

## Experimental Trips and Formal Opening –Madras Railway

-- P.K.Mishra

*“The Railway is destined to carry civilization into the heart of India's wildest jungles, wealth to the poorest of her inhabitants, enfranchisement to the enslaved, and elevation to the most degraded. Long before the cathedral bell has tolled the knell of the present century, the snort of the iron horse will have been heard from Cape Comorin to Lahore, and from Calcutta to the Indus.”-*

### Synopsis:

It was Monday, 30<sup>th</sup> July 1855, that steam horse made its first start in Madras Railway at 5.30 in the morning and went as far as Perricoopum, a distance of 30 miles, on a load trial. People had started assembling en route before the crack of dawn to witness the extraordinary event. They were extremely curious to see the chariot of fire and around 30000 people had gathered a day earlier due to confusion in exact trial date.

On Saturday, August 11, 1855, Lord Harris, Governor of Madras, accompanied by a party of gentlemen who represented nearly all the interests in Madras, made an experimental trip on the Railway to Chinnamapettah, about thirty-five miles distant. Commander in chief had also joined the excursion.

This would be the second trip of Lord Harris; earlier he had inspected the progress of works in the month of February and had travelled in a carriage on 10 miles of track which had already been laid down. In the absence of locomotive, the carriage was pushed all along manually recreating experience of Hackney carriage on rail for the Governor. Madras engineers had never shied away from innovation in locomotion in past, experimenting all forms of renewable energy from wind to animals, but finally deciding for manual push for the occasion, probably to keep things under control and give it a human touch!

The principal architect of Railways in India, Lord Dalhousie travelled first time in Railway on 10<sup>th</sup> November 1855 in Madras Railway from Arcot to Madras. Though he had flagged off train to Raneegunge on 3<sup>rd</sup> February 1855, but he had recused himself from boarding the train due to his ill health.

Formal Opening of the line of Madras Railway to public took place on the 28<sup>th</sup> of June, 1856 in the presence of the Governor, the Commander-in-Chief, the officers of the Government, and staff of the Garrison of Fort St. George and other distinguished guests.

The Company had issued invitations to about 300 of the leading European society to witness the former, and to take a trip by the latter to Amoor, up to which place the railway was completed; there to partake of a déjeuner, and to return in the evening; -another train was dispatched after the departure of the first one, to a nearer station up the line-Trivelloor, which was occupied by the principal members of the native community of Madras and others who had also been invited to join the excursion.

Captain Barnett Ford of the Madras Army, had sketched the scene of terminal station, at the moment when the religious ceremony was being performed in the noble verandah of the northern side of that building, which later appeared in the Illustrated London News in 1856, immortalising the scene for posterity.

*The rooms here are very elegant, and most superbly furnished, with handsome punkahs. &c.; the coup d'ail was very picturesque when seen, as they were, filled with a crowd of elegantly-dressed ladies, the light colours of whose dresses were broken by the variety of uniforms of the military and the black of the civilian. The train is seen ready to come up to the platform for this party, and that for the native community which was to follow is seen already filled, and run up so as to enable its occupants to witness the inauguration.* – **The Illustrated London News, 1856**

It had taken three years and six months to construct the first portion of thirty-six miles of the Bengal line and the short line from Bombay to Tannah two and a half years. Madras Railway could construct 66 miles of Railway in three years, that too departmentally with lesser number of officials and at a fraction of cost incurred by EIR & WIPGR, spoke volumes and reflected the zeal and energy of the chief engineer of the Madras line and his team.

The returns of Railway's working for the first three months after its opening on the 1st of July last, were very favourable for a beginning, working expenses were only 55% of the receipts.

### **The first start of steam horse in Madras Railway**

Steam horse started its historic journey at 5.30 in the morning, before the crack of dawn, on Monday, 30<sup>th</sup> July 1855, making it the first start of "the Steam Horse" in Madras Railway.

It was determined on some days previously to make the experimental trip of steam engine, load trial, as far as Perricoopum, a distance of thirty miles from the terminus. Hectic preparations were quietly being done to avoid embarrassment as it was uncertain whether everything could be made ready and locomotive could be commissioned in time. Still words had gone around and 30000 people had gathered a day before actual trial, en route, on 29<sup>th</sup> July to witness the run of chariot of fire.

Having been ascertained that all was right and fit for running, at four o'clock morning the steam was got up, and the iron horse with a tender, two ballast waggons, and a first class carriage, shunted out from the sheds on the main line; and at half past five the following gentlemen took their seats in the carriage:—Colonel Pears, Consulting Engineer; Major Jenkins, the Agent of the Company; D. Parker, Esq., and the Chief Engineer, G. B. Bruce, Esq.

The locomotive Superintendent, Mr. Wright, was on the engine to observe performance of locomotive on run. He and his team members were frantically busy

whole night, checking, giving final touches, doing minor repairs to ensure engine worked flawlessly during the load trial.

The Assistant engineer Mr. Macnair was also with the driver, to inform him where any portions of the line might be a little out of order, owing to the late heavy showers, or from want of ballast, &c., as this latter article had not yet been laid down on this side of Peramcoor. Mr. Macnair thought it prudent to remain in engine. Colonel Pears, Consulting engineer had created a quite a ruckus last year when Mr. Macnair, Assistant engineer in District Number 1 of Madras Railway had overshot the estimate and spent some money from contingencies in completing the construction of temporary bungalows including one for his own use. This issue later became a cause célèbre, a case study of interference and slow progress of Railway construction, which was investigated by a parliamentary commission in 1858-59.

*“ In regard to the cost of the bungalows under construction in District No. 1, the outlay on which to the end of August is stated to have exceeded the sanctioned Estimate by Rs. 413– 9– 3 the Government cannot acquit Mr. MacNair, the Assistant Engineer, of negligent supervision of the expenditure especially on the larger bungalow in which he was personally interested; and they concur with Mr. Smalley, the Agent, in thinking that Inspector was not the responsible person in this matter.”*

*It would be advisable, as suggested by the Agent, that, a distinct account should be should be kept of the expenditure on the bungalows, and if any portion of the payment for Maistries and Conicopolies has been improperly charged to that account, as Mr. Bruce thinks has been the case, it should be re-adjusted hereafter. It must however be distinctly understood that the Government will not in future pass any similar excess of charge, but will hold the Controlling Officer responsible for such unauthorized disbursement and require him to refund the amount.*

*Both the Consulting Engineer and the Agent are unfavorable to Chief Engineer, Mr. Bruce's proposition to grant a certain allowance to each Engineer or Inspector to build his own bungalow , nor are the Government satisfied as to the propriety of the measure.*

--- Extract from the Minutes of Consultation , dated 29th October 1853. (Signed) H . C , MONTGOMERY, chief Secretary

### **Estimate for Bungalow & expenditure**

1 Bungalow for the Resident Engineer.	350 0 0
2 Bungalows for the Overseers at 200 Rs. each .....	400 0 0
	Total Rs... 750 0 0
Expenditure to the end of August 1853.	1,163 9 3
Excess of cost Rs...	413 9 3

All being ready, at half-past five precisely the goodly train was set in motion, and moved off from the station at a speed of about twelve miles an hour. As the engine was pulling the train effortlessly, Mr. Wright advised the driver to increase the speed after passing the Peramcoor station and the whole distance was completed in rather less than two hours.

At Perriacoopum the party alighted and partook of a hearty breakfast, after which they started on their return home at ten minutes past nine, and arrived at the railway station at 10.27, having been only one hour and seventeen minutes on their way, and making three stoppages on the road.

People had started assembling en route before the crack of dawn to witness the extraordinary event. People were extremely curious to see the chariot of fire and around 30000 people had gathered a day earlier due to confusion in exact trial date. The excitement on account of the Iron Horse was intense and some of the people had started calling it steamer probably having common steam engine.

*“Many thousands of Natives were assembled at and near the station, and on the whole distance. All the inhabitants of the villages bordering on the line appeared to have poured forth to witness this, to them extraordinary event, and the exclamations of astonishment and the expressions of surprise were general on the part of all the Native and East Indian population.”* - **Examiner, July 31, 1855**

Unloading of engine in the dock and bringing it safely to shed was a major challenge those days and number of steam engines had been damaged during unloading in ports.

*Since last report advices have been received of the safe landing of the first eight locomotive engines at Madras—an operation of no small difficulty and anxiety in the first instance, but which by skilful arrangements and the exertions of the Company's officers, was accomplished with entire success.*

*Having thus succeeded with two different consignments of engines, some of which were of a very heavy description, no serious difficulty is now apprehended in landing as many more as may be necessary.* —Director's Report Annual General Meeting, February 1856.

*“The only European gentlemen we noticed on the ground were Colonel Thompson and two or three friends, and Major Maitland, the Superintendent of the Gun Carriage Manufactory.*

*“Many respectable East Indian and Native gentlemen were present, and all seemed highly delighted at the way in which “the iron steed” started off with her load.”* - **Examiner, July 31, 1855**

The event was covered prominently in the local press and it was reported that the construction of Railway was done at a brisk pace, the chief engineer and his assistants were able to complete a great portion of the line of railway in the short time. Considering the difficulties they had had to contend with, as their employees were generally men unacquainted with the work; and yet some heavy rock cutting and other difficulties overcome, fifty-four miles could be made ready, or nearly so, for traffic, and the embankments for other seventy miles were nearly ready.

The first portion of thirty-six miles of the Bengal line was three years and six months in course of construction, and the short line from Bombay to Tannah two and a half years; and considering that in two years and one month Madras Railway could construct fifty-four miles of Railway, it reflected credit on the zeal and energy of the chief engineer of the Madras line and his staff.”—**Examiner, July 31, 1855**

Mr. Bruce early perceived the inexpediency of looking for large capitalists, to enter into engagements, as contractors, for the performance of the work ; and did not hesitate to make arrangements at once for the performance of the work , as we here term it, in amaunee ; taking , on the part of the Company, the management of all the details, and thus saving to the Company the contractor's profits. —**Report No. 18 of Consulting Engineer to Chief Secretary Madras Presidency dt 25<sup>th</sup> April 1854.**

### **Second experimental trip:**

On Saturday, August 11, 1855, Lord Harris, Governor of Madras, accompanied by a party of gentlemen who represented nearly all the interests in Madras, made an experimental trip on the Railway to Chinnamapettah, about thirty-five miles distant. Commander in chief had also joined the excursion.

This would be the second trip of Lord Harris; earlier he had inspected the progress of works in the month of February and had travelled in a carriage on 10 miles of track which had already been laid down. In the absence of locomotive, the party were propelled by physical force recreating experience of Hackney carriage on rail for the Governor. —**Allen's mail February 1855**

Madras engineers were never shy of innovation and had tried various modes for locomotion in past, wind and animals included, finally they settled for manual push for the occasion, probably to keep things in their control and give the arrangement a human touch!

The carriages were capitally finished and fitted; affording plenty of room for the convenience of passengers; and the whole of the arrangements reflected the highest credit upon the railway officials. The train started punctually at half past twelve.

*A large body of natives was also invited, among whom we recognised several of our friends, who seemed equally delighted and astonished with the novelty of their situation.*  
-- **Athenaeum, Aug. 14, 1855.**

Vast crowds had assembled to witness the departure of the train; the ramparts and tops of houses adjacent were densely crowded with spectators, and the road was literally lined on either side with dusky swarms for upwards of a mile, each tope which afforded shelter, and road way leading to the line, exhibiting its knot of humanity.

*Some we observed making reverential Poojah to the engine; while others fairly turned tail and took to their heels across the Paddy fields.; ...and as we swept rapidly across the barren plains, over and over the question suggested itself, where does the Revenue come from? A more improvable property than this portion of Honourable John's estate it has seldom been our fortune to travel through.*

--**Athenaeum, Aug. 14, 1855.**

The want of water and long continued heats had reduced the entire country to a uniform brown. After the rains, the eye would doubtless rove over a pleasant expanse of green: but still the traces of cultivation were few and far between; the accompanying party saw but little indication of those sources of wealth which were needful to support a Railway and it was apprehended that the Railway Company would have to run over many a weary unpaying mile of line until these were created.

The party stopped to inspect the Masonry Bridge over the Cortelliar, and then proceeded to its destination, where in an umbrageous tope the Governor's tents had been erected, and a very agreeable diversion created in the shape of a capital tiffin, where at champagne, Roman punch, and abundance of ices had ample justice done them by the guests.

Lord Harris in a few words proposed success to the Railway, and the health of the Railway engineers and officials:

*“He believed our rail operations had been carried on more speedily than in any other part of India; and when it is borne in mind that after the monsoon, some seventy miles will be opened to the public, the first sod having been turned by Sir Henry Pottinger only two and a-half years ago, the truth of his Lordship's remark will become apparent. Notwithstanding the heavy evil of divided management, Mr. Bruce and his coadjutors certainly deserve great praise for the business-like way in which they have worked throughout.”*

Major Jenkins, the Agent of Madras Railway briefly returned thanks in a “neat and appropriate” speech, after which the company returned to the carriages and reached home safely and well satisfied at about a quarter past six.

*The maximum speed which we timed was thirty-seven miles an hour ; though one of the railway engineers assures us that at one time we were going at the rate of forty-five.*

Tracks were quite well laid, carriages ran smoothly with no perceptible oscillation and common print could be read with facility at any speed. It was planned to start regular traffic only after the burst of the monsoon, a salutary precaution, since it was very desirable to ascertain the effect of heavy falls upon the embankments, bridges and watercourses, before throwing the line open.       --**Athenaeum, Aug. 14, 1855.**

### **First trip of Lord Dalhousie in Indian Railway:**

The principal architect of Railways in India, Lord Dalhousie travelled first time in Railway on 10<sup>th</sup> November 1855 in Madras Railway. Though he had flagged off train to Raneegunge on 3<sup>rd</sup> February 1855, but he had recused himself from boarding the train due to his ill health.

The Railway Company was making all the preparations for impending historic visit of Governor General with special emphasis on condition of embankments in view of

recent subsidence. The terminal station at Madras and the minor station buildings of the first 70 miles of the line were sufficiently advanced to admit of the opening of that portion for traffic at an early date.

*It is rumoured that his lordship will avail himself on his way hither of the railway, for the fifty or sixty miles it extends.*

*In writing of the railway we would just mention, what we may reckon the first accident in connection with it. The other evening four trucks, through the sinking of a part of the embankment, got off the rail, and had not the coupling of a waggon with the carriage given way, a party of gentlemen who had been out on a pleasure trip might have had a disagreeable termination to their enjoyment.*

*The sinking of the embankments but lately raised, after such heavy rains as we have had, is naturally to be expected, and therefore such an accident now need raise no apprehensions.*

**--Indian news and chronicle 1855, page 533**

The report of Lord Dalhousie's first trip on Indian railway was also reported in Director's report in 1856.

*The Directors have again the pleasure to report to the Shareholders the satisfactory progress of their undertaking. In the month of August last the first portion of the railway was so far completed as to admit of an excursion being made on it to the 37th mile by the Governor, the Commander-in-Chief, and other principal personages of Madras; and on the 10th November last the Governor-General of India and his suite were carried by special train over nearly 60 miles of the line to that presidency, being Lord Dalhousie's first trip on an Indian railway.*

On both occasions these high authorities were pleased to express their marked approbation of the works of the railway and its progress, and of the accommodation provided for their conveyance.

The Chairman, in moving the adoption of the report, said, that their railway was now in a very satisfactory state, both as regards the permanent way and the economy with which it had been so far completed. Although no part of it has as yet been open for traffic, yet the locomotives have been running on it for 40 or 50 miles for the last four or five months. The Governor-General had passed over the line in November last a distance of 60 miles, and had expressed himself highly pleased with the line, and complimented the officers on their zeal and diligence in completing it so soon.

**Director's report Annual General Meeting 20<sup>th</sup> February, 1856**

Saturday, the 10th instant was held a general holiday. The arrival of the Governor General at the presidency was the event which dressed Madras in the holiday garb, the whole city was spruced up and entire route was beautifully decked up.

His lordship and lady Susan arrived at about 3 p.m. by rail from Arcot and were received on arriving at the station, which by the way was thronged with civil and military, together with the loyal "profanum vulgus", -the common masses, by the Governor, in whose carriage they were driven to Government house, amidst the cheers of spectators. It is supposed that he will leave for Rangoon in the first week of next month.

--Allen's Indian Mail December 15,1855, page 698

### **Progress of work:**

Adequate supply of construction materials was made in year 1855 to ensure that progress of work was not hindered for want of them.

*The shipment of materials and stores of all descriptions for the railway from this country has been carried on to a great extent during the past year, having reached a total of 34,500 tons, principally dead weight, dispatched within the twelve months, an amount somewhat remarkable to be attained without material enhancement of the current rates of freight, considering that previous to the commencement of the Company's shipments the total amount of tonnage which arrived at Madras from England averaged little more than 23,000 tons per annum.*

--Director's report Annual General Meeting 20<sup>th</sup> February, 1856

*The works beyond that distance as far as Trivellum were rapidly approaching completion, it being expected that they, and the bridge building over the Poiney at that place, would be ready in the course of next month. Every exertion is making to complete, if possible, the works between that river again and Vellore by the same time, so as to open a through communication between that important town and Madras. Considerable progress has also been made in the more distant parts of the line, and the chief engineer has stated his expectation of having it ready the whole way to Salem, above 200 miles from Madras, by the middle of next year.*

Operations were at the same time proceeding actively on the western side of the Peninsula, from Beypore inland to Coimbatore, and were reported to be so far advanced at some points as to be ready to receive the rails. The first consignment of these and other permanent way materials to the port of Beypore arrived there in December 1855.

*It is satisfactory to know that the permanent way, so far as it has been completed, has stood well, and the embankments have not settled more than they usually do in England. The board have seen no reason in the progress of the work to question the sufficiency of their original estimate of the probable cost of the railway.*

-- Director's report Annual General Meeting 20<sup>th</sup> February, 1856

The 1st of July,1856 was finally named as the day for opening regular traffic ; various causes had combined to prevent that event taking place quite so soon as was anticipated, and

*The board have not been anxious to begin to work traffic till everything was well prepared for it, and such a length of line ready as could be worked to a profit. The progress made in the construction of rolling stock, and the state of preparation in other departments, are now such as to encourage the expectation that this result will speedily be attained. In the meantime, under the action of the monsoon rains, and the working of the engines and wagons over it, the line is being consolidated, while the working staff are being trained and instructed in their duties.*

### **Formal Opening of the Madras Railway:**

ON the 28th of June, 1856 the inauguration of the Madras Railway was celebrated with great state. The Right Honourable the Governor, his Excellency the Commander-in-Chief, the officers of the Government, and staff of the Garrison of Fort St. George, with all the élite and beauty of the Presidency, honoured the Railway Company with their presence on this important occasion.

Formal announcement of the forthcoming event, which was much anticipated, had appeared in local press -

*“The 28th of the current month will inaugurate the formal opening of the line to the public; great preparations are being made for the occasion; which is to be celebrated in the morning by a champagne dejeuner under tents in the country, to which three hundred of elite are to be invited, and in the afternoon trains will be provided for one thousand of the commonalty.*

*Participation in the first part of the affair will be confined to a selection from those who are on the Government House list, and it is to be presumed that those who choose to pay for the privilege of perspiring on a railway carriage may participate in the second part.”*

**--Athenaeum**

Railway Banquet befitting the occasion and a Guard of Honour were planned at Amoor.-

*The Spectator states that a guard of honour, from the garrison of Vellore, would be posted at the temporary station – house at Amoor, at one O’ clock P. M. on the 28<sup>th</sup> June, on the occasion of the Right Hon. The Governor’s presence at the banquet, which is to be given there that day, to those who share in the celebration of the opening of the Madras railway.*

**--Allen’s mail 1856**

It was a sight long to be remembered in Madras, thousands flocking to witness the proceedings from any point from which a view of the ceremony or the train could be obtained.

The company had issued invitations to about 300 of the leading European society to witness the former, and to take a trip by the latter to Amoor, up to which place the railway was completed; there to partake of a déjeuner, and to return in the evening;-another train was dispatched after the departure of the first one, to a nearer station up the line-Trivelloor, which was occupied by the principal members of the native community of Madras and others who had also been invited to join the

excursion. Coaches of both the trains were made by Simpson & Co, leading coach-makers. The carriages, constructed under the superintendence of Mr. Wright, were roomy, comfortable, airy and larger than carriages run in England.

*The Illustration, sketched by Captain Barnett Ford of the Madras Army, represents the Terminal Station at Madras, at the moment when the religious ceremony was being performed in the noble verandah of the northern side of that building.*

*The rooms here are very elegant, and most superbly furnished, with handsome punkahs. &c.; the coup d'ail was very picturesque when seen, as they were, filled with a crowd of elegantly-dressed ladies, the light colours of whose dresses were broken by the variety of uniforms of the military and the black of the civilian. The train is seen ready to come up to the platform for this party, and that for the native community which was to follow is seen already filled, and run up so as to enable its occupants to witness the inauguration.*      **--The Illustrated London News, 1856**

As soon as the ceremony was completed, the party proceeded on their excursion trip. Though a hot day it was not very much felt—the train, by its rapidity, making a breeze for its occupants, who found the carriages well ventilated both above and below; and with the addition of Venetian shutters and gauze-wire blinds, heat and glare were completely got rid of.

As the train proceeded across the arid plain of the Carnatic, it brought to view, with the countless number of natives who thronged the route, sixty-five miles on either side of the line. Very varied and picturesque was the effect of their appearance in their holiday attire.

The train dashed by the masses of colours, here clustered by a bridge, there collected under the deep shade of a tope, crowded round a station house, or fringing the edges of a cutting, cheering loudly as the train flew by them. Now and then too, a hearty laugh broke forth when in passing some pasture ground, the lazy cattle, startled by the rushing shriek of the train, flew frantically away, sometimes followed by the scared herdsman himself, who, thinking that the fiery-fiend whom he saw approaching might crush him also, took to his heels with all his speed.

*The works themselves have been everywhere substantially and economically executed. The carriages travel very easily without jumping or oscillation; excellent use has been made of the fine stone with which this district abounds, to the exclusion of the perishable bricks of the country, which are generally only saved from crumbling away by the durable coat of plaster which protects them.*

**--Indian news and chronicles 1856**

Arrived at Amoor, the crowds were greater than ever—the hills were covered with varied-coloured masses; the artillery guns roared their welcome to Lord Harris, who, on alighting, was received by a Guard of honour of the 19th Regiment and the officials of the Railway company, headed by Major Jenkins, their manager. The guests alighting under a Shamianah, or covered entrance-way to the reception-marquees—the bands playing, the multitude cheering, and the bright sun shining on the brilliantly coloured groups, formed a striking picture. On 29<sup>th</sup> of May, 1856, the railway was first made use for public purpose on Thursday, when the men of a native regiment were brought down from Arcot to Madras.

**--August 2, 1856, The Railway Record**

Tents were pitched for the guests, who, shortly assembling, were led to the pavilion which had been temporarily erected for their entertainment at an elegant repast. Lord Harris proposed a toast to the success of the railway and the health of the agent and manager, Major Jenkins.

*His Lordship's speech was very commendatory upon the economy and expedition with which the line has been thus far completed, a distance of sixty-five miles in three years, at a cost which he stated was estimated at about £5500 per mile.*

It was stated by Major Jenkins, in replying to his Lordship's toast, that the whole line extending to the western coast, a distance of about 450 miles, was in course of construction, and that considerable Work had been made upon it. Its course, he stated, lies through Vellore Salem Coimbatore, round the foot of the Neilgherry Hills, terminating at Baypoor, a small port on the western coast a little to the south of Calicut.

After some other toasts, &c., a signal was given that it was time to prepare for a return to Madras; and the shades of evening were beginning to close soon after the train started on its return.

**--Illustrated News 1856**

**Would it pay?**

Financial viability of the venture was on everyone's mind and acceptability of the new mode of transport was a question defying a clear answer. The cost per mile quoted by Lord Harris was £5500 per mile almost 40 to 50% less than Calcutta and Bombay lines. The Madras Athenaeum had reported that the entire sum expended on the railway at Madras from the commencement—that is, from the 1st October, 1850, to the 31st March, 1855, had been £261,000.

*We ran on Saturday over a distance of sixty six miles, and we should like to know how many of those in point of population or produce are likely to be paying miles for years to come. When earnings have to be spread over mile after mile of such a country as the train traverses between Madras and Acort, it is apparent that the heavier the original cost the more hopeless is the case of the shareholders; and we must confess it was with no small surprise that we heard Lord Harris announce the cost per mile to, be only £5,500. Some time since we were informed on good authority that the cost was nearly double this figure, and looking to the outlay on the Calcutta and Bombay lines, we suspect that £10,000 per mile will be ultimately found nearer the real truth than £6,000. We shall examine more closely into these figures at our leisure.*

**.—Indian news and chronicle**

## Encomiums

Though last in the field, Madras had opened up a greater length of line than either of the other presidencies in an equal time. All honour was due to Mr. Bruce and the able staff under him for the energetic, though unostentatious way, in which they had applied themselves to the work.

*Doubtless the Railway engineering staff has had many difficulties to contend with. Climate, ignorance of the people and their language, are not among the least ; but the dense jungle has been penetrated, the rocks bored, the rivers bridged, and already, we understand, the greatest difficulties between this and Salem have been overcome.*

Sixty-six miles of Railways were opened in three years, since the turning of the first sod; exactly the rate at which Colonel Cotton calculated, being ten miles at each, end a year. *and now that abundant supplies of material from England are stored, machinery in regular working gear, experience learnt, labour organised, and an impetus, no doubt, given to future exertion by the success of past achievements, we are justified in looking for an ever-increasing acceleration of speed in future operations.*

*The stations are substantial, and the temptation which an engineer might almost pardonably have felt literally to build up his own monument has been honourably resisted. The railway company has much reason for self congratulation on the selection of its instruments, while the public and the directors are at the same time indebted to the constant watchfulness of the local government and Colonel Pears, whose sentiments we were much disappointed at not hearing on Saturday.*

**-- Indian news and chronicles 1856**

The length of line at present opened alone was not a fair measure of the work that had been done. About one hundred and eight millions of cubic feet of earthwork had been moved, and 2,700,000 cubic feet of masonry executed on the section opened. The work was proceeding with more or less rapidity and regularity in other districts; the bridge over the Arcot river was complete, the heavy cuttings near Salem in a state of considerable forwardness, giving hope that in the next ensuing twelve months the rail would be carried considerably beyond Vaniambaddy, if not to Salem itself, with one giant stride.

*We tender the railway company our most sincere wishes for as complete success as the most enthusiastic anticipate. We acknowledge it to be a good and great work; only we desire it may be perceived that the triumph of Saturday has not blinded us to the truth of leading principles, which we believe will ultimately be found to be correct, even if their neglect shall not come to be regretted.*

*With all its perfection on its head we recognise in our railroad an immense motive power for the improvement of the social condition of the natives and the physical development of the country.*

*At whose expense it got there, and at whose expense it will remain there, are questions into which we will not now inquire. There it is; it must continue to be worked by*

*somebody, either the company or the Government; and every mile that it cuts through, and every day that it works, will accelerate the diffusion of knowledge and the spread of wealth.*

--Athenaum, July 1

The first section of this line, 65 miles, from Madras to Arcot, was opened with great ceremony by the Governor, Lord Harris, on June 28, 1856. His lordship complimented very highly the Company's agent and engineer on the energy, zeal, and ability displayed in the construction of the line, which he added was the cheapest of any of its kind yet constructed, having cost only £5,500 a mile.

The railway has since been open for public traffic, and the result appears to have been, so far as the accounts extend, of the most satisfactory description.

--HERAPATH'S JOURNAL. AUG. 16, 1856. Page 851

### **Half yearly meeting of Madras Railway:**

The half-yearly meeting of Madras Railway Company was held on Thursday, 31st July, 1856 at the London Tavern; Major-General Duncan Sim was in the chair.

The formal report of the opening from their Agent could not be read in the meeting as it had still not arrived.

*The public opening of the line for that distance, being 65 miles, was to take place on the 28th ultimo, with due ceremony, by the Right Hon. the Governor, Lord Harris. The board expect soon to hear of the opening of a further section of eight miles of the line, which will include the Poiney-bridge at Trevelum, and extend the line from Madras to within about ten miles of Vellore.*

It was reported that the work of construction and survey had been steadily proceeding on the remainder of the line to Beypoor, and its progress would now be accelerated by additional European assistance in the engineer department, which the Directors had lately been supplying. The conveyance of materials, stores, and machinery from England to Madras and Beypoor had been carried to an extent that precluded any risk of the engineers' operations, however actively pursued, outrunning the supply.

Shareholders were also informed that an ample number of locomotives were ready for work at Madras, all of which had been landed without accident; and an amount of other rolling stock had been turned out by the Company's workshops sufficient, it is believed, for the accommodation of the traffic on the railway in the first instance.

*This department has also been strengthened by the appointment of a superintendent from this country, for the carriage workshops about to be established on the western side of the Peninsula.*

The Shareholders were informed, in the Directors' last report, of their having undertaken, at the request of the East India Company, the survey of a line of railway

to proceed by the way of Cuddapa and Bellary to a junction with the Great India Peninsular Railway Company's southern line from Bombay.

*The court have since proposed that this Company should undertake the construction of the line. In the opinion of the board, it would have been more for the interest of the country, as well as of the Company, that this junction should be effected by extending the Bangalore branch of the existing line to Bellary, and they accordingly submitted their views at length to the court upon the subject. The result has been, that while the East India Company have not acquiesced in the board's opinion in favour of the line by Bangalore, they have allowed of such modification in the course of that originally proposed by way of Cuddapa, as to remove, to a considerable extent, the board's objections to it; and after an anxious consideration of all the circumstances, the Directors are of opinion that as the East India Company have determined that the line shall be made, it is for the interest of the Company to meet their wishes, and to undertake its construction as now decided on.*

### **Traffic receipts:**

The returns of railway's working for the first three months after its opening on the 1st of July last, were very favourable for a beginning, working expenses were only 55% of the receipts; encouraging sanguine expectations of the results when the traffic of the line had been allowed to develop itself freely, and when a greater length of railway would be open into the interior of the country.

The returns for October showed a continued steady increase of traffic, particularly of goods. From running at first only a light train every second day, it became necessary to run one daily each way, and this again had become so large as to require one of the largest-sized engines to work it—

There are 65 miles of the line at work, from Madras to Arcot. The receipts per coaching traffic to the 30th September (converting the rupee into sterling at the fixed exchange of 1s.10d) were, for 39,903 passengers, £3,101 16s. 4d." for parcels, luggage, horses, carriages, &c , £3,18 17s. 4d.

The goods traffic has yielded during the three months for 7,370 tons carried, £1730 8s. 10d., making the total receipts from sources of traffic & £5,196 2s. 6d.

The working expenses of the quarter aggregate £2,857 19s. 8d.: thus showing the working expenses to have 55.01 per cent. of the receipts; leaving 44.99 percent profits applicable in reduction of the interest guaranteed by the East India Company on the capital.

*The cost of construction of this section railway was stated on the occasion of its being opened by the Governor of Madras, Lord Harris, to have been £6,500 per mile only, including stations and rolling stock. But allowing liberally for contingencies and a possible under estimate will assume the actual cost to be £7,500 per mile which would bring the cost of the section under traffic to £487,500, on which the three months' profits, £2,338 2s. 11d., as shown above, being the receipts less the working expense at the rate of nearly 2 per cent per dividend. .*

-- HERAPATH's Journal. Dec. 13, 1856. Page 1289

## Stringent Supervision & Nettlesome Control

Madras company officials had to face stringent supervision and most of their time was spent on furnishing explanations & replies to series of objections raised by government Consulting Engineer and other officials. Consulting engineers who were Military engineers earlier were stickler for rules & took special interest in checking small expenditure minutely.

Government disallowed a charge of 2 Rs 4 Annas incurred by the chief engineer for tassals to peons' belts.

The Chief Engineer, Mr. Bruce, was rebuked for charging for a parcel despatched by him to Mr. Kendal. Major Jenkins remarked on that iniquitous transaction, "*if the parcel were private, it should not be charged for, and if on the railway business, it should have been forwarded through the office.*"

*The subordinate Governments are evidently resolved that official control of Indian railways shall be brought to a summary termination. At all events, engineers of ability will not long submit to be lectured after this fashion. These stories we may remark are both official, and both published by the local government.*

**–Allen's mail 1856**

Consulting engineers were often clueless to examine major areas of expenditure but would fine-comb the details of expenditure for minor items and construction of bungalows. Chief engineer Mr. Bruce explanation for some of the queries raised by consulting engineer, are given below:

- The price for Bricks moulded is that which we have generally paid ; it is a little more than seven annas a thousand. Major Pears may have overlooked the fact that our bricks are two and a half times larger than the usual native bricks.
- No voucher can be given for them further than to state so many Coolies at such rates and so many bandies.
- The voucher for Windows and Doors is, as, you state, in your office.
- The Bungalows in District No. 2 are almost, if not altogether, completed as mentioned in my letter of yesterday; two more Bungalows have been built on District No. 2 than were included in the original Indent, these being required for the Inspector at the Cortilliaur bridge and the Apothecary.

--FROM GEORGE B . BRUCE, Esq ., Chief Engineer, Madras Railway, letter dated 15th October 1853.

Railways had taken immense pains to collect together one of best staffs of engineers but they felt that most of their practical experience was frittered away under the existing system of supervision by government engineer.

Railway engineers were quite peeved as their plans were approved by a person who did not have technical competence and did not inspire any professional respect. They wanted an experienced civil engineer and not a military engineer to vet their plan and works.

*“Do you consider that, if the supervising officer, on the part of the Government, had been himself a civil engineer, he would have required so much explanation? —I know I should not.*

*You can state that as a civil engineer?—certainly; because men who are brought up to it all their lives, see the fitness of things more readily than those who are learning as they go, to a certain extent.”*

**-- Evidence of Mr. Bruce during parliamentary enquiry**

The control of the Government exercised, through consulting engineer, was pushing the cost up as the focus of consulting engineer was on checking little petty items of expenditure which hardly had any bearing on the overall cost while his suggestions led to substantial increase in overall cost.

Extracts of evidence given by Mr. Bruce during parliamentary enquiry:

*“Was the control of the Government exercised, generally speaking, with a view of keeping down the cost of the line?—No.*

*Will you give us your reasons for stating that?—With scarcely an exception, the supervision of the Government was exercised in a contrary direction.”*

*“State some instances in which the Government supervision was not exercised in keeping down the cost? — I would mention that, as a general rule, the supervision of the Government officer was exercised in checking little petty items of expenditure which had no bearing, to any extent, upon the price of the work ; but when he did act in any matter of importance, it was, without exception, in the direction of making it cost more money instead of less ;*

*for instance, near Madras, when we first began, we had a gradient going down from the Canal Bridge at 1 in 528 ; that gradient the Government engineer required me to alter and to make level for a considerable distance, say two miles, the gradient itself being a short one of about half a mile. Of course that involved the necessity of considerable embankments, extra coat of bridges and so on. I am not calling in question the expediency of that alteration, but merely saying that where I endeavoured to make work cheap, the Supervision of the Government was in the direction of making it dear.*

*There was another instance in district 5, where we had rather a heavy rock cutting to encounter. I wanted to save time because labour there was very scarce, and it was a district frequently visited by cholera. I intended to make rather a sharp curve round it at a radius, I think, of about half a mile: that was objected to, and we had to go through the hill. Then, again, in district 7 we had some gradients, the depth of which I forget but the Government engineer made me alter them to make easier gradients at a great increase of expense and loss of time. Then in respect to district 16, I wanted to make some sharp curves to avoid a heavy cutting down to Malabar, at a radius of about 25 chains ; that was objected to, but, I think, I was ultimately allowed to do it.*

Railway officials were quite frustrated to find the focus of consulting engineer on petty issues, allowances, bungalows and keeping Railway engineers on tight leash instead of concentrating on areas involving high expenditure.

*“I mention these cases as showing the directions which the supervision of the Government engineer took: but in other matters, when money was in question, or work was in question, it was generally with regard to small things ; for instance, the bungalow question, which occupied a great deal of time. I can mention one or two other instances. I had about 3 rupees disallowed upon peons' belts. Then there was a considerable controversy about the allowance of 10 rupees, the expense of a time Keeper. The engineers were at that time spending of course, considerable sums of money, and it was necessary that we should have a time-keeper. I mention that to show that the economy was, in small and trifling things, only calculated to irritate men who had the spending of thousands of pounds.”*

**BRUCE, Sir GEORGE BARCLAY (1821–1908), Chief Engineer Madras Railway 1853-56**

After working on the Calcutta section of the East Indian railway until 1853, he served as chief engineer of the Madras railway until 1856, when ill-health compelled his return home. He had then laid out and partly constructed about 500 miles of the Madras railway, employing free native labourers under proper supervision instead of depending on contractors. On 5 Dec. 1857 Robert Stephenson presided at a dinner in London, when Bruce was presented by his associates on the Madras Railway Company with an address and with plate to the value of 515/.

He was consulting engineer for fifty years to the metre-gauge South Indian railway, and from 1894 to the Great Indian Peninsula and Indian Midland railways of five feet six inches gauge the broader gauge which Bruce preferred.

-- **Dictionary of National Biography, 1912 supplement**

**Salaries & allowances:**

Madras Railway company engineers were a harried lot and quite peeved with their salaries & allowances. The amount of labour and exposure devolving on the engineers attached to the Madras railway was immensely greater than that of the Bengal railway due to less number of staff and lack of out sourcing.

At the commencement of the construction of railroads in Bengal, a system of contracts was tried, and after a short time abandoned as productive of much trouble and little result. In Bombay, large contractors, primarily English, had done all the work entrusted to them, and as far as the contracts were concerned, there had been few failures; but in Madras the plan of doing work by contract was not tried. Mr. Bruce, the first Chief Engineer of the line, had had in Bengal experience of the annoyance caused by feeble and incompetent local contractors, and at once determined to execute the Madras line by the direct agency of the engineers of the company.

“As in as much as the staff is less by three to nine, while the works are performed by contractors in Bengal, but at Madras by native labourers, superintended in some instances by European pensioned soldiers or Indo-Britons, the engineer officers having to control all, and keep all the account, which alone is a very onerous and responsible duty. The Chief Engineer of the Madras railway has been obliged to proceed to England on sick leave, his health having completely given way under the heavy irksome duties he has had to perform.”

Madras Railway company engineers had hired an advocate to highlight their grievances:

MR. EDITOR. – The Indian railways now in progress require a great number of well-educated engineers, practically conversant with all the details appertaining to the duties of “resident engineer,” “contractor”, “manufacturer of materials,” such as tools, lime, bricks, &c., &c. And as information on the subject of pay and allowances is often sought by young men who look forward to employment in India, you will confer a favour on many who are interested in various ways in the successful progress of the railways at the several presidencies of India if you will publish the following:

Comparative statement of the strength, salaries, and allowances of engineers in the East Indian and Madras Railway Companies, on a division of 75 miles long.

	£
<b>EAST INDIAN.</b>	
1 first-class engineer per annum 850	£ 850 =
3 second-class engineer per annum 1,950	£650X3=
5 third-class engineer per annum 2,250	£450X6=
	£5,050
<b>MADRAS.</b>	
1 first-class engineer p.ann.....	£850
2 third-class engineer p. ann£450X2	= £900
	1,750
<b>Difference.....</b>	<b>£ 3,300</b>
<b>EAST INDIAN.</b>	
<i>Allowances:-</i>	
1 first-class engineer, horse allowance per men sum rupees.....	
105	

House rent.....

	80		
3 second-class engineer, house rent			Rs.90X3
=	270		
5 third-class engineer, house rent		Rs.60X5	= 300

Rs.755

MADRAS.

1 first-class engineer, tentage, per men.		Rs.75
2 third-class engineer, tentage, per men	Rs.75X2	= 150
		225
Difference.....		Rs530

EAST INDIAN.

Bungalow expenditure for 75 miles: -

3 second-class engineers, Bungalow's cost on average each.....	Rs.4,250 X 3 =
	12,750
5 third-class engineers, Bungalow's average cost	Rs.2,750X 5
=	13,750

Rs.26,500

MADRAS.

The sanctioned amount for three engineers'

Bungalows, is Rs.850 each, but as it has been found impossible to erect them for that sum, they may be put down at Rs. 1,500X3 = 4,500

22,000	Difference.....	Rs.
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The Bengal engineers have two large tents provided and kept up at the Company's expense.

The Madras engineers are allowed a subaltern's tent, but are require to keep it up at their own expense. The amount of labour and exposure devolving on the engineers attached to the Madras railway is immensely greater than that of the Bengal railway, in as much as the staff is less by three to nine, while the works are performed by contractors in Bengal, but at madras by native labourers, superintended in some instances by European pensioned soldiers or Indo-Britons, the engineer officers having to control all, and keep all the account, which alone is a very onerous and responsible duty. The Chief Engineer of the Madras railway has been obliged to



to the numbers, not to the quantity of passengers, that the Indian Railway Companies must look for their returns.

*The proper principle, we take it, is to calculate, in the first instance, the exact cost of running a certain number of carriages a certain number of miles ; allowance being made in this for cost of carriages, &c.; to calculate the number of passengers which such a train could carry, and to divide the charge among them. Then it will be ascertained what is the prime cost to the company of carrying each individual; and the smaller the addition which the company tacks on to this, the larger will be their ultimate returns.*

The first and second classes should be regarded as the exception; the few who are willing to pay more for a greater degree of comfort will of course justly find their charges proportionally increased ; but the railway directors should keep their eyes steadily fixed on the multitude as their ultimate source of dividends.

Even the railway in England had not touched the labouring masses previous to the enforcement of parliamentary trains. It was admitted that parliamentary trains pay; if so, also of cheap excursion trains; but it was urged that no railway could afford to be always running excursion trains. A Parliamentary train is a passenger service operated in the United Kingdom to comply with the Railway Regulation Act 1844 that required train companies to provide inexpensive and basic rail transport for less affluent passengers.

If the fares were fixed on the excursion train principle of payment, that is to say, the lowest scale which is remunerative, there will soon every day be sufficient numbers to fill the trains; and it must be remembered that the further we plunge into the interior, the greater would be the numbers requiring to be moved; but that the first and second class passengers would not be found in the same ratio as that in which they exist at the capital of Madras.

*Every large town has its wealthy inhabitants, and its men of business, to whom time is money; but what first-class passenger will be picked up between Madras and Vellore, Vellore and Vaniambaddy, Vaniambaddy and Salem. The railway company is prepared to carry as many sheep as a certain carriage will carry, at a certain price, that price, of course, is remunerative to them. The same carriage could carry its complement of natives instead of sheep, at the same rate per head, at a greater profit; and yet the railway management does not see the policy or admit the wisdom of fixing such a rate, as should fill the carriage with natives instead of sheep. We take it, it must be immaterial to the company what is carried so long as it returns a profit ; and in the present state of the country they must treat natives as they would sheep, or they will not carry them at all.*

### **Lower the fare to capture traffic:**

All experience had proved that the lower the rate of fare the greater the numbers carried ; thus more people travelled in England since the introduction of railways than in the good old coaching days. London cabs created a greater number - of riders than in the time of hackney-coach monopoly.

The same held true with respect to the introduction of omnibuses; and every reduction in omnibus prices had produced corresponding results. So also of the river steamers; of the sixpenny and penny boats; it was by bringing locomotion within the means of the masses that carrying companies flourished; and the most remarkable illustration of the profits of cheap transit was to be found in the practical results of the little company formed for conveying Passenger, in track boats on the canals connected with the Godavery Anicutworks.

*There, the prices are such as permit the masses to avail themselves of the accommodation offered; and the first half-year's dividend was declared at 85, the second at 55 per cent. Surely, this is a lesson which he who runs may read; and the Railway Company, if wise, would take a leaf out of the Navigation Company's book. We believe that precisely the same principles apply to goods as to passengers, and that the rail must considerably underbid the road if goods traffic is to be developed in any ratio commensurate with the wants or the resources of the country.*

**-- Athenaeum, September 11, 1856.**

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Annexures:

### **Advertisement for Hiring:**

## **MADRAS RAILWAY**

WANTED immediately, for the above line, some thoroughly qualified inspectors of Permanent Way, Masonry, Brickwork, rock Cutting, and Blasting, and Works generally; age not to exceed 35. Salary £4 to £7 per week, according to qualification.

None need apply but educated men who have had much experience in their work, and can be well recommended by engineers they have served under.

Candidates must be prepared to undergo a medical examination. Apply to James M. Rendel, Req. No. 6 Great George – Street, Westminster.

By order of the board,  
JAMES WALKER, Managing Director.  
London, May : 9, 1856.