

RAIL CANVAZ

A TrainTrackers' Initiative

August 2023



THE LEGACY OF PAMBAN BRIDGE

Covid-19 had changed our lives forever. It had entangled and entrapped our lives within the four walls of uncertainty, skepticism, hopelessness and incertitude thereby subjecting the entire human race to a thralldom of prophylactic measures. Every time we tried to break free from the shackles of this servitude, we were inundated with subsequent waves of the virus to keep us confined to the bonds of quarantine and isolation. Covid wiped out a fair percentage of the world's population but Man survived to brace for another battle for survival. During all those trying times mired in dark clouds of despondency and pessimism, we tried to brighten things around with our maiden publication of the Rail Canvaz e-magazine on Independence Day in 2020. Since then, we have continued our journey and have three wonderful years of publication behind us.

In our journey so far, we have not only focused on the diminishing smaller gauges of the country which have been gobbled up by 'One Nation One Gauge' mission but also have emphasized on some of the railways of the nation which are not run by the statutory body and are unique in their own ways like the Bhakra Railway and the Sambhar Salts Railway. Our preceding issues have also called attention to the heritage steams and various metro systems around the country depicting the past, present and future of the national carrier. Likewise, keeping up with the paradigm, the Cover Story of this **4th Anniversary Issue** delves on the engineering marvel of nation's first sea bridge. Yes, it's none other than the inimitable and the peerless Pamban Bridge that embodies an age-old legacy along with paramount historical importance to go with.

The Pamban sea-link has been regarded as a spectacle which has stood the test of time spanning over a century. Be it for the impact of the 1964 cyclone which whipped off a catastrophic pandemonium devastating lives or for the scourge brought about by that nature's fury which wiped Dhanushkodi off the map – the Pamban bridge has seen it all. The bridge itself witnessed the cyclone washing away majority of its girders but rebuilding them made the structure survive nearly another 60 years. Perhaps, time was on Pamban's side then as it got a fresh lease of life during which it endured contretemps in the form of constant corrosion and freak incidents. But as they say that 'Time writes the story of life', the iconic bridge was surely nearing denouement and got its fate sealed in December 2022. *The legacy of Pamban Bridge and the train to island* explores the journey of the sea bridge since its building years until its retirement from service. The bridge was opened to public on 24th February, 1914 by Mr. Neville Priestley – the then Managing Director of the South India Railway Company Ltd. in presence of John Sinclair, 1st Baron Pentland who was the Governor of Madras from 1912 to 1919. The bridge also boasts of its connection with our people's President Dr. A.P.J Abdul Kalam along with another eminent personality in Dr. E. Sreedharan – the Metro Man of India. Beyond the cover story, the Pamban saga doesn't end here as **Om Prakash Narayan**, the working Sr. Public Relations Officer, Southern Railway, Chennai puts up a completely distinct perspective about this historical bridge in his documentation *Pamban - The Bridge of Faith* which is a unique fusion of mythology and religious faith and belief that completes the folklore on the bridge as well as the place which is considered to be sacred and holy by the Hindus. To keep up with our Cover Story, we re-publish the article of **Justice Soumitra Pal** named *Train to Dhanushkodi* which was published in our January 2021 issue. Also, our *Pamban Diary* is incomplete without the Photo Story on the ancient bridge by **Sourav Dutta** illustrating the glory of the immaculate bridge.

Moving from one bridge to another, **Pavel Ghosh** makes us travel to the northern parts of the country to the banks of Gandak where he writes home about *The Forgotten Gandak Railway Bridge of Bagaha* in Bihar. The history of this bridge which got washed away is an equally interesting and intriguing read. Canvassing more on the historical front, we have **Bishnu Mohan Adhikari** launching a series on the *Parlakimedi Light Railway : The First Royal Railway Line of Odisha* and the First Part is a sneak peek of the rich legacy that would be churned out in future installments. This brand-new chapter brings to the fore another three sets of already streaming series which gets into their respective episodes – **PK Mishra** drafts the Part-VIII of the *EIR Early Days*, **Anamitra Bose** continues with his commentary on the different metro systems in our nation covering the ones in Mumbai, Ahmedabad and Jaipur in his Part-IV of *India – The Nation with Growing Metro Systems* while **Jakob Stilling** refreshes the memories of the golden era of Indian steams with his second dose of the *Last Days of Punjab Steam* which also gives some glimpses of the Kalka Shimla Railway through his amazing lenswork.

We host another three articles which script different aura for our readers. **Transport Hobo**



August 2023

RAIL CANVAZ

Vol. 04 No. 04

This is an electronically generated free copy of e-magazine with no printed version, conceptualised and created by TrainTrackers. For any magazine related queries please mail us at : railcanvaz@gmail.com

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reflects on the history of the Coromandel Express through his account *The Coromandel Legacy*. He dwells on the glorious past of this prestigious train which was marred continuously for petty political gimmicks over the years. The sombre mood is somewhat lifted with the article *Last Train from Rinkingpong Road* by **Paul Whittle** which reports about the secure future of the DHR B-Class Steam Locomotive No. 778 (originally no. 19) which used to grace the late Adrian Shooter's private garden railway, the Beeches Light Railway (BLR) at Oxfordshire, UK. After passing away of Adrian Shooter, the Ex-President of the DHR Society since 2015, a cloud of uncertainty loomed large over the future of the said locomotive which is now laid to rest for good as it is now based and maintained at the Statfold Barn Railway – UK's leading narrow gauge railway center. Last but not least, we have **Sanjoy Mookerjee** penning *Who Revised the Budget?* which is an engaging work on the prevalent bureaucratic bigotry which often defines the ladder of hierarchical movement of carriers and how some over-ambitious beings vouch treading that path for achieving goals out of their respective turn. All the personas of the drama look so real and relatable that one can visualize every single move within the realm of truth. Finally, our regular sections like Railway Sketches by **Dr. Sudakshina Kundu Mookerjee** and **Sambit Chatterjee** along with two of the other sections of Photo Junction and News Station round things off for this issue.

On a parting note, we would like to pay homage to the victims of the Coromandel accident and express deep condolences towards the families of the affected ones. Little did anybody knew that it would turn out to be the last journey for many who had unsuspecting faith in the safety and security of rail travel. This reverse of fortune will surely linger the memories and continue to bring back the raw emotions involving cathartic moments until any palpable and tangible changes are made in the system. The Amrit Bharat Station Scheme for redevelopment of 508 stations may be a long stride towards railway infrastructure development but the national carrier must focus on effective steps for augmenting passenger safety on war footing rather than sitting on the laurels of its illustrious past. The tremors of this disaster have been widely felt across the nation and only a paradigm shift in the policy of railways can renew faith of the masses on the transporter-in-chief as we continue to hope for a happier and safer rail travel. May the journey of the Indian Railways be a smoother and comfortable one....

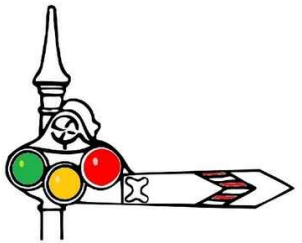
Somsubhra Das

Happy Independence Day



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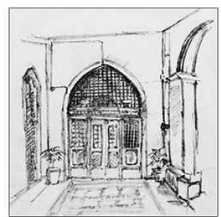
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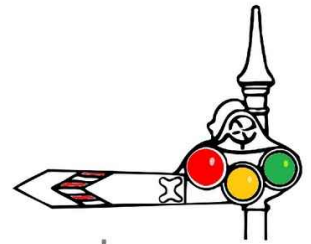


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Happy Independence Day



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LAST TRAIN FROM RINKINGPONG ROAD

Paul Whittle

the Vice Chairman of the Darjeeling Himalayan Railway Society (DHRS) and also, he is a member of several UK steam railways and the Wey and Arun Canal trust. Started his professional career in banking, latterly became a human resources manager. He served the Territorial Army, Royal Signals for 34 years. He has written and published the history of his regiment and is a keen military historian apart from having a great interest in heritage transport as well.

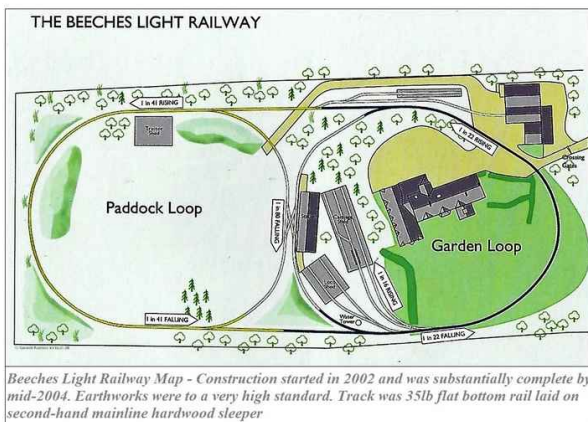
Mr Whittle & his partner Sue



The date was 14th May, 2023. The location was the small village of Steeple Aston in rural Oxfordshire. With a long hiss of steam and a mournful hoot of its whistle, the former DHR B Class Steam Locomotive No. 19 moved slowly into its shed for the very last time. Another chapter in its long career had ended, and a very uncertain future lay ahead.

Built in 1889 by the Sharp Stewart & Co. of Glasgow, 19B worked very successfully on the Darjeeling Himalayan Railway (DHR) until 1960 when it was deemed surplus and listed for scrapping. Fortunately, this was delayed, and in 1962 the locomotive was sold by Indian Railways to a wealthy American, Mr. Elliott Donnelley for his private railway near Chicago. Almost 40 years later it was purchased by Adrian Shooter, a senior professional railway executive, transported to the UK in a shipping container and underwent a full overhaul. It entered service at Mr. Shooter's private garden railway, the Beeches Light Railway (BLR) in the summer of 1964. A tender had been added for UK safety purposes, coal storage and equipment for air-braking and vacuum braking, allowing the locomotive to operate on other UK narrow gauge lines. (The DHR's locos still rely on only a handbrake).

The BLR was quite literally unique – almost a DHR in microcosm, and with curves and steep gradients to match. It was about 600 meters in length in a basic figure of eight with an outer oval (refer map) and trains could change direction by using the central crossover in the station area. A number of



sidings served a two-road loco shed, a three-road carriage shed and a small workshop.

Although a private railway and not subject to inspection or regulation by government agencies, as a professional railwayman Adrian Shooter's firm commitment was always to match or exceed all technical and operational standards which would have been expected if such regulations had applied. As such the railway had its own rule book and all the volunteers who acted as drivers, firemen, guards, controllers and others were required to comply with it, and were regularly tested on their theoretical and practical knowledge.

Over the ensuing two decades, the BLR was visited and admired by an estimated ten thousand visitors (including senior officers of

The Station - This was modelled on 'Rinkingpong Road', near Kalimpong, West Bengal, on the DHR's erstwhile Teesta Valley branch which was abandoned after serious flood damage in 1950.



The 19B with its train at full steam ahead during its heydays at BLR...

Indian Railways) and 19B visited many other UK railways and even on one occasion went to northern France. Everywhere the loco was always the centre of attention, admired for its immaculate appearance and formidably impressive performance.

Sadly, after a battle with Motor Neurone

The BLR had a small but interesting fleet of freight stock. These two box vans (fitted with twin-pipe air brakes) were previously in Royal Navy service at an armament depot.





Adrian Shooter (1948–2022) - Inspirational railwayman, proud owner of the BLR and 19B, and President DHRS. (Photo Credit - DHRS Archive)

Disease, Adrian passed away in late 2022 and his widow decided that the railway and its equipment would have to be sold at auction. The last train ran in mid-May and the date of the auction was fixed for 21st June.

Model T Petrol Car - Undoubtedly the BLR's most unusual item of motive power. Still with its original engine and fitted with a turntable allowing the car to be raised from the rails, turned and then lowered to face in the opposite direction.



One last time - On 14th May 2023, the 19B storms up the Paddock Loop on its final day of steaming at the BLR.

Determined to safeguard the loco's future, a hastily assembled group of enthusiasts founded the Darjeeling Tank Locomotive Trust (DTLT) and thanks to some brisk publicity and generous donors (including the DHRS), the DTLT was able to bid successfully at the auction for the locomotive and its two carriages.

With its future now secure, the loco will be based and maintained at the Statfold Barn Railway, the UK's leading narrow gauge railway centre, available to a vastly bigger audience (including the Indian diaspora in nearby towns) and from where it will continue to visit other 2 ft. gauge lines, publicising the DHR, the DHRS and tourism to India.

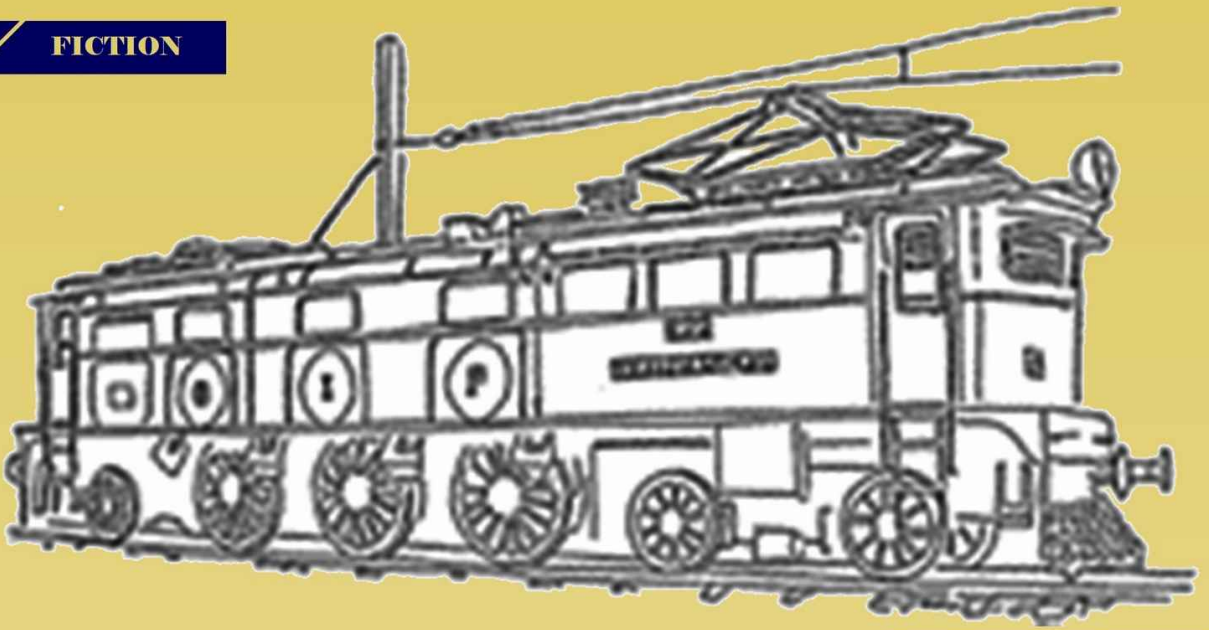
Notes and Website Links :

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Darjeeling Tank Locomotive Trust : www.darjeelingtank.org.uk
Statfold Barn Railway: www.statfold.com

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Carriages Nos. 154 and 73 were specially constructed by the Ffestiniog Railway at their Boston Lodge Works in 2004. They are 24ft long and fitted with dual brakes, vacuum and twin-air pipe brakes.





Who Revised the Budget?

Savouring his morning cup of Darjeeling Tea, Anand Prakash Talwar, known as 'Tally' to his friends, sat back surveying the hustle and bustle of the morning rush hour at Bombay's Victoria Railway Terminus, through the french window of the Railway Refreshment Room located on the first floor of the station building. He had just finished a sumptuous breakfast of Porridge, Scrambled Eggs and Buttered Toasts. This handsome young man had arrived at Bombay the previous evening from his native Delhi, where he had been living all twenty-three years of his existence, except two. Having graduated with Honours in English from the renowned St. Stephen's College, he had taken the Indian Administrative Service Examination and was selected in the very first attempt to the Indian Railways' prestigious Class One Cadre. After completion of field posting at Tiruchirapalli in the south of the country, he had managed to secure a transfer back to New Delhi a few months back as the Deputy Director, in the Budget Directorate in the Railway Board's office. It was at that point in time, that he acquired his nickname, which he immensely relished.

Driven by ambition, Tally had decided to join government service very young. Being a Delhi boy, he was keenly aware that in bureaucracy, an early start always ensures greater heights at the end of the career ladder. But he also knew that professional acumen was an essential pre-requisite, so that bosses 'eat out of your hands'! Added to this of course, lots of 'networking' was necessary, in order to ensure 'visibility' at all levels of Government. Tally worked hard at both these attributes, and in spite of his limited experience in the civil service, had become quite adept at 'holding his own' amongst Delhi's bureaucratic elite.

And so, quite early in his career, his efforts started yielding results. Tally's professional prowess and dedication were recognised by the 'higher-ups', and in an unprecedented decision, the Railway Board had approved the proposal of posting this 'green-horn' officer to such a key post in the Budget Directorate of the Ministry, overlooking several capable aspirants senior to him. It was due to this confidence, that Tally was sent to Bombay to have a relook at the revised budget projections sent by Central Railway to the Ministry recently, which appeared to be prima facie erroneous.



Sanjoy Mookerjee

a 1978-batch IRAS, former Financial Commissioner (Railways) and ex-officio secretary to Govt. of India. Earlier, he was posted as Director General of National Academy of Indian Railways in Vadodara. His tenure as Financial Commissioner is marked by Railways managing the burden of the VIIIth Pay Commission, unprecedented external borrowings for infrastructure works, and economy measures within the organisation. He is now heading the Kolkata chapter of Rail Enthusiasts' Society. He has penned several books which include Train to Darjeeling, Howrah Junction etc.

This was the second week of August. India was yet to complete its first decade of Independence. Amongst the din and clamour, Tally admired the gusto with which the station was being decorated with tri-coloured flags, banners and bunting for the coming Independence Day Celebrations. Giant pictures of the Father of the Nation, the Prime Minister and the country's freedom fighters were being deftly hauled up the wooden rafters and steel portals supporting the platform sheds, while down below, sardine-packed suburban trains were disgorging thousands of Bombay-ites, eager to rush off to their work-places.

Tally's eyes opened wide in amazement at the vigour and vitality of Bombay. Such energy during office rush-hour was quite unknown to the laid back citizens of New Delhi in the 1950's. As he sat ruminating, his eyes landed upon the hands of the big station clock. It had just struck 10 AM. It was time for him to go. So, paying off his bill, he left a somewhat hefty tip for the turbaned waiter. The latter acknowledged the same with a bow. Anand Prakash Talwar ran down the ornate stairs with a spring in his gait, clutching his file of papers in his left hand, while adjusting his necktie with the right.

Turning into the passageway which connected the station with the Railway's Head Office Building next door, Tally paused, staring at the magnificent railway booking office, known as the 'Star Chamber', with its high vaulted roof, supported by tall polychromatic stone columns. The cathedral-like hall was surrounded by delicately crafted stained-glass windows, through which shafts of multicoloured sunlight seeped in to illuminate the profiles of the passengers buying tickets. As he stood there spellbound, admiring the intricately carved gothic arches, he could realise why Victoria Terminus at Bombay was often considered by eminent architects as one of the most elegant railway station buildings of the world.

Tally was running late! He had to finish his work and return to the Capital the same evening. Hurriedly entering the Railway's Office building through the connecting passage, he made his way along a balcony adorned with more stone arches till he reached the main portico. The fabulous headquarter building of the erstwhile Great Indian Peninsula Railway founded in 1849, now known as Central Railway after it was taken over by the Government of India and reorganised in 1951, was designed by Mr.

The Star Chamber



Lion guarding the Central Arcade & the Grand Staircase

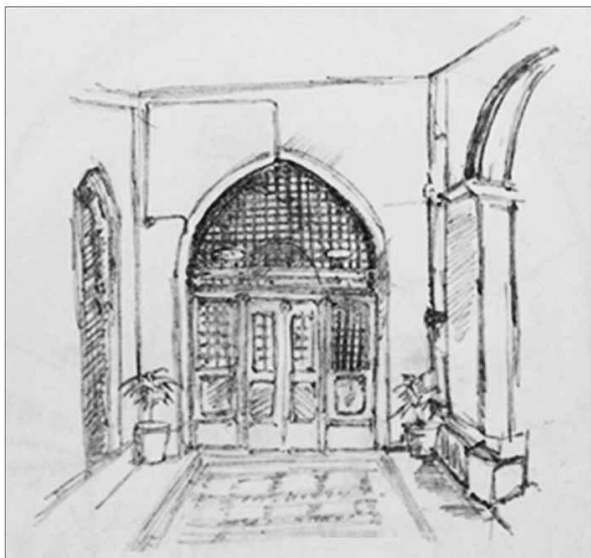
F. W. Stevens in 1878. Named after the then Queen of England, this spectacular example of Victorian Gothic Architectural revival in India and the equally impressive Railway Station beside it, has remained the reigning monument of the city since its creation. Even at the cost of getting delayed, Tally stopped for a few moments to admire its grandeur. Turning left, he stepped into the breath-taking central hall, with its impressive stone staircase and exquisitely crafted wrought iron railings, surmounted by the high central dome. Walking up the stairs gingerly, he stared in awe at the immaculate mix of British, Italian and Indian architectural styles, which Architect Stevens had so well woven into the design of this central arcade.

Upstairs, he easily located the office of the Financial Adviser, Mr. Vinod Kumar Godbole. Tally was expected. Wasim Mullah, the FA's secretary received him with due courtesy, but regretted to inform that Mr. Godbole would be late to office, having gone out on urgent business. Meanwhile, would Mr. Talwar like to meet Mr. Narasimhan, the Deputy Financial Adviser, who looks after the Railway's Budget department?

Tally nodded. Mr. Mullah picked up the phone and dialled Mr. Narasimhan's number. No reply! A messenger was despatched to trace the whereabouts of the DFA. The latter brought back the news that Mr. Narasimhan is holding a conference in another building and had left word that he will return by noon to attend to the Deputy Director of Railway Board. Resigned to the delay, Tally decided to go for a walk. Why not explore the building a bit more till the officers returned?

So, informing Mr. Mullah that he will be back soon, he strolled down the front balcony, fascinated by its Italian mosaic flooring.

At the very end of the balcony, his attention was attracted by a metal plate of shining brass with the name 'Rao Mehtab Chand' hanging from a wrought iron bracket on the stone wall. At



The Carved Mahogany Door

once he realised that this must be the office of the General Manager of the Railway. The exquisitely carved Mahogany door, studded with shining brass knobs, coupled with the exotic name of the incumbent of the high office, excited Tally's imagination wildly. He had heard a lot about 'Rao Saheb', as he known fondly in railway circles. The corridors of power at Delhi were abuzz with rumours that he was tipped to be elevated shortly as a member of the Railway Board. At once, Anand Prakash sensed a God-sent opportunity, not to be lost! Why not pay the GM a courtesy call, if he is free? Such an acquaintance might stand him in good stead in his career progression later.

Tally promptly fished out his new visiting card, printed on hand-made paper, and gently placed it on the palm of the orderly-peon standing at the entrance of the GM's office, requesting the latter for an audience with the 'Burra Sahib'. He was aware that he had flouted protocol and should have approached the Secretary to the GM first. But it was also a fact that many of Tally's networking laurels have rested upon unconventional approaches indulged by him. This time too, the sight of a rare visiting card with shining Ashoka Lions, coupled with the words 'Railway Board' boldly printed upon it, seemed to impress the 'Burra Sahib's' gateman. Scrutinising the elegant card and after a thorough appraisal of the handsome personality standing in front of him, the orderly vanished inside. Tally waited. Looking out of the balcony at the boulevard below, he visually savoured the impressive facade of Victoria Terminus building and the equally imposing Bombay Municipal Corporation Building opposite.

The squeak of the heavy door behind, prompted him to turn round. The orderly was back. "Burra Sahib sends his salaam, Sir," he said, "Please go in." With this he opened the ornate door with a flourish, for Tally to enter. The young officer was smiling to himself. His charm had succeeded once again!

The hallowed precinct of the GM's office was indeed a museum

piece, straight out of the Victorian era, impeccably preserved. As he stepped on the soft Persian carpet, the cool air-conditioning sent a brief shiver down his spine. For once, the thought of meeting the illustrious head of the largest zonal railway of the vast Indian Railway network face to face, daunted him. His worry dissolved however when Rao Saheb, in a rare gesture, got up and welcomed Tally with a vigorous handshake and waved him into one of the carved wooden chairs with soft leather upholstery, meant for the guests. As the GM, with an amused smile, bestowed his attention upon Tally's 'designer' card, the Deputy Director took in the environment of the room and its distinguished occupant.

Rao Mehtab Chand held a portly figure of extremely fair complexion and a somewhat thinning hairline. The cream coloured gabardine suit, a deep maroon tie, with a pair of matching horn-rimmed spectacles presented him with an aristocratic demeanour. A part-consumed cigar lay upon a crystal ash-tray on the robust teakwood desk with intricately carved edges, and pedestals resembling the paws of a lion. Behind the General Manager's chair, three arched doors with etched glass led to a private balcony. While the photos of the Mahatma and the President hung above the doors at either side, the central door was adorned with two large, polished wooden shields, containing the names of Rao Saheb's illustrious predecessors, right from the time the Great Indian Peninsula Railway began operating in the year 1853. The walls on the left and right were covered with elegant teakwood cladding over which hung classic paintings. On the far corner, lay an antique sofa set with a walnut-wood centre table. The doors and windows were fitted with heavy velvet curtains, tied neatly with golden tassels. Above the GM's desk, from the centre of the ceiling, hung an immense crystal chandelier illuminating the room.

"What opulence," thought Tally, "Indeed, how anachronistic in impoverished India!"

His musings were however cut short by Rao Saheb's baritone. "I must compliment you young man, for your visiting card," he said, "I am sure you must have applied a great deal of your mind to design it." Tally was overwhelmed; he thanked the GM profusely for his encouragement. The latter responded by pressing a bell. In came a liveried bearer from the side entrance. "Tea or Coffee?" he asked.

Anand opted for coffee. Over the intercom, Rao Saheb instructed his Secretary not to disturb him till the beverage lasted.

Coffee came soon enough in exquisite china crockery, the likes of which Tally had never seen. It was accompanied by platefuls of savouries. As Rao Saheb and Tally chatted along, a feeling of bonhomie flowed between them. The bond was strengthened once it was known that Rao Saheb was also an alumnus of St. Stephen's. Tally was now quite certain that he could make Rao Saheb 'eat out of his hands', once the latter assumes his new responsibility at the Railway Board.

Once Coffee was over, the GM pointed to the file of papers lying in front of Tally. "What brings you to Bombay, my young friend?" he asked.

Pulling himself up to full height, Tally replied, "Sir, I have come over to discuss about some discrepancies in the revised budget estimates sent by your Railway to the Railway Board. There appears to be scope for rectification here, Sir. The Financial Commissioner has asked me to review the revised projections at source and submit a report to him."

On hearing this, the GM's chubby cheeks acquired a slight tinge of Scarlet and a bead of perspiration appeared upon his wide forehead. Looking piercingly at Tally over his horn-rims, which by then, had slipped down to the edge of his nostrils, Rao Saheb asked in a low voice, almost resembling a growl, "But, who revised the Budget?"

Tally was taken aback. It appeared to Anand Prakash Talwar, that his moment of reckoning had suddenly arrived! Meekly he tried to explain, "Sir, recently Central Railway has revised its budget. As you know, Sir, that in the month of August the railway zones are required to review their budget projections for the year "

"Tch! Tch! Tch!" the Chief retorted, assuming full authority as behoves an officer of his position, "Don't teach me basics, Talwar. We know all that." By now, his voice had assumed a somewhat aggressive tone, "I only want to know from you— who revised this Railway's Budget?"

Tally's nerves had become quite taut. Standing up, he began thumbing through the file in his hand under the glare of the Railway's Chief Executive. He was relieved to find the signature of Mr. Godbole on the document. Avoiding eye contact with the GM, Tally clutched at the proverbial straw. "Sir! The file suggests that the proposal has been sent to the Railway Board under the signature of the Financial Adviser, Sir," he murmured.

Confiscating the file from Tally's custody, Rao Saheb stood up. "Nincompoop," he bellowed. "That idiot Godbole will sign anything; even his death warrant, without batting an eyelid! But my question still remains unanswered. Who the hell revised our Budget?" With his confidence in shambles, Tally was shaking from head to foot. For once, all his smart tricks seemed to have deserted him. His legs felt like jelly and his head swam. Even under the air-conditioning, he felt cold sweat trickling down his armpits. Vaguely, he could hear the GM booming at the top of his voice, "No, this won't do. I want an answer; at once!"

Reaching for the intercom, the head of the Railway dialled. "Godbole," he snapped, "Will you come into my office at once please?" There was a perceptible click as he replaced the receiver. Extracting a handkerchief from his coat pocket, Rao Saheb dabbed the beads of sweat rolling down his face as he sat down, exasperation writ large upon his countenance. Seeing the petrified look on Tally's face, he gave an avuncular grin. "Sit down, young man. This has got nothing to do with you." These words gave some comfort to the young officer and once again, a surge of warm blood began circulating through his veins. Yet, Tally remained standing, wiping his face with his shirt-sleeves, while Rao Saheb immersed himself in the study of the Railway Board's budget file.

Within a few minutes, Mr. Vinod Godbole, the Financial Adviser

arrived. Tally wished him a nervous "Good Morning" and took a seat beside him. The GM handed over the file to the FA and, pointing to the bottom of a page asked, "Godbole, is this your signature?" "Yes Sir," replied Mr. Godbole nonchalantly.

Looking towards the FA and pointing to Tally, the GM spoke. "This young man introduces himself as the Deputy Director, Budget in the Board's office. As Mr. Godbole threw a sideways glance towards Tally, Rao Saheb continued, "And he informs me that we have revised our Budget projections. Now my question to you is... who revised the Budget?"

Mr. Godbole turned his head from Tally to the GM and replied with a straight face, "Yes Sir! Indeed, we have. In fact, you have personally approved of the revision on file, Sir."

Rao Mehtab Chand jumped up! "Godbole," he declared, "I approve all files put up to me by you. But that does not mean that I agree with whatever is written in them."

Tally sat there, dumbfounded, stunned. Never before had he heard such logic! GM turned to him and said, "Talwar, did I not mention to you a word which starts with an N and ends with a P? Do you now see what I meant?"

Sitting beside the Financial Adviser, Tally felt deeply embarrassed. All he wished now was to run away from the room and get lost into the milling crowds of the metropolis.

The GM was obviously in no mood to relent! Reaching for the call-bell on his table, he gave it a determined push. His Secretary rushed in. "Reddy," he commanded. "Call Narasimhan. Only he can solve this riddle." Mr. Reddy bolted out of his boss's chamber with all the speed he could muster.

Nodding towards Tally, Rao Saheb explained, "Narasimhan, my best officer, you see; undoubtedly." Under Mr. Godbole's penetrating eyes, Tally, clueless as to how he was expected to respond, mumbled, "Of course, Sir."

A few minutes later, Mr. Reddy returned with a dhoti-clad officer of slight frame, holding a leather-bound ledger of gigantic proportions. "Mr. Narasimhan is in a conference with the Trade Unions at Colaba, Sir," the Secretary reported. "I have sent a car to fetch him at once."

Turning to the Financial Adviser, Mr. Reddy continued, "Meanwhile, here is Surinder Pal, the Section Officer of our Budget Section, Sir. Perhaps he can throw some light upon the subject under discussion, till the Deputy FA arrives?"

Surinder Pal bowed, first towards the GM and then in the direction of the FA. Mr. Godbole sat there in stoic silence, unmoved. Rao Saheb exploded!

"Nonsense! At my utmost hour of need, my best lieutenant is sent off to Colaba for idle banter with the Union-wallahs. What sort of conspiracy is this, Godbole, eh?" Without waiting for the FA's reply, the GM turned towards Surinder Pal. Pointing to the voluminous ledger in the latter's hand, he demanded, "Well, Mr. Section Officer, can that Bible of yours answer my question? Who revised Central Railway's budget?"

A bewildered look came upon Surinder Pal's face. His eyes flickered. Finding no succour from his superior, Mr. Godbole, the Section Officer hoarsely replied, "I'll find out Sir, surely", and decamped with utmost velocity through the side door, next to the General Manager's washroom!

The look on Rao Saheb's face was of total disbelief. Pacing up and down the flowered carpet he roared, "Did I not say I'm presiding over an office full of half-wits? See for yourself, Talwar, with what flesh and blood I have to run this Railway! Blessed will be my day when I get posted to the Board at Delhi, far, far away from these buffoons!"

The air hung heavy while everyone waited in pin-drop silence for the arrival of Mr. Narasimhan. Once or twice the telephones on the great teakwood desk rang, defying the eerie hush in the room. But Rao Saheb made no move to answer these calls.

After what seemed an eternity, the door leading from the office of the Secretary to GM opened and Mr. Reddy ushered in a person wearing milk-white cotton shirt and trousers, with a gold pen stuck to his breast pocket. His forehead was covered with horizontal sandal paste. Folding his hands, the gentleman greeted the General Manager followed by the Financial Adviser. With his arrival, a look of reassurance spread across Mr. Godbole's face. This was Mr. Narasimhan.

Tally could now recollect having come across him some months back at the Railway Board's office. Mr. Narasimhan smiled at Tally. Tally smiled back. Looking towards the head of the Railway, the Deputy FA asked, "How may I be of service to you, Sir?"

A broad smile came over Rao Saheb's face. He sat down. "Well Narasimhan," he said, nodding in the direction of Tally, "This young man claims to be the Deputy Director of the Budget Branch at Railway Board."

Mr. Narasimhan replied at once, "Of course! Sir. I am well acquainted with Mr. Talwar; an extremely talented young officer, Sir." Now it was the GM's Turn to feel relaxed. At least, Mr. Narasimhan's certificate proved Tally's credentials beyond doubt!

Relieved, Rao Saheb came back to business. "Narasimhan," he spoke as Mr. Godbole watched, "Talwar called on me earlier this morning, and shared a rather disturbing information. According

The Great Teakwood Desk



to him, Central Railway has revised this year's budget! And in revising it, several mistakes have apparently crept in, leading to the Railway Board taking a serious note of these errors. The Financial Commissioner has therefore deputed his Deputy Director to review our records at source and report back."

Shaking his head from side to side, the GM exclaimed, "I must say it is most insulting!"

This monologue had taken the wind out of the GM's lungs. He sighed. "Now Narasimhan, what I am not able to understand is... Who revised the Budget? Why at all? Pray explain to me! I have been waiting for an answer the entire morning."

Mr. Narasimhan glanced round the room. He knew his GM's temperament like the back of his palm! He was also aware of Tally's reputation. It was clear to him that the young officer had landed everyone in the room into an avoidable 'soup'. But the Deputy FA was a shrewd operator. Without much ado, he had drawn up his strategy to get the rookie and his boss, Mr. Godbole out of this uncomfortable predicament without delay.

For a start, he fixed his gaze, reproachful and hard-hitting, upon the anxious eyes of the Deputy Director. Even if he belongs to the superior office of the Railway Board, Talwar must be made to realise that in a disciplined organisation like the Indian Railways, buccaneering is not welcome. Tally lowered his eyes, succumbing to the visual assault, as the Chief Executive howled impatiently, "Well, why are you standing there like a lamp-post, Narasimhan? For heaven's sake, answer me!"

With his hands crossed in front, Mr. Narasimhan humbly replied, "Sir, Mr. Talwar is mistaken. In his capacity as the Deputy Director of the Board's Budget Branch, he should have been aware that we have already conveyed to the Railway Ministry that the Central Railway refuses to revise its Budget! I am afraid Mr. Talwar's visit to Bombay is entirely pointless. There is nothing to review in our budget proposals, Sir."

Tally's jaw dropped; during the past one month, he had seen at least half-a-dozen correspondences exchanged between the Central Railway and the Railway Board including the one in the file signed by no less than the Financial Adviser, which had resulted in the Zonal Railway revising its budget. But, by now he had

Victoria Terminus, Bombay's most imposing 'sight'



realised that this was not the time to display his eloquence. So, he kept sitting quietly, letting Mr. Narasimhan steer the course of events.

Rao Saheb was jubilant! His entire rotund frame was quivering from tip to toe with unmitigated glee! "Now, Talwar, did I not say that Narasimhan is my best officer? Did I not? He knows everything! God alone knows what I would have done without him!"

With this victory in his pocket, the Chief's eyes softened. Addressing Tally for the last time he declared, "Talwar, my boy, now that you have no further official chores in Bombay, let me introduce you to this City of Dreams." Lifting the telephone handset, softly he spoke, "Reddy, get me my dear friend, Raj Kapoor. I want Talwar to see the shooting of his latest film at R. K. Studios! And, arrange a car for him to see the sights of Bombay."

With this, Rao Mehtab Chand walked up to Anand Prakash Talwar, and slapping his back affectionately said, "Enjoy the Great City, young man, as my personal guest. This is the right time for you to experience it."

Greatly relieved at having survived a treacherous situation, Tally thanked his host profusely and made his way to the corridor outside,

following a small procession led by Mr. Godbole. A few steps ahead, Mr. Narasimhan fell back, and holding Tally by the arm, guided him into his office. Once inside, the Deputy FA burst out laughing! Handing Tally a glassful of water, he asked, "Why did you have to discuss the Budget revision with the GM? The Railway's Budget has to be based on what the financial figures dictate; certainly not on the perceptions of the General Manager!"

Observing the incredulous look on Tally's face, Mr. Narasimhan smilingly remarked, "Young man, let this incident be a lesson to you. In bureaucracy, never reveal your official secrets to higher ups. Only then can you make them eat out of your hands!"

With this profound advice, he pulled out a file from the rack behind him and asked Tally, "Now tell me where you want us to modify our budget projections. Just give me the list, and I shall keep the corrected documents ready for you by evening. Meanwhile, best of luck for your meeting with Raj Kapoor!"

And it is reported that during that financial year, the Railway Board had bestowed upon Central Railway a special appreciation certificate for the best Budgetary and Financial performance amongst all Indian Railways!

All sketches used here were the artwork of author's better half Sudakshina Kundu Mookerjee. Cover sketch artwork courtesy: Shri Mohit Sinha, DG/HR, Railway Board.



Sanjoy Mookerjee, the author, is a retired railwayman, who is passionate about travel and heritage conservation. His books of short stories entitled 'The Needle Points North' and 'Train to Darjeeling and other Railway Tales', and railway-based novel, 'Howrah Junction' have received wide acclaim. He has also co-authored and edited several books on railway history and development in India.

Assam Mail brings alive incredible stories of the agony and the ecstasy which railway-persons of north-eastern India have faced while trying to keep the lifeline of the Indian Nation running, against the backdrop of separatist movements and their aftermath.

These tales, narrated through the fascinating adventures of the quintessential railwayman Samar Shome, salute the grit and dedication of the railway community in this beautiful, yet challenging land.

Nostalgia is often referred to as a trip full of pleasures. The journey I undertook in Sanjoy Mookerjee's Assam Mail made me feel exactly that. I sincerely want every reader to experience the same...

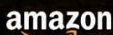
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Assam Mail

Sanjoy Mookerjee

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LIFE IN RAILWAY'S LAST FRONTIER

The Forgotten Gandak Railway Bridge of Bagaha



A Wildlife Biologist by profession, and a Rail Enthusiast by passion, **Pavel Ghosh** has been working across several Tiger Reserves and other protected areas since 2017 as an intern and 2019 as a full time professional. Mostly worked in Duars, Sundarbans and Terai Landscape. Currently working as a Wildlife Officer with Wildlife Trust of India at Valmiki Tiger Reserve, Bihar. Being in Terai—the former haven of metre-gauge railway networks in India, and a metre-gauge lover, he often tries to explore abandoned alignments, old railway relics and things related to metre-gauge railway, whenever he gets some time off from the forest job.

Railways, under the patronage of British Empire, had started making inroads in the northwestern parts of Bihar (then, part of Bengal Presidency) by 1884. The Tirhoot State Railways (TSR, sometimes referred as Tirhut Railways) had originally built the Bachhwara-Bagaha Branch line, rising from the Sonapore-Katihar Main Line. The line had reached Motihari via Dalsingh Sarai, Samastipur and Muzaffarpur by February 1883, then to Bettiah by December 1883, to Narkatiaganj by January 1906 and finally to Bagaha on 1st May 1907, on the eastern banks of the Gandak River. Several intermittent flood incidents had delayed the construction of the line between Bettiah and Narkatiaganj. Plans had to be redrawn several times, to provide more waterways for floodwater exit; while the 123 kilometres railway line between Muzaffarpur and Bettiah was commissioned in just 6 years, construction of a mere 36-kilometre stretch between Bettiah and Narkatiaganj had taken 23 years to get completed.

TSR was finally amalgamated with Bengal & North Western Railway (BNWR) in 1890 (the post-1890 construction of the TSR lines were done based on contracts between TSR and BNWR). BNWR, meanwhile, had built a branch line from Gorakhpur to Chhitauni Ghat, on the western bank of the Gandak River. The line had reached Chhitauni Ghat by February 1907. Attempts were made to construct a bridge

over Gandak (then spelt as Gunduck or Gundak) and join the lines on either side of the BNWR network, until a bridge was constructed in 1912 spanning across the mighty Gandak. But the fate of the bridge was short-lived and was completely damaged just around the turn of a duodecennial span – the bridge was devoured by a ferocious, flood-filled, overflowing Gandak in 1924, just 12 years post its commissioning. The river had outflanked the then embankments, with one of the channels scouring grounds, 10 kilometres west of the main channel, thus causing severe breach on the alignment of the railway line. The catastrophe had left the bridge in complete shatters and all it was left with was the 14 ill-fated pillars, 2 of the abutments and associated wing-walls. While 1 pillar stands on the left bank of the river, 5 are on temporary sand beds, 4 are on the mid channel island (diyara), 5 are directly in the waterflow of the main channel. Apart from these 14 pillars, 1 pillar (second from the eastern flank) apparently seems to be missing. It may have been completely washed away or eroded and submerged beneath the river water level. One may follow the old alignment from present Bagaha BG Railway Station, on the path marked in the map. At one point, the alignment has been encroached, and just west of the encroachment, the alignment starts rising above the ground level, just like a regular feature with any railway alignment approaching a bridge. While the alignment has



Abutment (East Bank) from Front Side

been damaged by uncontrolled quarry of soil used for building hutments in the surrounding area, but a rail enthusiast can easily discover the features of a rising alignment. However, the alignment is completely absent and undetectable on the western side of the dilapidated bridge. A small segment of the alignment is present between the Paniyahwa and Chhitauni (under construction) railway stations which is a part of the Paniyahwa-Tamkuhi Raj Railway Line Project which is still afar from completion. One can see this alignment while travelling from Bagaha to Paniyahwa via Madanpur on NH 727, just before the road turns southwards at Paniyahwa Market T-junction, in the form of an unguarded, unused BG line crossing, used by the locals as a makeshift dump-yard.

No one will try to build a bridge on Gandak, until in 1996, when a new road-cum-railway bridge was built almost 8-



Courtesy: Google Earth



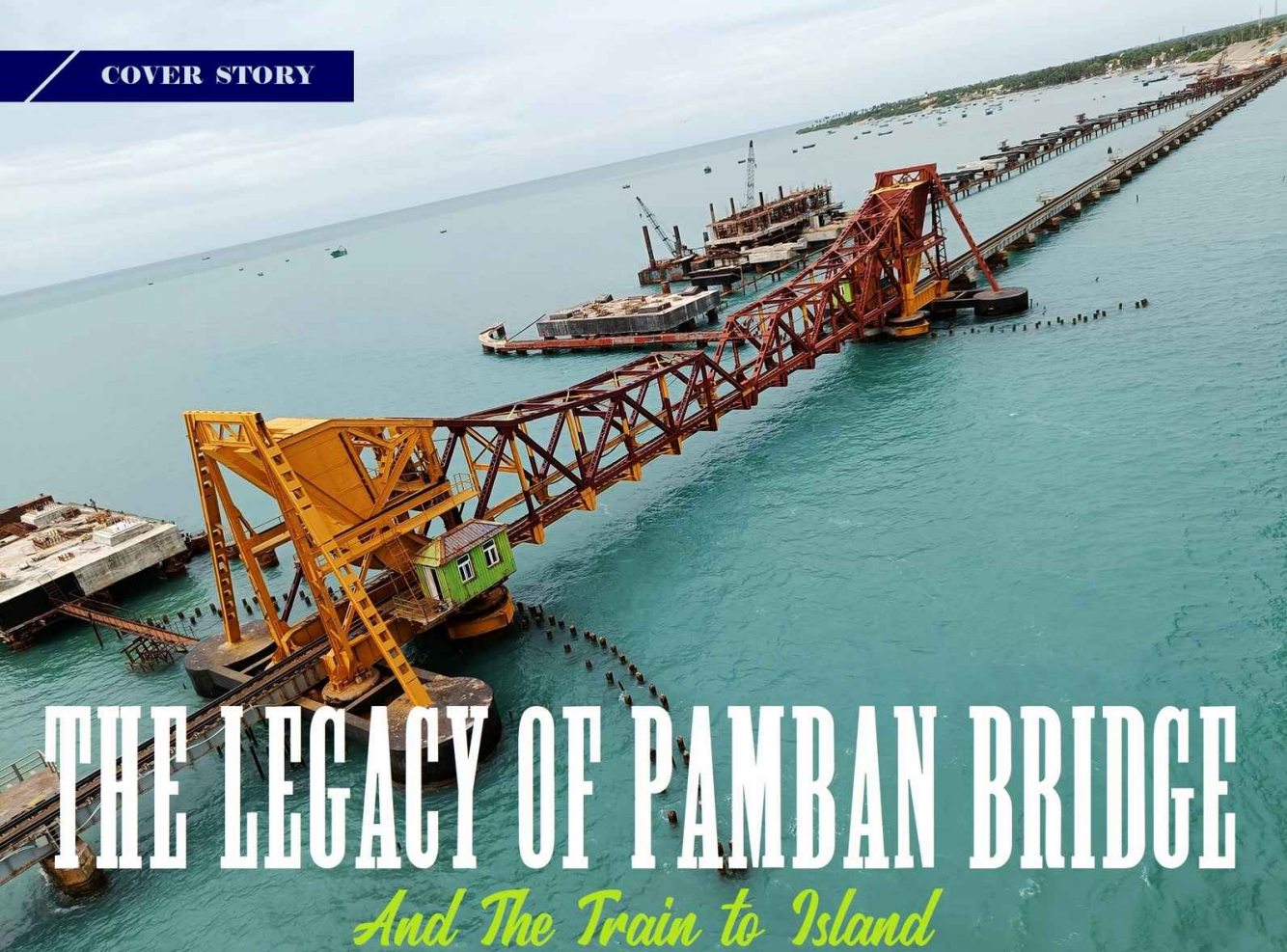
Courtesy: Google Earth

kilometer upstream of the old bridge site, where the river was tameable and stable. This new bridge proved to be a boon-and-bane case – as it eased road and railway connectivity between Gorakhpur and northwestern Bihar, while on other hand, it necessitated the railway line to be rerouted through the biodiversity-rich, lone abode of tigers in Bihar – the Valmiki Tiger Reserve thereby putting the wild animals, including the Royal Bengal Tiger and Leopard, at risk of being crushed to death under iron wheels of trains passing through the protected area, despite the several permanent speed restrictions in force.

The remnants of the old Gandak Rail Bridge have been left to rot and fade away to a state of complete oblivion. Most of the locals, unaware of the history, are taking away the bricks and other historic materials from the site where the remnants are lying in total neglect. The only tribute that the Indian Railways has paid to this short-lived masterpiece is the one that lies a good 43 kilometres away from the actual site, at Narkatiaganj Railway Station, where a concrete plaque stands at one unnoticed corner in between platform nos. 1 and 2, where a one liner phrase mentions about the great washaway of 1924.

The question why this bridge was not rebuilt has got several theories. One of the most popular theories that do the rounds include the reluctance of the then British Government to span a bridge across the Gandak for a second time was to prevent movement of the Indian freedom fighters. Looking beyond this theory, the actual reality was that building a bridge on such troubled waters was infeasible during the early and mid-twentieth century, given the financial conditions and the technical workforce that India had at that time.

The bridge is a "Cult Figure" for metre-gauge enthusiasts like me, just as the sunken "Titanic" holds for its admirers. The phantom pillars have witnessed all the fury of Gandak in its lifetime but they still stand strong to narrate the story of their once-glorious past, but only to those who want to listen it.



THE LEGACY OF PAMBAN BRIDGE

And The Train to Island

A Bridge of Miracle and Spectacle

Somsubhra Das

Our country has a conglomerate of islands which holds significant geographical stratagems, historical significance and mythological essence that keeps them 'attached' to the mainland. The Andamans and the Lakshadweep islands are the significant ones which are tourist hubs in their own rights that can be accessed by air and sea only as they are knots away from the peninsula. Now, getting to an island by train may sound unearthly but as they say 'India has it all....'. Thanks to the proximity of the isle of Rameswaram from the shores of mainland, a rail connectivity became a reality as the Pamban Bridge bridged the gap over the daunting sea!

Antiquity, Legacy and Spectacle are the three words that precisely define the Pamban Bridge which has ensured that the Rameswaram island stays connected with the main land throughout the year – decades before the road bridge came into being. Many iconic railway bridges that have borne the burden of rail and in some cases road traffic as well, like the

Malviya bridge, the Vivekananda Setu, the 13-Arch Pathimoonnu Kannara bridge, the Rajendra Setu or Simaria bridge, the Shri Krishna Setu, the Naini bridge, the Godavari bridge, or the more recent state-of-the-art Bogibeel bridge and the Digha-Sonpur bridge (obviously there are a few others) may garner more attention for being the historical superstructures that they are but will be able to surpass the credentials of Pamban for it being the first sea link for railways which was built at a site raged by gusty winds and an intimidating sea. Thus, Pamban stands tall above all these iconic structures and has spun a web of invincibility with its double-leaf bascule design that draws up for letting ferries pass which was no less than achieving an unparalleled engineering feat, especially, during the time it was built.

♦ The British Plan to Connect Ceylon :

The British imperialism had ambitious plans to expand its wings beyond the mainland. For proliferating trade with Ceylon (now Sri Lanka), plans were floated in as early as



The Pamban Bridge entrance...

1870 to connect Rameswaram with the mainland. However, construction could begin in August 1910 only and the bridge was inaugurated on 24th February, 1914. The 2.057 km. long bridge sits on a submerged sandstone reef based on a design patented by German engineer William Scherzer. India's first sea bridge was built using 4,000 tonnes of cement, 1,36,000 cubic feet of clay, 18,000 cubic feet of crushed metal, 1,63,000 cubic feet of sand brought from the Vaigai river, 2,600 tonnes of steel and 80,000 cubic feet of boulders with a built cost of two million rupees. Around six hundred workers were engaged to execute the task. The bridge runs over 10-foot deep water at places while being at 41 ft. above the sea level and the anchorages are provided with concrete pier foundations which are deep embedded into the sea bed. The bridge has been built around 145 fixed spans along with one navigation span which facilitates ship and barge movements by drawing up.

The double-leaf bascule section of the balanced cantilever truss bridge located at the 114th Span is opened manually using levers. Each half of the lifting Scherzer span weighs around 415 tonnes and is locked at the center through a shear key. This Rolling Lift Navigational Span was constructed within five months (from August to December 1913) by the M/s. Head Wrightson and Co.

A train on the double-leaf bascule section...



The Bascule section of iconic Pamban bridge..

• Pamban Sea Link's Tryst with the 1964 Cyclone :

The iconic Pamban bridge was thrown open to public on 24th February, 1914 by Mr. Neville Priestley – the then Managing Director of the South India Railway Company Ltd. The bridge is no less than any architectural wonder given the fact that it is in a high-wind-velocity and cyclone-prone zone. Thus, it is no wonder that it had to confront nature's fury in the form of a devastating cyclone on 22nd December, 1964 that ravaged the Dhanushkodi town. Such was the impact of the cyclone and tidal waves that 126 girders of the bridge were washed away and tracks from Rameswaram to Dhanushkodi along with a train full of passengers were swept under the water. Ever since that 'last journey' of the ill-fated train from Pamban to Dhanushkodi, the tracks were never relaid. But train services to Rameswaram got restored on 1st March, 1965, a mere 68 days after the calamity, under the supervision of one of the finest railway engineers of Indian Railways – Dr. E. Sreedharan. Popularly known as the Metro Man of India, he was instrumental in putting the bridge back in shape within such a short period of time.

While Dhanushkodi still continues to be a 'Ghost Town' with devastated relics of the railway station, jetty, hospital and church, a proposal of the Southern Railway (SR) in 2003 for





**PASSENGERS ARRIVED BY FERRY STEAMER FROM CEYLON
CHANGING INTO THE MADRAS BOAT MAIL AT DHANUSHKODI PIER**

Source: Internet

relaying of 16 km. track from Dhanushkodi to Rameswaram has not seen the light of the day till date. Survey for the Rameswaram – Dhanushkodi line has been completed though and the Hon'ble Prime Minister had laid the foundation stone for the new line in 2019 but no appreciable progress has been noticed after that. The aftermath of the cyclone made the ferry services to Talaimannar in Sri Lanka, 15 km. apart, served by Irvin and Goschen, owned by SR, become history. That cyclone also altered the terminal of the Boat Mail, then in its meter-gauge avatar, from Dhanushkodi to Rameswaram. After the cyclone, the girders of the bridge had to be replaced with installation of an anemometer which sent out automatic warning signals to approaching trains whenever wind speeds exceeded 58 kmph.

• The Change of Gauge :

With 'Mission Unigauge' on the prowl, SR had to lose out on its vast MG network which included the Madurai division as well. While under the aegis of gauge conversion, IR had planned to put up a new bridge by dismantling the Pamban bridge which then carried meter-gauge tracks. At that critical juncture, our former President Dr. APJ Abdul Kalam suggested the Railway Ministry to strengthen the Pamban bridge for broad-gauge train operations instead of building a

Remains of the Meter-gauge Track



An old Meter-gauge train on Pamban Bridge. Courtesy - Ranjeeth Nagarajan

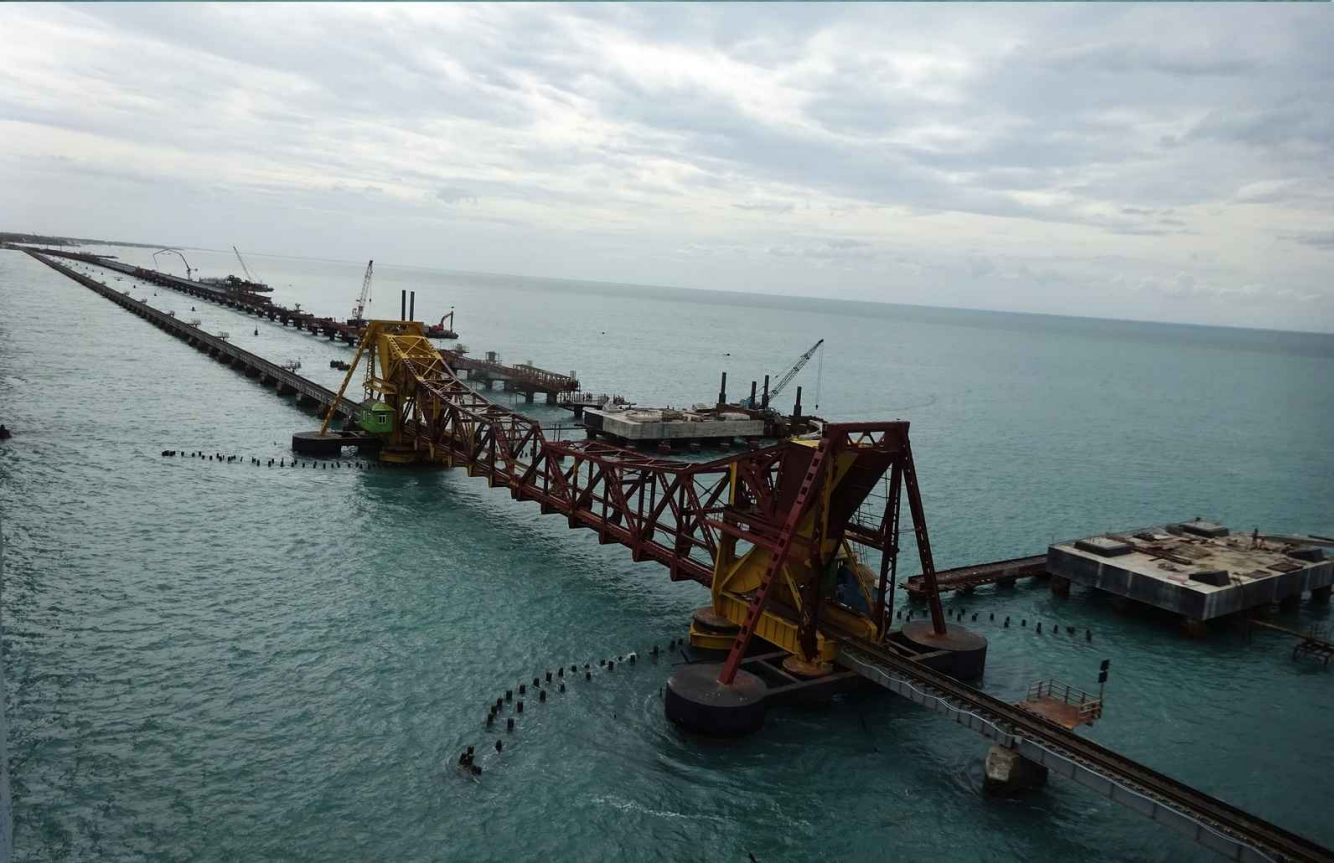
new bridge at an estimated cost of 800 crore INR. Experts from IIT-Madras carried out a detailed survey and Dr. Kalam's proposal was accepted. The last meter-gauge train to cross Pamban bridge was the 6701 Tambaram-Rameswaram service on 15.07.2006. The bridge strengthening was completed on 12th August, 2007 at an overall cost of 12 Crore INR vis-à-vis an 800 Crore INR for a new link. Around 450 workers were engaged for the process who resisted intense heat & high winds for over a year to complete the task. The late President, being the son of the soil, not only retrenched crores for the country but also helped preserve the heritage of a milestone structure. While inaugurating the Centenary Celebrations of the Pamban bridge on 28th January, 2014 Dr. Kalam was seen reminiscing his childhood days as, "I loved Pamban, especially the bridge and train journeys I made on this rail bridge while travelling for my studies and whenever I returned home."

• Closure of Traffic and Coming Up of the New Bridge :

Nearly fifteen years after Dr. APJ Abdul Kalam saved the bridge from being taken to bits by the railway authorities, the journey of the Pamban Bridge has finally come to an end. The end may be abrupt or unanticipated for commoners but time was slowly and surely running out for Pamban.

The Road and Railway connection towards the mainland...







A view from the sea level...

Southern Railway had earlier roped in IIT-Madras to keep a constant watch on the health of the century-old bridge. IIT-Madras, accordingly, had set up a continuous health monitoring system at the bridge by installing sensors which would send out alert signals for any unusual vibrations and oscillations. In December 2022, two alert signals were sounded which resulted in a joint inspection by the officials of IIT-Madras and Research Design and Standards Organisation (RDSO) that culminated in the decision of permanent suspension of traffic over the iconic bridge. Corrosion has eaten away into the bascule of this bridge which has raised safety concerns regarding the stability of the bridge. The last commercial service to cross the bridge was the 07695 Secunderabad Rameswaram Special on 22nd December, 2022. With the cessation of train services from Mandapam to Rameswaram, tracks over the Pamban have also been dismantled and uprooted. We hope the historical structure does not meet the same fate and there is some hope as some Heritage Enthusiasts have suggested to leave the structure untouched as an instance of technological wonder and an historical monument of the era gone by.

An erstwhile scene of the Pamban bridge...

Photo courtesy: Asit Baran Das



The Pamban bridge has remained closed on many instances for maintenance work but its closure from 5th December, 2018 until 9th March, 2019 was attributed to the detection of a fissure which sealed the fate of Pamban as the then Railway Minister Piyush Goyal announced building a new bridge at an estimated cost of 535 Crore INR. The new dual track bridge that is coming up meters away from the old bridge, will bring new milestones as well. It will be country's first Vertical Lift Rail Sea Bridge whose span would rise vertically allowing ships and barges to pass beneath the structure with a navigational air clearance of 22.0m above sea level. On the technological front, the new bridge will gauge new heights as it is designed to be free from manual operation and control and would be equipped with electro mechanical controlled systems which will be interlocked with train control systems. The Rail Vikas Nigam Limited (RVNL) is developing the new Pamban bridge while keeping an eye on the future aspect of railway electrification as well. It is 3 meters higher than the existing one and is having 99 spans of 18.3m length with one navigational span of 72.5m length.

• My Date with the Historic Bridge and a Lost Town :

I have always believed that 'Things will happen when they are destined to happen'. Despite many attempts and plans, I could only land up at Pamban in June'22. The bridge was closed for months during the monsoons of 2021 and that played a crucial role in my decision of a pre-monsoon visit, notwithstanding the sweltering heat that I might had to face. Chennai offered many rail options to reach Rameswaram but I chose to exercise the option of the legendary Boat Mail which would take me through Pamban bridge during the broad daylight. By the morning, my train was moving through the unwired, undisputed diesel terrain of the southern parts of the nation accentuated with occasional puffs and honks. We were travelling through the territory of Golden Rock Diesels whose sheer dominance can be witnessed all along in the form of links of various trains down here. As the sun came up, my train pulled into Manamadurai Junction – the last junction enroute as we veer off further east towards our destination. Just around Mandapam, the sea began to present its glimpses with the occasional combers visible through the trees and bushes separated by the marine drive. Post Mandapam, the sea opened up on either side presenting a unique spectacle. Progressing further, the road connecting NH 49 with Rameswaram island escalated into the humongous Annai

View of Palk Strait from the train





Annai Indira Gandhi Road bridge view from Pamban bridge.

Indira Gandhi Road Bridge which has come up in 1988. The bridge runs parallel to the Pamban bridge which took 14 long years to build and was inaugurated by the then Indian Prime Minister Rajiv Gandhi on 2nd October, 1988. Thus, until this road bridge came into being, ferries and rail were the only links to the isle.

Soon it was time to witness history. Doorplating was no more confined to rail enthusiasts only. Every single door had double or triple occupancy. Those who could not fit in had to resort to the windows. A mad rush to see the sea and witness the train strolling over it gripped the fancy of not only the passengers onboard but also got rubbed on to the tourists and locals who were on the Annai Indira Gandhi Road Bridge on the right and the labourers working at the construction site of the new bridge on the left. For locals and workers working on the new bridge it might be a regular activity but for tourists it was quite an experience that leaves them awestruck. While the gusty winds kept the elements of danger in the game, the emerald green waters of a rough Palk Strait kept lashing out on the girders of the Pamban Bridge as our train crawled over the century old structure

A parallel saga...



The new Pamban railway bridge coming up...

strictly maintaining a 10 kmph permanent speed restriction which has been invoked following the prevailing conditions. It was really challenging to hold on to the recording devices, be it a mobile or a camera, as the rocky waters beneath a shaky train over a seemingly rickety bridge battling blustery winds presented scenes from a highly turbulent world. The absence of any side girders and braces on the gigantic iron architecture made the journey even more eventful and scary at times. It was like 'sanity restored' once we got to the coast of fishing village on the other side. The road bridge crosses over the alignment which now takes a sharp curve leading to the Pamban station with a single discharge platform oriented with trees. Most of the locals vacated the train here as mostly tourists travel upto Rameswaram station. Our juggernaut continued for another 10 minutes or so before reaching destination. Finally, I was at Rameswaram – an innocuous station with basic facilities but lacking the grandeur of the historical significance that it is associated with.

While crossing Pamban bridge for the first time, I had realized as how the Annai Indira Gandhi Road Bridge has become a vantage point to enjoy the view of a train crossing

Serene Pamban Station







Train towards Rameswaram crossing Pamban...

the sea over the Pamban bridge. Thus, I could not wait any further to find myself reverting to the spot. Once there, it was a dream come true! Until then, I had seen so many wallpapers and photos of a train on the Pamban bridge and that day it was my turn. A completely contrasting perspective awaited me as photographing a train on the bridge is dramatic antithesis to being on a train over the bridge – both have their own charm and thrill though. A view from the top offered a different dimension as the pristine blue waters engendered a spectacular sight. The mesmerizing beauty of the vast sea merging with the boundless blue sky was splendid enough to leave me spellbound. The colourful boats dotting the perpetual waters brought a plethora of colours to the frame with the Pamban bridge as the chief protagonist. On the Pamban end, the other side of the road bridge also presented a spectacular landscape of a train leaving Pamban station. I shuttled quite a few times on rail and road to record the scenes from either ends of the road bridge until the natural lights went out. While admiring the magnificent evening scenes around the Mandapam side, I suddenly discovered the railway tracks being intruded by a flock of national bird – a visually striking and totally unexpected spectacle which lifted the spirits by many notches. The

The national bird...



A train from the mainland...

sighting of peacocks was a fitting end to a beautiful, colourful and happening day, just like the vivid and vibrant feathers of the birds quivering along the tracks. Soon, it was time to call it quits with a plan of a visit to the ghost town of Dhanushkodi next day. As night ushered, I recalled the breathtaking views of the Pamban bridge in solitude.

As planned, it was time to embark on the journey to Dhanushkodi but not before witnessing the early morning arrivals and departures over the Pamban bridge. Ambient lights of the dawn accompanied by cooler and milder breeze set the tone for a sedate drive to Dhanushkodi. No visit to Rameswaram is complete without exploring Dhanushkodi, once a thriving port town – though a trip down there was quite distressing. As I entered the ruins I felt surrounded by an air of melancholy. The remains of meter-gauge tracks, the relics of station complex told the story of a bustling town reduced to rubbles by nature's ire. What a dreadful sight! A crippling affliction gripped me as the remnants of station, church and other monuments still wail the scenes of devastation and ravage. The trauma and the agony brought in by the '64 cyclone was omnipresent as the signs of annihilation and ransacking left me in torment. Suddenly, I was in a different sphere altogether. I interacted with an

The remains of Dhanushkodi...





The Sage with the traces of the MG tracks...

octogenarian local sage who recounted the harrow and horror of the cyclone with some newspaper clippings and photos from the time of carnage depicting ghastly scenes. Although I started the day on a high, those images of destruction and rampage kept coming back to haunt me long after coming back to the hotel room. My chain of thoughts was broken once I returned to Pamban as the place has always been different with positive vibes all around. Though it also carries deep scars of the cyclone but the sense of desolation and forsakenness of Dhanushkodi were not be found here. Pamban was all about life and celebration of survival in true spirits.

Soon, I was back to business of train spotting for the few hours left of my stay at the island. The sun was slowly mellowing down as its golden rays caressed the restless waters. A back-to-back evening departure was all I was vying for. As it happened, diesel horses from Golden Rock DLS slowly towed the trains past the Palk Strait as they disappeared into the canvas of foreland with the fishing boats busy preparing themselves for their night haul. The diminishing lights gave a reminder that my time at Rameswaram was up though my greedy heart wished the sun to stay a bit longer with a few more trains crisscrossing the sea. But that was not be. Despite a full two days of train spotting, it seemed that I had not got enough of

A beauty spot...



An aerial view of Pamban station...

Rameswaram. Six months later, my feeling of not having enough of the place got vindicated as train services were permanently suspended over Pamban bridge following its deteriorating health. I was numbed and found myself completely helpless over the fact that no trains would ever ply on it again and I would not be able to witness the scenes that defines Rameswaram in my lifetime.

• The Pamban Bridge has had its Swansong :

Travelling through the Pamban bridge created that excitement and thrill which even the old Dehri-On-Son bridge (Netaji Setu) or the Mahanadi rail bridge near Cuttack had failed to match. The only other bridge which can stream such exhilaration is the Chenab Rail Bridge which is touted as the highest rail bridge of the world at a staggering height of 359 m above the river in the lap of the Himalayas. Though the Pamban bridge is dwarfed by the 2.3 km Bandra-Worli Sea Link on Mumbai's western coast but the folklore of a meter-gauge ride over the sea would never ever be recreated again.

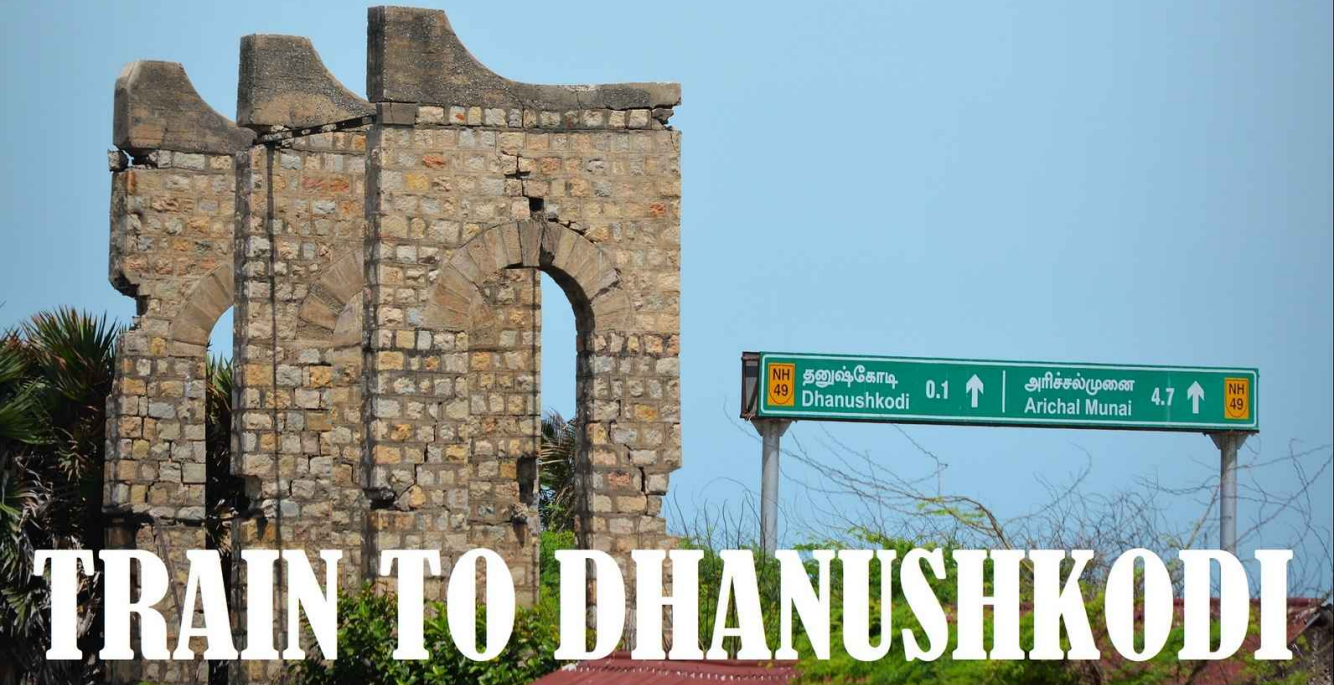
The euphoria about the new bridge cannot surpass the glorious legacy of the old bridge, especially for those who have travelled on the older one. For ferroequinologists like us, Pamban bridge means the Old Rail Bridge which had survived the devastations of the 1964 cyclone; Pamban bridge means the Old Rail Bridge which withstood damages caused by the drifting of a naval barge in 2013; Pamban bridge means the Old Rail Bridge which have stood witness to trains ferrying millions of tourists, pilgrims and locals from the mainland to the island and back, through all these decades. As mentioned in the book 'Marvels of the South Indian Railway' published by the Railway Heritage Centre of Southern Railway, the Pamban Bridge has been a true engineering marvel whose cult has not only caught the imagination of the railfans alone but also of the locals who still hold the bridge in high esteem. A new sun may light up a new bridge but the shadow of the century old bridge will loom large as people will continue to recount their days of yore when the old bridge had become a part of their daily life.....

Acknowledgements :

1. Mr. Om Prakash Narayan – the Sr. Public Relations Officer, Southern Railway, Chennai,
2. www.hindustantimes.com,
3. Accounts of C. Jaishankar,
4. The Times of India,
5. The Wikipedia, 6. rvnl.org

All photographs were taken by Somsubhra Das unless mentioned otherwise.





TRAIN TO DHANUSHKODI

A Track Lost...

(Published in 2nd Issue of Rail Canvaz)

Soumitra Pal

It was early 60s possibly 1963, Puja vacation was drawing near. Father, a legal practitioner in Calcutta High Court, as was his wont before every vacation, scanned the railway map and the time table to chalk out a plan for the annual tour. Mother was consulted. We, my brother and I, were told that we would be heading south; the ultimate destination being Dhanushkodi. We set off according to plan. Madras (now Chennai), Kanyakumari, Madurai, Kodaikanal, Rameswaram were part of the itinerary. We were enjoying every bit of our tour without realizing that an exciting journey – a 23 km meter-gauge rail ride from Mandapam to Dhanushkodi via Pamban, Rameswaram awaited us. Though there must have been other modes of transport, but that would have robbed the thrill of a meter-gauge train ride through a topography, till then unseen. As the passenger train, drawn by a steam engine, left Mandapam station and slowly chugged ahead, it started playing hide and seek with the rocks and the sand dunes. It ran along a very narrow strip of land, an isthmus, with sea on both sides. As the train moved, the land became narrower and the sea waters virtually lapped against the rails till the train reached Pamban Bridge, an engineering marvel,

which would take us across the sea. The train was on the bridge. The boom boom sound reverberated all around to add to the thrill. I ran along the near empty compartment to have a better look from a vantage point. The blue sea – Gulf of Mannar – against the clear autumn sky was dotted with fishing boats. A little later the train entered Pamban station and we had left the bridge behind. After a brief halt, it headed for Rameswaram, the temple town, en-route Dhanushkodi where we reached around noon. Dhanushkodi and Talaimannar in Ceylon (now Sri Lanka) stand at two ends of the Palk Strait. In Dhanushkodi, a village, the sea was close by. We had put up near the station. We had our bath and lunch. Father, a master raconteur, told us how Talaimannar, a busy port in Ceylon, barely twenty miles away, could be accessed from the Jetty at Dhanushkodi by steamers, operated regularly by the Southern Railway. The sea was shallow and full of shoals. A partially submerged sandbank – ‘Adam’s Bridge’ – connected the two countries. According to legend, Dhanushkodi was the launch pad of Lord Rama’s expedition to Lanka. Locals corroborated that on a clear night the lights of Ceylon could be seen. The



Masonry structures of old Dhanushkodi station

Photo by Subhadyouti Bose

afternoon went well, sea-bathing and building castles in the sand. Much later did we come to know, that in the early part of the twentieth century the erstwhile South India Railway Company (at present Southern Railway), planned to connect Dhanushkodi and Talaimannar by a railway. We returned in the evening but this particular trip, though short, kept us in high spirits.

Several years past since, it was in 1964, we were enjoying our short winter vacation in Midnapore town, near Kharagpur. As usual, we had put up in *Dadu's* (father's uncle's) house in Saheed Pradyut Bhattacharjee Street in Aligunge. With annual examinations over, there was no fixed routine except playing games. However, with the habit of reading newspaper every day, I would at least glance through the headlines. Sports was my area of interest. The newspapers from Calcutta (now Kolkata) arrived late, after mid-day by the Gomoh Passenger – during lunch time. One day while we were table-talking over lunch, the vendor delivered the day's newspaper. The headlines put my father in a state of shock. It was 23rd December. The previous day, i.e., on 22nd December, a severe cyclonic storm had devastated Dhanushkodi. Pamban Bridge, the only link with the mainland, had been virtually wiped off, a six-coach passenger train thrown off the tracks. The railway line from Rameswaram to Dhanushkodi had vanished! There was no sign of the jetty. All communication had been snapped. Thousands had been rendered homeless. We all felt sad at

God's abode...now abandoned

Photo by Subhadyouti Bose



Old Dhanushkodi station complex

Photo by Subhadyouti Bose

the tragedy which befell Dhanushkodi.

Today, though a railway line upto Rameswaram has been re-laid and Pamban road bridge and rail viaduct have been rebuilt, the track to Dhanushkodi is still missing. And with it is missing the charm of a meter gauge rail travel in a splendid surrounding. A track has been lost forever.

Dhanushkodi is now a sleepy hamlet, inhabited by fishermen. They have built huts and depend on fishing to eke out a living. Braving odds, a few intrepid travellers still visit the ruined hamlet at Dhanushkodi. Strategically located, the coast line is guarded by a few paramilitary personnel. The hustle and bustle of travellers of early 60s is gone. It is a forlorn place with the roar of the sea occasionally breaking the silence. There are reports that plans are afoot to build a broad-gauge line from Rameswaram to Dhanushkodi now accessed by road. Result - a glittering railway station and an efficient transport system. The journey would then be fast, but sans the mirth and merriment of the yesteryears.

Relics of a Roman Catholic Church

Photo by Subhadyouti Bose





The Pamban Diary

Sourav Dutta

The 2.065 km long Pamban Bridge is a vital link that connects the Pamban Island (and the town of Rameswaram) to the town of Mandapam situated in the mainland, both located in the state of Tamil Nadu in India. The bridge was opened to the public in the year 1914, making it a century-old construction. This particular bridge was India's first bridge that passed over a sea. A unique feature of this bridge is the fact that the middle section of the structure could be lifted up to let small ships pass through this area that has rich fishing grounds. This bridge was the only link to the mainland till 1988, after which a parallel bridge was constructed that handled all the road traffic. However, rather unfortunately, in late December of 2022, railway officials decided to suspend rail traffic on the bridge owing to extensive corrosion due to extremely saline environment of the region. In lieu of the old bridge, a new bridge has been commissioned, the construction of which is expected to be completed in a few years.



A Golden Rock (GOC)-haired passenger service continuously moves towards the Indian mainland.



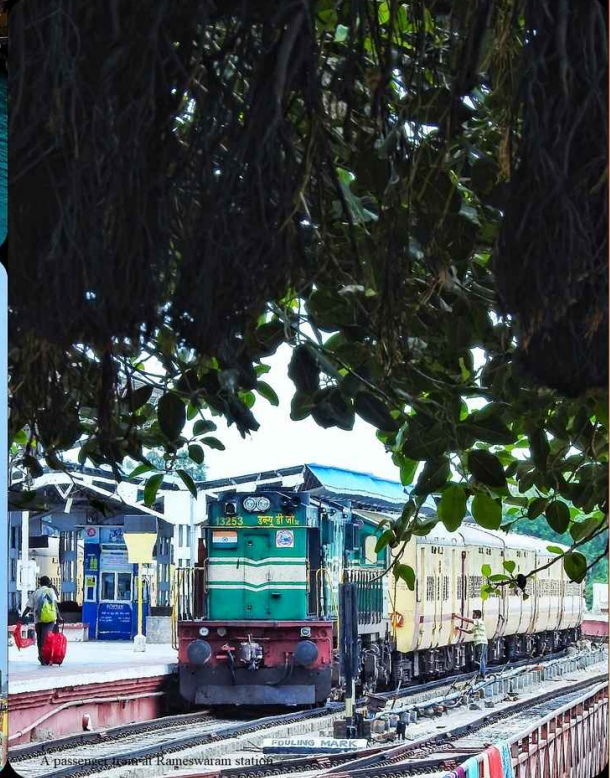
A close-up view of the middle section of the Pamban Bridge, as viewed from the road bridge.



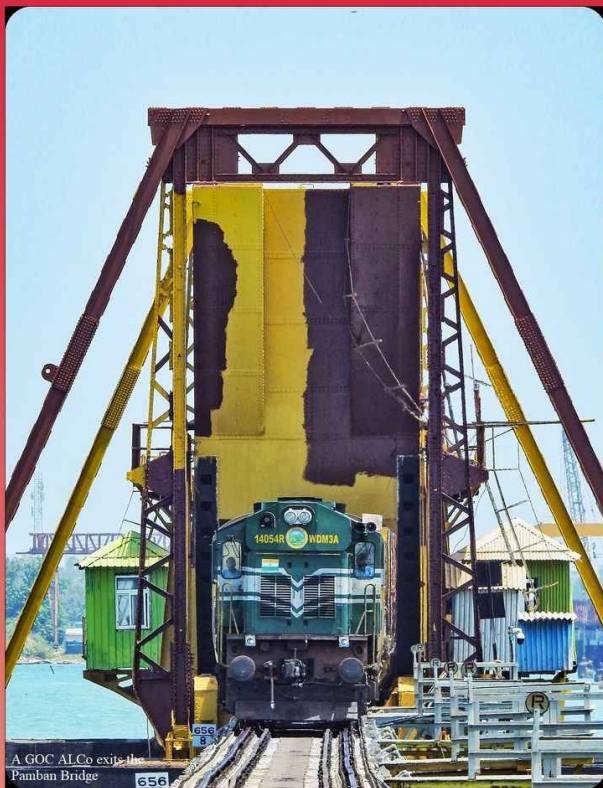
A passenger train departs from approaching the Rameswaram station after crossing the Pamban Bridge.



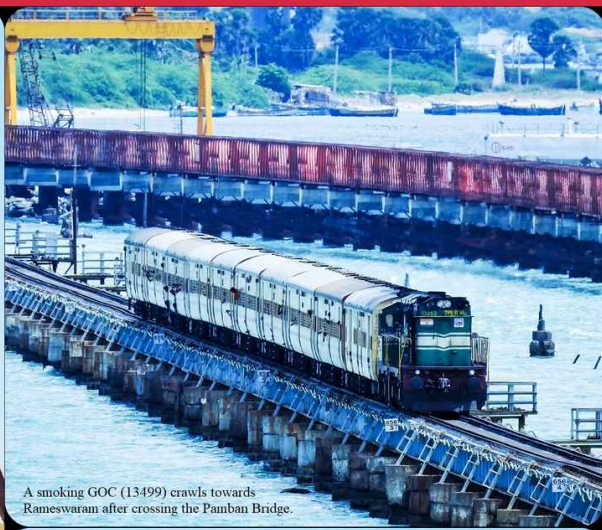
A passenger service smokes as it prepares to depart from one of the stations on the route from Rameswaram to Madurai Junction.



A passenger train at Rameswaram station.



A GOC ALCo exits the Pamban Bridge



A smoking GOC (13499) crawls towards Rameswaram after crossing the Pamban Bridge.



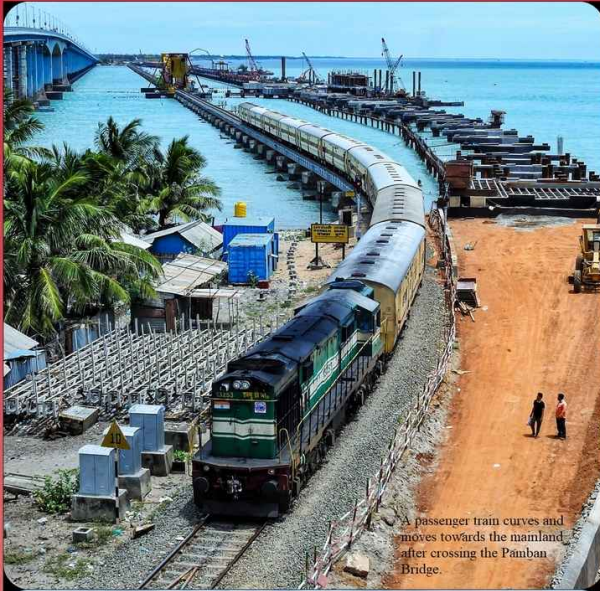
A GOC ALCo-hauled train on the Pamban Bridge, moving slowly towards Rameswaram.



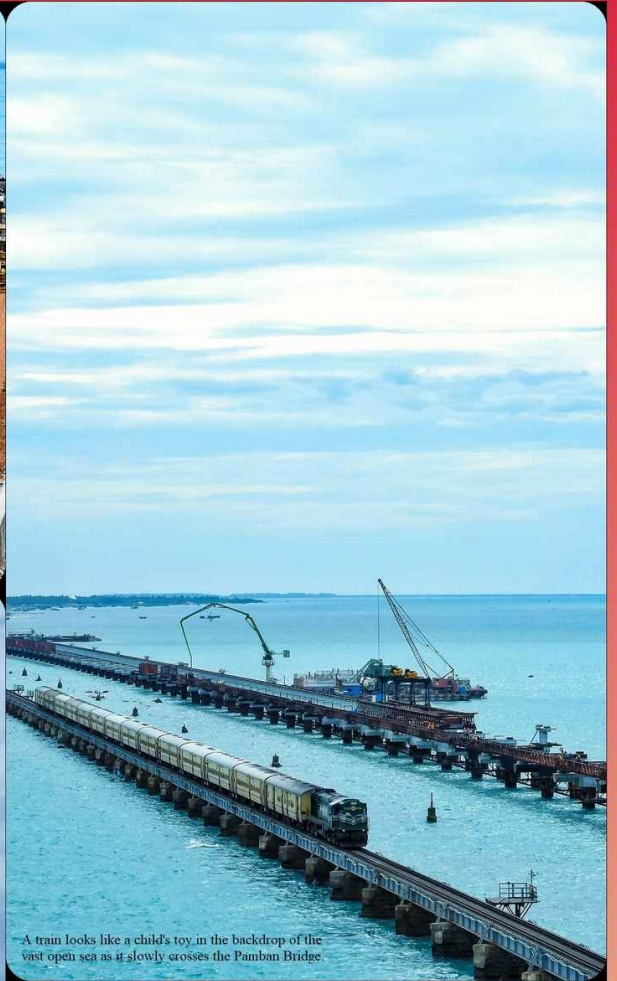
A face-to-face encounter with a monster from GOC



A passenger's view of the last few coaches of a train slowly crossing the Pamban Bridge



A passenger train curves and moves towards the mainland after crossing the Pamban Bridge.



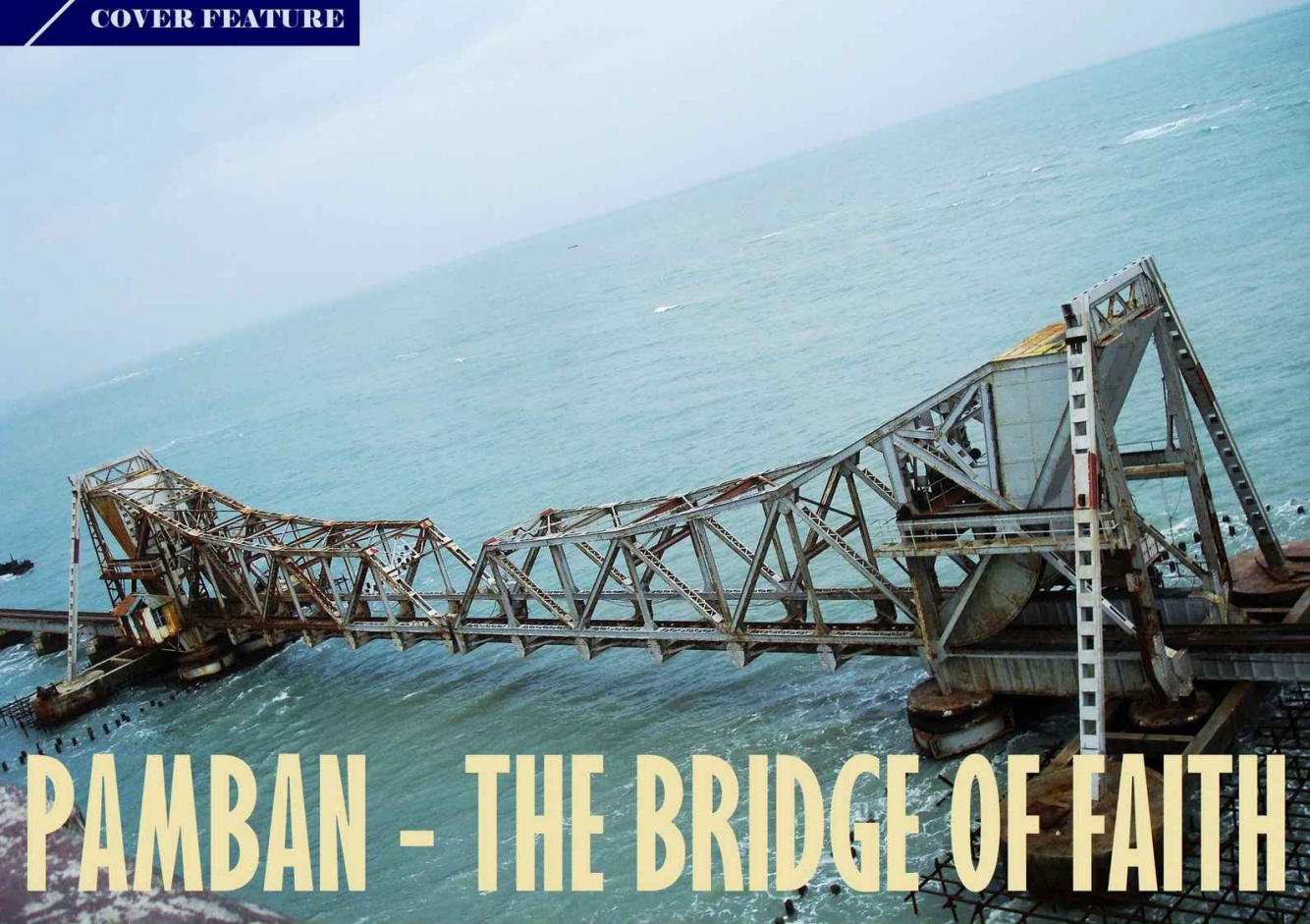
A train looks like a child's toy in the backdrop of the vast open sea as it slowly crosses the Pamban Bridge.



A birds eye view of the Road and Rail bridges across the Palk Strait



'Floating' Rocks visible in shallow, clear waters of the Palk Strait near Rameswaram



PAMBAN - THE BRIDGE OF FAITH



Om Prakash Narayan

A Railwayman for the past 27 years, currently working as Sr. Public Relations Officer in Southern Railway. To give vent to his creative activities, he has been writing, painting, drawing, sketching, taking photographs over the years. He started blogging from the year 2010 onwards on various sites. He blogs at:

<https://omsmusings.wordpress.com>

The esoteric always eludes the excited traveller, for it extinguishes the stillness of the soul - this is particularly true of Rameswaram and its surroundings. Many a visit to the place on official tour, has given me a dull sense of forced religiosity. Whereas a couple of personal visits, detached from the official humdrum of frequent phone calls and official paraphernalia, has given me a more proper view of the wide vistas of faith and has overawed me. I felt a bit like Jack London in white silence, only here the silence of the waves is deafeningly loud in the deep recesses of our souls as we stand in Dhanushkodi, the place where Lord Rama is said to have commanded the rough seas into silence more than 5000 years back....

The sea here is spellbound by the Lord's command still, even after 5000 years, as the sea eerily turns silent at the same spot where Lord Ramas feet is said to have trodden on his way to Sri Lanka in search of his beloved. The stark difference between the rough seas and the silent sea at Dhanushkodi within a span of a few metres has to be seen to be believed. It is here, that Lord Rama is said to have commanded the sea to be still, using the end of his bow, Dhanush, at the end of the island, Kodi. The love for his spouse, believed to be an incarnation of Bhudevi, made Lord Rama, an incarnation of Lord Vishnu and a veritable God himself, suffer the pangs of separation much like a normal man, earning him the title of "Mariyaada Purush" (In Tamil Nadu he is referred as Mariyada Rama)! Gandhamadana Parvatham, the small hillock from where Lord Rama stood to view the land across the sea where his beloved wife was held captive, is now a religious tourist spot. Known as "Ramar Padam" the place offers the devout tourist a chance to touch history, legend, religion and faith - all at the same time.

When the thought of building the daunting task of the bridge came up, it was Angad, one of the commanders of the monkey army of Sugriva, who came up with the idea of letting the naughty monkeys Neel and Nakul, who were cursed by Sage Sutikshana of Treta Yug to throw the first stones into the sea as going by the curse anything that will be thrown into water by them will float. That turned the tides in favour of Lord Rama to build the bridge. The legend that the first stones thrown by Neel and Nakul for the building of the Setu floated, is laid bare by the stones still floating in many parts of Rameswaram island in many a temple. Science here takes a backseat, allowing faith to showcase an inexplicable and unexplained phenomenon. Despite many scientists attempting to explain the seemingly illogical phenomenon of floating stones, the heart of the devout traveller finds solace in the unexplained phenomenon. In retrospect, one wishes that had Neel and Nakul thrown some stones in Pamban Viaduct as well, for it would have served well, the engineers building the Railway Pamban Bridge thousands of years later, for sure.

The Railway Bridge at Pamban houses many secrets which are hidden among the rough waters. Shri Pamban Swamigal, a saint who was healed of a leg fracture instantaneously after being admitted in the Government Hospital at Chennai and that incident left his treating doctors astounded as he was being wheeled in a stretcher one day while he just went walking out the next day on his feet after getting a vision of



Lord Muruga. The legend also has it that the same Lord Muruga had blessed our own People's President, Dr. A.P.J Abdul Kalam, when Dr. Kalam was a small kid somewhere near the Pamban Bridge. Many a time during his childhood Dr Kalam had travelled on the Pamban bridge and he was particularly fond of this unique railway heritage. The more than a century old, 2.2 km long India's first sea bridge, opened for traffic in 1914, has fascinated both the technically sound engineers and laymen equally with its design and structure and is aptly referred to as an "engineering marvel".

On 30th July, 2015, just as Dr. Kalam, the people's president, was being laid to rest in the sands of Pamban island, a lone loco pilot of a special train that passed by Thangachi Madam, gave a shrill long whistle, the salute of Indian Railways to one of the greatest sons of the soil during his funeral. Since then, Indian Railways has brought thousands of rail travellers from various parts of the country through its trains across the Pamban Bridge to visit the Dr. Kalam Memorial, built so lovingly by DRDO at Thangachi Madam.

The place, Thangachi Madam, (pronounced Muddam) itself has a very interesting history. King Sethupathi of Ramanathapuram in early 1700s after marrying off both his daughters to Dhandapani Thevar, appointed him as the administrator of Rameswaram, controlling the free boat ferrying from the mainland to the island. Dhandapani Thevar, however, started collecting money from the pilgrims. Once an Agora Muni from Kasi could not cross the sea to go to Rameswaram because he could not pay the fee of 25 paise illegally charged by Dhandapani Thevar. The agora muni went and complained to King Sethupathi, who considered his own son-in-law as having committed betrayal of Lord Shiva, and sentenced him to death. At his funeral, both the king's daughters, the wives of Dhandapani Thevar, rushed into the funeral pyre and died. The places in remembrance of the sisters, remain, even today, as Thangachi Madam and Akkal Madam, as testimony to the high virtue of dharma upheld by the King to Lord Shiva.

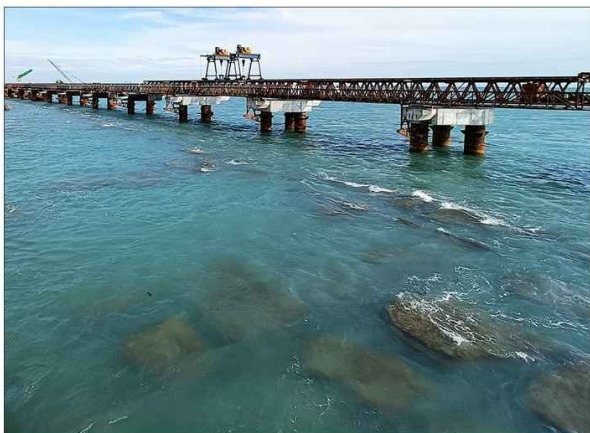
After 2015, the Dr. A.P.J. Abdul Kalam Memorial is the second most important pilgrimage centre other than the thousands of years old main Ramanathaswamy temple. This temple is built around the original sand lingam made by Sita Devi and Lord Rama which stood as it is for thousands of years before the temple was built by various kings dating back to 1100 AD. But the most significant construction was in late 1600s during the reign of Sri Muthuramalinga Sethupathi, the king of Ramnad. The temple complex houses both the sand and the stone lingams of Lord Rama and Lord Hanuman. Legend has it that after killing Ravana, Lord Rama wanted to worship Lord Shiva and absolve himself of all the sins of having killed Ravana, a great Shiva Devotee. When Hanuman, who was sent to bring the stone lingam from Kailash got delayed, Sita lovingly made the lingam from sand for Lord Rama to worship. Subsequently, Hanuman



also brought the stone lingam. The one built by Rama with sand, is called the Ramalingam and the one brought by Hanuman, is called the Vishvalingam. Lord Rama, in order to honour the act of Hanuman, is said to have instructed that the Vishvalingam be worshipped first before the Ramalingam, a tradition that continues to this day. It is believed that the Ramalinga made by Sita has become crystallised, becoming a Spatika Linga today.

In the Island of Rameswaram, wherever one digs a well, there are more chances of it being salt water well for such is the nature of the island. But Lord Rama, being a divine avatar, could find water in 22 places (which is there as 22 wells in the temple complex even today) for his army of monkeys with his 22 arrows in his quiver. There is also another legend that says that Lord Rama shot his arrows commanding each of the 22 holy waters, including Ganga, to appear in the island for him to bathe after killing Ravana. Even today, devotees take bath in these 22 wells to wash their sins of karma.....The water in these 22 wells taste different from each other, even though separated only a few feet away from each other.

In all these quaint mythological stories of faith, crept the



story of the weeping man in the early 1930s, which, though fascinating, is not true as the bridge requires a minimum of 12 persons to manually rotate the wheels controlling the schezher span to lift the middle portion of the bridge. However, other stories such as sighting of a ghost, are in circulation every now and then....

On the night of 22nd December 1964, Train Number 653 which left Pamban Station with 110 passengers and about 5 Railway Staff on board was engulfed in a huge tidal tsunami wave that washed away lives and livelihoods off Dhanushkodi as well as the train and its passengers. For many years the engine was visible underneath the waves during noontime. Fateful karma had united a number of lives in their death on that fateful day.

The Pamban bridge which was also badly affected and damaged, was rebuilt in a record time of 68 days by India's foremost engineer and metro man, Dr. E. Sreedharan. The rebuilding of the bridge is an inspiring story and is no less miraculous than the many stories of hauntings along the Pamban bridge. Much like the Setu Bridge, the Pamban bridge too, is a bridge of faith uniting the mystical island of Pamban – Rameswaram with the mainland, carrying many a tale of faith and belief into the mystical land of one's imagination and fear, proving almost on a daily basis, that 'Faith is the evidence of things unseen....'.

Right from the days of Lord Rama, till to this modern day, it is only the bridge of faith that connects whether it is the ancient Setu or the more modern Pamban....

The views presented are purely author's own which does not represent the views of the organisation (Indian Railways) he works for.

All photographs courtesy: Somsabhra Das.

Cover photo courtesy: Asit Baran Das.

PART-II LAST DAYS OF PUNJAB STEAM



Jakob Stilling

Lawyer from Denmark, born 1961. Passed as a volunteer guard 1984 to work main line steam specials for Railway Clubs and the Danish National Railway Museum. Started photographing trains in 1974, has travelled most European countries as well as India, Pakistan, Indonesia, China, Sri Lanka, Eritrea, Zimbabwe, South Africa, Syria and Jordan, Cuba and the USA in search of (mainly steam) locomotives. Multiple visits to East Germany and Poland for steam before 1989. First tour of Northern India in 1993, with further trips also covering Pakistan in 1994 and 1995. Came back for tours of India with his wife from 2017, visiting KSR and NMR and some of the remaining NG lines.

In Part-I of my account of the November 1993 India tour, we were about to leave Punjab and were on our way to Kalka.

We arrived in Kalka from Ambala, only to learn that the retiring rooms were already taken. The dark road leading from the station did not encourage walking off to look for a hotel, and we decided to spend the night in the relatively soft sofa and on a wooden luggage rack in the first-class waiting room. The very talkative female caretaker insisted to record all our passports details in her protocol. After midnight, two army officers entered with bedrolls being made up by their orderlies, while the privates spent the night under the glass roofs on the platform outside, with the guns strapped together around a platform pillar. During the night, further passengers arrived, including a family with two young children, who were accommodated in an empty corner by my feet on the luggage rack.

At 05.15 the reservation desk handling the 15 seats of the rail motor coach running as the first train of the day for first class passengers only opened. We were allotted seats 1 and 2 next to the driver. The railcar was only partly full, so we had no problems finding room for our rucksacks under the rear seats, despite regulations that bulky luggage could not be accommodated in the railcar. As part of the reservation process orders were also taken for breakfast to be served in the refreshment room at Barog during the 20-minute stop.

We unpacked our tripods to photograph the little railcar before departure, dot on time at 05.45. It was still dark, and the rims of the hills only just stood out from the dark sky as the railcar worked its way through numerous curves and tunnels, climbing the Himalaya foothills. The single line tokens were exchanged at stations with signalmen holding burning flares to mark where the pick up and dropping of the tokens would take place.



The night had not been as comfortable as hoped for, and we drifted off to sleep to the sound of the wheels on the 610 mm track and to the gentle rolling of the carriage.

After the tunnel at Barog a faint morning light appeared in the sky as we paused for refreshments – and a few photographs of RMC No. 2 resting before restarting its climb to Shimla.

As the train left Barog morning had broken, and the line offered full vistas of the mountains, as everyone who has travelled the line will appreciate and remember. We enjoyed the first sights of snow on the Himalayas on the approach to Summer Hill. The cool mountain air was pleasing after the hot days in the Punjabi plains.

On arrival we were allotted the station's deluxe retiring room (Rs. 225 per night!) with refrigerator, a television unable to connect to any programme, en suite bath (with a working, albeit slow water heater) and a toilet. My traveling companion felt a little overwhelmed by the night in the waiting room and decided for a nap while I reconnoitered Shimla.

When I returned from my walk, we were both ready to go for



line side shots in the forest between the station and the tunnel, before having an early dinner and a good night's sleep.

We had made reservations to return to Kalka on the Himalayan Queen the following morning and made good use of the station stops for photography. Our train was hauled by ZDM3 No. 187.

After arrival in Kalka in the late afternoon, we made a quick visit to the engine shed and the wagon works, got a light meal and caught the first Delhi-bound express, enjoying a 2nd chair class carriage which was empty until Chandigarh and very full after that. By the timetable, there was ample transfer time in Ambala to the connecting train to Saharanpur, but our train slowly but steadily accumulated a delay, and was more than 30 minutes late by the time we arrived in Ambala. Our connecting train was waiting, but so full that there was no possible way to get us and our bags inside a carriage. The running boards of diesel engine were also full, and passengers were already standing on the buffers between the carriages. Even the guard's compartment seemed full, and the guard insisted that the 10 passengers already there were all railwaymen on their way home from work. We were however allowed to put our bags in the



guard's compartment while we tried to find room somewhere on the train. When the departure honking started, many of the people standing on the platform made a last charge on the open carriage doors, and we only just made it to the door of the guard's van as the train accelerated out of the station. We were of course welcomed inside after all – in the meantime the number of occupants had increased to about 20. After a few stops the guard asked us to make another try at finding a seat – or at least room – outside his confines, and admittedly the train was by now less full than before. We managed to squeeze ourselves into the vestibule of a carriage, but the carriage itself was still very full. After another few stations one of the guys from the guard's compartment – himself a retired guard – came to offer us a seat in the guard's compartment. One of the kit boxes on the floor was cleared for us, and an interesting discussion of railways matters in India and in European country started. During one of the stations stops we were also offered tea, and we had made a number of new friends by the time we reached Saharanpur.

On arrival we made our way into town for a hotel which had been recommended in the latest issue of *World Steam*. The hotel restaurant was being rebuilt, but a tray meal could be arranged, and after a long day of travel we really felt that we deserved the relative luxury of the hotel, and it was no problem falling asleep after dinner and Kingfisher.

The following morning, we had deposited our accumulated laundry to be picked up by the Dhobi by 06.20, and were ready to present our permit to the shed-master before sunrise. None was there, and we figured that we would surely be spotted and summoned. In the end, no one ever asked for the permit!

As the sun rose, a golden ray of sunlight illuminated the engines on shed for a few minutes only. The clear early morning light allowed us capture some of the working day routines of one of the last broad gauge steam sheds of India. Several WPs and WGs were being serviced, and freshly coaled engines left the shed to couple up to trains for Delhi,



Laksar, Moradabad and Ambala.

We also saw engines being turned on the turntable in the north end of the shed yard before making our way mid-morning to the platforms to capture a WG hauled train arrive, the engine uncoupling and a freshly serviced WP backing down on the train for departure for Ambala.

After lunch we went to where the mainlines split to capture WPs departing on heavy, southbound trains. By mid-afternoon, we felt that we had captured most of what could be seen, and decided to cut our planned stay a day short. Thus, we hurried back to the hotel (which spent a good deal of time finding our laundry!), checked out and managed just to make our connection for the late afternoon Haridwar bound steam hauled passenger. A few minutes before departure, a WP+WG hauled ballast train rolled in from the north, which made us run across the tracks with all our luggage.

On the night of Diwali, we left Saharanpur at 16.35 behind a WG on a pure 2nd class stopping train. Our train originated in Delhi, hauled by a WP, and would reach Haridwar at 22.05. The steam loco took its part in the celebrations by occasionally leaving a trail of sparkles in the exhaust – while







in every village along the way there were illuminations and fireworks. The train reversed in Laksar where even the platform hawkers had candles on their sales trays. The festive mood was accentuated by a power cut, which left only the candles of the hawkers burning along the platform.

Most of the passengers got out in Laksar, while groups of white clad Sadhus, travelling from the east, joined the train on their way to the pilgrimage sites on the Ganga in Haridwar and Rishikesh. In our carriage, a Sadhu, his face painted white, chanted his way accompanied by bangles, while his co-travelers hummed to the rhythm, and joined in on a tambourine.

On arrival in Haridwar, we learned that because of the holiday every shop was closed, and the streets were deserted apart from stray fireworks buzzing along. The duty clerk in the station claimed that there was no vacant retiring room. After a good deal of persuasion and the timely intervention of the duty station superintendent, who remembered that there was a special unclaimed VIP quota for 4 retiring rooms that would only be needed by a divisional auditor's group after midday the following day, a vacant room (a bargain at Rps 25 with working lukewarm water!) was produced after all. We spent the night there after a dinner on the last of our biscuits, some leftover bananas and a mango juice.

Our main reason for going to Haridwar was the claim that the holy city also housed the only tunnel on Northern Railway. Of course, a visit to see the clear and icy cold waters of the Ganges could not be missed either.

After a good night's sleep, we were ready to explore Haridwar, and started out with an expresso and an omelet. It was misty, and rather cold. The signal box (the track layout was much simpler then) was visited, and we were offered a chai by the signalman while two WGs shunted the carriage sidings. However, we had important business to attend to, and made our excuses. By bicycle rickshaw we made our painfully slow way through town, which was now very busy, to a corner by the street leading to the ghats. The notes from World Steam and the map in our "Lonely Planet" guidebook suggested that this would also be the place to find a narrow footpath leading to a little jungle where the line to Dehra Dun and Rishikesh runs between two short tunnels. Our driver and the shopkeepers were rather surprised, as we went in the opposite direction of the river, all costumers usually wanted the Ghats!

The first steam hauled morning train was due any minute, and we only just made it to a not too dark level spot for our picture of a WG emerging from the tunnel.

After that we hired another rickshaw and asked to be taken along the Rishikesh road to a bridge over a dried tributary to the Ganges, ready for the next steam hauled train running in the Haridwar direction. Unfortunately, the next train was not steam hauled, but the WDM 2, and a freight following it, were worthwhile motives after all.

After that there were no scheduled trains for a few hours



and ample time to visit the Ghats.

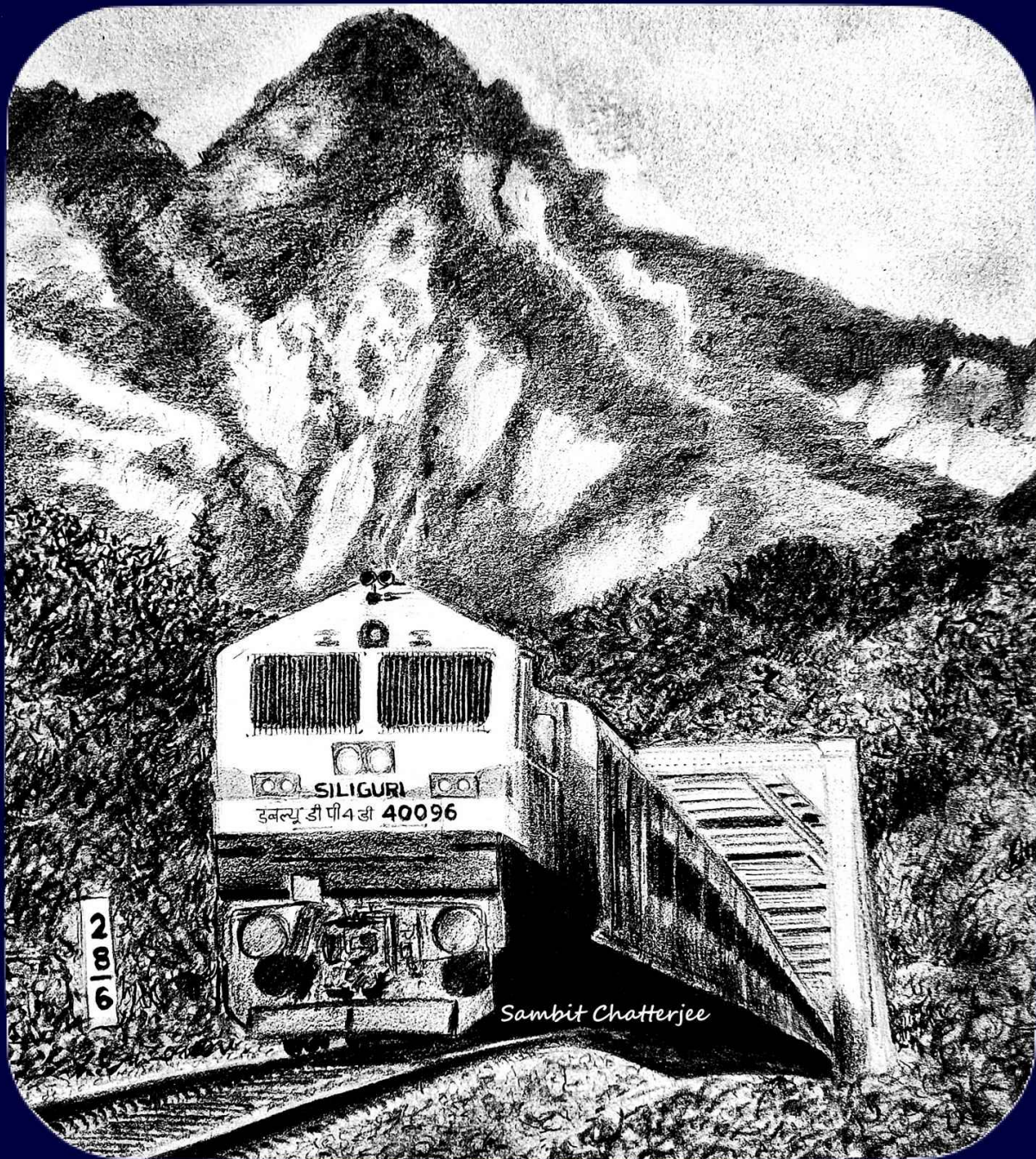
Back at station we decided that we had seen most of what could be expected railway-wise (and the attendant was rather insistent that we were to clear our retiring room!), so we packed our gear to be ready to depart for Laksar by the next train. While studying the timetable and by looking down the platform we realized that the midday train to Rishikesh would be steam hauled, and that it would probably be possible to get a departure shot of the WG and still catch the express, which paused for about half an hour in Haridwar. Thus, we made our way to bridge east of the station to photograph the diesel hauled express arriving and the departing WG-hauled passenger, overlooked by a snake charmer who emerged from behind some bushes and took a very eager and somewhat uncanny interest in us and our cameras.

Our plan succeeded, after the steam-shot we ran to the main road, flagged down a rickshaw to the station, checked out and just caught the train for Laksar. Our visit there and in Moradabad will be dealt with in a later chapter of this account.

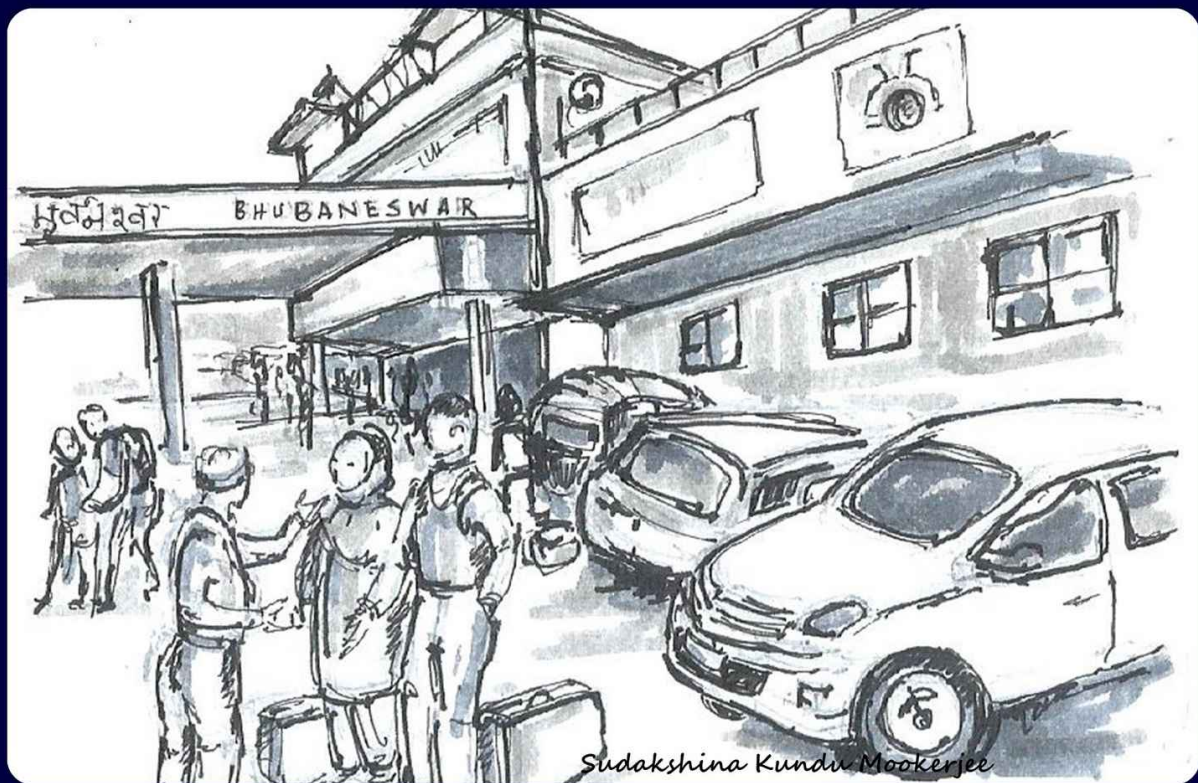
(to be continued...)

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Railway Sketches



Sudakshina Kundu Mookerjee



Sudakshina Kundu Mookerjee

EXCLUSIVE

INCORPORATED BY

East Indian Railway Company

ACT OF PARLIAMENT.

£20 SHARE

This **EXTENSION** *certifies that John Cooper,*
of Lombard Street, is the
 Proprietor of **Ten** Shares Nos 8941 to 8950 of the
 East Indian Railway Company, subject to the regulations of
 the said Company — Given under the Common Seal of the said Company.
 December, in the year of our Lord 1853.

Directors.



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.

EIR Early Days : 1853

PART-VIII



"No more effectual means can be devised both for the consolidation of our military power and for spreading the arts of peace, than the making of railways, ense et aratro."

History -

Dalhousie's Minute

The Marquis of Dalhousie seems resolved to wipe the reproach cast upon the Government of India of not encouraging great and useful public works.

Governor general, Lord Dalhousie had received a series of references from Court of Directors regarding proposals for the construction of various railways in different parts of India. By the end of March 1853, Dalhousie had received report of Consulting Engineers Baker, Pears & Captain Crawford and reports of Turnbull and Stephenson.

After careful deliberation and conferring personally with Major Baker and Major Pears, Lord Dalhousie wrote the famous minute on 20th April 1853, which would lay down the blueprint for establishment of Railway communication in India.

He recorded his opinion with remarkable foresight and brilliance and formulated a scheme for introduction of railways in India, which would be called as "one of the most comprehensive and farseeing, which ever issued from a human brain". – **The History of India, Marshman, 1867.**

The memorable minute, containing 100 sections; addressed the several issues that had been raised in the several dispatches from courts and reports of consulting engineers, embracing the question of a general system of railways for India, the lines required in the Presidency of Bengal & Bombay, projects desirable for the Presidency of Madras, the agency by which the lines should be constructed and the general principle which ought to be observed in the construction of them.

The question could not have been placed in the hands of one better qualified to do justice to it. Lord Dalhousie had been at the head of the Board of Trade during the most active period of railway enterprise in England and had become master of the principles and details of the system. With this preeminent advantage, he united large and comprehensive views of imperial policy in the extraordinary minutes, which would be justly considered the foundation of the Indian railway system.

"I have given my best and most earnest consideration to these great questions, sensible of the responsibility which attaches to the expression of an opinion upon measures that will affect so many and such vast interests; and I now submit respectfully the conclusions I have formed to the collective judgment of the Honourable Court."

He stated that there were immeasurable political advantages to be derived from a system of internal communication which would admit of full intelligence of every event being transmitted to the Government under all circumstances, at a speed exceeding five-fold its present rate; and would enable the Government to bring the main bulk of its military strength to bear upon any given point, in as many days as it would now require months, and to an extent which at present is physically impossible. He believed that the commercial and social advantages which India would derive from their establishment were beyond all present calculation.

Great tracts were teeming with produce they could not dispose of. Others were scantily bearing what they would carry in abundance, if only it could be conveyed whither it is needed. England was calling aloud for the cotton which India did already produce in some degree, and would produce sufficient in quality, and plentiful in quantity, if only there were provided the fitting means of conveyance for it, he stated.

"Ships from every part of the world crowd our ports in search of produce which we have or could obtain in the interior, but which at present we cannot profitably fetch to them, and new markets are opening to us on this side of the globe under circumstances which defy the foresight of the wisest to estimate their probable value or calculate their future extent."

The establishment of a system of railways in India,

judiciously selected and formed, would surely and rapidly give rise within this Empire to the same encouragement of enterprise, the same multiplication of produce, the same discovery of latent resource, to the same increase of national wealth, and to some similar progress in social improvement, that had marked the introduction of improved and extended communication in various kingdoms of the Western world.

He was of the opinion that experimental lines of small extent were no longer requisite, and railway works in India should be undertaken upon a scale proportional to the extent of British dominions in the east.

"If the lines shall be judiciously selected in the first instance; well and economically constructed; safely and thriftily worked; I entertain no doubt that upon the great lines of communication now in the contemplation of the company the returns will be remunerative."

Dalhousie apprehended that Kennedy's attempt to lay down a perfect and comprehensive system of railways covering the surface of India was premature and advised the Court that great trunk lines were of primary importance and were most immediately required. These would form the main channels which future lines should be able to take advantage of, as the best and readiest means of communication with other portions of the Indian Empire.

He provided a general outline of a system in order that available capital for the construction of railways in India might not be frittered away upon local and inconsiderable schemes but might as far as possible be made to conduce to the establishment of those great lines by which the general interests of India would best be served.

The main considerations which should determine the selection of a great trunk line of railway in India must be, – 1st, The extent of political and commercial advantages which it is calculated to afford; 2ndly, the engineering facilities which it presents; and, 3rdly, its adaptation to serve as a main channel for the reception of such subordinate lines as may hereafter be found necessary for special public purposes, or for affording the means of conveyance to particular districts.

He felt that the line from Calcutta by the valley of the Ganges to the North-west Provinces, which was referred by the Court in the Dispatch 67, (1852), would stand the first in order of importance and value, and ought to command the earliest and best attention of the Government of India. The first portion of the line from Calcutta to Burdwan and RaneeGUNGE was sanctioned some time ago. Its extension from Burdwan to Rajmahal had already been approved. The engineers of the railway company and the consulting engineer had been engaged during the past season in closely examining the line proposed from Rajmahal to Allahabad, he added.

Beyond Allahabad the country was known to be eminently favourable for the formation of a railway, although it had not been minutely surveyed. Except for the intervening rivers,

there was nothing to prevent the prolongation of this line to Lahore and to the river Jhelum. The country between the river Jhelum and Attock, was expected to present greater engineering difficulties than the other portions of the line being carried to the banks of the Indus at Attock, within 40 miles of extremest western frontier.

The extension of 1500 miles of railway to the frontier would constitute a very noble work, replete with the highest advantages to the Government and to the public and would keep the borders safe. He felt that the points on which hostile attacks were the most probable were the Caubul frontier and the borders of Nepal.

"Touching every important military station from Calcutta to the Sutlej, connecting every depot, Allahabad, Agra, Delhi, Ferozapore, with the arsenal in Fort William, the line would enable the Government of India to assemble upon either threatened frontier, or, if it were necessary, upon both, an amount of men and materials of war amply sufficient to deal with any such emergency, and within a period which would be measured by days; whereas months must elapse, with our present means, before we could provide the same extent of military defence."

The weary reliefs of corps periodically traversing long distances, at heavy expense to the state, with grievous loss of time, and occasionally with loss of life, would in a great measure be obviated. The heavy tax upon the people of districts, which was often unavoidably inflicted by reason of the necessity of carriage for the troops, would be removed, Dalhousie stated.

"With the prospect of so many and such various benefits to be derived from its construction, I have to recommend that the line of railway by way of the Ganges Valley to the North-west should be completed as far as Delhi with all practicable speed, and that it should thereafter be carried across the Punjab as soon as may be found feasible and expedient."

He believed that the formation of a railway to Diamond Harbour would not be of the slightest benefit to anyone of these, or that, if it were opened for traffic to-morrow, it would induce any one of them to anchor there, or to depart from their usual plan of proceeding direct to this city and suggested that the promoters of the enterprise should provide the line for their own advantage.

With reference to the observations of the Superintendent of Marine upon Chilka Lake, he remarked, that it was too little of a practical question at the moment to warrant a consideration.

He was strongly of opinion that the formation of some line uniting Hindostan with Bombay was immediately desirable. Presidency of Bombay, would be able to afford with safety to itself extensive and valuable aid to the Government of India, in the event of the Bengal army being suddenly and heavily threatened, if only the means of movement for its troops were afforded to it, and a railway were in existence, annihilating the vast distance which separated the two

armies, and which deprived them, in a great measure, of all the advantages of mutual co-operation.

Dalhousie considered that a line of railway connecting Upper India with the Western Ports and with the Presidency of Bombay, would be of great political and commercial value, and strongly advocated its construction.

He recommended that neither the Bhore Ghat line to Poona, nor the Thull Ghat line should be finally sanctioned, until it had been ascertained by full survey that no, better entrance to the table land north-east and south-east of Bombay could be found than those two Ghats respectively, and until further survey of the Thull Ghat and Bhore Ghat lines had been made.

Considering high cost, long length and lack of adequate traffic, he did not recommend that a line from Calcutta to Madras should be taken into consideration. He suggested that Madras should be brought into direct communication with Bombay by means of a line of railway to enhance the military power of the British Government throughout India.

He suggested that experimental line under construction in Madras should be prolonged by Salem to Coimbatore, and through the gap in the Ghats at Paulgautcherry, to the opposite coast, with a branch to Bangalore.

The proposed line of rail would touch all military bases and would enable the Government of Madras to collect its main force rapidly at the capital, either for its own purposes, or for the assistance of the Supreme Government, by embarking and dispatching troops to Calcutta, or to the Eastern Provinces across the Bay, as occasion might require.

He expressed a decided opinion that the construction of the works by a Railway Company, under the supervision and control of the Government, was the best system which was open for the adoption of the Honourable Court. Though, admitting unreservedly that engineer officers of government would make a railway as well, he was still of opinion that the Government ought not to undertake the making of railways.

"I think it far better that railway works should be entrusted to parties ready to execute them by professional engineers of undoubted competency, under the control of the Government, than that public works in other parts of the country should be starved through the withdrawal of the engineers, for whom no adequate substitute can be furnished, merely in order that the railway works may be executed at something less cost, and in something less time, than European agency would spend upon them."

Commenting on the first, second, and third Rules, proposed by Kennedy that all railways in India should belong to one of two classes, the gradient of trunk railways shall not exceed 1 in 2,000, and that the gradient of branch lines, or second-class lines, shall not exceed 1 in 330; Dalhousie advised the Court to not adopt these three rules in the broad terms in which they stood.

He entirely concurred that the engineer constructing Railway

in India should give his first attention to obtaining such favourable gradients as would leave the greatest possible amount of tractive power in the engine available for moving its load of traffic along the line, and thus secure the utmost profit on its working. But he was not prepared to assent to the rules while they required an inflexible adherence to this principle carried to an extreme degree.

It would not be difficult to show that there were but very few cases in India in which such a gradient as 1 in 2,000 could be obtained without such an excessive increase of length of line, or such heavy outlay of capital, as would make it more profitable to work the line with comparatively adverse gradient, however undesirable that course may be in theory, Dalhousie added.

"I have further to observe, that the gradients here laid down as indispensable for trunk lines, is practically unattainable as a general gradient for India."

He did not give any opinion on the introduction of alternate impulsive planes, and to the size of the engines to be employed and suggested to obtain authoritative judgment in England, being purely engineering questions. He also did not agree with the recommendation of Kennedy that no line should be laid if the estimated cost exceeded the average rate of 5,000/- per mile of single road.

There is every reason to believe that in India the cost of railway per mile will probably, on the average, be less than the cheapest of the lines constructed in England, and it is very expedient to lay down such principles as are involved in Rule 5, and explicitly stated in Rules 6 and 8, in order to ensure that railway engineers shall consult the utmost economy in their works consistent with security and efficiency, and shall swell the cost neither by useless ornament nor by superfluous solidity.

He entirely concurred, in the recommendation that all lines should be formed for a single track of rails, with masonry, cuttings and embankments to correspond, excepting only in the case of piling or difficult foundations, which should be formed at once to suit a double track, land in all cases being taken for a double line. In like manner all buildings, stations, and appliances of every kind should be built only for use, and all heavy expenditure upon architectural decoration should be rigidly proscribed.

He was not prepared to advise that 5,000/- should be fixed as the highest average rate of cost per mile that shall be admissible. In Bengal, the first section, of 120 miles, the average cost of construction might not exceed 7,500/- per mile, and the next section, of 120 miles, from Pundooah to Rajmahl, was estimated to cost about 8,500/- per mile. The section of 440 miles, from Rajmahl, at Allahabad, which had just been surveyed, was estimated at about 8,700/- per mile.

Although the plain of Bengal was flat and favourable to railway works, it was crossed by numerous rivers, and liable annually to heavy inundations, which tended greatly to

increase the cost of construction, and the estimates included the expense of bridging all the rivers (except the Soane and the Jumna), many of which were of great size during the rainy season. Still, after making allowance for these considerations, and having regard to the statement of Mr. Stephenson, that his estimates were avowedly made high to be on the safe side; it did not appear probable, that an ordinary mile of road could be constructed for 5,000/-.

Dalhousie advised that while the principle of economical construction should be jealously insisted upon, and an approximation to the sum of 5,000/- per mile of ordinary way should be aimed at, no specific sum should be fixed by the Honourable Court as the highest average rate of cost per mile for railways throughout India.

He also did not agree to limit the running of trains to one and two on each day, under certain specified circumstances, as universally applicable to every future line.

He agreed with the rule, which declared that *no portion of any line shall be permitted to open until the capital account for the construction of such portion had been closed* and suggested its adoption after modifying the stringency of the rule.

He recommended strongly, that the several trunk lines throughout India, especially the great line from Calcutta to the north-west frontier, should be completed as speedily as might be practicable; and to that end that the several portions of the works should be commenced and carried on simultaneously.

"I would submit that it is not advisable that too large an extent of railway should be placed in the hands of any one company, while at the same time economy and public convenience are undoubtedly promoted by as close an approach to uniformity of management as may be consistent with the exercise of a vigilant and effective control over the entire line."

The recommendation would lead to merging of Upper India Railway with East Indian Railway and EIR would have unrivalled right to construct Railway between Calcutta and Northwest.

Dalhousie noted that The East Indian Railway Company had had a difficult task to perform. It entered on an entirely novel undertaking, and, as might have been expected, has had much to contend with. It was therefore entitled to some consideration in the judgment that might be formed on its first operations.

"Although I am inclined to believe that more rapid progress might have been made in the execution of the works that have been in hand during the last two years, I am not disposed to condemn the proceedings of the company."

Mr. Aglionby, Chairman East Indian Railway Company would later proudly inform shareholders on 16th August 1853 that it appeared from the report laid on the table of the House of Commons, that Lord Dalhousie had stated that no fault could be found with the mode of management adopted in the experimental line, and the result was, that the House of

Commons had entrusted the making of the whole line to their charge. – **Sixth Half yearly General Meeting EIR, 16th August, 1853.**

Mr. Stephenson had stated that the first section would be completed by the latter part of next year (1854), portions of it being opened, and locomotives, with carrying stock, provided and placed upon the line within the next few months. This section of 120 miles, equal in extent to the Great Western, and exceeding the London and Birmingham, would be opened, if Mr. Stephenson's anticipations be fulfilled, in about four years from its commencement. People in this country, accustomed to deal with great distances, were disposed to think lightly of four years being required for what seemed to them so small a length of line.

"For my own part, adverting to the fact that this has been a first attempt, and that the works upon the line are considerable, though the country over which it is carried is level, I am not prepared to say that further confidence should be withheld from this company."

He recommended that the East Indian Railway Company should be permitted to undertake the construction of the line from Calcutta to Allahabad, carrying it on in different portions simultaneously and with all practicable speed.

It would not be expedient to admit a second management within so manageable a length of line as that between Calcutta and Allahabad. Moreover, it is for the interest of the Hon'ble Court to concede the whole of this distance to the same company.

The Court had guaranteed to the East Indian Railway Company 5 percent. on the first section to the Collieries, and 4 percent, on the second section to Rajmahal. He suggested that it would greatly diminish the risk and liability of the Court, if its concession to the East Indian Railway Company included the upper and profitable portion of the line as well as the lower, which appeared likely to be less profitable. For this purpose, and to avoid the inconvenience which certainly would result from different rates of interest being guaranteed upon the capital employed in the construction of different portions of the same line, he recommended uniform rate of interest upon the whole capital employed.

Dalhousie recommended that the company should be bound to complete the line to Allahabad within a stipulated period under the penalty of a reduction of the guaranteed interest by a certain proportion for every half year by which the railway company delayed the completion of its work beyond the period named.

He did not conceive that the substantive line from Calcutta to Delhi would be more than a single management could safely and effectively control; and there would undoubtedly be great convenience and advantage, both to the Court and to the public, as well as considerable economy, in one uniform management extending over the whole of this great trunk line.

Dalhousie hoped that the Court too might possibly feel that those who had been the pioneers of railway enterprise in India were entitled to be received with some favour when competing for the privilege to extend the works they had commenced over other districts directly connected with that on which they first began, under the directions of the Honourable Court.

He conceived that the public interests would be served by the line being allotted to the East Indian Railway Company if it offered to construct the line onwards from Allahabad to Delhi on terms as favourable, or even nearly as favourable as its competitor, the Upper India Company, and he advised the Hon'ble Court to grant it accordingly. The recommendation of Dalhousie would dash all hopes of Upper India Railway Company and lead to merging of the company with East Indian Railway.

"I have the honour respectfully to submit these several recommendations to the Hon'ble Court of Directors, and to express my earnest hope that it will resolve at once to engage in the introduction of a system of railways into the Indian empire upon a scale commensurate with the magnitude of the interests that are involved, and with the vast and various benefits, political, commercial, and social, which that great measure of public improvement would unquestionably produce."

Governor General council comprising, F. Currie & J. Lewis, concurred with the above minute and sent recommendations as contained in section 99 of the Dalhousie's minute to court of directors on 4th May 1853. – **Home Department (Railway), No. 4 of 1853, Fort William, 4th May 1853.**

Governor General council member, F. Currie recorded that he entirely concurred with the Most Noble the Governor - General in his opinions regarding the vast importance of Railways in India, in every point of view, and regarding the lines which should be first attempted in the several Presidencies, and the means by which these comprehensive operations should be carried on. – **Sir F. Currie, Bart., dated 2nd May 1853.**

J. Lewis remarked that he more specific recommendations contained in Dalhousie's Minute appeared to him to be highly practical and judicious, and calculated to secure the great end in view economically and within a reasonable time.

"In my opinion there is nothing which will give so immediate an impulse to the moral, social, and commercial improvement of this country as these Rail ways." – **J. Lewis, dated 2d May 1853 .**

Estimates -

The construction of Railway from Calcutta to Peshawar, a distance of 1500 to 1600 miles belonged to a class of which it would be said those day -- *"These are imperial works, and worthy kings."*

Macdonald Stephenson, Managing Director and Agent of East Indian Railway Company forwarded estimates prepared by Chief Engineer Turnbull to Major Baker, Consulting engineering and stated that the cost of the 121 miles of the

first or Raneegunge section would not exceed Rs. 10,799,897 or Rs 89,255 per mile, including all expenses of construction, surveying management, locomotive carrying stock, and maintenance for one year after completion, both of way and works.

The section to Rajmahal was estimated to cost 1,14,56,559 rupees, or 93,906 rupees per mile, for a distance of 1213 miles, and the continuation from Rajmahal to Allahabad was estimated at 4,52,85,365 rupees, or 1,03,156 rupees per mile, the distance being 439 miles, the crossing of the rivers Tonse, Kurumnassa, and all the other large rivers, except the Soane and the Jumna (except which it was proposed to cross at first by ferry), being included.

Stephenson stated, that the Railway Company, being empowered under the Act of Parliament to raise the necessary amount of capital, were prepared within seven years, viz., between the 1st October 1853 and the end of 1860, to complete the entire line of railway communication by the ... Ganges Valley, through Mirzapore to Delhi, and if desired, within the same period to construct a further extension to Lahore, and a branch line through the Soane Valley, to connect Calcutta with the Bombay Presidency.

The cost of the line to Allahabad, complete, and including locomotives and rolling stock, having been advisedly estimated at excessive rates, to provide for the increased cost of iron and freight, would not exceed 6,75,41,821 rupees, upon 683 miles, or an average of 96,300 rupees per mile. The probable cost above Allahabad might be estimated at 60,000 rupees per mile, the items of permanent way materials in both cases being liable to fluctuation from the varying price of iron. – **From R. Macdonald Stephenson, Esquire, Managing Director and Agent of the East Indian Railway Company to Major BAKER, Consulting Report No. 6 of G. Turnbull, Esq. Engineer to Government of India, March 9th, 1853. Estimates, Plans, Calcutta, 21st March 1853.**

Survey: Turnbull's Report

After completing survey of Rajmahal section, Turnbull conducted the survey of proposed route between Rajmahal and Allahabad in the cold weather of 1852-53. Commencing near Oodwa Nullah, the main line would take the Oodwa Nullah or Rajmahal branch, about six miles from the River Ganges. The line there bent to the left and turned the flank of the first of the Rajmahal hills, rising at the rate of 1 in 500. The line still bending to the left, and then to the north, keeping between the hills and the large swamp called the Jälä Jheet.

At Sikragully the line would bend into nearly a due-west course, passing the out-lying hill of Gunga Persaud on the north, and on the old, ruined fortress of Taleagurne, at which place the railway must keep close to the foot of the rock on which the ruins stand. This was the last of the rocky hills, composed of basaltic boulders and red soil, and some quartz pebbles, which must be passed.

The direction was now straight to Colgong, where there would be a station and landing wharf in the River Ganges. East of Colgong the country was very jungly; but clearing was going on rapidly, and cultivation spreading.

From Rajmahal to Colgong the distance was about 50 miles with gradients of 1 in 300, 1 in 400, and 1 in 500, but these gradients were capable of improvement, either by incurring the expense of heavier works, or by making bends or curves to the right or left, all which could be decided at the time of making the working sections, when the estimates of alternative lines could be compared.

From Colgong to Bhaugulpore, about 20 miles, the country was inundated by the annual overflowing of the Ganges. The high land was, found close to the margin of the river, and the line should be carried at no great distance from the present dawk road, and as near to the river as it would be prudent to place it, so as to avoid any danger to the works from the encroachments of the floods of the Ganges.

Bhaugulpore was the large and important station of. Two trial lines were taken there; but on more examination, it was found that a third route would possess advantages over either of those shown on the plan and section. Turnbull proposed establishment of a large station and a communication with the river. Station was estimated to cost 150000 Rs similar to that at Rajmahal.

From Bhaugulpore to Monghyr the distance was 32 miles by the line; more than half of this distance was subject to an annual inundation. It did not, however, appear that the works would be of a difficult character on the whole, as for a considerable distance an elevated natural bank occurred between the river margin and the railway works.

The principal rivers to be crossed were the Chumpan Nuddy, about 300 feet wide, besides a large extent of flooded ground on each side of it, and the Mun Nullah, about 350 feet wide. About half way stood the large thriving village and bazar of Sultan Gunge, close to the rocky promontory and Island Jehangurah, with its temple and ruined mosque. These rocks permanently defined the margin of the River Ganges at this place, and no alteration, it was stated, had ever occurred in the course of the river here, where there was always deep water, and a good landing place.

Turning the end of the Kurrukpore hills, line would reach Monghyr by an easy curve. Future investigation would decide whether it would be most advisable to bring the line close to the town, or carry a short branch down to the riverbanks, and keep the main line at a few miles distance.

From Monghyr, westwards, for above 30 miles, the country was inundated every year; two trial sections were taken; one keeping near the River Ganges, passing a short distance south of Soorujgurrah; the other route keeping a direction more to the south, near the base of the hilly range, and was almost beyond the reach of the inundations, and, passed through better soil, saved two bridges, and avoided the black

alluvial earth called cureo, which was about the worst possible material for making embankments. This line was adopted for the estimates; it was about five miles longer than the other, but its advantages more than counterbalanced the extra length of permanent way.

The Keetul and the Hullohur rivers would require large and expensive bridges. The Hullohur bridge would be 650 feet long, and with an average depth of about 40 feet. The Keetul bridge would be about 500 feet long, and considerably less in height than the other; for both these bridges estimates had been made of cast-iron cylinders, and light wrought-iron superstructures.

After crossing the Hullohur, the best direction would be northwards by Burheea, and keeping close to the high land on the banks of the river, passing the thriving village of Baar, and on westwards by Futwa, across the Poompoon Nuddy, to the city of Patna. For nearly the whole of this distance the works would be out of reach of the inundations. The Poonpoon bridge would be a large and expensive work; an estimate of it had been made on the same principle as that for the River Hullohur.

Some low land occurred west of Futwa partially flooded, which would require arching, or openings for the passage of the floods.

The best line for the railway through the city of Patna, would be on the old earthen mound or rampart, running east and west for a mile and a half, at a distance of three and a quarter miles from the river, and the city could be traversed without the destruction of any valuable property. 2,50,000 Rs was estimated for a large station at Patna.

Baker had suggested in his report that the course proposed for the railway would take advantage of one of the ramparts of the old fort, running east and west about 3,000 yards in length, by which it would be brought into contact with the heart of the city, in the position which would least interfere with the principal thoroughfares. This rampart was the property of Government, but it was let on long leases, and was covered with huts and inferior houses. - **Consulting Engineer Baker's report to Grant, Secretary Government of India, dt. 15th March 1853**

Bridging of River Soane

The River Soane was examined as far up as the crossing of the grand trunk road; and village of Pareu, at the south end of a small island, was found to be most appropriate place of crossing. At this place the banks were steep and well defined, and the clay bottom was occasionally visible, and, especially on the east side, appeared of a more tenacious character than usual.

No estimate had been made of a bridge across the Soane; first, for want of data; and, secondly, because the construction of a bridge was manifestly a work of so great expense, that it was worth consideration whether it would not be best to have a "break" in the railway, and a ferry, and

landing piers for transport of goods and passengers, which could be done at a comparatively light cost. Turnbull estimated for a station on each side of the river, with engine-sheds and turntables for reversing the engines, and other arrangements peculiar to a terminal station.

Leaving the River Soane, the line would proceed nearly due west, in a perfectly straight direction, through a fertile and populous country, passing to the south of the large town of Arrah. Here many flood-openings or arches would be wanted, as the country was in part inundated, principally from the overflows of the River Soane. Line would then proceed on a straight-line westward, on the north side of the Buheea and south of Bhojpoor, approaching the Ganges near Buxar. From the River Soane to Buxar, the distance was 51 miles, and in that distance, bridges would be wanted for the river near Arrah, for the Bunnas Nullah, for the Ganges Nullah, the Kao Nullah, and Bhynsaee.

Buxar was a part of the large establishment for the breeding of cavalry and other horses, kept up by the Government of India. It was well situated on the banks of the Ganges, and opposite the old fort there was deep water; and an excellent landing place for steamers and native craft could be established here with advantage. A station would be built at Buxar.

The line would further bend to the left, keeping a short distance from the Ganges, crossing the Thora Nuddy and River Khurran. The bridge over the Khurramnassa was expected to be a heavy and expensive work; the channel was about 600 feet wide, and about 47 feet in depth. On leaving the Kurrumnassa, the line would go westward, keeping in the highest ground between the Kurrumnassa and the Ganges; it then approached a bend of the Ganges near Lumaneeah, and afterwards proceeded nearly straight to Raj Ghaut, opposite the city of Benares, where a station might conveniently be built.

The line then passed Ramnuggur, a large village of some pretensions, with a Rajah, a palace, and a good bazar. About 15 miles from Benares was the first crossing of the River Jurgoo, and the second was at 19 miles; requiring large bridges. Line would reach Chunar, where a good station should be built near the hospital at the crossing of the great Jubbulpore Road as it possessed the greatest advantages. The sandstone hills in this neighborhood would provide an inexhaustible supply of the finest building stone.

Mirzapore being the chief commercial city of these Provinces, a large amount of station buildings would be required, and branch lines to the river; it was probable also that this would be found to be the best place for locomotive sheds, workshops and repairing shops, as here skilled native workmen could be found, and many other facilities existed.

Turnbull did not go into an estimate of a bridge over the Jumna, for the same reason which he had explained with reference to the River Soane. Commenting on an alternative line of railway pointed out by Mr. Oldham in his Geological

Report on the coal-producing districts of Damoodah and Bheerbhoom, Turnbull stated that the gradients were unfavourable; but there was nothing insuperable, or even of much difficulty, in the line, except at one place, a few miles north of Chuckai, where the line must traverse a broken country, intersected by deep ravines, the sides of which are covered with jungle, and the rocks of the hard gneiss formation, intersected by masses of whinstone and quartz.

A road passes through it circuitously at a place called Betteah Ghat, a little to the east of the gorge through which the River Burnur discharges itself. The part so described is eight miles broad, and the descent is so rapid, that no better gradient can be obtained than one in 58 for four miles, and not without deep cuttings through these rocky hills; the only alternative is a tunnel, which in such a place should not, I think, be entertained.

Because of the above objections, he did not consider it necessary to make any estimate of this line.

He had also examined another alternative line, diverging near Sooree, and following the valley of the River More, proceeding by Nori Haut, nearly straight to Bhaugulpore. For a considerable length the railway must be made through the prevailing gneiss rocks, the excavations in and through which would occupy time. To counterbalance which, however, an ample supply of ballast would be met with. He considered that there were no very important difficulties in either, that is, between Sooree and Rajmahal, and between Sooree and Bhaugulpore direct.

Turnbull desired that two more assistant engineers, which he had indented earlier, should be sent out as soon as possible, to take the field immediately after the rainy season and he would require two more European inspectors skilled in brickwork. He strongly advocated the importance of proceeding simultaneously with all the works enumerated in this report. The general establishment would not thereby be greatly increased; but, as regards the final completion of the whole, the advantages were incalculable.

Works in hand from Howrah to Raneeungunge -121 miles	-- 88,04,087 Rs
Works sanctioned from near Burdwan to Rajmahal-121 miles	-- 1,01,57,809 Rs
Works proposed from Rajmahal to Allahabad - 439 miles	-- 3,80,95,363 Rs
Works at the crossing of the River Soane	-- 4,50,000 Rs
Electric Telegraph - 782 miles, at 100/- per mile,	-- 7,82,000 Rs
Total	-- 5,82,89,263 Rs

Turnbull reported that the aggregate number of miles which had been examined, during the last cold season, including November, December, January, and February, amounted to 818. Six working parties of engineers were employed to survey the sections. The parties so employed were Messrs. Vigers and Denham, between Rajmahal and Monghyr. Messrs. King and Fox between Monghyr and the River Soane. Mr. Claxton from the River Soane to Benares; Mr. Lancey, from Benares to Allahabad; Messrs. Perry and Bourne from Ahsensole by Chuckai, near the Ganges. Messrs. G. and H. Smith on the More Valley Line. – **East Indian Railway Report, No. 6. From George Turnbull, Esq., to the Chairman and Directors of the East Indian Railway - Serampore, 19 March 1853.**

Stephenson, Managing Director and Agent of the East Indian Railway Company stated that the Railway Company had uniformly preferred the less popular and usual practice of adopting a high scale of charges in estimating the probable cost of constructing their works, with a view to prevent possible disappointment afterwards, and as a more equitable course towards their proprietary than by assuming lower rates, which, from the numerous contingencies constantly arising, they might be unable to obtain.

In the detailed estimates for the works below Allahabad, the mileage cost averaged about 96,000 rupees, including all charges, and rolling stock for 682 miles. The Railway Company contemplated works of the strongest, simplest and most substantial character, and would scarcely be justified in putting forward a lower calculation under the existing circumstances of the high price of iron and freight, he added.

Stephenson stated that the Government views would be scrupulously observed, if it was desired to limit the cost to 50,000 rupees per mile (or even a less sum above Allahabad), it could be effected; but it would necessarily involve a diminution in the strength of the structure, which on a trunk line, with a known large traffic, would imply a questionable policy. – **From R. M. Stephenson, Managing Director and Agent of the East Indian Railway Company to Major W. Z. Baker, Consulting Engineer to the Government of India. Calcutta, 23 March 1853.**

Consulting engineer Baker had observed that the estimates for a railway from Rajmahal to Allahabad were considerably too high and recorded -

"Not with any idea that the strength of constructions could be safely diminished, or its quality lowered, but because I believed, after careful examination of the estimates, that a railway on the scale adopted for the present section of the East Indian Railway could be, and would be executed on the line referred to at a lower rate."

He did not think that the rate of 5,000/. per mile, assumed by Major Kennedy as generally applicable to India, would be sufficient for the Ganges Valley line, which, though favourable in many respects, would cross an extraordinary extent of still drainage and inundated land. – **W. C. Baker, Major, Consulting Engineer, 24 March 1853.**

Remuneration for Stephenson

Stephenson was forced to return England due to poor health and in the half yearly meeting held on February 18, 1853, the Board recorded its sense of Mr. Stephenson's service to the company and expressed regret that Mr. Macdonald Stephenson was compelled to return England due to ill health. – **The Half-yearly Meeting of EIR, Feb. 18, 1853.**

It was further decided at the sixth Half Yearly General Meeting, held on the 16th of August 1853; that in consideration of the services rendered by Mr. R. Macdonald Stephenson, in introducing the railway system into India, allowances be paid to him and his representatives, in lieu of the remuneration granted to him by the resolution of the

28th of August 1849.

Mr. Beaumont, the auditor of Company, moved, that the previous arrangements as to the remuneration of Mr. Stephenson, should be superseded by an annuity of 2,500/- per year, for 25 years; or in the event of either Mr. Stephenson or Mrs. Stephenson, surviving that period, the same to be paid to the survivor out of the clear profits of the company, after dividing 5 percent among, the share- holders; the obligation accruing from the passing of the resolution. The following resolution was passed:

"An annuity of £ 2,500 per annum to commence from this day and continue for a period of twenty-five years, or if either Mr. Stephenson or his present wife shall survive that period until the death of the survivor of them, provided that such annuity, and the arrears thereof, shall be, percent on the capital invested in the line to Delhi, as under the terms of the contract with the East India Company shall be divisible amongst the shareholders, and that in no year shall any sum be paid to Mr. Stephenson, or his representatives, for arrears or otherwise, exceeding the amount of which his annuity is payable, and so as that interest shall not run nor accrue on any arrears." – **Sixth Half Yearly General Meeting of EIR, held on the 16th August, 1853.**

Mr. Stephenson, evidently labouring under ill-health, spoke in a low tone of voice and was very imperfectly heard. He was, however, understood to say, that he had devoted 18 years of his life to India. In the first instance he had the honour of being connected with one of the most powerful companies in the kingdom, the great pride of the mercantile marine of this country, the Oriental and Peninsula for five years, and for the last 13 years, he might say, that his services had been entirely devoted to the development of railways in India. He thanked the proprietors very cordially for the kind feeling which they had manifested towards him. – **Railway Record 1853.**

Line to North- West

Noad, Secretary East Indian Railway Company, after learning that Government of India had recommended extension of line towards the Northwest, intimated Court their readiness to make arrangements for completion of the line to Delhi and requested for an early communication on the subject from the Court of Directors. – **Letter from D. I. Noad, Secretary EIR to J. C. Melvill, Secretary East Indian Company, 28th June, 1853.**

Melvill informed Noad on 20th July 1853 that the Court had before them a letter from the Governor of India on the subject, and were desirous of adopting measures for the commencement in various parts, simultaneously, of a line of railway from Rajmahal to Delhi, in view to its ultimate extension to the Punjab and North-west frontier. He requested the Board of Directors of the East Indian Railway Company to communicate the amount of capital required for the purpose, terms & conditions to raise it, and period they would engage to complete the line.

The Upper India Railway Company had offered to undertake the construction of a line in the north -east provinces; but as it might be considered that a single agency for the construction of a railway to the north west frontier, was more consistent with the interest of the public service, it might not be deemed expedient to employ this company, he stated.

In the event of the East India Railway Company undertaking to raise the necessary capital for the line to the northwest frontier, Melvill suggested that some arrangement might be devised for adding a suitable proportion of the capital subscribed for by the Upper Indian Company, to that now to be raised for the extended undertaking and for admitting a certain number of the directors to the board of the East Indian Railway Company.

"I have also to express the court's wish, that the whole capital of the East Indian Railway Company, including that raised for the experimental line and the extension to Rajmahal, should receive one uniform rate of interest or profit; and I am desired to request that the directors will communicate to me their opinion as to the practicability of such an arrangement" – Letter from J. C. Melvill, Secretary East Indian Company, to D. I. Noad, Secretary EIR dated 20 th July, 1853.

Board of Directors of the East Indian Railway Company informed the Court that around £ 8,000,000 sterling would be required to carry the line from Rajmahal to Delhi. This estimate was for a single line and was framed on the supposition that it would not be considered desirable in the first instance to bridge either of the rivers Soane or Jumna. The amount of capital required for the latter portion of the work was not fixed as the surveys had not been carried beyond Delhi.

EIR promised to complete the line to Delhi in seven years, assuming the necessary arrangements to be at once concluded, and every facility to be afforded in this country and in India, during the progress of the works.

With regard to the terms and conditions upon which the company will provide the capital, I am instructed to state that, adopting the provisions of the first contract on all other points, they will be prepared to raise the capital required under a guaranteed interest of 4-1/2 per cent per annum.

The Board of Directors after advising with parties constantly engaged in the largest financial operations, and looking at the nature of the guarantee, had come to the conclusion, that this was the lowest rate of interest under which, in the present state of the money market, the capital could be secured.

Capital was to be divided into 400,000 shares of 20/- each, upon which the Board of Directors thought it would be desirable at once to make a call of 2/- per share, future calls being made at regular intervals, at the rate of 20 percent per annum.

The Board of Directors see no difficulty in appropriating a suitable proportion of the capital to the holders of shares in the association entitled the Upper India Railway Company,

and they will be prepared to elect three members of that association into the board of this company. They apprehended grave obstacles in the way of reducing the rate of interest guaranteed under the first contract; and as the whole undertaking, including the experimental line, would be conducted as one scheme so far as profits or losses are concerned. They felt that no difficulty presented itself in merging the capital, so far as the extension of the line from the experimental line to Rajmahal was concerned; and as the contract for that portion of the line had not been executed in form. – **Letter from D. I. Noad, Secretary, EIR to J. C. Melvill, Secretary East Indian Company, 26th July 1853.**

Regarding the proposals of the East Indian Railway Company, the court expressed their acquiescence in them, except that they thought the line to Delhi ought to be completed in a less period than seven years. Court also agreed to not press the issue of reducing the rate of interest guaranteed under the first contract. They wished, however, that instead of raising the capital of £ 8,000,000 by calls at the rate of 20 percent per annum, the time for collecting it should be extended by calling only 16 percent per annum.

"I have, therefore, the commands of the court to state, that they will give immediate instructions to their solicitor to prepare, in communication with the railway company's solicitor, a deed of contract upon the terms above specified; the other conditions being similar to those upon which the experimental line from Calcutta has been undertaken." – **Letter from Melvill to Noad, East India House, Aug. 8, 1853.**

East Indian Railway Company was informed by the Court that all the conditions of the existing contract of 17th August 1849, and of the contract for the extension to Rajmahal, which had not yet been completed, must be considered as applicable to the line from Calcutta to Rajmahal, as if it were a direct line terminating there. The Board of Directors proposed to issue 400,000 shares of 20/-, each; of these shares 250,000 were to be offered pro rata to the present shares holders in the proportion of 2 new shares for each old and each Extension B share; the remaining 150,000 shares being assigned at the request of the East India Company, and in consideration of the ultimate extension of the line to Lahore and the North Western frontier, to the shares holders of Upper India Railway Company, in the following terms:

In the event of the line from Raajmahal to Delhi, and ultimately to the Northwest frontier, being intrusted to the East India Railway Company, and of a capital for that purpose being authorised of not less than seven millions, a proportion of that capital, to the amount of three millions, shall be assigned to the holders of script in the Upper India Railway, the whole of that scrip being simultaneously delivered up.

It was also proposed to induct three of the directors in Upper India Company in the Board of Directors of the East Indian Railway Company, in addition to the present members. However, directors of Upper India Railway declined to be nominated in the present mode of selection.

This agreement was signed by the chairmen of the two companies, EIR & Upper India Railway Company, in the presence of the Chairman Deputy Chairman of the East India Company.

Chairman informed that the works at present under contract were progressing satisfactorily; nearly the whole of the permanent way for the first section of 121 miles had been shipped; the rolling stock would at once follow; and he hoped that the line might be opened for traffic in next year. This first experimental line was given to the company to test their capacity; and he trusted that the way the important trust had been discharged, would furnish sufficient justification of the confidence which the Government reposed in them upon the recent arrangement. Promoters of EIR had made arrangements, by the bill introduced into parliament to carry out the extended objects of the company, for securing the interests of the holders of the 5 percent shares, he added. The cost of that line would be 10,000,000/, he informed.

It was explained that, after the guarantee of 5 per cent was discharged, and the 4-1/2 per cent. discharged, the divisible surplus profits would be apportioned between the railway company and the East India Company, till the East India Company were repaid all advances in shape of interest. Thus, supposing a net return of 10 percent, 5 would be divided between the East India Company and the shareholders of the railway, leaving the latter, therefore, 2-1/2 percent to deal with being, therefore, their own property. – **Sixth Half yearly General Meeting EIR, 16th August, 1853.**

Criticism

The sum actually paid up on the new shares of the amalgamated company was only 150,000/- against the first call amount of 800,000/-. The company could succeed in obtaining only one-fifth of the capital requisite for carrying out the important project of the connection of Upper India with Bengal and Calcutta. The entire amount of the new capital was to be 8,000,000/-, in 400,000 shares of 20/- each, upon which the East India Company had given a guarantee of four and a half percent.

The failure of the company to get its capital subscribed illustrated in a striking manner the impolicy of entrusting so gigantic undertaking to the hand of one company. Instead of thus encouraging monopoly the East India Company ought to have split the contract into several parts, and given it, with as little delay as possible to two or three companies.

It would be alleged that instead of adopting this reasonable course, the court following blindly the suggestion casually thrown out by Lord Dalhousie did utmost to discourage competition and might even be said to have forced the Upper India -- the only association of importance that presented itself to compete for a portion of the contract to amalgamate with the East Indian on terms far from just.

'Daily news' commented that if the East India Company really wished to promote the Indian railway system, they

should insist upon the East Indian concentrating its energies upon the line from Calcutta to Raajmahal, a line which many persons apprehended would not be completed for many years to come, unless more energy and unity of purpose were infused into the management.

When lord Jocelyn, Chairman of Upper India Railway Company, heard that it was the opinion of Lord Dalhousie, and afterwards that it was also the conviction of Sir Charles Wood, Chairman of The Board of Control, that the whole line ought to be in the hands of the company, he felt there would be no use in baffling those opinions, at a ruinous loss to the company.

Lord Jocelyn informed the Shareholders that after learning that the report from Lord Dalhousie had been received, he waited upon Sir Charles Wood, who stated that he was fully convinced the East Indian Railway Company ought to have the line to Delhi, to pay them for the difficulties with which they had had to contend on the original line.

"He endeavored to show that it ought not to be so, but found he could not alter the opinion of the right hon. baronet, who stated that he had seen the difficulties which had arisen in this country from the North-western and Midland lines being in the hands of separate companies." – **Chairman Speech, Upper India Railway Company, Railway Record 1853.**

Earlier chairman of Upper India Railway Company had requested Governor General on 8th January 1853 to consider claims of the company for construction of Railway in Upper India: - "To undertake the construction of its proposed railway on terms more moderate than those hitherto granted to any of the other three companies to which the Hon'ble Court have extended their sanction and support." – **From J. M. Campbell, Chairman, Upper India Railway Company to the Most Noble the Marquis of Dalhousie, Governor General of India, Moorgate Street, London, 8th January 1853.**

Slow Progress of Work

The slow progress of work would be criticized by Indian press; 'Calcutta Englishman' wrote that The East India Railway, was now a thread-bare subject, and had lost much of its interest, in consequence of the unexampled slowness of its progress.

"We are now assured that it cannot be completed as far as Burdwan before 1856; and if it proceeds at the same rate, it will but reach Mirzapore, even if the whole capital required be supplied at once, in the present century."

It said that few of them could reasonably expect to benefit by a railroad in the year 1900, and they should therefore leave the consideration to those more immediately interested than travellers - namely, the engineers and contractors had they not a faint hope that either Queen Victoria, Louis Bonaparte, or the Emperor Nicholas might take the affairs of India into their own hands within the next ten years. – **Railway Record, May 7, 1853.**

"The result is before us: another guaranteed line, to be

placed in the hands of the East Indian Railway Company, the owners of an existing guaranteed line, as tortuous and as slow in its movements as a crab, and as little inspired by the spirit of enterprise as any guaranteed line we ever yet met with!"

Town Planning

Expecting the growth of new cities, towns and villages which would be brought into existence with the introduction of the Railway, Stephenson suggested that a series of regulations for town planning should be framed by Government.

"Before any buildings are erected, or any steps taken in that direction at the several railway stations, plans of the surrounding country shall be sent in, a valuation made of them, and a series of regulations framed for the observance of all who sell, let or purchase any of the land which may hereafter constitute a portion of the town, with a view to its being built upon sound sanitary principles of drainage, water supply and lighting." – **From R. M. Stephenson, Managing Director and Agent of the East Indian Railway Company, to Major W. E. Baker, Consulting Engineer to the Government of India, in the Railway Department, Calcutta, 10 March 1853.**

In anticipation of opening of Railways in Bengal, local authorities were also making plans for handling the traffic and improving infrastructure of the town, which included the construction of aqueducts for carrying water throughout the town for the purpose of watering the streets, and feeding future public reservoirs and fountains.

"As a faint and distant glimmer of the glory that awaits Howrah when our own railway shall have been finished and the traffic and produce of a hundred provinces shall be brought to that now insignificant place across the water, we may mention the fact that already plans for local improvements are undergoing the process of incubation by the authorities." – **Allen's Mail 1853.**

'Calcutta Review' commented that time a fine hotel would be established at Raneegunge - which would make the place a kind of Hampton Court for Ditchers on holidays, when, after a pleasant journey of five hours, they would be landed at the foot of the hills and be able to realize enjoyments to which the denizens of the Mahratta Ditch are now quite strangers. A little beyond this, the region of the hills began the Switzerland of Bengal, the future scene of mineral and metallic enterprize for this country.

These hills, once the seats of Buddhist shrines and monasteries, with their contemplative residents & chanting priests, were destined yet to be the abodes of a bustling, noisy, mining population, to be the Cornwall of Bengal, when the name *Kaila Desh*, or coal country, would be much more applicable than its present one, of Bahar, the land of Buddhist monks. The Damuda coal field alone embraced an area of seventy square miles, having 300 feet in thickness of coals. Those hills continue for 140 miles, on to the foot of the Dhanwā pass, a land of hill and dale, wood and water, abounding in scenery, interesting to the geologist, and lover

of the picturesque; the climate also changes, the nights are cool and clear, the damp and fog of Calcutta are left behind. When the Railway, which, after many blunderings and delays, was hastening to its completion, would land the inhabitant of Calcutta, who had been for years inhaling the sultry and fetid atmosphere of the Ditch, in five hours, in the land of the mountain and dell we anticipate a great extension to the pleasures of a residence in India.

'The coal mines and Railway, by giving employment, will have a civilizing effect on the people, and will thus give an impulse to education.' – **Calcutta Review 1853.**

Progress of Work

The friend of India published two dispatches in 1853, first in month of April containing the progress of work up to 31st March 1853 and second report in month of December after its correspondent visited entire and conducted trolley inspection of section between Serampore and Bally on newly laid rails.

'The Friend of India', giving a first quarterly narrative of the progress and prospects of East Indian Railway Company, stated that they had collected, from observation and inquiry, a multitude of facts which would give readers some idea of the extent of a work, the first section of which was as large as the Great Western.

Notwithstanding the sarcasms of the Calcutta press, something had been done during the last two perhaps at this moment nearer the completion of our hopes than we have been at any time in the eight years during which the railway has been a subject of newspaper discussion.

Paper asserted that the first section would be open and in full operation by the cold weather of 1854, despite many obstacles, some of the smallest of which were the deficiency of labour during the last 12 months, the nature of a country which might be described as a continuous chain of tanks and creeks, and the occasional deficiencies of the instruments employed.

This first section, from Howrah to the collieries at Raneegunge, a distance of 121 miles, ran by Serampore, Chandernagore, Hooghly, Pundooah, and Burdwan, and at the 121st mile was connected with the Grand Trunk by a branch road. Fifteen miles of the permanent way had been already completed, and by the cold weather of the present year the first 25 miles from Howrah to Serampore, Chandernagore, Chinsurah, Hooghly, and Baadel, would be opened for passengers.

Five passenger engines and five goods engines had been ordered from England and some of them were on their way out, together with the ironwork for carriages, vans, and trucks, all which it was intended to put together in Calcutta.

The difficulty of obtaining freight from Europe, at almost any price, had seriously delayed this portion of the preparations, as it had been created entirely, by the diversion of trade

toward Australia, and the subsequent locking up of whole fleets in the ports of the Southern continent.

We must remark, also, that accustomed, as we are in India, to enormous distances, we may, perhaps be a little unjust in our estimation of engineering difficulties, and apt to forget that in England a line of 70 miles is a great undertaking, and that throughout Great Britain there is scarcely a single line longer than the one from Calcutta to Raneegunge. – **Friend of India, 1853.**

It was true that labour was cheaper, there were few obstacles either from landholders or the Government and that the company was not compelled to build magnificent viaducts over pathways crossed by a single milkmaid once-a-year, but East Indian Railway Company had still to contend with an alluvial soil, with a country pierced in every direction by creeks, ponds, and rivulets, and a deficiency of labour, particularly in the building department, which was said to have given some of the native sub-contractors an excuse for enlisting into their service workmen who would be more in their places in the stable than handling Trowel and plumb line, the paper pointed.

The line to Raneegunge was allotted to five separate contractors, who had obtained lengths of 5, 6, 10, 36, and 60 miles, respectively. Of these, one Contractor had failed to fulfill his engagements, and his division had been completed by the company themselves, under the immediate direction of their own agents. The remainder were steadily progressing, though they had been in some degree delayed by a very general adoption of brick, as the more durable material for viaducts and similar works, instead of timber, which it was at first intended to was the old question, so frequently argued in America, between speed of construction with facility of repair and permanent durability.

The earthworks had been exposed in almost all cases to the action of two rainy seasons before the ballasting was laid, and it had been found from experience that the slope at the sides of the embankment was sufficient to preclude the possibility of accidents from the slipping of the material or the action of water on the line. Indeed, it might be questioned, whether the pitch, or angle of incline might not be reduced with advantage to the pockets of the company.

The entire extent of these earthworks between Howrah and Raneegunge would amount to about 289,000,000 cubic feet, constructed at a total cost of 11,68,000 rupees, or about rupees 4 Rs 9 Paisa the 1,000 feet. The ballasting consisted chiefly of burnt clay, laid on the top of the earthworks to the depth of about two feet, in which the wood or iron sleepers would be embedded. The gross amount of this work, which was more expensive than the actual embankment, was about 21,250,000 cubic feet, at an aggregate cost of 13 lakhs and 75,000 rupees.

Although, the absurd restrictions in force in England had not been so peremptorily insisted upon in Bengal, the number of bridges and waterways appeared sufficient to meet any

possible contingency, and was, perhaps, a little in excess of the actual requirements of the line. The number had been increased in the course of the works, but in addition to two grand bridges at Balee and Bydubattee, and two heavy viaducts over the Mugra and Surasutee creeks, the number of openings was intended to be as follow:

50 openings of 2 feet, 64 openings of 3 feet, 47 openings of 4 feet, 14 openings of 5 feet, 42 openings of 6 feet and 23 openings of 8 feet, 53 openings of 9 feet, 255 openings of 10 feet, 1385 openings of 12 feet, 5 openings of 18 feet. In addition, 11 openings of 24 feet were planned over Tumlah, 4 openings of 30 feet over Bankah, 24 openings of 12 feet & 5 openings of 24 feet were planned over the Singharoon River.

The brickwork for all these bridges and waterways amounted to about 7,250,000 of cubic feet constructed, or to be completed, at a total cost of about 16 lakhs of rupees. In all cases these prices included a stipulation on the part of the company, that the contractors to keep the line in repair for 12 months after its completion.

The iron work for the single line, the most expensive portion of the work, included 18,000 tons of rails, at a cost of 11 lakhs rupees. It was decided early in the history of the line that 84 lb. Rails, the heaviest of any yet employed in England, should be used. They would be of wrought iron, in lengths 14 to 20 feet, with an allowance of one-length for sidings or passing places and station rails. The weight of the chairs amounted to about 4,000 tons, one-eighth of which was supplied by the Porto Novo ironwork at 60 Rs a-ton, and the total cost was about 1,90,000 Rs.

The keys of compressed wood by which the chairs were fastened to the rails, and the pins by which they were secured to wooden sleepers were 1,250,000 and cost some 60,000 Rs. Moreover, in the Raneegunge district there were 20 miles which it was intended to lay entirely with iron sleepers and chair combined, and for this work 2,750 tons of cast iron would be required, at an expense of 2,28,000 Rs., and 57 tons of wrought iron, at an expense of 60,000Rs.

The completion of the operation by laying the permanent way for 121 miles with 12 miles of siding, and the station rails, would cost about 6,50,000 Rs., but this included the transport of the materials from the ship's side by the contractors to any place at which they might be required. The cost of clearing away jungle and excavating the roots of trees was about 82,000 Rs, an expense which was to be attributed to the necessity of effectually preventing the roots of peepul and other trees from dislocating the brickwork or disturbing the embankment -- *an evil which would be estimated at once by any Indian resident who had ever enjoyed the luxury of seeing a peepul spread itself through the wall of his house, with the certainty that it must ultimately bring it down.*

Finally, the stations, together with such apparatus as 'turntables,' 'water cranes,' 'switches,' would cost about six lakhs of rupees There are about 140,000 cubic feet of teak, Saul, and other timber, costing 3,85,000 Rs., about 25,000

Rs. of miscellaneous iron work, 32,000 Rs for metalling ordinary roads, and 23,000 Rs. for gates at level crossings. The electric telegraph, moreover, for the use of the line was to cost about 6,000 Rs., and the expense of fencing which had been allowed to stand over for the present was estimated at three lakhs of rupees.

It was estimated that 78,81,000 Rs would be required to construct railway for a distance of 121miles.

There was an enormous increase in the price of iron, caused chiefly by a sudden expansion of the American demand and the rise in freight since discovery of gold in Australia. The estimated cost of these works was kept above the real expenditure.

Earthworks, 289 millions of cubic feet	Rs.11,68,000
Balasting, 214 millions of cubic feet	13,75,000
Brickwork, 74 millions of cubic feet.....	16,90,000
Rails, 18,000 tons	11,00,000
Chairs, 4,000 tons	1,90,000
Keys, 1,200,000	60,000
Cast-iron for Raneegunge district, 3,750 tons	2,28,000
Wrought iron for ditto, 57 tons	60,000
Laying down rails	6,50,000
Clearing jungle	82,000
Station and station apparatus	6,50,000
Timber	3,85,000
Miscellaneous iron work	32,000
Metalling roads and gates	23,000
Fencing	3,00,000
Rupees	78,81,000

Based on above estimates, the paper asserted that the cost of the first section would not exceed 73,000 rupees per mile, which with the addition of 16,000 rupees for surveying, engineering, and management, made a total expenditure of 90,000 rupees, 9,000/- a mile. This included locomotive engines, carriages, waggons, and other rolling stock, sufficient for the opening of the line, and certainly represented a result as gratifying as it was unexpected, and one which would go far to secure the early extension of railway communication throughout the East. – **Railway Times, Vol 1, May 21, 1853.**

Meanwhile, though the works of this great section had been steadily advancing, the trunk rail had not been neglected, the paper pointed out. The engineering staff had been effectively engaged in examining and taking the levels of a line from a point about nine miles above Burdwan direct to Patna, and another direct to Bhagalpore, to ascertain whether any advantages would be derived by adopting either of these routes in preference to the line to Rajmahal. They had also taken the levels of the entire line by Rajmahal, Bhagalpore, Patna, Benares, Chunar, Mirzapore, and Allahabad. – **Railway Times, Vol 1, May 21, 1853.**

'Friend of India' published a report on progress of the East Indian Railway in December 1853 and stated that they had predicted on the 31st March of 1853 that the rail between Howrah, Serampore, Chinsurah, and Bandel, would be open in the cold weather, from that day to this, the assertion had been abused, ridiculed, or questioned, as contempt or doubt influenced the writer. They considered the statement to have been amply justified by the information before them, and still believe that it might be confirmed by the event.

'We limit our remarks of course to that which is proceeding in this country, and under our own eyes. If the locomotives do not arrive, we have no intention of holding ourselves responsible. If the directors in England forget that engine drivers who never saw the sun in their lives, except through

an English mist, will require some acclimatization, and that native stokers may demand some training, their forgetfulness must not be carried to our account.'

The correspondent, went from Serampore through Bali, upon the rails, and over a road which could have borne a locomotive travelling at thirty miles an hour, as easily as their truck at six. He observed that a want of finish was apparent, here and there. One bridge needed a parapet, a few feet of ballast were wanting on another, and a few rails required the second bolt to lock them together. Nevertheless, judging with unprofessional eyes, he saw nothing, excepting the great bridge at Bali, which three weeks' work would not be sufficient finally to complete. The greater part of the embankment had endured two rains. The openings of which the railway company had been prodigal are complete.

The ballast was laid, and the rails, always excepting the aforesaid occasional bolts, were permanently fixed. It is at the great bridge alone, that there had been, and would be delay, but as this would not stop the opening of the railway, the paper reported.

A glance at this work would do more to convince the sceptical of the difficulties which beset the construction of railways in Bengal, than any arguments we are able to recount.

The Bali Khal was a creek of a character almost peculiar to this country. Upon a soil as treacherous as a Hooghly sandbank, and over a creek which rises sometimes ten feet in a night, with banks which crumbled at the splash of a boat, the company had to build a bridge capable of sustaining a train moving at thirty miles an hour.

The invisible work was accordingly about six times as great as that which was visible. On piles driven thirty-two feet into the soil, and a layer of masonry above them of twelve feet deep, was the foundation of the abutments. These, with the exception of the parapet, were complete. At equal spaces in the river are two wooden piers, also erected on piles and masonry, leaving four spans of eighty feet apart. These spans were crossed by an iron bridge, constructed upon a principle entirely novel in India.

One side would be ready in December, and the locomotive might then run from Howrah to Serampore. On the other side, the only work not yet complete was the section within the limits of Chandernagore due to delay in land acquisition.

The contest 'begun under the republic, was continued under the empire,' and it was not till last week that the French authorities consented to allow the workmen to commence operations. Since then, the work had proceeded incessantly, and when it was complete, in the beginning of December, the last obstruction of the many which had intervened since the first sod was turned, would have disappeared, the paper reported. – **Friend of India.**

Railways in India to Abolish Slavery in America

Progress of Railway works in India would invite interesting

comments and expectations from newspapers. 'The Daily News' reported that it had been amusing to a good many people in England, within two or three weeks, to see it announced with a certain amount of flourish, that a grand sensation was excited in the cotton growing states of America, and that an entirely new prospect of abolishing slavery was opening, by the probable extension of railways and cotton-growing in India.

There a good many Quakers and other benevolent persons smiling over the news, - men who were busy so long ago as fifteen years in promoting cotton growing and transport in India, as the shortest way of putting an end to American slavery.

For years the Americans, who were tempted by high salaries to go to India, to superintend the preparation of the cotton for the market, had known that they must get away quietly, and not think of returning so great was the dread entertained by the American planter of what India might do. It was also some years since the planters learned that they need not alarm themselves about anything that Indian railways could do to them during their natural lives, and till there were railways the cotton of India would go on to be spoiled in an enormous proportion by the accidents natural to bullock carriage - the tumbling, the hauling, the wetting, the daubing, the dusting that the bales get between the press and the port.

Paper remarked that the Railroads and ships, exploration, manufactures and commerce, were all hostile to slavery; and slavery was the only cause of hostility between America and any other part of the world. *Our duty is clear - to develop our Indian resources rapidly and without stint -- thus promoting and ensuring at once human liberty and the amity of nations.* – **The Railway Record 1853.**

Construction of Line by EJR Engineers & Contractors

It had been determined that contractors should, for the most part, be employed in the construction of the railway; yet it was also settled that a trial of the plan of making it by the direct agency of an officer of the Company should be made. During the early part of 1853, Mr. Sibley, an engineer of conspicuous ability, was selected by Mr. Turnbull for the construction of the first 45 miles of the line from Burdwan, on which length there were some works of peculiar difficulty.

As early even as August 1853, Mr. Turnbull, the Chief Engineer, felt obliged to bring to notice the great backwardness of some of the lengths let to contractors after reviewing the progress of work. He stated that Messrs. Burn and Hunt would in all probability finish their contracts by the end of 1853; that Mr. Ryan might possibly do so, but that Mr. Daniel certainly would not. Mr. Ryan, however, was reported as completely misunderstanding his position as a contractor, and as quite ignoring all orders and instructions given by the engineers of the railway company. – **Railways in India by Edward Davidson.**

In consequence of this report Mr. Daniel's contract was taken out of his hands, with the sanction of the Governor-General. Some small quantity of work was done by a firm which appeared to have been Mr. Daniel's security—or rather Mr. Jackson's, Mr. Daniel's senior partner—but who was allowed to withdraw from the contract at an early stage; but the arrangement evidently proved unsatisfactory, for in October 1853, Lord Dalhousie sanctioned the completion of that portion of the line by the railway company under the supervision of their own Resident Engineer. Still, notwithstanding these failures, 95 miles out of the 121 from Calcutta to Raneeunge were executed by contract, but the contracts included only excavation, earth work, masonry, ballast, and laying the rails.

The contract system, as hitherto applied to India, was by many regarded as a failure; but it was not generally known, that so far back as 1847, the Railway Company invited and held out every inducement to the principal English contractors to embark in these works; but the objections outweighed the inducements. The Company advised the adoption of the contract system for the first contracts, because the practice had been found most advantageous in Europe & America, and was regarded as the most perfect realization of the principle of the division of labour. – **Letter from Stephenson to Baker, 23 March 1853.**

The Company anticipated increased competition in all future contracts from new contractors who might be brought out, and from parties who had been engaged under the first contractors, and still hope to realize these expectations.

<p>THE EAST INDIAN RAILWAY COMPANY</p> <p>Are desirous of receiving TENDERS for the supply of the RAILWAY MATERIALS enumerated below, of which the Specifications, Drawings, and Forms of Tender, may be inspected at the Company's Office, 50, Old Broad street.—(Deliverable in London or Liverpool)</p> <p>50 Tons of Rails and Nuts, 500 Tons of Chain Plates, 65,000 Compressed Wooden Keys, Rangoone and 500,000 Treadles. Messrs' Patent.</p> <p>Tenders will be received only in the prescribed Form, addressed to the Secretary of the Company, 50, Old Broad street, City, on or before Twelve o'Clock at Noon, on Monday the 21st day of October instant.</p> <p>The Company do not bind themselves to accept the lowest or any Tender.</p> <p>By Order of the Board, D. I. N OAD, Secretary. 50, Old Broad street, London, (October 1), 1853.</p>	<p>If, however, the Government considered that the works could be carried out in part or wholly by the Company themselves, or by any other means more advantageously, the Railway Company would spare no exertions to give full</p>
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effect to any suggestions having this object in view. – **Letter from Stephenson to Baker, 23 March 1853.**

Sinking of Ships:

Construction of railway would be partially affected as ships containing track materials would be occasionally lost in treacherous sea and sand heads of rivers. 'Hurkaru' reported on 23rd September 1853 that another ship was lost yesterday morning, - the Bengal, a fine ship nearly new, being only on her second voyage from England.

"At six o'clock on Thursday evening, she had not four inches of water in her hold, at two o'clock yesterday morning she had sixteen feet ! There can be no doubt that the sheering of the ship in the heavy current brought her chain athwart her stem and tore it away from the planks. As soon as the leak was discovered, both chains were immediately slipped, and she was hauled to the spot where she now lies, a short distance below Baboo's Ghat."

Paper feared that she would be totally lost, having on board a heavy cargo of railway-sleepers and other iron, and being grounded on a very bad place, where two other large ships were similarly circumstanced, viz. the Candiana and the Targe, irrecoverably sunk, notwithstanding the very expensive efforts made to raise at least one of them.

"The Bengal also brought four lacs of treasure for the Oriental Bank; but this was fortunately landed, so that the Railway Company are the principal sufferers." – **Hurkaru, Sept. 23, 1853.**

Iron Making

Government was desirous that demand of iron should be met by local supply at least partially and wanted to encourage manufacturing of Iron in India with introduction of Railways in the country. – **Extract from letters from court of directors, dated 5 th October, No. 8 of 1853.**

In the cost of the iron, a saving of above 10,000 rupees per mile might be effected by arrangements with the New Indian Iron Company for the early construction of the necessary blast furnaces, forges, mills and machinery to supply the whole of the wrought and cast-iron required during the ensuing seven years, at agreed prices, hereby securing a certain supply at a most reduced cost, and affording direct encouragement to an important branch of Indian trade. – **R. M. Stephenson, Managing Director and Agent. 23d March 1853.**

Government of Bengal had requested Major W. E. Baker, Consulting Engineer to the Govt. of India, to examine Memorandum on the prospect of remuneration in working the Iron Mines of the Raneeunge district, prepared by Professor Oldham.

Baker remarked that the prospect of profit in working these mines, had been fully and ably discussed by Professor Oldham in his report, dated 18th May 1852, pp. 9 to 20, which concluded:

"That under existing conditions the manufacture of Iron, on any efficient scale, and on the European system, cannot be undertaken in this district with a certain prospect of such a return, as would justify the great outlay required."

One of the most important calculations on which Mr. Oldham's conclusions rested, was that of the relative cost in England and India, of the raw materials required for the manufacture of a ton of pig Iron - showing a difference in favour of India, of which he did not consider to afford a sufficient margin to cover the increased cost of machinery required for the subsequent processes -- or the risks so forcibly and truly enumerated in the 13th page.

About half of the estimated cost in India was that of limestone, which was set down at 8s. 6d. a ton in Calcutta, and 27s. a ton at Raneeunge — but the mineral branch of the Railway was now approaching completion, and though stopped for the present at the Collieries, would doubtless be extended to the site of any large Iron works that might be

established - this would convey limestone from Calcutta at about 7s. 6d. a ton, making an aggregate cost of 16s. instead of 27s., and exactly doubling the difference of cost in favour of India.

Order to Porto Novo Iron Company of Madras

In connexion with this subject, consulting engineer Baker mentioned that the chairs supplied for the East India Railway by the Porto Novo Iron Company of Madras — had been much objected to, by the Engineers, as being brittle, and somewhat irregular in shape.

"I would not say that these faults (if not exaggerated) are irremediable — or that they would necessarily be found in the Raneegunge manufacture but they serve to illustrate the truth that something besides the raw material is requisite to the production of a marketable article and perhaps also, we may further deduce from these circumstances, that Iron of local manufacture will have to encounter a certain amount of prejudice on the part of English Engineers and Plate layers. — **G. A. C. Plowden, Offg. Secy. to the Govt. of India. (Sd) W. E. BAKER, Major, Consulting Engineer to the Govt. of India. 20th June, 1853.**

In 1830 Mr. Heath, Agent for the East India Company (EIC) proposed the manufacture of iron based on the mineral deposits of magnetic oxide near Salem. Following trials, Mr. Heath formed a Company, the first iron works of India, at Porto Novo on the Coromandel Coast at the mouth of the Vellur River to produce high quality manganese iron. The ores were prepared near Salem and conveyed by water to Porto Novo. The charcoal for the works was obtained from the extensive jungle at the mouth of the Coleroon River. Porto Iron Works would supply rail chairs and other small iron items to various rail companies in India.

Discovery of Fossil Remains

EIR engineers would come across specimens of fossils, mineral and archaeological remains during survey and construction of Railways, which would be properly recorded and sent to Asiatic society and Geological survey of India for detailed investigation.

George Turnbull, Chief engineer of East Indian Railway discovered specimens of Bones in the Damoda valley while excavating ballast for the experimental line. Major Baker, Consulting Engineer forwarded specimens of bones, found in the Ranigunge district by G. Turnbull to Asiatic Society. An extract from Major B.'s letter:

"I beg to forward, for presentation to the Asiatic Society, on the part of G. Turnbull, Chief Engineer of the East Indian Railway, some fossil remains consisting of a set of tarsal bones, and three fragments of the jaw, of a large ruminant."

These specimens, encrusted with limestone (Kankur), were found in the Raneegunge district, near the confluence of the Damuda and Singharin, in an excavation made for the purpose of obtaining ballast for the Railway. These were

accompanied by several other fossils, which were said to have been of a similar character to these now presented to the Society. It was probable that they all belonged to one animal, Baker wrote. — **Asiatic society of Journal 1854.**

Overall, however, it appeared that the gradients upon the Rajmahl route were so much easier than upon any of the other lines that that route had been finally preferred. The reports, plans, sections, and other information had already been prepared and submitted to the Government, previous to being forwarded to England to enable the authorities to decide upon the extent to which they would sanction the extension of operations during the ensuing cold season, and to determine a general scheme for successive proceedings in the same direction during the next few years.

The company, informed their shareholders that being empowered under the Act of Parliament to raise the amount of capital required for the construction of their entire line through Mirzapore to the furthest extremity of the north-west provinces, the subject would be brought under the immediate consideration of the Government of India and the home authorities, accompanied by the engineer's reports, plans, and sections taken during the recent surveys, with a view to the several sections of the line being simultaneously proceeded.

"There was every reason to urge the early completion of arrangements for the simultaneous execution of the whole of the sections from Howrah to the north-west provinces and as under Railway Company's act of Parliament they could raise 14 crores of rupees under their present powers, there was no reason for delay upon the ground of expense." — **Railway Times, Vol 1, May 21, 1853.**



Parlakimedi Light Railway

The First Royal Railway Line of Odisha

First Part : The Farly Days



Bishnu Mohan Adhikari

an independent researcher & a rail enthusiast. He is a BTech graduate in electronics and communication engineering and also has a Masters degree in Arts in Odia language. For his contribution in research & documentation of rare photographs on the history of Odisha and for special efforts in preserving rail heritage, he has received appreciation from various quarters which includes the Hon'ble Chief Minister of Odisha, the Governor of Odisha among others.

Paralakhemundi – an ancient town in Gajapati district of Odisha, popularly known as the cultural capital of southern Odisha was ruled by the Gajapati Kings of Kalinga belonging to the Eastern Ganga Dynasty whose extent spread across an area of about 612 square miles which used to be a productive and populous estate. The estate was surrounded by the mighty Eastern Ghat ranges and dissected by several rivers like Mahendra Tanaya and Bansadhara. During the British era, it was pronounced as Paralakimedi or Paralakimidi which literally means a coral shaped city.

• Introduction of Railway to Odisha :

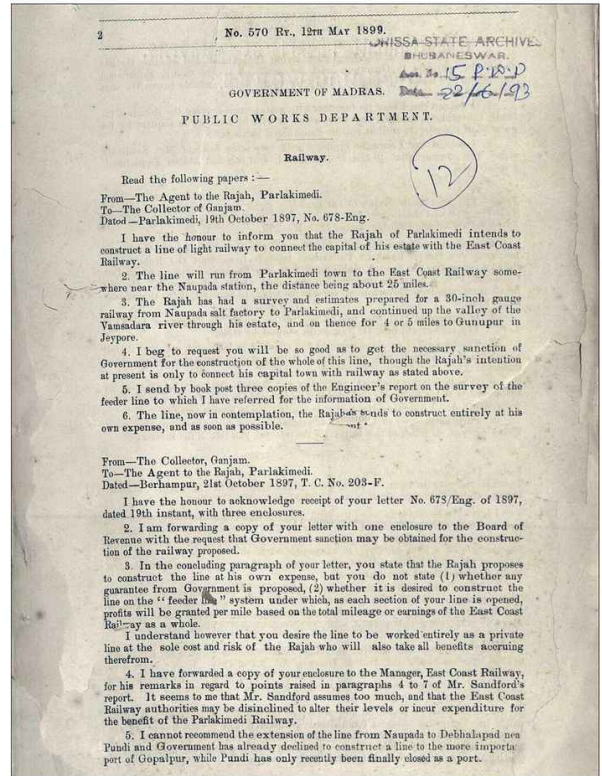
Railways came to exist in Odisha in 1890 with the construction of the Raigarh-Jharsuguda-Goikera section upto Asansol. Then, in 1893, the Kharagpur-Cuttack-Khurda Road-Puri line (controlled by Bengal Nagpur Railway) came into being. Subsequent link up along the East Coastal line upto Vijayawada – the junction point of Southern Maratha Railway and Nizam's Guaranteed State Railway happened later. As a result, a total stretch of 1280 kilometres of East Coastal line covering the entire coastal stretch of Cuttack – Khurda Road Jn. – Puri – Khurdha Road Jn. – Palasa – Vizianagaram – Visakhapatnam – Kakinada – Rajahmundry – Vijayawada was opened for traffic in between 1893 to 1896.



• Origin of the Light Rail :

The credit for the very first dedicated railway line for Odisha goes to the king of Paralakhemundi estate under whose reign the light railway saw the light of the day in the year 1899 which came to be known as the "Paralakimedi Light Railway" or PLR. This light railway carries significant importance in the history of Odisha at a time when railways had touched a very few parts of the nation. For benefitting the people, W. Taylor – the agent to the Maharajah Goura Chandra Gajapati Narayan Dev, had written a letter to the British Government through the District Collector of Ganjam on 19th October, 1897 for sanction of the railway line after completing a primary railroad survey of 25 miles from his capital Sansthana to the Naupada station which was a nearby main line station on the Chennai (the then Madras) route. However, estimation was prepared for a 30-inch gauge railway from Naupada station to Paralakhemundi which continued up the valley of the Bansadhara river through the estate.

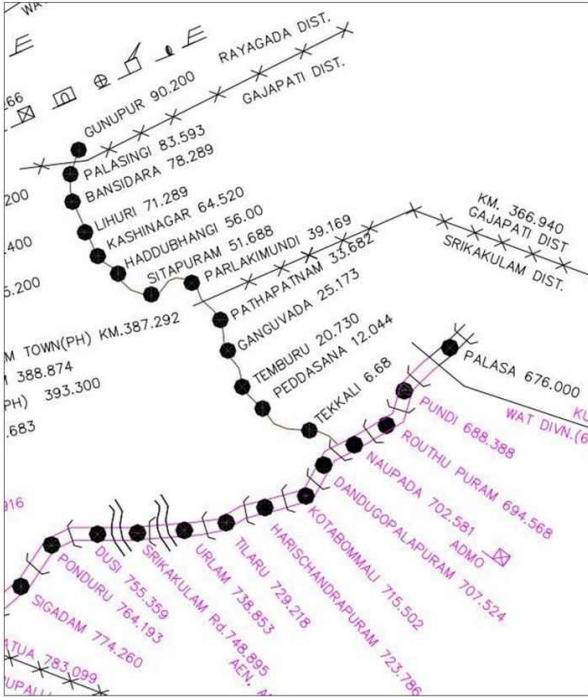
Maharajah brought sanction from the Government of India in 1898 for this project as work was completed within a 13 months' time only in 1899 and the section was opened on 30th December of the same year with the maiden service carrying the Collector, the Maharajah and a few 'Local Europeans'. But passenger and goods services for public commenced on first April of 1900 only. Construction of the line was overseen by a British Civil Engineer J.R. Sandford under Maharajah's supervision. The total cost of the project was 7,00,000 INR which was entirely borne by King Goura Chandra Gajapati. PLR was indeed a great initiative in Odisha which brought its people within the ambit of modern transport and communication in the form of railways. Later



in 1930, the king's illustrious son Maharajah Krushna Chandra Gajapati – the first Prime Minister of Odisha, extended the Naupada - Paralakhemundi Rail line up to Gunupur (which was then within the Vizagpatnam district under Madras Presidency) for rail infrastructural development in the tribal district of the then Koraput district. This 50-kilometre extension project started in 1925 to be completed in two phases.

As per records, this Royal Railway Line was the first 'Light Rail' of Odisha. After opening of 5 years of Naupada Jn.-





Paralakhemundi section, the philanthropic king of Mayurabhanj, Sriramachandra Bhanjdeo (a princely state of northern Odisha) started the Rupsa-Baripada line on 20th January, 1905 with the PLR being the sole inspiration. PLR holds the distinction of being one of the first 2ft. 6 inches railways to be completed in the country after the then government had adopted the said gauge as a standard for light railways in the nation.

Courtesy: Somsubhra Das



Courtesy: Somsubhra Das

• Locomotives and Rolling Stocks :

Paralakhemundi locomotives were built by the Brush Electrical Engineering Company (Loughborough), England. They had 13"×18" cylinders which could work to 140 lbs pressure of steam – powerful enough by standards of those days. The locomotives carried a logo of Gajapati Maharajah's State Emblem, i.e., 'Crowned Elephant'. The nomenclature of locos had 'PL' in them which stood for Paralakhemundi (PLH). The locos were christened as Jagannatha, Balabhadra, Hanumana, Maruti and Parasurama by the royal family. During the Centenary Celebration of the South Eastern Railway in 1987, the Philatelic Society came up with four Indian postage stamps related to railways of which one of them featured PLR-691 – one of the steam locomotives used in PLR. At present, the various PL locomotives are plinthed in different parts of India. PL-691 is stationed at the Southern Railway Headquarters, Chennai while PL-692 is pedestaled outside of the BNR Hotel, Puri. PL-693, PL-694 and PL-698 are plinthed outside Vizianagaram station, Vishakhapatnam station and Bengaluru railway station respectively with PL-697 finding a place at the DRM Office of Vishakhapatnam. Much later, the steams made way to the ZDM class diesel locomotives.

The coaching stock was designed by Mr. Arthur Morton Bell – the loco and carriage superintendent of East Coast line under GIPR. The PLR train had three types of saloons - a "Special Class" one, a "Composite" carriage with upper- and lower-class saloon along with a Post Office compartment and a "Lower" class carriage. It was proposed to provide accommodation in the trains for only two classes, "upper" and "lower". The special carriage was designed as a State Royal carriage for the Maharajah and was used only on special occasions for guests of the Royal State. It was quite an amazing carriage on bogies having dimensions of 34'x6'. The PL 'Sahi Saloon' has become an exhibit at the Regional Rail Museum, Nagpur. Eminent freedom fighters like Gopabandhu Dash and Madhusudan Dash have had their brush with PLR along with the Father of the Nation.

Many more such anecdotes on the journey and history of PLR, the role of PLR in movement for a separate province and Gandhiji's visit to follow in the next instalments....

Photos provided by the author unless mentioned otherwise.

TECHNICAL INSIGHT



INDIA

THE NATION WITH GROWING METRO SYSTEMS

Part-IV : The Beauties of the West

Anamitra Bose

During the British Raj, the graph of industrial and commercial powerhouses was almost neutrally skewed between Eastern and Western parts of India. The East produced heavy machinery, automobile, jute etc. whereas the Western states produced cotton, petroleum products among others. With the passage of time, the British Raj ended marking the gradual beginning of shift of center of economic power and activity from the East. The political unrests, silting up of the Kolkata Port, Freight Rationalization Policy catalyzed the process further. From the 1970s, Bombay became the commercial capital of the country with almost all the major banks and MNCs having their headquarters there. Gujarat, with its positive intent towards setting up industrial zones gradually joined the

bandwagon. Many heavy machinery and electrical equipment manufacturers set up their plants in Gujarat from the late 1990s.

Bombay or Mumbai was the first city in Indian subcontinent to get a suburban railway service in the form of an EMU train on 3rd February, 1925 between Mumbai CSMT (Victoria Terminus) to Kurla (Coorla Harbour). Gradually the network grew between Central (then GIPR), Western (BB & CI), Harbour and Trans-harbour lines. Gradually with every passing decade, the passenger count grew bigger by almost 10 times. With Mumbai Urban Transportation Project phases, the network grew and the number of coaches in rakes were increased to 12 and then 15 but it still did not

rove enough to cope up with the spurt in demand on an already oversaturated system. Certain factors also played crucial roles which gradually led to a demand for an alternative mass rapid transit system in the commercial capital of the nation. Firstly, the Mumbai suburban system was mostly aligned from North-South parts of the city while the East-West connection was handled by the BEST buses. Secondly, after the discontinuation of Tram services in Bombay, the passengers shifted towards suburban railway augmenting the pressure on the local trains. Thirdly, the newer generations preferred personal vehicles or cabs rather than the hustle of local trains at peak hours. Thus, the need for a seamless and convenient transportation system soon became an absolute must.

For Ahmedabad, the scenes were quite similar as the city of Ahmedabad was growing by leaps and bounds – both in its extent and populace. While lacking in any good railway transportation in and around the city, the authority focused on building a good road transportation system in BRTS (Bus Rapid Transit System). Still, an integrated railway-based mass rapid transit system became necessary to relieve the city of its congestion. Also, the twin City of Gandhinagar with its administrative offices and new economic zones like GIFT City made the authority and the public rethink about a metro railway system.

Moving on to the capital city of Rajasthan aka the Pink City or Jaipur, the desire to connect the tourist hubs with the commercial pockets by a reliable and fast transport system led to the proposal of Jaipur Metro.

With this, the megacity of Mumbai, the bustling hub of Ahmedabad and heritage city of Jaipur got included in the metro map of the nation.

:: MUMBAI METRO ::

Mumbai Metro Master Plan was taken up by the authorities to connect all fringes of the megacity with a rapid transit system in such a way that commuters can access any destination within the city limits by limiting cab travelling to a radius of 1 to 1.5 km only. Mumbai Metropolitan Region Development Authority (MMRDA) appointed DMRC in May 2003 to prepare a Master Plan and DPR for the priority corridors across the city. The Master Plan initially included 9 corridors, as listed below, covering a length of 146.5 km of which 32.5 km was underground while the rest was elevated.

- Versova - Andheri - Ghatkopar (11.4 km)
- Bandra - Kurla - Mankhurd (13.37 km)
- Colaba - Bandra - SEEPZ (38.24 km)
- Charkop - Dahisar (7.5 km)
- Ghatkopar - Mulund (12.4 km)
- BKC- Kanjur Marg via Airport (19.5 km)
- Bandra (E) - Dahisar (E) (16.5 km)
- Hutatma Chowk - Ghatkopar (21.8 km)
- Sewri - Prabhadevi (3.5 km)

In 2011, MMRDA decided to extend the planned 20 km. Colaba to Bandra (Colaba to Mahalaxmi is underground, Mahalaxmi to Bandra elevated) to SEEPZ touching the Chhatrapati Shivaji Maharaj International Airport thereby making it a 33.5 km. long corridor with 27 stations enroute. On 27th February 2012, the Union Government approved the Line 3. In April 2012, the Mumbai Metro Rail Company (MMRC) was granted autonomy to execute the project. In July 2012, a corridor along Western Express Highway (WEH) and Western Railway line was planned from Bandra to Dahisar. Another 30 km. long line was proposed from Wadala to Kasarvadavali. The master plan was thus revised by MMRDA for a network of 160.90 km.

8th June, 2014 was a historic day as Mumbai got added to the global metro map with the first commercial run of Line 1 (Blue Line) from Versova to Ghatkopar. This is operated by Mumbai Metro One Pvt. Ltd. (MMOPL) which is a venture by Reliance Group, MMRDA and RATP Dev Transdev Asia, France.

In 2015, MMRDA proposed two new lines to the government, one from Andheri (West) to Dahisar (West) and another from BKC to Mankhurd. Following the commissioning of Line 1, MMRDA decided to take up Colaba-Bandra-SEEPZ (Line 3), Dahisar (West)-Bandra-Mankhurd (Line 2) and Wadala-Thane-Kasarvadavali (Line 5) as priority corridors with other lines for future consideration and implementation. It was also decided to make every corridor as elevated except the Line 3 which will be entirely underground. The entire Mumbai Metro network uses 25 KV 50 Hz AC OHE as traction supply system and 1435 mm wide standard gauge tracks.

Line 1 or the Blue Line :

This line connects Versova to Ghatkopar via Andheri covering 11.4 kms and has 12 stations. This section is operated by MMOPL and was opened on 8th June, 2014.

Rolling Stock : Chinese CRRC Nanjing Puzhen made 4-coach rakes operate here. These rakes are equipped with three

Photo taken by author





Photo taken by author

phase propulsion system, regenerative braking and has passenger friendly amenities. The coaches are fire retardant, air-conditioned, featuring LCD screens, 3D route maps, first-aid kits, Talk Back systems. Each coach is 2.9 meters wide and a four-coach rake can carry 1100 passengers.

Signalling System : Siemens supplied its LZB700M cab signalling system to Mumbai Metro One, which is equipped with Automatic Train Protection (ATP). The communication systems are supplied by Thales.

Line 2 or the Yellow Line :

The Line 2 was planned to connect Dahisar (West) to Mandale via DN Nagar, Bandra and Kurla. The line is being executed in two phases – Line 2A from Dahisar (West) to DN Nagar and Line 2B from DN Nagar to Mandale.

Line 2A is 18.6 km long and has 17 stations and it is completely operational and was opened for service from 19th January, 2023. The corridor was executed by DMRC on behalf of MMRDA but is now operated by MMRDA. Line 2B is yet to be operational and will be of 23.6 km long with 22 stations enroute.

Photo taken by author

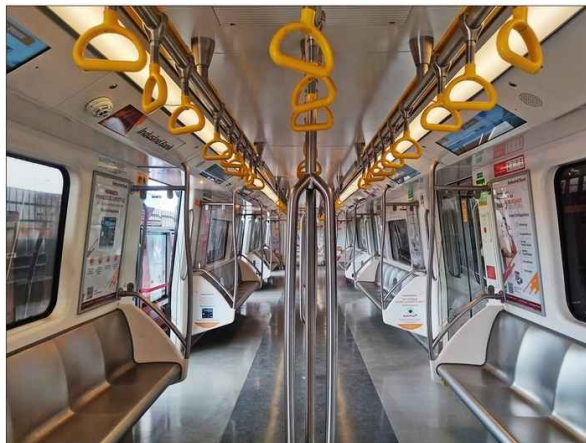


Photo taken by author

Rolling Stock : Line 2 uses 6-car rakes made by BEML at their Bangalore facility. BEML received the order to supply 576 coaches, i.e., 96 trainsets under the contract name MRS-1. In MRS-1, the order was awarded to BEML in three phases of 378, 126 and 72 coaches respectively.

The coaches are stainless steel made with 2J finished exterior and coloured graphic films. The rake formation is DMC-TC-MC-MC-TC-DMC where DMC means Driving Motor Coach, MC means non-driving motor coach and TC means Trailer coach. The rake has helical coil as primary suspension and secondary air suspension in its bolster less two axle bogie design. The rakes have 3-phase VVVF propulsion system as it is motive module. The rakes use Blended brakes of regenerative and pneumatic brakes for effective braking. The traction, braking, cooling, Information system is connected via Ethernet based Train Control and Management System (TCMS). The propulsion and TCMS is supplied by Hitachi.

The interiors have powerful cooling system, intelligent LED-based lighting, stainless steel seats, Fiber Reinforced Plastic panels, stainless steel hold rails for better passenger comfort. The coaches also have cycle parking facility. The trains are built to run on UTO (Unattended Train Operation) mode on CBTC signalling system following GoA-4 standards. The trains run on 1435 mm standard gauge tracks and receive power from 25 KV AC rigid and flexible OHE.

Signalling System : The Yellow Line is equipped with Alstom supplied Urbalis 400 Communication based Train Control signalling system. This will enable the trains in driverless mode in a headway of 90 seconds.

Line 3 or the Aqua Line :

The Line 3 is fully underground metro corridor of Mumbai Metro and is 33.5 km long with 27 stations. It will connect Cuff Parade in south of Mumbai to SEEPZ and Aarey Colony in north. It will connect both terminals of Chhatrapati Shivaji Maharaj International Airport. It is one of the most important



Courtesy: Rajendra B. Aklekar

corridors as it connects CSIA, Mumbai Central, Dadar, Mumbai CSMT and Churchgate. This line is being built and will be operated by MMRC.

Rolling Stock : The line will use Alstom-made 8-car trainsets along its entire corridor. In September 2018, MMRC awarded a contract to supply 336 coaches for 42 8-car trainsets which are being manufactured at Sri City, Andhra Pradesh. The rakes will have 3-phase VVVF propulsion system powered by 25-Kv AC OHE. The rakes will have paintless stainless steel coaches with seating capacity of 300 in each of them. The rakes have provision to run in UTO mode in GoA-4 standards.

Signalling System : Line 3 will use Alstom's Urbalis-400 CBTC signalling system to enable GoA-4 train operations.

Line 4 or the Green Line :

This 32.32 km long Green Line is planned to be a fully elevated corridor from Wadala in south Mumbai to Kasarvadavali in Thane via Chembur, Bhandup and Teen Hath Naka.

The Green Line is proposed to be extended upto Gaimukh in north from Kasarvadavali as a 2.88 km Line 4A section. Further in 2019, it was decided to build metro corridor upto Shivaji Chowk in Mira Road from Gaimukh as **Line 10** which would be 9.20 km long.

Southwards, the Green Line will be extended upto Mumbai

Courtesy: Rajendra B. Aklekar



CSMT making a 12.78 km long **Line 11** with 10 stations of which 8 will be underground and 2 stations will be elevated.

Rolling Stock : Bidding under process and yet to be procured.

Signalling System : Bidding under process and yet to be procured.

Line 5 or the Orange Line :

The Orange Line from Thane-Bhiwandi-Kalyan will be 24.9 km elevated corridor and will have 17 stations. The line will start from Kapurbawadi in Thane to Kalyan via Bhiwandi. The 12.81 km long route from Thane and Bhiwandi is in progress. The rest of the stretch upto Kalyan is on hold.

The Orange Line will be extended as **Line 12** which will connect Taloja with Kalyan, connecting Mumbai, Thane and Navi Mumbai to the MMRDA network.

Rolling Stock : Bidding under process and yet to be procured.

Signalling System : Bidding under process and yet to be procured.

Line 6 or the Pink Line :

The East-West Pink Line will connect Lokhandwala Complex in western suburbs to Vikhroli and Kanjurmarg in eastern suburbs. The 14.47 km long Pink Line will connect Shri Samarth Nagar or Lokhandwala Complex, Adarsh Nagar, Jogeshwari, JVL, SEEPZ village, Powai Lake, IIT Powai, Kanjurmarg (West), Vikhroli-Eastern Express Highway.

Rolling Stock : Bidding under process and yet to be procured.

Signalling System : Bidding under process and yet to be procured.

Line 7 or the Red Line :

The Red Line runs from North to South along the Western Express Highway. The line is 16.47 km long from Dahisar (East) to Gundavali, i.e., Andheri (East).

This line will be extended as **Line 9** to Mira Bhayander in the north and CSIA T2 in the south. The line will enter underground from Gundavali towards CSIA T2.

Rolling Stock : BEML rakes acquired in MRS-1 contract.

Signalling System : The Red Line is equipped with Alstom supplied Urbalis 400 Communication based Train Control

Source: Internet



signalling system. This will enable the trains in driverless mode in a headway of 90 seconds.

Line 8 or the Gold Line :

The 32 km long Gold Line will connect Chhatrapati Shivaji Maharaj International airport to Navi Mumbai International Airport with 8 proposed stations enroute.

Rolling Stock : Bidding process yet to commence.

Signalling System : Bidding process yet to commence.

Line 9, 10, 11 and 12 :

For Line 9, refer to Line 7 while for Line 10 & 11, refer to Line 4 and for Line 12, refer to Line 5 above.

Line 13 or the Purple Line :

The 23 km long Purple Line will connect Mira Road with Virar.

Rolling Stock : Bidding process yet to commence.

Signalling System : Bidding process yet to commence.

Line 14 or the Magenta Line :

The line is 45 km long and will connect Vikhroli with Kanjurmarg and further to Ambernath and Badlapur.

Rolling Stock : Bidding process yet to commence.

Signalling System : Bidding process yet to commence.

:: The NAVI-MUMBAI METRO ::

In 2010, MMRDA appointed City and Industrial Development Corporation (CIDCO) to construct the Belapur-Pendhar-Kalamboli-Khandeshwar line as a part of Navi Mumbai Metro Project. In 2012, CIDCO released a master plan of Navi Mumbai Metro with 5 lines spanning 106.4 kms.

As of now, Line-1 of Navi Mumbai Metro is being implemented in 4 phases which starts from CBD Belapur and terminates at the proposed Navi Mumbai International Airport through Kharghar, Talaja, Kalamboli, Kamothe and Khandeshwar. The first phase spans 11.1 km from CBD Belapur to Pendhar with 11 stations which is ready for commissioning. Work on the second phase from MIDC Talaja

Courtesy: Rajendra B. Aklekar



Courtesy: Rajendra B. Aklekar

to Khandeshwar via Kalamboli which is 10.3 kms. long featuring 8 stops is yet to start and its fate hangs in balance just like the other remaining phases of the line, viz., phase-3 spanning from Pendhar to MIDC and phase-4 from Khandeshwar to Navi Mumbai International Airport as the authorities are yet to take a call between Metro and Metro Neo in these phases. CIDCO has entrusted **Maha Metro** to operate this line for 10 years.

Gauge : The Line uses 1435 mm standard gauge tracks and 25 KV 50 Hz AC overhead equipment.

Rolling Stock : The line will use 3-coach rakes made by China's CSR ZhuZhou locomotive. The rakes are 64.6 meters long and 3.1 meters wide. The rakes have modern passenger amenities like ambient LED lighting, air-conditioning, stainless seats. The rakes will use 3-phase VVVF propulsion system.

Signalling System : The line will use CBTC signalling system by Ansaldo STS (now Hitachi).

The Mumbai Monorail is an interesting read as a part of the massive railway-based transport system of Mumbai which will be discussed in a separate issue.

:: AHMEDABAD METRO ::

The city of Ahmedabad is the most populous and largest city of Gujarat and is situated on the banks of the river Sabarmati. Gandhinagar, the capital city of Gujarat houses most of the administrative buildings and new SEZs. The twin City of Ahmedabad and Gandhinagar occupy over 2000 sq kms. of area. Both the cities with their growing industrial areas and population, needed a robust and fast transportation system, preferably railway-based.

In 2003, Gujarat Infrastructure Development Board wanted to setup a reliable transport system in the twin cities and entrusted DMRC and RITES to prepare a DPR. Following the DPR, it was found infeasible to setup a Metro system in Ahmedabad at that point of time. Rather, road based BRTS was given priority. But due to growing demands and saturation of road space within the city limits, a special



Photo taken by author

purpose vehicle called *Metro Link Express for Gandhinagar and Ahmedabad* was setup in 2010 for the twin cities. It was renamed as Gujarat Metro Rail Corporation Ltd (GMRC) in 2018.

Phase-1 of Ahmedabad metro was approved by the Union Cabinet on 19th October, 2014. It included 2 Lines in the form of an East-West Line from Thaltej Gam to Vastral Gam and a North-South Line from Motera Stadium to APMC. For the North-South line, the land of Western Railway's Sabarmati-Botad section was used instead of the Ashram Road plan which eased land acquisition issues and aided in addition of two more stations with a total built cost of 600 crore rupees. As of July 2023, the entire stretch of Phase-1 is operational except the 1.4 km stretch between Thaltej to Thaltej Gam.

The Phase 2 of the metro system was approved by the Government of Gujarat in October 2017 for extending the North-South line to Gandhinagar upto Mahatma Mandir and a new line from Gujarat National Law University to GIFT City. GIFT is India's first Greenfield Smart City and International Financial Service Centre coming up in Gandhinagar which intends to house global audit and financial firms and banks.

• The Blue Line or the East-West Corridor :

The 21.16 km. long Blue Line runs from Thaltej Gam to Vastram Gam has 18 stations out of which 1.4 km stretch from Thaltej to Thaltej Gam is under construction and the rest is open to commercial operations. The underground stretch of this line has stations like Shahpur, Gheekanta, Kalupur Railway Station and Kankaria East while rest of the stretch is elevated. The line has depot at Apparel Park.

• The Red Line or the North-South Corridor :

An 18.87 km. of Red Line is operational from Motera Stadium to APMC and has 15 stations. It passes through Sabarmati, Vadaj, Gandhigram, Jivraj Park. The corridor is fully elevated and has a depot at Gyaspur. The lines have interchanges at Old High Court Station.



Photo taken by author

Gauge : Both corridors are built on Standard gauge (1435 mm) and traction equipment are 750V DC third rail.

Rolling Stock : In October 2017, Hyundai Rotem of South Korea was awarded the contract to supply 32 3-coach train sets, i.e., 96 coaches for Phase 1 of Ahmedabad metro. These rakes are made of stainless-steel coaches and closely resemble RS-10 coaches of DMRC. The rakes have 3-phase VVVF propulsion system and braking is achieved by blending of regenerative braking and pneumatic braking. The interiors are fully air-conditioned with ambient LED lighting, LED destination boards, LCD PIS screens. The rakes are made suitable for Driverless UTO operations under GoA-4 standards. The rakes are driven by three-phase IGBT-based VVVF propulsion system. The bogie is of tubular transom type. The primary suspension is provided by coil springs and secondary suspension is provided by air spring and anti-roll bar.

Signalling System : Ahmedabad metro has been equipped with CBTC signalling system supplied by Nippon Signal Co. of Japan.

Photo taken by author



:: JAIPUR METRO ::

Jaipur, the seat of the Rajputana, is the capital city of Rajasthan and one of the largest tier-2 cities of India. It is also a UNESCO accredited heritage city due its rich culture and architectural impact whose new extensions holds the commercial hubs and manufacturing centers. The city has its road network is saturated and has no space for expansion, especially in the old city. Jaipur BRTS is also operational but a railway-based transport was pushed by the authorities after the huge success of Delhi Metro.

In 2010, a special purpose vehicle called Jaipur Metro Railway Corporation (JRMC) was founded whose 100% stake was held by the Government of Rajasthan. In 2011, physical construction of Jaipur Metro was started.

Jaipur Metro is planned to be constructed in two phases where First Phase would include construction of the East-West Pink Line and Second Phase would include the North-South Orange Line. When both the phases will be completed, the total network would span 35.078 kms in length with 31 stations.

• The Pink Line :

The East-West route of Jaipur Metro connects Mansarovar to Badi Chaupar via Chandpole. This line runs for 11.97 km and has 11 stations. Out of this, 3 stations are underground and the rest are elevated. This line was completed in two phases –

Phase 1A included operation of metro for 9.63 km. from Mansarovar to Chand Pole. In Phase 1B, the line was extended from Chand Pole to Badi Chaupar as a 2.35 km stretch. It was completed in October 2020. This line is dotted by Jaipur Railway Station, Sindhi Camp Bus Stand and places of tourist interests like Hawa Mahal, Jantar Mantar, City Palace etc.

In Phases 1C and 1D, this line will be extended to Transport Nagar and Ajmer Road from Badi Chaupar and Mansarovar respectively. This line has depot at Mansarovar.

Courtesy: Aritra Bhaumik



Courtesy: Aritra Bhaumik

• The Orange Line :

This North-South corridor will be built in Phase 2 and will connect Sitapura Industrial Area in south to Ambabari in north via Ajmeri Gate. This line will be 23.1 km long and will have 20 stations. This will have interchange with the Pink Line at Sindhi Camp.

Gauge : Jaipur Metro uses 1435 mm standard gauge tracks and 25KV AC OHE traction supply equipments.

Rolling Stock : BEML supplied 10 four-car trainsets to Jaipur Metro. These trains are built by the joint consortium of BEML, Hyundai Rotem and Mitsubishi Electric. The coaches have striking similarity in looks and technicalities with DMRC's RS-3 rolling stocks.

Each rake has capacity of 1506 passengers onboard. The rakes are in the configuration of DT-M-M-DT where DT means Driver Trailer Car and M means Motor Car. The braking is achieved by blending of regenerative and pneumatic brakes. These rakes have stainless steel bodies. The propulsion is of 3-phase IGBT based VVVF type, supplied by MELCO. The traction motors are squirrel cage 3-phase induction motors which are capable of regenerative braking. Each DMC and MC contains two AC traction motors who run at 550v 3-phase AC supply and are driven by two VVVF units. The VVVF converter utilizes IGBT based PWM inverter.

The trains use electro-pneumatic wheel mounted disc brakes blended with electric-regenerative braking. The coach wheels are designed with double disk brake system for greater braking efficiency. The blending is done on demand by calculating braking demanded and dynamic brake performance. It provides for Regenerative Braking from 85 kmph to 1 kmph and Pneumatic Braking from 7 kmph to 0 kmph. The braking is controlled by BECU. Each car has one BECU per bogie.

The bogies are double-axle Bolsterless ones, Tubular pipe transom type with traction drives which are based on central pivot, mono-link and lateral dampers. The primary



Courtesy: Ixigo.com

suspension is rubber-spring while secondary suspension is provided by air spring and anti-roll bar.

The train is based on Ethernet IP-based TCMS for real-time control and management of the entire rake like Traction and Auxiliary Components, Braking, Ventilation and HVAC, Door systems, PAPIS (Passenger Announcement and Passenger Information system), signalling systems etc. The TCMS is integrated with high-data rate broadband radio system which live streams the CCTV footages to OCC (Operational Control Center) in real-time. The trains are equipped with Automatic Train Protection (ATP) and Automatic Train Operation (ATO) modes on compatibility with signalling system.

The PAPIS system in the rake is fully IP-based system facilitating OCC Radio Public Announcement, cab to cab communication, passenger to motorman emergency communication, playing of recorded messages and chimes during opening and closing the doors.

Signalling System : Jaipur Metro uses *Urbalis* cab signalling system equipped with Automatic Train Protection (ATP) supplied by Alstom. For telecommunication, JMRC uses TETRA radio communication by Cassidian.

This part of the Metro system series talks about the three

Courtesy: IRCTCHelp



Courtesy: Sahil Pusalkar

prominent rapid transit systems in the three cities of Western India. The megacity of Mumbai has already a high share of modal public transport which will be diversified when all the under-construction corridors will get commissioned and will go on to add to the city's rich history of railway-based transit systems. Also, it will be the first metro railway system of the nation to be operated by more than 2 different entities, viz., MMOP, MMRDA, MMRC and Maha Metro (if Navi Mumbai is considered). A faster implementation of the land acquisition process and better handling of the public grievances regarding Aarey Depot would have enabled the Mumbaikars to avail the metro services much earlier. On the other hand, Ahmedabad Metro is an ambitious project to link the twin cities and if implemented properly, may become the lifeline of the region for urban mass. Gandhinagar may never face the issue of road traffic saturation as the commuting mass will be shared efficiently. But the story of Jaipur Metro is not as rosy as these two. Improper planning of corridors, lack of foresight for priority sections, want of clarity from operational point of view pushed Jaipur Metro's only introduced line to be an apparent white elephant. Though things are looking bright after the extension upto Badi Chaupar, a further pragmatic approach in implementation of the second corridor may make Jaipur Metro worth it. In the next part of the series, I will talk about the metro systems of the Queen of the Deccan, the Leather City of the world, the city of Taj Mahal and the Diamond City of India.

Cover photo courtesy: Anamitra Bose, Arkopal Sarkar, Somsubhra Das & Metro Rail Blog.

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1. MMRDA and GMRC, RDSO

Acknowledgement :

1. Sri Rajendra B. Aklekar
2. The Rail Enthusiasts Society

THE COROMANDEL LEGACY

COROMANDAL EXPRESS

করমণ্ডল এক্সপ্রেস
कोरोमंडल एक्सप्रेस

CHENNAI MAIL

চেন্নাই মেল
चेन्नई मेल

SHALIMAR \longleftrightarrow CHENNAI CENTRAL \longleftrightarrow HOWRAH
12841 UP M.G.R. 12840 DN
12842 DN 12839 UP

The Madras Calcutta Trunk And How **COROMANDEL** Changed It

from the vault of transport hObO

The first proposal for railways in the Indian subcontinent was furnished when a report, dated 27th January 1832 and containing financial and technical details of the construction of railways and canals in the presidency of Madras was submitted by a select committee after being appointed by the House of Commons. This is considered to be the first proposal for railway routes in India although the subcontinent's first, permanent commercial routes started elsewhere – from Bombay followed by Calcutta. However, it would be unjust if we ignore the short and temporary 'non-commercial' rail routes that flourished before that. Records suggest that one such route did become a reality around Madras- the Red Hills Railway, that opened in the Madras Presidency with its first two runs, recorded as 'experiment no. 1 and 2' happening on 28th August 1838. This is considered to be the first railway system in India although it was short lived and was never meant for a commercial operation connecting towns and cities across the subcontinent.

Interestingly, even though the city of Madras, now renamed as Chennai was the first metropolitan city to have a railway

system working eventually became the last city to be connected with the then capital of Calcutta. The shortest route, along the east coast at both ends- near Calcutta and Madras were only constructed in the last decades of the 19th century. The biggest obstacle was of course the extremely wide Godavari river bridge between Kovvur and Rajahmundry, a distance of 4.69 miles or about 7.5 kms which opened on 6th August 1900. The first direct connection, via the east coast trunk route between the then capital of Calcutta and Madras was supposedly established soon after – on 15th August 1900 with the introduction of the Madras Mail. However, there are two big riddles on both the ends. On the Madras end, the connection between Basin Bridge to Korukkupet – the direct link from Madras Central or today's Puratchi Thalaivar Dr. M.G. Ramachandran Central Railway Station] was opened only on 15th March 1907. But the train possibly had been running from Royapuram station, as the route between Washermanpet and Ennore along with the link line to Korukkupet was functional since 22nd February 1896.

The bigger issue or mystery is on the Calcutta leg of the

route. Documentary evidences suggests that the last part of the direct connection to Howrah, from Rajapur Khal- an almost dead canal of today, between Bauria and Chengail, to the erstwhile East Indian Railway limits just outside Howrah, was opened only on 14th December 1900. On the other hand, the Midnapore to Bhojudih section was opened on 1st February 1903, hence the Madras Mail could not have taken this route either. Or, as we often see today, the inaugural dates recorded were just mere formalities with these being conferred to as the official route opening days, but, in reality, the routes were opened a little earlier. Or, as is recorded in some of the documents, the Howrah Madras Mail did not even start in 1900, but in 1901, which would make all the pieces fall in place.

Whatever the case may be, the Madras Calcutta trunk route – the shortest between Madras and Calcutta along the east coasts of Coromandel, Rayalseema [Andhra] and Utkal was more or less in the same state in spite of the fact that during later years, few other trains were introduced to cater to the demand on the Madras Calcutta trunk route. These trains include the 37 up & 38 down Janata Express, 89 up & 90 down Madras Howrah Express and of course, the good old 3 up & 4 down Madras and/or Howrah Mail [some trains often used different train names and/or numbers across the years]. None-the-less, it was not until the late 1970s that a drastic change was performed for the passengers on the east coast trunk route between Calcutta and Madras and it came in the form of a new express train that cut short the journey time between the two metropolitan cities from the previous 32 hours 35 minutes [Madras Mail] to just 25 hours and 15 minutes. For instance, in 1977, before Coromandel was introduced, the fastest connection between Madras and Calcutta was the 3 up & 4 down Madras and/or Howrah Mail which used to leave Howrah at 20:15h and reach Madras Central at 04:50h on the third day. In the return direction, it used to leave Madras Central at 22:25h and reach Howrah at 05:55h on the third day. The other train, the 37 up & 38 down Janata Express was even slower – leaving Howrah at 22:40h and reaching Madras Central at 19:20h on the third day. Similarly the journey to Calcutta was an equally painful ordeal with a 08:40h departure and 04:15h arrival at Howrah. Coromandel Express drastically cut down the journey time and established a faster connection between Calcutta [Howrah] and Madras.

HOWRAH-PURI-MADRAS																	
Sta. No.	3	89	7	141	19	45	37	STATIONS	4	10	30	38	8	142	90	46	
Exp.	Mail	Exp.	Exp.	Kor.	Kor.	Exp.	Exp.		Mail	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	
020	15	20	46	17	35	18	35	Howrah	3	5	55	8	15	8	59	16	06
114	22	22	32	50	21	10	11	Kharas Rd.	4	4	00	6	20	11	22	13	40
409	22	22	50	...	21	10	11	Kharas Rd.	3	4	00	6	20	11	22	13	40
437	3	3	5	07	...	13	17	Waltair	3	3	40	6	00	2	57	...	...
437	3	3	5	07	...	13	17	Waltair	3	3	40	6	00	2	57	...	...
454	4	4	7	13	55	18	43	Bhubaneswar	3	3	22	10	23	54	16	03	20
454	4	4	7	13	55	18	43	Bhubaneswar	3	3	22	10	23	54	16	03	20
459	...	...	...	...	...	...	...	Kharas Rd.	3	3	22	10	23	54	16	03	20
459	...	...	...	...	...	...	...	Kharas Rd.	3	3	22	10	23	54	16	03	20
456	0	05	75	Ex	...	18	58	Kharas Rd.	3	3	22	10	23	54	16	03	20
079	11	23	12	36	17	21	...	Wiziangeran	4	14	50	45	...	...	...	...	...
811	15	10	10	17	33	...	...	Waltair	3	3	40	6	00	2	57	...	...
1031	14	30	19	45	23	40	...	Rajahmundry	9	9	20	11	15	...	...	...	...
1230	15	47	20	45	45	...	...	Vijayawada	6	6	30	6	30	...	...	...	...
1316	15	30	19	45	23	40	...	Tadur	4	4	00	4	00	...	...	...	...
1520	15	19	8	30	13	10	...	Madras	4	4	22	3	19	...	...	...	...
1659	20	20	11	45	...	...	...	Madras	4	4	22	3	19	...	...	...	...

দক্ষিণ-পূর্ব রেলওয়ে

হাওড়া ও মাদ্রাজের মধ্যে

“করোমন্ডল এক্সপ্রেস”

ফাস্ট ইন্টার-সিটি বাই-উইকলি ট্রেনস প্রবর্তন

হাওড়া ও মাদ্রাজের মধ্যে ফাস্ট ইন্টার-সিটি বাই-উইকলি ট্রেন (২৪২ আপ ২৪২ ডাউন) “করোমন্ডল এক্সপ্রেস” প্রবর্তিত হইবে। নিম্নে বিবরণ বিবরণ প্রদত্ত হইল:

হাওড়া হইতে ছাড়ে—সোমবার ও বুধবার মাদ্রাজ হইতে ছাড়ে—বৃহসবার ও মঙ্গলবার

মাদ্রাজে উই মন্ড, ১৯৭৭ তার ও হাওড়ায় বই মন্ড ১৯৭৭ তার হইতে এই সার্ভিস আরম্ভ হইবে।

সমসংঘী		
২৪২ আপ	ট্রেন	২৪২ ডাউন
২৭-৫৫ ঘঃ	ছাঃ	৫ ওড়া
০০-২৬ ..	পৌঃ	ভুবনেশ্বর
০০-২৮ ..	ছাঃ	পৌঃ
০৬-৪৫ ..	পৌঃ	গুয়ালাটোর
০৭-২০ ..	ছাঃ	পৌঃ
১২-২৮ ..	পৌঃ	বিজয়গড়
১২-৪০ ..	ছাঃ	পৌঃ
১৯-১০ ..	পৌঃ	মাদ্রাজ

ভাড়া ৫ মেলি ও এক্সপ্রেস ট্রেনের অনুরূপ।

স্থান ব্যবস্থা : প্রথম শ্রেণী, দ্বিতীয় শ্রেণী স্লিপার ও উপাংশের স্থানব্যবস্থা

এই ট্রেনগুলি সম্পূর্ণরূপেই ডেইলিবেল্ড ও তৎসম্পর্কিত গতিপথে মিল সরবরাহের জন্য প্রণালিতে “প্যানটি-কার” রাখা হইবে।

নিম্নোক্ত স্থান হইতে বিধি বিবরণ পাওয়া যাইবে—

কালিকতা : ১) দক্ষিণ রেলওয়ে, ব্লক কম রিকর্ডেশন অফিস এন্ড প্যানটিং ম্যানসংস, কালিকতা

২) হাওড়া স্টেশন

অন্যান্য স্টেশন : সংশ্লিষ্ট স্টেশনমাস্টার

এই ট্রেনগুলি হাওড়া মাদ্রাজ মেলের ৩২ ঘণ্টা ও মিনিটের স্থলে হাওড়া এবং মাদ্রাজের মধ্যে প্রায় ২৫ ঘণ্টায় গমন সম্পাদন করিবে।

অতঃপূর্বের সেরাভ

দক্ষিণ-পূর্ব রেলওয়ে

সিঙ্গার এন্ড সিসিএস। কলকাতা-৬৭ তার ২০-২-৭৭

Coromandel – when read geographically, denotes the name of a coastline on the east coast denoting an area between the Utkal coast around the state of Orissa and the Kaveri delta down south. The name, supposedly derived out of the old Tamizh word for the Chola Kingdom – 'Cholamandalam', was taken up to name the coastal region and later used for naming the newly introduced train. Coromandel Express, termed as a 'fast intercity' express was introduced on 6th March 1977 from Madras with its first scheduled run from 7th March 1977 from Howrah.

The schedule of Coromandel Express, using the train numbers 141 up & 142 down, when introduced was –

<p>For 141 up-</p> <p>Howrah - 17:55h Bhubaneswar - 00:16/18h Waltair - 06:45/07:20 Vijayawada - 12:28/12:40 Madras Central - 19:10</p>	<p>For 142 down-</p> <p>Madras central - 08:15 Vijayawada - 14:00/14:12 Waltair - 19:40/20:15 Bhubaneswar - 02:28/02:30 Howrah - 09:15</p>
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In other words, a perfectly scheduled train where one does not have to lose two whole days to travel from Howrah and/or Madras. Even the day on which it used to depart Howrah, the schedule was such that Coromandel Express used to depart in the evening, thus, saving the whole day. Again, reaching Howrah in the morning at 09:15 entails, if running on time, saving one the whole day. Coromandel ran as a bi-weekly when introduced and used to leave Howrah on Mondays and Wednesdays and Madras Central on Sundays and Tuesdays. The train had first-class, second-class sleeper and a dining car along with a pantry in its consist. The train coaches were fully vested.

Surprisingly, soon after introduction, Coromandel was scheduled to run even faster with a slightly curtailed timing that saved 20 more minutes. In 1978, while departure from Howrah remained the same at 17:55h, the arrival at Madras Central was changed from the earlier 19:10h to 18:50h. Similarly, the arrival at Howrah was changed to 08:55h in the morning. This train not only served as a premium connection between Calcutta and Madras but was a big boon for commoners as well as tourists heading towards Waltair [present day Visakhapatnam] as both ways, Coromandel had the perfect timing to reach or depart the tourist city which had many industries and a major port where people from all across the country used to throng.

Throughout the 70s railway authorities kept the 'crack' schedule for this train in both directions. However, from 1981 onwards, Coromandel was slowly subject to severe ill treatment along with political interventions that saw introduction of several new stoppages and an increase in running time. Although the 17:55h Howrah departure was changed to 17:40 in the 1970s itself, that did not affect the schedule much, but in 1981, the first major shift was noticed when the departure from Howrah was put at 17:15h with a Madras Central arrival at 18:50h the next day. However, in the opposite direction not much a reshuffling happened with a 08:15 - next day 09:00 schedule.

By 1983, not only Coromandel was given new stoppages, the

1992 UP & DN Time-table. Proof of political interference ruining the Coromandel legacy...

run time was severely increased with a 15:45h Howrah departure and 11:00h Howrah arrival [the arrival and departure times at Madras Central remained more or less the same though]. Kharagpur and Khurda Road were also added as new stoppages. Within the next few years Cuttack [Coromandel Express used to bypass Cuttack altogether in both ways], Berhampur, Rajahmundry were added to the schedule. In 1992-93, within 15 years of its introduction, the schedule stood as-

Howrah departure - 14:25h with a Madras Central arrival - 17:35h

&

Madras Central departure - 08:10h with a Howrah arrival at 13:45. This leg of the journey towards Howrah also had an extra stop at Bitragunta.

Over the years, the once prestigious Coromandel Express was subjected to severe slowdowns owing to several issues including continuous political influence that resulted in the introduction of several stops en route. Currently, Coromandel [now 12841 up & 12842 down] has stops at Santragachi, Kharagpur, Balasore, Bhadrak, Jajpur Keonjhar Road, Cuttack, Bhubaneswar, Khurda Road, Brahmapur [Berhampur of yesteryear], Visakhapatnam, Rajahmundry, Tadepalligudem, Eluru, Vijayawada in the up [Chennai bound] and Ongole on top of these in the down [Calcutta bound] direction. Of course, at present, the terminal was surprisingly changed from Howrah to Shalimar which displeased many. Again, after several experimentation and slowing down of this train in the past, the running time from Shalimar to Madras Central has gone back almost to the same duration as 1977 [of course with many more stops] with a 25h 35m run at present, while the return journey remains an extremely slower affair compared to the southbound one with a 27h 40m run.

Coromandel Express was introduced as a premium train - not much with the classes offered but through the extremely 'crack' and convenient schedule. Over the years, political interferences and ever increasing traffic hampered its prestige considerably while multiple grave accidents dented its reputation to certain extent although in almost all the cases, it was due to technical errors. On the other hand, a journey on the Madras Calcutta trunk route has many options nowadays with a plethora of trains on offer. None-the-less, Coromandel still remains the mainstay and the most preferable train to many to travel between the two cities on the eastern horizon of the country.

1981 Time-table - First signs of slowing down....Finest example of ruining a premium service



Saurabh Kumar Yadav



Pranit Gawand



Pranit Gawand

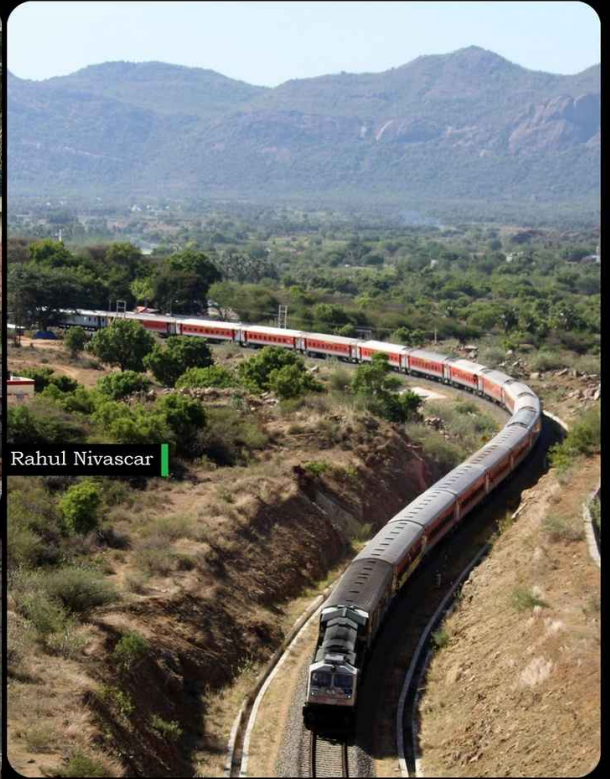


Saurabh Kumar Yadav Pranit Gawand





Roshan Rajeev



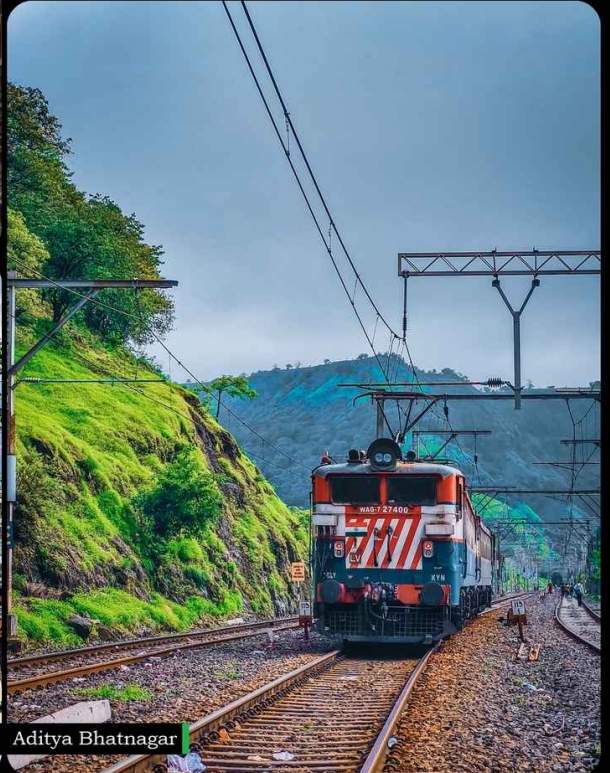
Rahul Nivascar



Roshan Rajeev



Ramnath Bhat Yora



Aditya Bhatnagar



Aditya Bhatnagar



K Gautham Karthik



K Gautham Karthik



Munna Bellamkonda



K Gautham Karthik

Titagarh to Supply 24 Trainsets to Surat Metro Phase-1

Gujarat Metro Rail Corporation Ltd (GMRC) has awarded Titagarh Firema Ltd. a contract of Rs 857 crores to supply coaches for Surat Metro. The contract includes Design, Build, Supply, Test, and Training for 24 trainsets of 3-coach each (DMC-TC-DMC) for Surat Metro Phase-1. The Surat Metro Phase-1 consists of two lines with 37 stations. Titagarh will start supplying the rakes to Surat Metro from the start of 2025. This is the second large deal cracked by TWL Firema after Pune Metro's aluminum rake contract.

Howrah Station Rated Gold Rating as a Green Station by IGBC

On July 19, 2023, Howrah Railway Station of Eastern Railway was awarded the coveted gold rating as a green station. The Indian Green Building Council (IGBC) awards the certification. The award acknowledges the environment-friendly performance of Howrah station. Top officials of Eastern Railway, Howrah Division, IGBC, and other prominent guests were present at this ceremony.

L&T Emerges as the Lowest Bidder for Underground Section of Kolkata Metro Purple Line

RVNL floated a tender for the construction of a 5.1 km long underground section from Mominpur to Esplanade on the Purple Line of Kolkata Metro in July last year. Afcons, ITD Cementation, and L&T emerged as the bidders for the project. It was revealed around May 2023 that L&T has emerged as the lowest bidder with Rs 2448 crores, 4.8% less than RVNL estimate. The 5.1 km long underground section will start at Mominpur up to Esplanade where it will meet the Blue and Orange Lines. The corridor will have 4 stations: Khidderpore, Victoria, Park Street, and Esplanade. Though the project started in 2012, the clearance from the Ministry of Defence for construction near the Fort William area was received on 4 February 2022. Three TBMs will be deployed to get the tunneling done efficiently and with minimum impact.

RCF to Roll-out Cargo Liner Double-decker Coaches

For the first time in India, a double-decker coach with passenger and cargo capacity will be rolled out by Rail Coach Factory, Kapurthala. The series will be named Cargo Liner Trains. The upper deck will accommodate passenger seating while the lower deck will be reserved for goods and parcel space. With this series of trains, the railways will aim to run fixed timetable parcel trains on specific routes. This will help IR to capture the Fast Moving Consumer Goods (FMCG) sector's share gradually. Consumers and logistics companies will gradually shift towards a railway-based transport if this proves successful.

Itwari Railway Station to be Named After Subhash Chandra Bose

Itwari railway station, the second largest station of Nagpur, is to be renamed after Netaji Subhash Chandra Bose. The proposal was sent by the Govt. of Maharashtra in 2022 and approved by the Central Cabinet on May 2023. The station has 6 platforms and is operated by South East Central Railway's Nagpur Division.

India's First Undersea Railway Tunnel to Come up for Bullet Train

The first Undersea tunnel is going to be built in Mumbai for the Mumbai Ahmedabad High speed railway project. The tunnel will be 21 km long starting from Bandra Kurla Complex to Silphata with a 7 km stretch under Thane Creek. It will be a single tube tunnel with up and down tracks for train movement. 16 km of the tunnel would be bored with 3 Tunnel Boring Machines (TBMs) and the remaining 5 km using the New Austrian Tunneling Method (NATM). The spear-head of the TBMs would be 13.1 metres wide.

Shantipur 'Amrit Bharat' Station

Amrit Bharat Station Scheme is an ambitious project launched by the Ministry of Railways to revamp the infrastructure and mien of important railway stations of the country. 36 railway stations in West Bengal has been chosen under this scheme which will undergo infrastructural facelift and upgrade that includes removal of unwanted structure, improved lighting, better circulation area, upgraded parking space, Divyangjan friendly amenities, environment friendly building by use of green energy, etc. along with new areas of development and scope of business.



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