getting equipped with IGBT based converters instead of old GTO technology. The main advantage of IGBT based propulsion is individual control of every traction motor leading to higher adhesion and reliability. Also, IGBT leads to reduction in space, snubber circuits and switching losses.



Auxiliary Converter:

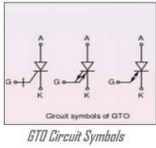
Another compartment of the locomotive heart is the Auxiliary converter. The main motive of Traction converter is to drive the traction motors but for the other requirement of the loco like air compressor, blowers, lights etc., the purpose is served by the Auxiliary converter. The Auxiliary converter is fed by the Auxiliary winding from the main transformer. It has a similar configuration of converter, DC link capacitor and an inverter to feed the load. There are three Auxiliary converters in three phase locos, designated by BUR1, BUR2 and BUR3.

BUR1 is in a separate cubicle and supplies 110V three phase voltage to mainly oil cooler blowers. BUR2 and BUR3 are integrated in a separated cubicle and oil pumps for both converter and traction motor work due to BUR2. The scavenge blowers are connected to BUR3.

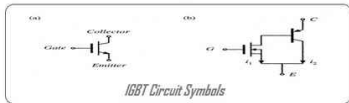
In addition to this, CAB ACs, Compressors, Battery Charger are also fed by Auxiliary Converters. There is a separate Auxiliary winding for supplying 415V/110V AC single phase voltage to machine room blowers, Cab heaters, Cab Lights and Fans.

Hotel Load Converter:

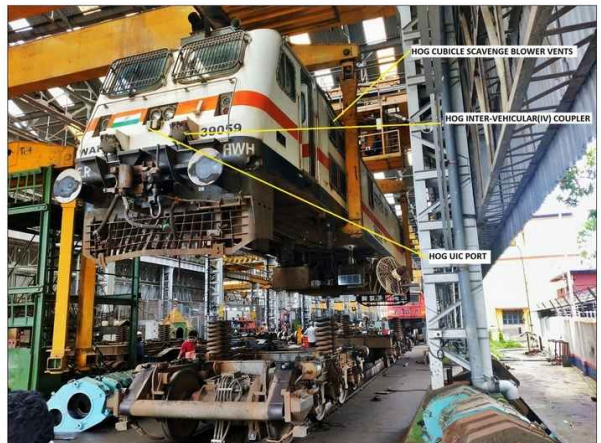
This special converter supplies power to the coaches for AC, Lights, Fans and for heaters, refrigerator etc. in pantry cars. In initial HOG implementation, a single 750V hotel load



GTO Circuit Symbols



IGBT Circuit Symbols





winding was provided in the main transformer. It was converted from single phase 750V AC to three phase 750V AC for hotel load requirement of the coaches by 2 x 500 KVA IGBT converters, called Hotel Load Converters. But it suffered from high voltage spikes, presence of lot of harmonics. This damaged the transformer in EOG and other accessory elements.

Later, the HOG locos were supplied with modified transformer with two separate windings in the secondary side for two Hotel Load Converters. These Hotel load windings were 2 x 622.5KVA, 960V and the transformer is known as LOT7775 instead of the previous LOT7500 transformer. The two separate windings fed two Hotel load converters to produce 750V 3-phase AC output for the Hotel load. In this modification, the voltage spikes were greatly reduced and external filter circuit has been provided to absorb the harmonics. HOG facility proved to be a major success of IGBT based locomotives and also reduced cost, pollution, noise among other factors.

Composite Converter:

This type of IGBT converter is recently used in a few WAP7 locomotives, for example, 30715/GZBE and 30211/GZBE. This type of converters has two Line Converters, two DC Link Capacitors and two Drive Converters, one for each bogie. In addition to that it has a Hotel Load Converter fed by Hotel load winding from the transformer. Thus, the traction and hotel load, both outputs were derived from a single converter unit naming it as composite converter.

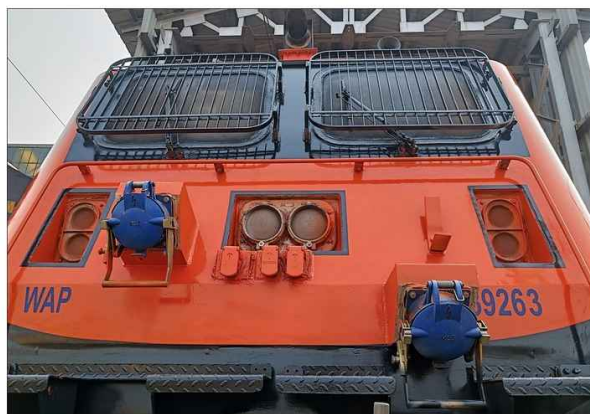
UIC Ports:

The UIC ports are the signalling or control interfaces of the locomotive with the other locomotive or the coaches. Through UIC ports, signals for Multiple Unit Operation or Hotel Load operation are transmitted from and to the locomotive software. In a Non-HOG WAP7, there was only one port that was used for Multiple Unit Operation and connected the Train Control Bus. In a HOG equipped WAP7, there are two ports – one for HOG and one for MU or the Train Bus. The



HOG UIC transmits signals to the Generator Car about status of the Hotel Load Converter, the dynamics of the output voltage and the commands from the driver desk through the BLHO switch. This is an 18-pin UIC port connected with the UIC slot of the End-On-Generator Car or SLR. For some WAP7s operating in Push-Pull mode, specially homed by Kalyan, Ajni and Howrah, the MU port is modified to 22-pin port to run through the whole train as train bus and connect to the slave locomotive. The extra 4-pins replicate the BL-key (main key of the locomotive) operation in the slave locomotive. To improve reliability, a redundant MU port has been provided to carry exact replica of MU port signals. Thus, they have total 3-ports in total – HOG, MU and extra MU ports.

Recently, as most of the WAP7s are not operated in Push-Pull operational mode and WAP5s are being modified to operate in Push-Pull trains like Amrit Bharat, the Railway Board has advised the sheds to improve the reliability of Hotel Load UIC cable. Accordingly, loco sheds are modifying the MU port on the HOG WAP7s into an extra HOG UIC cable. This will help to improve redundancy and reliability of HOG operations of the locomotives.





:: SOFTWARE ::

Now, after the tour through the heart of the locomotive, it's time to peep inside the brain of the locomotive, i.e., the Microprocessor, Control Electronics and Software Running Locomotive.

The VVVF converter and 4-quadrant converter, if wired by hardware, will be very complicated. Therefore, the loco uses MICAS-S2 (Micro Computer Automation System – Series 2) type of microprocessor control to control the converter units, traction motors, monitor the loco and fault diagnosis.

MICAS-S2 control electronics control all function of locomotives. It is in the form of bus stations and processors. Microprocessors are adopted as hardware optimization tool. The remote arrangement of computers for control electronics means that not much wiring is required for control signals.

MICAS-S2 control system has three layers – Train Bus, MICAS Vehicle Bus, Drive Control Bus. The train control bus communicates between different multiple units (MU) and controls the braking system. The MICAS Vehicle Bus controls the converter units, diagnoses the faults and monitors overall



condition of the loco. The drive control controls the converters and traction motors.

The demand from drivers' cab for speed, i.e., traction and braking is efficiently calculated by control electronics and communicated to Traction Converter through the vehicle bus. The control electronics and main hardware are connected via optical fibre bus. These are resistant to electromagnetic interference. The control electronics is based on microprocessors connected to each other by MICAS vehicle bus. Each loco (vehicle) contains a Vehicle Control Unit (FLG). Each converter contains a converter bus station. The converter bus station contains the Converter Control Unit (SLG) and Drive Control Unit (ALG). The ALG contains both line and motor converter control units.

Depending on the speed demand from the cab, the FLG calculates required braking or tractive effort and sends it to the SLG. SLG compares this value with the actual torque value from ALG and thus the required torque is calculated from the difference of the two. The ALG generates required firing pulses and turn-off pulses for the GTO. These are communicated through Bus to the Gate Units. The line converter is also controlled by ALG and maintains a constant DC voltage.

In the newer three phase locos, due to obsolescence of MICAS based proprietary loco control, a indigenous VCU based on TCN (Train Control Network) Protocol was developed by CDAC (Centre for Development of Advanced Computing), Ministry of Electronics and IT, Government of India under *Make In India* special scheme called **NamPET**. It uses international standard communication Protocol IEC-61375. Here, the Train bus is known as the Wired Train Bus (WTB), Vehicle Bus uses the international bus standard called Multifunctional Vehicle Bus (MVB) and Controller Area Network (CAN) between the digital/analogue cards. The Driver Display Unit (DDU) communicates with the MVB with the help of a main host called MVB administrator using RS232 network. The cards, inputs, outputs to other controller are controlled by two applications specific processors. Whole of the Control Electronics is based on QNX Real-Time Operating System (RTOS). CDAC VCUs can be easily tested on a test bench in ELS and simulated using a 3-phase Loco Simulator anywhere. MICAS –based locos are also gradually upgraded to CDAC TCN VCU for greater reliability and control.

:: TRACTION MOTORS ::

WAP7 is provided with six axle hung nose suspended traction motors. TM-1, 2, 3 are mounted in bogie-1 and fed from traction converter-1 whereas TM-4, 5, 6 are mounted in bogie-2 and fed from traction converter-2. The traction motors are 6FRA6068 three-phase traction motors, 6-pole asynchronous squirrel cage rotor-motor. It is force air cooled through a vent in non-drive end housing. The traction motor blower supplies filtered air to cool the traction motor. The flexible bellows connect the traction motor vent and the air



outlet of the blowers on the locomotive under frame. The rotational force from the traction motor is transmitted to gear box by a pinion drive coupling. The opposite end of rotor shaft is enclosed by an end plate. The gear ratio is 20:72 for normal WAP7 and 22:70 for one WAP7HS. The continuous ratings are 850 kW, 2180V phase-to-phase, 270A and 1283 RPM.

The advantages of 3-phase AC traction motor over DC conventional motors are many which are illustrated below –

- i) The size of traction motors for the same output power is much less for 3-phase motors. With permissible axle load and available space in bogie, high-powered locomotive with small dimension is possible.
- ii) Brush-gear/commutators is absent in 3-phase motors reducing maintenance cost and time.
- iii) Superior drop characters in speed versus torque graph helps in better adhesion.
- iv) Rated power of DC locomotive reduces beyond field weakening; 3-phase motors provide maximum power at highest speed.



- v) Weights of three-phase motors are much less, making the locomotive much lighter.

:: BOGIES ::

The locomotive is 3.15 metres wide, 20.56 metres long and 4.52 metres high. The three-axes and three motor Co-Co assemblies are the main strata of the locomotive acting like a muscle layer. Two bogie assemblies support the entire weight of the locomotive and provide a means for transmission of the tractive effort to the rails.

The bogies are designed to withstand the stresses and vibrations resulting from normal rolling stock applications. Bogie used in a WAP7 is fabricated Flexicoil Mark IV bogie. An important feature of the bogie is to absorb and isolate shock caused by variations in the track bed. The suspension systems minimize the shocks transmitted to the locomotive underframe. The traction motors are suspended in the bogie frame and on the individual axles. The motors transmit their energy to the driving axles through a gearbox mounted on the driving axle. The force from the driving axles is transmitted to the axle journal boxes and guide rods to the bogie frame. The push-pull link rod, connected between the bogies transmits loco under frame, transmits the tractive forces to the loco body.

The Yaw (longitudinal) dampers control loco body pitch rate. Guide rods control the fore and aft movement between the axles and bogie frame, while link rod controls the fore and aft movement between the bogie frame and loco body.

Primary suspension, located between axles and bogie frame, is provided by twin coil springs on the axle journal box fore and aft the axle line. Vertical hydraulic dampers are used to dampen the rebound rate of the springs. This "Flexi Coil" arrangement permits lateral movement of the axle. Guide rods provide the Longitudinal control of the axle. Spheribloc rubber bushes in the guide rods allow unrestricted axle lateral movement.

Secondary suspension is also provided by coil springs and vertical dampers located between bogie frame and loco body.





The Flexi Float arrangement of the secondary suspension allows the locomotive body to move both laterally and vertically within certain limits.

:: BRAKES ::

WAP7s are been equipped with three types of braking applications – Pneumatic Brakes (Train Brake and Loco air Brake), Regenerative Braking and Hand Brakes.

The Automatic Train Brake (A9) is utilized in charging and discharging the Brake Pipe. In both cabs, a Driver Brake Controller (DBC) is provided to send electrical command to the brake valve (E70). A pneumatic emergency brake valve is provided alongside electronic emergency brake.

The Loco Brake (SA9) is provided in both cabs, which are direct air brake valves.

The three-phase locos have been provided with the electronic regenerative braking which uses the traction motors as generators, thus reducing speed as well as saving energy. When the throttle is in BE position, the regenerative braking is activated. The best application happens when regenerative brakes are blended with pneumatic brakes to stop the train. Thus the brake blending feature is also available in this class.

For types of Brake Electronics Control, two types of control systems are available – Conventional (E70) braking system and Knorr-Bremse braking electronics. Knorr-Bremse is fully Computerised Controlled Brakes (CCB) which improves control and efficiency of brakes.

This integration of advanced traction drive with microprocessor and software control system is a major breakthrough not only in three phase electric locomotives but also in three phase EMUs. This 3 phase AC propulsion system has taken IR Traction Outlook into a new horizon of higher torque, higher speed and higher efficiency in lieu of low costs, low space requirement and low maintenance.

:: A SHIFT IN POLICY ::

In 2020, in attempt to strike a balance between high power



and higher speed, CLW worked upon a WAP7 locomotive to make it lighter thereby trying to achieve the milestone of 160 kmph. The locomotive that was put under the scalpel had road number of 30750 from the Ghaziabad Electric Loco Shed. Eventually the locomotive did not achieve much the desired results as the USP of WAP7, i.e., its high tractive effort and acceleration was under compromise. For speeds more than 140 kmph, Indian Railways already had WAP5 locomotive. Thus, WAP7HS really couldn't live up to the expectations and the project lost its viability.

With the advent of trainset technology in premium trains category in India, the days of WAP7 hauled Rajdhani and Shatabdis looks numbered. The generalized policy of the Railway Board for locomotive hauled trains is gradually getting inclined towards trainsets which has its own advantages. Apart from this, the only aspect where WAP7 still lags behind the red marvel in WAP4 is the reliability and robustness. Being a software-based locomotive, often the troubleshooting becomes difficult for the crew where even one inch of imperfection needs to be rectified. The computer operations sometimes fail in extreme conditions along with the low-quality materials of the production units thereby posing a challenge sometimes for the operation as well as for the technical department.

But it has to be borne in mind that nothing is perfect in this imperfect world and this applies for this highly successful class as well. With the imposing threat from trainsets looming large to take over the honour of premium train haulages from WAP7, the class continues to hold fort for being one of the most successful electric locomotives to ever hit the Indian tracks, beating the Swiss built WAP5s. In this 25th year of its introduction, we wish the ever-elegant WAP7 more smiles and more miles and more milestones....

All images used in this article were provided by TrainTrackers & are protected by copyright.

Acknowledgements

- 1) Handbook on Three Phase Technology by IR, IRIEE Nasi
- 2) WAG9 Driver Manual, CLW
- 3) Fundamentals of Power Electronics, Springer E-book (Courtesy : Technical Diagrams)
- 4) NPTEL Course on Advanced Power Electronics and Control, IIT Roorkee.

Vande Metro

Vande Metro trainsets are the latest addition to the rolling stock catalogue of Indian Railways, aimed to speed up the regional intercity travel with air-conditioned and swanky coaches. The trainsets can be termed as an air-conditioned version of existing MEMU trains, allowing unreserved travel both seated and standing. Each trainset has 8-coaches with passenger capacity of 300 (200 standing and 100 seating), with wheelchair accessible toilets, LCD screens and automatic doors.

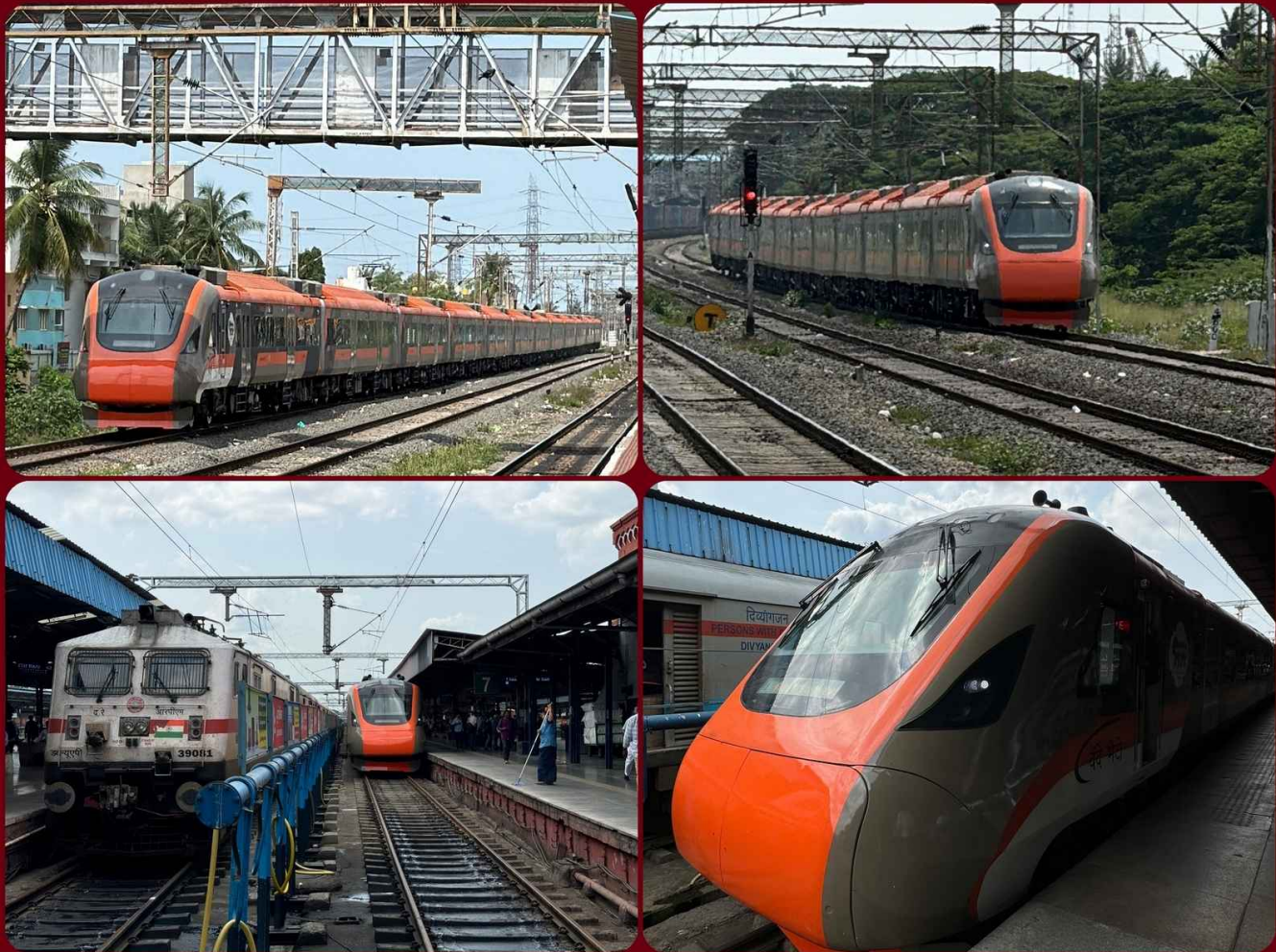


The significant features of Vande Metro are depicted below –

- The coaches of Vande Metro are provided with MEMU under slung bogie of maximum axle load capacity 20.32 ton.
- The Driver Trailer coaches on both ends are fitted with center buffer coupler (CBC) on driving end side while all other coaches and other side of DTC coaches are fitted with semi-permanent head coupler with balanced draft gear arrangement.
- The brake system fitted in Vande Metro is microprocessor-controlled Electro Pneumatic (EP) brake system. The propulsion and has been supplied by Hyderabad based Medha Servo Drives Pvt. Ltd.
- Vande Metro Coaches has 50% powering & change over switch in MC2 & change over Cross Cabling to maintain minimum distance between pantos in MC3.
- Two prototype rakes have been rolled out one each from ICF, Chennai and RCF, Kapurthala.
- Both the rakes have been allotted to Western Railway.

(Seen here is the trainset turned out by ICF during its initial trial runs between Chennai Beach and Katpadi).

Writeup Courtesy : Somanko Tiru and Anamitra Bose. Image Courtesy : Rahul Nivascar





FEATURE



WAP-4 : Resurrection of Flying Colours

Anamitra Bose & Sourav Dutta

There was a time when the Indian Railways boasted of a plethora of colours ruling the tracks – be it for the rugged ALCo monsters or the stunning conventional DC motor electrics, they have had their own share of dedicated liveries. While many such liveries have found their permanent place in the pages of history, some continue to thrive on the rails. There has been a brief pause until the last few years which saw the birth of new liveries & concepts along with the return of a few classic ones.

Many locomotive sheds used to have their dedicated livery which distinguished their locomotives from others & this has always been one of the key attractions about a locomotive for any trainspotter till date. Whenever a train arrives, a railway enthusiast is always elated to find out the locomotive at the helm and which shed it belongs to. A particular livery can be easily identified from a distance by its colour pattern or design. A handful of liveries in the passenger & mixed class domain were designed to match the colors of an existing

service, viz., Rajdhani, Shatabdi, Saptagiri, etc.

The Chittaranjan Locomotive Works (CLW) being the primary manufacturer of the electric roosters, focused on application of eye-catching liveries on the newly turned-out locomotives. The year 1994 witnessed the birth of the WAP4 locomotive class in the month of August. Since then, WAP4 became the primary focus of CLW for the next few years while the Swiss monsters from ABB although in the scene, were yet to capture the limelight. The classic ICF Rajdhani livery of WAP-1 locomotives were continued in the WAP-4 class too. The WAP-4 locomotives sporting mid-mounted headlamps were absolute stunners in this livery just like their elder WAP-1 siblings. Moreover, it was very hard to distinguish between a WAP-1 & a WAP-4 with mid mounted headlamps from a distance due to their identical features. However, for road number 22309 & 22311 onwards, CLW replaced the mid mounted setup with the mid recessed arrangement. Subsequently, the livery of WAP-4 was changed to another

variant of the Rajdhani livery, red-cream-red with lesser portion of cream and no extra stripe in between. Years later, when the red-cream band-red-grey livery was standardized on WAP-4, all locomotive sheds and workshops started to paint the WAP-4 in the same colour scheme & gradually, the non-standard liveries gave way to the standard one.

To do away with this monotony of uni-livery, we, Team TrainTrackers along with our fellow rail enthusiasts from Kolkata region, embarked on a journey to bring back the bygone liveries on WAP-4. Many rail enthusiasts including us have had this long pending wish of seeing the classic liveries back on the WAP-4 locomotives as most of us have fond childhood memories of WAP-4 in such classic liveries leading our trains. Being a team cantered from Kolkata, Electric Loco Shed, Howrah has always had a special place in our hearts. Therefore, we wanted our wishes to become reality on WAP-4 locomotives homed by ELS/Howrah. Founded in the year 2002, the electric locomotive shed, Howrah began its journey with the WAP-4 class itself followed by a few WAM-4 which were transferred from Bhusaval & Itarsi. Later, all WAM-4 locos were transferred to Asansol as they were already homing these locomotives. Eventually, ELS/Howrah started holding WAP-7 which went on to become their major strength alongside WAP-4 followed by a recent induction of WAP-5 for the last four years. Fast forward to the present-day scenario, with the increase in usage of HOG technology with LHB consist, WAP-4 have become less frequent on premium train duties nowadays. Once upon a time, Howrah WAP4 locomotives served as the regular link of prestigious trains like the Howrah Rajdhani & Sealdah Rajdhani Expresses, Sealdah - New Delhi Durgam Express, Ranchi Shatabdi Express, Howrah - Mumbai/Pune Durgam Express, etc. Despite some transfers to other sheds, the shed still holds a healthy count of WAP4s which made our job easier!

Electric loco shed, Howrah has always been a rail enthusiast friendly shed & when we came up with the idea of bringing back the classic liveries on WAP-4, they extended their full support to us. Having said that, we also need to remember that such things always must come through a proper channel. Therefore, an affirmation from the headquarters was mandatory for us and the shed authorities to proceed regarding this matter. We approached the then AGM, Eastern Railway who welcomed our initiative & referred us to the then DGM(G). The road ahead was a little long & did have a few bumps. Patience & perseverance were our only key to success. Owing to the busy schedule of the officers, it took a few more headquarter visits for the matter to move forward to PCEE, Eastern Railway. Some visits were fruitful while on odd days we had to return empty handed but we continued with our efforts to pursue the concerned officials & things moved forward gradually with a slow & steady pace. Amidst all these, we had to balance our source of daily bread as well. Finally, one fine day we were standing in front of the PCEE who had the final say in this matter. Thanks to the almighty, he approved our request. Within the next few days, the

headquarters issued the official letter for the same to ELS/Howrah. That was a major breakthrough for us rail enthusiasts. For the very first time, a large-scale initiative like this was going to become a reality in Eastern Railway.

After all the above ordeal, we were only halfway through our task. There were multiple points which needed to be taken care of for things to fall in place & to ensure proper coordination. This included obtaining necessary permissions from Senior Divisional Electrical Engineer (Sr. DEE) /TRS/Howrah which would authorize the respective sections to proceed with the work for the selected locomotive, coordinating with the respective sections when required & last but not the least, supervision / participation while the design & paint job gets executed on the selected locomotive. As mentioned earlier, the officials of ELS/Howrah have always been very cooperative towards our enthusiasm and often indulge in our odd requests. Their relentless support while staying within the ambits of their professional obligations speaks volumes about their positive mindset.

Once Sr. DEE/TRS/Howrah gave the nod, the next step was to share the high-quality graphical presentation with the Senior Sectional Engineer/General Section -1(SSE/G1) who would then forward the same to the painters' team (hired on contractual basis) with necessary instructions. The officials of PPO, ELS/Howrah also played a crucial role in our endeavours. We received time to time help for procurement of data related to WAP-4 loco planned for IOH, right from the beginning of our ordeal before we met PCEE/Eastern Railway & even later. The standard procedure followed at ELS/Howrah is to PU paint locomotives in their IOH schedule.

It's high time we talk about the core agenda of our initiative i.e. the liveries. Being rail enthusiasts, a lot of analysis went into the selection of locomotives. Things like size of windscreen, headlamp position, time left before periodic overhaul, etc were taken into consideration before selecting from the list of WAP-4 locomotives available for major schedule. We even created graphical representations of the actual loco by repainting WAP-4 models from the Microsoft Train Simulator (MSTS) game.

- Reviving the Classic ICF Rajdhani Livery:** The first design selected for implementation was the Classic ICF Rajdhani livery, which was sought to be painted on the WAP-4 locomotive having road number 22519. After selection of the appropriate color shades, order was placed to produce the selected shades in PU paint. The team of painters did a great job during the implementation of the colors. Once the basic paint job was done, the next challenge was to implement the classic thunderbolts. Our fellow rail enthusiast, Sumit Nath (based at Rishra, Hooghly, W.B.) prepared a stencil (multiple use cut out) for the same by taking measurements on the locomotive itself. Besides introduction of thunderbolts, we also changed the stencil style (position) for each face which of course, required a



few rounds of discussion & a final nod from SSE/G1 section as we were deviating from the standard practice. Normally, the shed name is written between the headlamps & the two windscreens in a centered fashion whereas the class & road number are written in the gap between the pedestal & the boundaries of either marker/classification lamp box above it. We shifted the road number above the headlamps replacing the shed name & also, increased its font size. This was somewhat giving off the vibes of WAP-4 locomotives which were earlier based at Kanpur (CNB). The class, zone & shed name stickers were pasted in the gap between the pedestal & the marker/classification lamp box boundaries on the 90-degree surface just before the starting of the aerodynamic slope. The colors were also customized as per the livery. The locomotive was rolled out of Howrah ELS in July 2023, a month before the 29th birthday of the class.

• **Resuscitating the ICF Shatabdi Livery:** After a gap of almost 8 months, the second locomotive was allotted for this drive of special makeovers. Due to certain unavoidable circumstances, we had to let go a few locomotives which

were part of our original list, but Sr. DEE Sir was kind enough to reallocate replacement options as per our choice. This livery wasn't a straightforward recreation of the standard ICF Shatabdi livery. We drew our inspiration for this livery by combining two variants of the Shatabdi livery which were implemented on the legendary 22005 'Jawahar'. First, when it was initially classified as WAP-1 FM-II (Flexicoil Mark-II bogies) & sported the original version of IR's Shatabdi livery. The second version was a variant of the Shatabdi livery implemented by its then home shed, ELS/Ghaziabad after it was reclassified as WAP-3. The locomotive chosen on our end was 22530. The salient features of this livery were :

1. The proportion of cream and blue in the Shatabdi livery was similar to the second version of 22005 when it was re-classified as WAP-3.
2. Thunderbolts were introduced in this locomotive as well just like our earlier rendition, 22519 in ICF Rajdhani livery.
3. Cream stripes were introduced on this locomotive which



ran through either face as well as either side profile. The cream stripe rose from the upper edge of either thunderbolt on each face, and it continued parallel to the lower edge of the side profile after a 'Z' shaped transition underneath the cab window & doors. We took the reference for the same from the 1st version of the Shatabdi livery which was implemented on 22005 when it was WAP-1 FM-II.

4. The road number stencils on either face were kept in the center similar to that of 22519.
5. As touch of nostalgia, we re-introduced side stencils depicting the loco class under the cab windows just like the early days of WAP-1 & WAM -4 when the road number & loco class were often written in a single box under the cab window (few WAM-4 holding sheds continued with this style even in 2010-2011. ELS Tatanagar was one such example). However, for most WAP-1 / early batch of WAP-4 they mostly wrote only the loco class & in some cases, loco class + road number without the box. We followed the same fashion too.
6. We included one layer of extra stripes on either side of the road number stencils on side profile like the older designs on conventional locos. This practice is still prevalent on many WAG-5 units.
7. The manufacturer's plates proudly bearing 'CLW' was also highlighted.

The final stage of this livery required a good amount of correctional work & few finishing touches. However, it was not possible for the painting team to dedicate separate hours for this as the next locomotive was already in hand & it is obvious that they had to do their scheduled work first. Therefore, we had to pitch in finally for our share of hands on and as rail enthusiasts, it was an absolute privilege for us. All the necessary items like a mini spray paint machine (a.k.a. spray gun) with compressor, few rolls of masking tape, thinner, masks, head cover, etc. were bought a day before



the planned implementation date at our own expense. The painters' team also helped us with other necessary equipment as & when required. An example of the passion & love we rail enthusiasts have, in order to pull off the above task in a single day, our fellow rail enthusiast Sumit Nath & TrainTrackers worked for 12 hours in shed premises from 9 AM to 9 PM on 15th April, 2024 which not only happened to be a Sunday but also the first day of the Bengali calendar, i.e., Bengali New Year Day. Instead of spending the auspicious day with family, the team ended up 'celebrating' the day with extended family members (read locomotives) along with a platter of the famous Kolkata biryani. The locomotive was allotted mainline duty on 21st April, 2024.

- **Revivifying the Cream & Red Livery:** The locomotive chosen for this livery was 22528, a WAP-4 retaining the original looks since its birth at CLW with mid recessed headlamps and small windscreens. To be honest, our plan from the very beginning was to stick to original looks as much as possible which will help us restore the vintage vibes to the



best possible extent. Unfortunately, no WAP-4 with mid mounted headlamp setup was available for IOH & despite availability of a handful of mid recessed ones, a very few of them were left with the exact original looks as Kanchrapara Workshop had retrofitted most of the mid-recessed beauties with bigger windscreens by then for better visibility of the crew. Nowadays, ELS/Howrah has started doing this activity in-house for pending locomotives. The cream & red livery is a sheer nostalgia for many rail enthusiasts, especially those who are based at Kolkata & have travelled frequently on the South Eastern side because ELS/Santragachi (SRC) often used to paint their WAP-4 locomotives in this livery. In fact, they used this scheme interchangeably with the second version of full ICF Rajdhani livery on a frequent basis for their WAP-4 locos. However, the cream red livery is also a variant of the ICF Rajdhani livery (a halfway rendition). A few WAP-1s & early batch of WAP-4 locomotives had sported this livery for some time. Two such locomotives, 22062 & 22064 were under ELS/Howrah which were later transferred to ELS/Mughalsarai, i.e., present day, Pt. Deen Dayal Upadhyay. Later, ELS/Santragachi made this livery famous through regular use. The key points of this livery were as follows :

1. Since we were aiming at full blown nostalgia, we brought back the old standard style of writing for WAP-4/WAP-1 under which the loco class & road number have been written next to each other above the headlamps on either face.
2. Reintroduction of digital stencils – a first for a Howrah based WAP-4 locomotive. Sheds like Vadodara, Valsad have used digital fonts in the past, but they resembled the ones seen on clocks while ours was more about geometrical cuts on the normal fonts. Again, we got the inspiration for this from ELS/Santragachi as we have witnessed these in plenty since childhood.
3. Earlier, on our previous turnout, i.e., 22530 in ICF



Shatabdi Livery, we had introduced side stencils depicting the loco class under the cab windows just like the early days of WAP-1 /WAP-4 & WAM-4. As mentioned earlier, this style was more prevalent on most WAP-1/early batch of WAP-4 unlike the WAM-4 locomotives which had both loco number & class written in a small box. This time we did it in the vintage WAM-4 style.

The locomotive was rolled out around 9th May, 2024.

- **The Birth of a New Livery:** After three back-to-back nostalgia evoking tasks, we were thinking of doing something different for the 4th WAP-4. Sr. DEE Sir also echoed our thoughts insisting us to create something unique. Accordingly, our fellow rail enthusiasts Sumit Nath, Ayan Dutta (from Siliguri) in association with our team came up with multiple designs but fate had something else in store for us. Another fellow rail enthusiast, Pranav Pratap (from Izzatnagar) had submitted designs for 3-phase loco & we presented all designs (both WAP-4 & 3-phase loco inclusive) to the Sr. DEE. After a detailed scrutiny &



discussion, we ended up finalizing one of the 3-phase loco designs for the fourth WAP-4. The livery chosen was red-dark gray with white strip in the center of side profile. Since the initial design was on a WAP-7, the translation of the design for implementation on WAP-4 became the immediate next requirement. The team worked very hard to carry out this translation as per suggestions from Sr. DEE Sir with few personally curated variations to suit the WAP-4. The whole task was completed overnight as we had very less time in our hand. The loco chosen for this design, 22518 was already placed in the paint section. Since, the WAP-4 class was nearing the completion of 30 years, we also proposed the inclusion of "30 Glorious years of WAP4" stencils in English & Hindi on either side profile. The same was approved in no time and it became a part of the design. Other features included in the design were :

1. A set of three stripes on either side of the road number on either side profile like many WAG-5 locomotives.

2. The face stencil positions were changed where the loco class & road number were written near the edges beneath the wind screen while the zone & shed name remained in their standard position beneath the marker lamp box.

The loco resumed mainline duties in July, 2024.

The initiative on WAP4 locomotives has been praised by many railway men and railway enthusiasts alike. We thank the Sr. DEE/TRS/HWH, SSE/G1 along with other officials of the shed for their constant support & encouragement. We would also like to thank the officials from Eastern Railway Headquarters & the third-party contractual staff especially the painters' team of ELS/Howrah for their constant support throughout the project. Last but not the least, we offer our sincere gratitude to our fellow rail enthusiasts, **Sumit Nath, Raktim Bhattacharjee, Pranav Pratap & Ayan Dutta** for all their efforts throughout the project and all those people who whole heartedly encouraged & supported us all the way.

Images courtesy: Anamitra Bose & Sourav Dutta





Image Courtesy: Pranita Gawand

Photo Junction



Saurabh Kumar



Pranit Gawand



Ramnath Bhat



Saurabh Kumar



Aishik Chanda



Ramnath Bhat



Ramnath Bhat

Image Courtesy: Protkarsh Kumar



NEWS STATION

Trials started on Chenab Bridge and New Pamban Bridge

From Kashmir to Rameswaram, Indian Railways aims to connect hinterlands with the mainland with bridges, showcasing engineering excellence. On 28th June, Northern Railway and Konkan Railway conducted a trial run and then a CRS inspection special on the Chenab Railway Bridge, the highest railway bridge of the world. The trial run was conducted between Sangaldan to Reasi stretch spanning 40.78 kms. On the other hand, trial run with a 4-wheeler tower wagon was conducted from Mandapam to Pamban on 3rd-4th August on the new Pamban Bridge, embarking on a new journey on reconnecting Ramanathapuram island with the mainland.

DMRC, IRCTC and CRIS Collaborate on One India, One Ticket Initiative

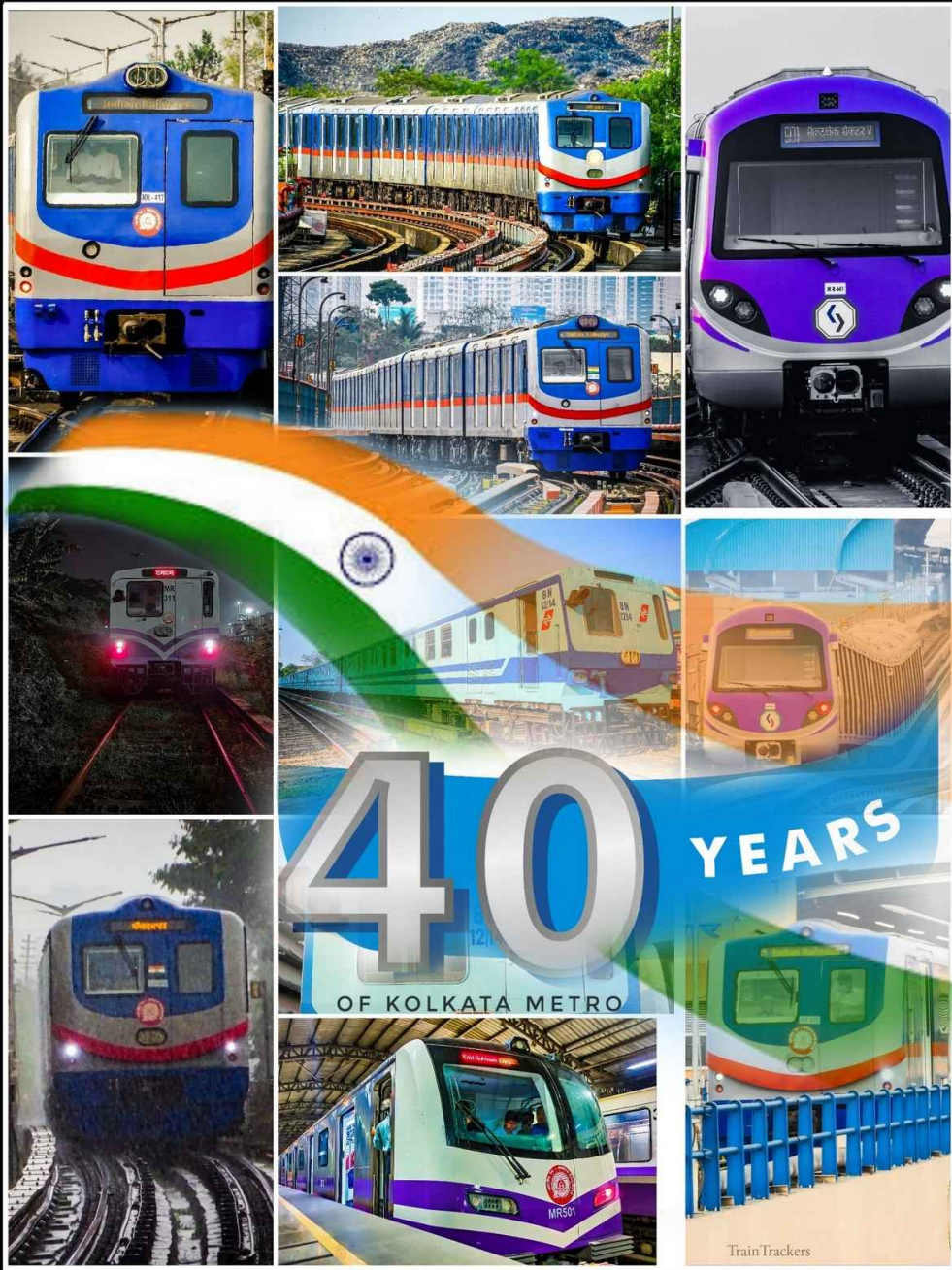
In the unique initiative, Delhi Metro Railway Corporation, IRCTC and CRIS joined hands to launch IRCTC-DMRC QR code to seamlessly facilitate travel across Delhi Metro and railways in and around NCR. A passenger traveling to/from Delhi NCR can book DMRC tickets in the same page of the mainline railway ticket page in the IRCTC application. The single journey ticket in DMRC can be booked upto 120 days advance from the journey date. The ticket will be valid for 4 days starting from the day before the journey date in DMRC, on the journey day itself and two days after of journey day.

Alstom Supplies First Trainset to Pune Metro Line-3

The first train set for Purneri Metro (Pune Metro Line-3) connecting Hinjewadi to Civil Court, where it connects with other two lines, arrived at the Mann Village Depot. The Alstom rakes used for Line-3 are standard gauge 3-car Metropolis type rakes which can accommodate 1000 passengers. The rakes are assembled at SriCity plant in Andhra Pradesh. While Pune Metro's Line 1 and Line 2 is executed by Maha Metro and operates with TWL rakes, the Purneri Metro is executed by a joint venture of Tata Group and Pune Metropolitan Region Development Authority (PMRDA) through PPP model and has Alstom rakes.

Railways to Replace Metal Boxes of Crew with Trolley Bags

As a policy circular of July 19, 2024 by the Traffic Department of Railway Board, the colonial-era of metal boxes that were supplied to LP, ALP and train managers of a train will be replaced with trolley bags which have to be carried by the crew themselves. The metal boxes were loaded in the train by the box boys. The box contained critical equipments like walkie-talkies, green and red flags, torch, working time table, general rule book, ten detonators etc.



40 Years of Metro Railway, Kolkata

Team Rail Canvaz condemns the heinous crime committed against one of our young doctors at RG Kar Medical College and Hospital. We demand exemplary punishment for all those involved in this disgraceful act. We stand in solidarity with everyone raising their voices and, on this 78th Independence Day, we call for the highest level of safety and security for women in our society.



