

# Rail and coal

P. K. Mishra

Official discovery of coal in Bengal is attributed to Mr. Suetonius Grant Heatly, Collector of Chota Nagpur & Palamu, who had discovered Existence of coal in Bengal in 1774 and in the same year he and a John Summer obtained from Warren Hastings a license empowering them to work coal mines in Pachete and Birbhum. —*Gazette of Burdwan*

The difficulties of transportation, however, restricted this trade and made it a laborious operation.

The coal was carried in ox-drawn carts from the pit-head in Raniganj to Amta, a main trading station on the Damodar in those days, where it was dumped along the bank of the Damodar, to be ferried to Calcutta only when the river was navigable for heavy barges during a fortnight in the monsoon. All these factors led to enormous losses. 'One house thus lost three out of eleven lakh of maunds in the transit in one year, from boat sunk; and other causes incidental to the existing means of transport'.

Since the river was not navigable all round the year, coal dug from time to time had to be stocked on the banks of the river and the time taken in the journey in hackeries and boats led in many cases to the loss of two seasons, though the direct distance by land between Calcutta and Burdwan was only 75 miles.

The journey along the Damodar specially during the rains when this river was over-flooded was precarious and the loss from boat-wrecks used to be enormous —20% of the whole cargo as stated in 1844. All these causes, in addition to the cost of transport, led to the high price of this article in Calcutta. While the price of coal at the pit's mouth was about half an anna, in Calcutta it used to be sold at four annas.

“That the loss by exposure, speculation, and accidents, during the long period, now necessary to convey the Burdwan Coal to the markets, is excessive, there appears to be no difference of opinion. In August last, thirteen

out of sixty laden boats were sunk in one night". —*Report of the managing director of East Indian Railway company to chairman in April 8, 1846*

The same difficulties attended the transport of coal along the river Ajay, the other river traversing this coal district, which met the Bhagirathi. --- *Report of the Committee for Investigating the Coal and Mineral Resources of India for the year 1838*

In the pre-railway age, the absence of a cheap and regular means of transport to the Calcutta market remained the chief obstacle to the proper development of the valuable resources of the Burdwan coal-field.

It was expected that laying of Rail lines between Howrah and Raneeunge will address the transportation issues and Progress of Rail line construction was closely being monitored by Railways & Coal companies alike, as huge amount of coal lying above ground could not be dispatched by existing system.

*"The instant this section of the line is complete, Calcutta will be amply supplied with coal. There is no limit to the amount which can be raised from the fields round Raneeunge. The Bengal Coal Company have millions of maunds above ground, which cannot find a market, because the available fleet is inadequate to its transport down the Damooda."* --- **Friend of India, May 25. 1854**

In February 1855, the experimental line of the E.I.R. from Howrah, opposite Calcutta, to Raniganj in the coal district was opened to traffic. The Railway offered itself as a much better substitute for the slow, hazardous and consequently, in its ultimate cost, expensive boat traffic along the Damodar. It facilitated, in the first instance, the transport of coal to the existing demand centre in Calcutta — demand arising from the needs of the newly introduced steam vessels along the Ganges.

At the same time, the Railway paved the way for the emergence of new demand centres. Coal from the Burdwan mines, from now on, could be transported towards Calcutta in increasing quantities, and at a comparatively cheaper rate and in a much shorter period of time. This possibility of obtaining fuel cheaply acted as a direct impetus to the growth of the new industries in Calcutta and its neighbourhood. The manufacture of jute with the help of

steam-driven engines was started at Rishra, near Serampore, lying along the route of the experimental line.

Early coal business, the rapid growth of coal mining in Raneeunge coal field and speculation was beautifully captured in one of the despatches of Engineers' journal:

“There is no doubt that, as Railways open throughout India, the demand for coal will be considerably increased, and that speculations in coal are about the most promising speculations of the day. Simply because coal is wanted, it must be had; and hitherto, for want of Railways, the coal-supplying resources of India have remained undeveloped. The activity at the Raneeunge collieries is now very great, the demand being very extensive—in fact sometimes considerably above the supplying powers. We have known extensive orders refused by one Company, simply from their inability to meet them within a given time, being unable to send down coal fast enough to supply their regular customers. The opening of the Barrakur and Singharron Valley branches of the East Indian Railway will completely alter this state of things, as they will open up new districts, and thus break up the monopoly in the advantages for supplying coal possessed by one Company. The Bengal Coal Company at present have the Railway up to their pits' mouth, while the East India Coal Company, the Beerbhoom, and another Native Company are virtually deprived of the advantages of Railway communication. Before long, however, these Companies will enjoy the privilege of having the Railway almost up to their pits' mouths, and their out-turns and supplying capacities will be vastly augmented. If really good coal can be found at Raneeunge, the day will come when, in place of having some two or three coalingstaiths at Howrah, at least a dozen will be required to meet the requirements of the traffic.”

----- **Engineers**

**Journal February 1 1861**

Indian coal was known to be very deficient in coking qualities and so, there was no other option but to depend on imported coke for use on the newly opened Railways in India. But, in the middle of the year 1855, the

locomotive department of the E.I.R. succeeded in using Burdwan coal without coking it for their locomotive purposes through successive experiments.

This suddenly created a very enlarged demand for this coal and with the work of construction going ahead on the extensions of the E.I.R. towards the Upper Provinces, the possibilities of this demand being far more enlarged were apparent. Apart from these locomotive purposes, the work of construction of the line itself involved certain processes such as brick-burning and so on, which needed a large amount of coal and the question of quality being not so important here, the Burdwan coal was in use from the very beginning.-- *V. Anstey, The Economic Development of India, (London, 4th ed. 1952*

In 1859, Oldham reported the carriage of cart-loads of coal from the Burdwan coalfield to the work-sites on the Rajmahal section of the Railway.

Under the impetus of these demands, emerging along with the operation of the Railway in the area, the yearly out-put from the Burdwan coal-field was increasing steadily. In 1855, this was estimated to be 100,000 tons. But, in 1859, it rose to 325,000 tons approximately. There was steady increase in the coal traffic on the section of the Railway opened. While in 1855, the receipts from the coal traffic on this line was £1949, in 1859, these rose to £ 71,736. Within these few years, the coal-field itself presented an altogether different sight.

Referring in this, Oldham wrote in 1859 — “I paid a hurried visit to this coal-field in 1851-52, soon after my first arrival in the country. At that time, there were scarcely half a dozen pits at work in the whole field. Nothing struck me with a greater surprise than the almost total neglect of so valuable and important a district. But, the scene has totally changed now. Every known locality where coal is, or has been seen, has been worked into. Quarries are seen in full work, where formerly nothing but bareness existed. And at the present time the great difficulty consists in procuring labour sufficient to meet the increased demands”.- *Report on Coal Resources and Production of India by T. Oldham, 1867, App. Ill, p. XXIV, Sel. Govt, of India. No. 64.*

The increasing supplies of Burdwan coal as noted above had the most favourable effects on its price in relation to that of the imported coal. In 1852, the English coal was selling in the neighbourhood of Calcutta from 27s 9d

a ton to 18s 8d a ton. During the same period, the price of Burdwan coal was quoted there as 20s 9d a ton. From 1855, when the Railway began to traverse the coal-field, a sharp reduction in the price of the latter was noticeable.

Thus, in 1851, the price of the Burdwan coal was about one-third of that of imported English coal, the price of the former being Rs. 11 As. 3 per ton, while that of the latter, Rs. 33 As. 12 per ton. In 1855, the ratio between the prices of these two articles, i.e., Burdwan coal and imported English coke, became 1 to 6 respectively, if not more.

When English coke was in use as fuel on EIR, the fuel cost was quoted as As. 13 Pies li per mile. But, in the following December, as a result of the use of Burdwan coal, the fuel cost on the railway was reported to have reduced to As, 1 Pies 1 of, i.e., about six times less than the cost quoted for the first half of the year.-- *Rendel and Turnbull to Noad. 23 July 1855, Rly. Home Correspondence 'A', Vol. IX. 1 Report to the Sec. of State for India in Counc. on Rlys. in India*

J.E.O Connor in Review of the Trade in India 1878-79 had underlined the role of Railways in giving impetus to coal mining industry:

*“The commencement of the East Indian Railway line, which was laid to run through the coal bearing region of the Damuda basin, gave an impetus to the mining industry and new pits were opened in large number”*.--J.E.O Connor in Review of the Trade in India 1878-79

George Huddleston in his famous book *East Indian Railway: 1906 History of the EIR - Chapter XVI*, writes that nothing in the history of the East Indian Railway has been more remarkable than the growth of the coal traffic during the past 15 years. Up to the year 1889 few had recognised its immense possibilities, and there was certainly no idea of a great export trade setting in, while internal requirements were comparatively small and restricted almost entirely to the needs of Railways. There seems to have been at the outset a good deal of prejudice on the part of those who had previously burnt Welsh coal, and particularly on the part of the engineers of the larger steamship companies, against the introduction of Bengal coal in its place; these prejudices were only overcome by degrees, but once a start had been made the import of coal from the United Kingdom was doomed.

In the first half of the year 1885, more than 45,000 tons of Welsh coal were imported into Calcutta, during the first half of 1889 the quantity imported dropped to less than 1,000 tons, and an export trade then started, principally in bunker coal for the use of the steamers of the British India Steam Navigation Company, which extended even more rapidly than the most sanguine anticipated. In 1890 the growth of the export of Bengal coal from Calcutta first attracted serious attention, though in proportion to the total downwards traffic the export figures were still comparatively small. Rangoon was the port which at first took the largest quantity; Bombay, which is now the largest taker of Bengal coal, adhering very largely to the Welsh product until some years afterwards.

In 1891, the want of facilities for dealing with a large coal traffic were recognised. The Traffic Manager, Mr. J. Rutherford, commenting on the expansion which would follow the opening up of numerous mines in the coalfields adjacent to Asansol and Sitarampur and of the Jheriah field, an extension to which was then about to be started, remarked that "we have neither the wagon stock nor the terminal accommodation required for such an accession to our traffic," and strongly advocated the construction by the Railway Company of special jetties and loading machinery at a point on the river below the Botanical Gardens, to which he proposed a short branch line should be run from Bally Station, a few miles above the Howrah terminus.

In the year 1893 the export trade from Calcutta had grown to about 250,000 tons, and towards the close of the year, the Kidderpore Docks, constructed for the receipt of ordinary merchandise, were first brought into use for loading export cargoes of coal. It was, however, anticipated that the docks would not at all meet the requirements of the trade, and that if the rapidly growing business was to be dealt with there, considerable additions would be needed, while the railway approaches would also have to be improved. The opening of the docks to export coal traffic at once brought the Jubilee Bridge over the Hooghly into use; previous to this time it had been more or less a white elephant, for very little business of any kind had been done at the docks.

In the second half of 1892 about 189,000 tons of all classes of traffic were carried over the bridge, in the second half of 1893 the weight rose to 345,000 tons, of which two-thirds were coal.

In 1894 there was a still further advance in the export coal trade, and General Sir Richard Strachey forecast, in an address to the shareholders of the Company, what the future was likely to be: "There is no possible reason," he remarked, "why the whole of the coal now exported from England, whether required on land, or for consumption at sea east of Aden, should not be replaced by Indian coal."

The Railways played a dual role in the development of the industry. On the one hand, it became the biggest consumer of coal and on the other; it carried coal to the emerging industries of the neighbouring areas. Railways gave a fillip to the coal mining works and the coal trade as well, and coal pushed Railway construction ahead.

It was reported that Railways have been able to garner ten percent of all Calcutta bound coal traffic in ten weeks of opening of experimental line to Raneegunge, and was able to achieve guaranteed returns in initial phase itself.

*"As regards minerals, and more particularly coal, though the line to Raneegunge is designated and designed as a colliery line, yet we find that as yet the Rail derives only one-twelfth of its returns from the conveyance of that article. The quantity of coal requiring transport to Calcutta is about 100,000 tons annually, of which the rail is at present able to convey only a tenth. From the rapid increase of the passenger and goods traffic in the last ten weeks on this line, we deduce the singular fact, that the enterprise will not require the minerals of the coal proprietors to secure a gross return of ten per cent, on the capital. In all probability the development of other descriptions of traffic before the close of the present year, will show that the rail will be useful to the coal-mines, not that the coal-mines will be necessary to the success of the rail"-- Friend of India, May 10, 1855.*

The first war of Independence, 1857, forced construction of more Rail lines for administrative exigencies. Consequently Indian Railways

became the largest consumer of Burdwan coal. The increasing supplies of Burdwan coal from 1855, thanks to Railway transportation led to reduced price in comparison to that of the imported coal. Two other Railways, the Eastern Bengal Railway and the Bengal Nagpur Railway besides the E.I.R. were its major consumers. Due to rise in demand for coal, the expansion of different branches of Rail to connect different collieries were rapid and successive in the sixties of the nineteenth century.

East Indian Railway Company collieries not only ensured a steady supply of coal against the vagaries of market production but also helped the Company to make a substantial saving in fuel component of the working expenses, turning EIR into lowest cost Rail carrier in the country.

Contracts were entered upon to carry over 100,000 tons of coal from Raneegunge to Calcutta, and a quantity of ordinary merchandise was transported, which, though comparatively small, gave hope for the future. In the second half of 1855, the revenue from coaching traffic was £25,000, from goods traffic £6,385, from coal £7,856, and the working expenses amounted to 42 percent of the gross traffic receipts.

The weight of goods carried was 299,424 ton in 1859 against 190,566 tons in 1858, and the increase in mineral traffic was so great that it was decided to extend a branch to the collieries from Raniganj to Barrakar. The extension of the branch line from Raniganj to Barrakar coalfield in 1865, relieved many collieries of their transport difficulties and gave fresh impetus to industry.

Raneegunge to Siarsole section was opened on 21-7-1863, Siarsole to Sitarampur and Sitarampur to Burracker sections were commissioned on 1-1-1865., Sitarampur to Luckeesarai section was completed on 1-1 1871. One can only wonder at the brisk pace of laying Rail lines by East Indian Railways.

Various coal fields were connected by Rails and there was rapid increase in coal production and transport . Barakar to Dhanbad was

connected on 20-5-1894 covering Jharia coal fields and Ondal to Saintia was connected on 10-12-1906. Madhupr to Giridih was connected on 1-1-71.

Khana to Durgapur double line was laid on 1-6-1870 and from Durgapur to Raneegunge double line work was completed on 2-9-1870. Raneegunge to Sitarampur double line was laid on 19-12-1870 and it was extended up to Luckeesarai on 1-1-1871.

The Jharia Coalfield contributed to the extension of Railway across Barakar River. A proposal was made by the East India Railway Company to extend the Barakar Branch across the Barakar River in 1886, and despite the support of Directors of the Board, the Government, refused to sanction it till 1889. Notwithstanding this decision, the then Chairman of the Board, Sir Richard Strachey, had deputed T. H. Ward, the Colliery Superintendent to examine and report on the prospects of the Jharia coal-field, who submitted the report in August 1894.

Estimates and plans of a projected line of Railway from Barrakur Station to the Jherriah coal-field, a distance of about 36 miles, were prepared, and the Board sanctioned the estimates subject to the confirmation of the Government of India.

In 1892 the government of India had sanctioned the work and it was at once started and by 20<sup>th</sup> May 1894, Railway linked Ghootrya some seven miles beyond Barakar, carrying 100 tons coal and 50 passengers.

By 1897, the collieries on the Jherriah and Toposi branch lines, the latter having been extended at the same time as the Jherriah branch, were contributing not far from a million tons a year to the traffic of the undertaking.

When we see ten trains daily, each carrying 70 wagons with two engines and some twenty coal staiths at work at Howrah, then we may begin to talk about approaching towards a development of the Coal Traffic. Staiths are elevated platforms for discharging coal and

other materials from railway cars into collier ships for transport. In earlier days(1858), three coal trains a day with 35 loaded wagons was the limit of coal traffic-- *THE ENGINEER'S JOURNAL, RAILWAY, July 15, 1859.*

### **Acquisition of coal field by Railways:**

The Giridih coalfield was acquired by the East Indian Railway Company in the early years due to the intelligence and foresight of Mr. Macdonal Stephenson. Initially, there was a dispute between the government and the Company on the question of the use of coalfield. The government was against the utilisation of guaranteed capital in excavating the coalmine. The East Indian Railway Company on the other hand argued in favour of such an investment to ensure uninterrupted supply of coal for its moving stock. The East Indian Railway Company, on the contrary, launched 'the Auxiliary Railway Company' to lay line to develop the Giridih property.

Rudyard kipling in his travelogue,"Giridih Coal fields" writes: Company, the E.I.R., has more or less made Giridih — principally more. 'Before the E.I.R. came,' say the people, "*we had one meal a day. Now we have two.*" *Stomachs do not tell fibs, whatever mouths may say. That 'Company,' in the course of business, throws about five lakhs a year into the Hazaribagh district in the form of wages alone, and Giridih Bazar has to supply the wants of twelve thousand men, women, and cihldren*

*The E.I.R. estate, bought or leased in perpetuity from the Serampore Raja, may be about four miles long and between one and two miles across. It is in two pieces, the Serampore field being separated from the Karharbari (or Kurhurballi or Kabarbari) field by the property of the Bengal Coal Company. The Raneegunge Coal Association lies to the east of all other workings. So we have three companies at work on about eleven square miles of land."*

Eventually it was Sir Charles Wood who could see the reason and permitted construction of the chord line to access those mines. Consequently the East Indian Railway laid the chord line to access those

mines. Consequently the East Indian Railway could reach the Giridih field in 1871.

East Indian Railway Company collieries not only ensured a steady supply of coal against the vagaries of market production but also helped the Company to make a substantial saving in fuel component of the working expenses . Being the largest consumer of the coal industry and also producer of the same helped it to keep the price at the bottom line. Giridih coal worth rupees 3 a ton in wagon at the collieries cost rupees 30 a ton by the time it reached Lahore, while at Calcutta the freight charge from Sitarampur was no less than rupees 3-13 a ton.

Demand led the EIR to invest on a large scale into its own collieries in Giridih field. The railways relieved many collieries of much of their transport difficulties and gave a fresh impetus to the industries. By 1880, the railway collieries were raising roughly a quarter of the total Indian coal production.

Sale of coal by East Indian Railway was causing much heartburn amongst coal owners of Bengal, who complained to Government to look into issue of illegal sale of 72,000 T of coal by EIR to public and other companies , which was incorporated only as common carriers. Even the consulting engineer to Government had observed that *the working of a Colliery is not a legitimate application of the capital of the Railway Company and they should buy directly from the coal companies instead of raising coal themselves.*

However, considering huge economy and unique location advantages of Railway mines coupled with Railway sidings, EIR continued with its policy of developing captive mines to remain lowest cost Rail road in the country.

*"When, however, from the peculiar circumstances of the country, there is a probability that, by retaining possession of the Colliery and working it for themselves, the Railway Company may effect an annual saving of very considerable amount in their working expenses, and more especially when a large proportion of that amount will consist of a saving in carriage due to the position of the Colliery, to the benefit of which the Railway Company*

*are fairly entitled, but which they will lose by making the Colliery over to other parties”.*

More over the deed of settlement of EIR had permitted to undertake any activities deemed necessary for carrying on Railway activities:

*“The deed of settlement of the Railway Company, dated the 9<sup>th</sup> April 1847, expressly provides for such case as the present, empowering them to carry on any subsidiary works necessary or desirable towards the construction or working of the Railway, ” including therein the working of mines of coal, iron, and other minerals, in the East Indies, and manufacturing the produce thereof, and the erecting and carrying on all necessary and convenient works, furnaces, forges, smelting houses, and gas works, for furthering the objects of the Company, and selling and disposing of such of the produce thereof as from time to time shall not be wanted or necessary for the making, repairing, or carrying on any Railway of the Company.”*

The problems of the collieries were aggravated by the slow expansion of Railways in comparison to the expansion of the coalfields. Only those collieries that were on the line of railway were served with sidings, and such sidings had to be paid for in full by the colliery using it. Collieries distant from the Railway had to rely on the bullock-cart for their carriage. Every ton of machinery had to be conveyed across country. The expensive labour was required to transport heavy boilers, large flywheels and other parts of colliery machinery, to distant road deficient parts of coalfields. One Apcar and Company, had to purchase and to engage an elephant to carry machinery from colliery to colliery, and this method proved satisfactory.

Collieries were continuously asking for more wagons to transport their ever increasing production and were repeatedly exhorting EIR to look after interests of coal companies: : *“In subsequent addresses General Sir Richard Strachey referred, over and over again, to the pressing needs for better facilities and for more rolling stock, and over and over again defended the management of the railway against the not infrequent attacks of the mercantile community, whose complaints of want of wagons, or of blocks of traffic, resulting, as they alleged, in loss of business, were at the time common.”*

At a meeting of the shareholders held in December 1901, the Chairman EIR addressed those concerns:

"As the coal owners of Bengal are among the most persistent of those who exclaim against the management of the East Indian Railway, and of the want of attention paid to their interests, I will venture to call their attention to the following statement of the present value of the coal properties in Bengal, properties that, as I have already said, have been entirely created by the initiative of the Railway, and the continued prosperity of which has been ensured by equally constant attention to their requirements. The extremely low rates at which coal has been carried on all Indian railways for the last ten years is also due to the action of the East Indian Railway; the opening out of the Jherriah coalfield, which was opposed by the Government of India, was at last sanctioned by an appeal to the Secretary of State by the Board."

I have no wish," he added, "to be a prophet of evil, but there is an opinion afloat, which seems deserving of serious attention, that the very rapid development of the coal trade, accompanied, as it has been, by this remarkable inflation of values, may be the forerunner of a season of speculative mining enterprise, and of over production, in excess of the growing requirements of the public."

Within a year of the time these words were spoken their truth became apparent, the output of the collieries became much larger than a market could be found for and share quotations declined with a run. Fortunately the check was only a temporary one, and lost ground was soon regained.

Messrs. Apcar and Company was the first to lay down at their own expense a broad gauge line from Sitarampur to their Lachipur Colliery in 1881. The success of this undertaking was assured from its beginning as the neighboring collieries belonging to the Bengal Equitable, and native owners were too glad to avail themselves of this line for the dispatch of their output to Sitarampur by paying a comparatively small royalty. In some cases the saving was estimated to be as much as 12 annas to Rs. 1 per ton, and an average of 20,000 tons a month was transported by this branch of only two miles in length.

## **Coal transportation and development of collieries:**

When the East Indian Railway was constructed, coal was almost unknown in India. Mr. Crawford referring to this in 1885, remarked:—  
*"If a man fell in with a bit of coal in his walk, he would pick it up as a curiosity, and throw it away because it dirtied his finger. That was all that was known of coal 30 years ago. It was the act of this Company which brought coal to light. From a basis of comparatively nothing 30 years ago, we have now risen to carry one million and a half tons in the course of the year. The native mind is so full of prejudice, that one might have been afraid that the use of an article like coal would have excited some superstitious feeling, but when the native came to know that coal was only fossilized wood, he had no objection to burn it, and with such an enormous population as we have in India, with such large cities and factories rising in all quarters and steam engines and so on, we see the explanation of the great increase in the quantity of coal brought to us for conveyance. So it will go on and very largely increase. I venture to predict that the time will come, which I shall probably not witness, when the article of coal will be our largest source of profit."*

With the development of the coal mining industry in Raniganj, the East Indian Railway started penetrating the coal mining districts on its way from Mokameh to Calcutta.

The Commission of 1896, observed: "Any traveler by that line, if he is awake at night when passing between Sitarampur and Raniganj could fancy himself in the heart of the Black Country in England". In fact, introduction of Railways was an important landmark in the mode of transport and communication in India. The East India Company Government had not adopted any constructive policy regarding the development of communications. It was with the introduction of the East Indian Railway that, a great improvement was made in the field of communication in the coal belt and Bengal as a whole.

## **Proposals for laying tracks : Pre construction days**

Prince Dwarakanath Tagore was denied construction of Railway line by the East India Company : In 1842, sensing the potentials of invention of steam engine in England, Prince Dwarakanath Tagore, the grand father of Gurudev Raibdranath Tagore, visited England for the first time relating to business purpose of collieries, owned by him at Raniganj and Rajmahal coalfields. He sailed and travelled by train in England. He was greatly impressed by the "Iron Horse". He conceived the socioeconomic viability of the Railways in India as a mode of transportation system. After returning, he decided to lay Railway lines connecting the collieries at Raniganj with Kolkata and then with capital city of India. Soon he formed a company called "Carr Tagore and Company" and applied to the East India Company, for getting the rights of laying the Railway line. He dashed down to England in the second time, to persuade East India Company, sensing that Mr. R. Macdonald Stephenson, the grandson of Gorge Stephenson (Inventor of steam engine) visited India in 1843 and surveyed for laying Railway lines between Calcutta and Delhi. Mr. R. Macdonald Stephenson, Managing Director and Sir George Larpent, the Chairman of Stockton and Darlington Railway of England, Vehemently opposed and denied permission to lay Railway line to the native "Carr Tagore Company, although he had a cordial relation with the "Board of Directors" of East India Company. The first proposal for laying Rly line in India was processed by the East India Company in 1843, followed by London Company headed by Mr. R. M. Stephenson who became the Agent and Managing Director (M.D) of East Indian Railway. Two companies, East Indian Railway of England, got the permission of laying Rly line in Calcutta Presidency while another Great Indian Peninsula Rly (GIPR) of England got permission for the same purpose in Bombay Presidency

Dwarkanath's willingness to pay a third of the capital cost of the proposed Calcutta–Raniganj line, though, distinguished him from all other respondents.

EIR had to face periodical labour unrest due to long working hours ,less pay for natives and poor working conditions. Goulburn Evening

Penny Post (16 May 1934) had reported about strike and violence at the Giridih , the colliery of East Indian Railway .

*“A mob of 900 coolies, incensed over the,' wages reduction, attacked the offices of the East Indian railway colliery at :the Giridih pelted stones and severely injured the English manager,. They burnt the machines and coal stacked. The police were unable to disperse the rioters without using force; so they opened fire killing two and injuring several.”*

In spite of local enthusiasm, initially the company showed little interest in developing the coal resources in India. Then the Governor of Bengal, Lord Canning, had little interest in developing the internal resources of India. Since English coal was being imported and being sold to other countries of the world as well.

The first Indian coal company under European supervision was the Raniganj mine open in 1820 by Alexander and company, which was made possible by the efforts of a mining engineer- Mr. William Jones- aptly called the Father of coal mining in India. After 1820, other coal mines under European management were in the Raniganj coalbelt -they are Chinakuri (1823), Damulia (1824) and Chanch and Nuchibad (1830). Prince Dwarkanath Tagore was the first Indian to invest in coal (Ghosh, 1994). After the introduction of steamers the demand for coal rapidly increased.

The Superintendent of the Geological Survey of India, Thomas Oldham, in his report dated 14 June, 1859, furnished to the government a statement of the yearly output of coal at that time from various collieries in the Raniganj coalbelt. It is interesting that, there were 17 companies and concerns operating in this belt. Another interesting point to note is the dominance of indigenous entrepreneurs in the mining industry. There were 13 of the total 17 concerns owned by Indian operators.

### **Extension of Raneegunge colliery lines:**

Records published by House of Commons for year 1859-60 cover the debate on extension of Raneegunge colliery lines:

*“The great question of the year has been that of the extension of the Raneegunge colliery line to the Barrakur River, with a branch along*

*the Singarun Valley; having for its object the development of the mineral resources of the neighbouring districts, and the establishment of greater facilities for the conveyance of coal from the mines which are already worked.*

*The Barrakur line will be 22 miles long, and the Singarun line about seven miles long. The sections for these lines have been forwarded to the consulting engineer to the railway company in England, and the necessary measures for carrying out the works have been sanctioned by her Majesty's Secretary of State in Council (10th December 1859). An indent has also been passed for 10 miles of Greave's cast-iron sleepers, for experimental use on these colliery lines, where they will be subjected to the test of a heavy slow traffic. The extension to the Barrakur is to be laid out so that it may form part of a main line direct to the North-west Provinces, in the event of such a prolongation being ultimately determined upon. Care has been taken in laying out the colliery lines to meet the requirements of all the mining interests, and to place, as far as practicable, all upon an equal footing as regards accommodation.*

Railways had constructed a large coal wharf to facilitate loading of coals in wagons:

*"An extensive new " coal wharf" at Raneegunge has been completed, so as to admit of coal being loaded there, and the chief engineer reports that, " so far as can at present be ascertained, it seems well adapted to its intended purpose."*

--Statement exhibiting the moral and material progress and condition India, during the year 1859-60 '

"India. Office, \ T. L. SECCOMBE, 14 May 1861.) Secretary, Financial Department. Ordered, by The House of Commons, to be Printed, 4 July 1861.

In April 1858 the Board of Directors of the East Indian Railway forwarded to their agent in Calcutta a memorandum from several proprietors of coal mines in the Raneegunge district, setting forth that if the Railway should be carried on from Raneegunge to some point on the Grand Trunk Road near the junction of the branch road to

Raneegunge, they would engage to send all such coal as might be intended for the Calcutta market by the Railway alone, and would agree to pay for its transport the ordinary rate per mile for the full distance the coal might be conveyed. The Board forwarded also a separate letter from the East Indian Coal Company, one of the parties to the above memorial, stating that if their principal mines should be put in direct Railway communication with Calcutta, they would guarantee the dispatch by Railway of 200 tons of coal daily for 21 years, paying for that quantity, whether dispatched or not, at the rate charged to the public generally.

Prior to this a proposal was submitted to Government by the agent of the East Indian Railway Company, to construct a branch line from the terminus at Raneegunge to the Searsole colliery, distant about 1 miles, owned by Gobind persaud Pundit, by whom the cost was to be eventually repaid. This proposal, which amounted in fact to a scheme for making a private Railway under cover of the power conferred by law for the purpose of making public Railways, was rejected by the Government; but it was, at the same time, intimated to the agent that an extension of the line westward might be Worthy of consideration, especially if the new line could be made available for the purpose of carrying the general traffic further in that direction, while it should run near so many collieries as to be rendered certainly remunerative.

The Government of India, ordered trial surveys to be commenced both for the branch line and the main line extension, and Mr. Oldham, the Superintendent of the geological survey, was at the same time directed to make a careful examination of the country, with a view to determining the probable extent of the coal fields, and the positions where the mineral is found in greatest abundance and of the best quality.

In his report Mr. Oldham noticed the vast increase in the production of coal from these fields since his first visit in 1851-52, and he remarked that his examination had placed beyond doubt the fact that there is abundance of coal in the field to meet the demand for years. He strongly urged the construction of a branch along the Singarrun Valley as far as the Chowkeydanga colliery, which would lead to Bah-rool.

He also recommended the continuation of the main line from Raneeunge along the valley of the Nooneah (in which lies one group of coal mines) nearly to the Burrakur, preferring this route to one leading direct to the group of mines near the confluence of the Burrakur and Damoodah.

There was great opposition from existing coal companies against further development of collieries lines. Bengal Coal Company did not allow survey in their lands for extension of Rail lines and did their best to create roadblocks in extension of rail lines to of rival collieries.

*“We learn that the Superintendent of the Bengal Coal Company at Raneeunge, has written to the Railway Engineers engaged in surveying the new extension line from Raneeunge to the Barrackar River, informing them that he has received instructions from the Secretaries at Calcutta to stop the Survey or working out of any line throughout the Bengal Coal Company's Lands. We regret to hear this, because nothing could be more damaging to the interests, of the interlopers, adventurers, or whatever else they may be called, than an opposition of this nature. Among the Directors of the Bengal Coal Company are men who have been first and foremost in the cry against the exclusive policy of the late Government. As the mainspring of the Indian Reform League, they have been incessant and vehement in their denunciation against the old regime. They have been talking about the infusion of the Anglo-Saxon independent element, of constructing Roads, Canals and Railways ; of opening up the resources of the country and so forth ; and yet what do they do, they falsify the whole of their principles by their actions. Men, who have been denouncing the abuses of the Government, commit the same abuses themselves. The Bengal Coal Company having got hold of a nice tract of country at Raneeunge ; having by admirable tact got a Railway made right up to their pit-mouths ; strenuously oppose the extension of the Railway, or the construction of branches of any kind to accommodate Rival Coal owners. They will bear no rival near their throne. Though, they are the bitterest opponents of the exclusive policy, they carry out the exclusive policy to the very letter themselves.”-- THE ENGINEER'S JOURNAL, RAILWAY, January 3, 1859.*

Public opinion during the period was critical of the stronghold of Bengal Coal Company and urged Railways to provide Rail connectivity to the new collieries.

“We have no hesitation in saying that the attempts made to frustrate the surveys of the Railway Company will prove abortive. They may create delay but nothing more. The Railway Company will be backed by the Government of India, and before their powerful arm everything else must give way. So far as the Railway Company therefore is concerned, there are no fears. Not so, however with the smaller fry, the rival coal owners. Baboo Gobind Persaud Pundit perhaps the largest of the other coal proprietors has, for some time past, been anxious to construct a branch Railway from Raneeunge to his collieries.

He is willing to construct it himself, but the Bengal Coal Company resist the construction of the line as a portion of it, to reach the Railway, must run over their property. Here is the beautiful " exclusive policy" again at work. In such a case we are of opinion that the Railway Company ought to construct the line up to Gobind Persaud Pundit's pits especially as he is willing to pay for it. He is too small to fight the battle out himself, and the Railway Company should take up the matter and force the Bengal Coal Company to give up the necessary land at a fair valuation. Landholders are forced to give up their land in England and why should they not here. We know of a Railway taken right across a gentleman's park and right through his dining-room because he opposed the making of the line. If such things can be done in England, the mere taking of a strip of waste land in India ought to be an easy matter. If the Railway Company's Act does not empower them to do it, it is easy to obtain a revised act with the necessary powers. It is clearly to the interests of the Railway shareholders that the stronghold of the Bengal Coal Company should be broken; into a branch line constructed from Raneeunge up through the Searsole district to accommodate the colliery owners there and the line extended to the Barrackur to enable fresh collieries to be opened out. One party has already purchased land on the Barrackur extension line with the view of opening out new collieries.”-

THE ENGINEER'S JOURNAL, RAILWAY, January 3, 1859.

Subsequently the opposition against carrying Railway survey was withdrawn by Bengal Coal Company after the issue was raised by Mr. Palmer, the Agent of the East Indian Railway.

“We learn that on an official letter being addressed to the Bengal Coal Company by-Mr. Palmer, the Agent of the East Indian Railway, regarding the opposition, made against the prosecution of the Railway Survey at Raneegunge, the Bengal Coal Company have withdrawn their opposition and promised to afford every facility for carrying out the extension line.” - THE ENGINEER'S JOURNAL, RAILWAY, January 3, 1859.

It appears from the report of the Bengal Coal Company, presented to the half yearly Meeting of Shareholders on the 16th June, that the supply of Coal from this field is inexhaustible, at least as far as the present and many subsequent generations are concerned. Some doubts of this fact had, it seems, been expressed, but the report of Mr. Lord, the manager, proved beyond a doubt that it would take upwards of 3000 years for the Bengal Coal Company's Collieries to be exhausted. One thing is certain, that the demand for Coal must increase to an enormous extent. With three Railways in course of construction in Bengal, one of them open to a considerable extent, and with constant additions to the number of our river-steamers, the Coal Companies may safely reckon on increasing sales.

But it is very doubtful whether, with the existing means of transport, any thing like the quantity required could be brought to the market. The Collieries to the West of Raneegunge are almost entirely dependent upon the river Damoodah for the conveyance of Coal. It is now proposed to extend to them the advantages of Railway communication, and the following Report of Mr. Turnbull, the chief Engineer, will show the present position of the undertaking :—

**Feasibility and survey Report of Mr. Turnbull, the chief Engineer, EIR :**

It shows the meticulous planning, careful trials, comprehensive analysis and detailed site surveys done, investigations conducted, alternative routes mapped and financial viability explored ,before EIR started extension of colliery lines.

EDWARD PALMER, Esq. Calcutta, 21th May, 1859.

Extension to the River Barrakur and Singareon Valley Branch.

Dear Sir,—In compliance with your request, dated the 28th October, 1858, enclosing a copy of the Officiating Secretary's letter to the Consulting Engineer to the Government of India, No. 4861,dated 29th September, 1858, I have made a careful re-examination of the country westwards of Raneegunge, to and beyond the river Barrakur, having been over it on former occasions more than once, I also examined the valley of the river Singareon, and marked out the lines on which trial sections should be taken. Careful trial sections, plans and estimates have been completed, and I have now to report the results of the investigations, relative to extending the Railway to the river Barrakur, and making a branch line up the valley of the river Singareon. It will be I think most convenient, with reference to the advisability of extending the Railway westwards into the Coal-field, to advert first to the present out-turn of the Damoodah Coal-field, and next to the amount at present carried down by the Railway, and thirdly to the probable future demand :

Mr. Oldham has favored me with the results of his late investigations on the first point, and as they were more minute and elaborate than mine, I prefer adopting his general abstract with some limitation :

It is as follows :

Abstract of Yearly Out-turn.      Maunds

1. —Mines near Raneegunge,... 38,00,000
- 2.—Ditto on the Singareon, ... 22,39,000
3. —Ditto on Nooneah river, ... 6,85,000
- 4.—Ditto on ditto east branch, 2,80,000
- 5 —Ditto on west branch 3,70,000
- 6.—Ditto near junction of Damoodah and Barrakur 6,90,000
- 7.—Other mines, 4,20,000

Total,... 83,91,000

amounting to no less than 305,236 tons  
at 27g maunds to a ton.

Mr. Oldham does not, as I understand him, state this as an exact or positive amount sent to market, but only gives it as an approximate statement, showing the present capabilities of the present workings.

It would be difficult to arrive at an exact amount of the present quantity brought to market, but it will be, I think a near approximation to assume the total present yield of the Damoodah Coal-field at 68,44,000 maunds per annum or 241,600 tons of coal. The total exact quantity carried by the Railway in the first six months of 1858, amounted to 16,11,967 maunds, and in the latter six months of 1858, to 17,04,274 maunds, making a total for the year of 33,16,211 maunds or 120,591 tons.

It thus appears that about one-half finds its way to Calcutta by the Railway, the other half is disposed of as follows : part to Calcutta in boats by the river Damoodah ; part sent to the Beerbhoom districts of the Railway, for brick burning and other purposes, and some used in the Locomotives, and for brick and lime burning ; and a large portion annually accumulated on the banks of the river Damoodah, waiting for a favorable season for transmission by boats to market. The total brought to Calcutta, in 1850, was about 22 lakhs or 80,000 tons, it thus appears that the amount has been tripled in 9 years. A satisfactory result, but not an unexpected one, as to the amount of coal produced ; the only unsatisfactory circumstance being, that the whole is not

carried on the Railway as it ought to be. On the third point adverted to, viz. - the probable future demand, it is difficult to arrive at any but the most general results, nor is it necessary to attempt any analysis, as the rapidly increasing demand is admitted on all hands.

The extension of the East Indian Railway to Rajmahal and towards the North West will soon cause a demand for 5 times its present consumption ; then the demands of the " Eastern of Bengal" and the " Mutla" Companies for brick-burning and other purposes connected with construction, and permanently for fuel for the locomotive and other engines ; then the increasing demands of the steamers navigating the Hooghly down wards and upwards, will, I think, make an estimate of ten times the present traffic in

coal appear not too great to contemplate in the course of a few years. There would not be any difficulty in conveying along the line ten times the present amount of coal, assuming that we have a sufficient number of locomotive engines and coal waggons, and also a sufficiency of coal straits for shipping into the native boats, or depots along the river banks near Calcutta.

The present terminus at Raneegunge is not far within the eastern limit of the Damoodah Coal-fields, and the facts above stated make it obvious that an extension westwards, at least to the river Barrakur, would be a sound and profitable undertaking, by intercepting the large quantity which still finds its way to market by the Damoodah, and by accommodating the large coal traffic at present carried on by carts tediously and expensively, from the pits in the west to the Raneegunge station. Also by opening up the collieries at and on the west side of the river Barrakur now almost shut out from any market ; but of which the coal is of excellent quality.

### **Singareon Branch.**

Assuming then that the advantages of an extension of the present line will be admitted I will first advert to a Branch line up the valley of the river Singareon, of which the plan, section and estimate accompany this report. I propose to double the line from the present Undid station to the 115th mile, a distance of 2 miles, and thence diverge to the north, going close to the new Baboosole Colliery belonging to the Bengal Coal Company; cross the trunk road near the Buktanuggur dak bungalow ; thence nearly straight to and past Mungulpore Colliery of Messrs. Erskine and Company ;thence on through several new Collieries opened, or preparing for being opened, up to the workings of the " East Indian Coal Company" at Toposi ; and on to the

Chowkedangah Colliery where I propose that the branch should terminate. The section shows that the gradients are extremely favorable and the works light.

The total estimate is Rupees 356,651. The estimate is made out as for a single line, but there must be so many sidings, and as the land is not valuable, I think land sufficient for a double line should be taken for the whole distance. The works on this branch are so simple that it will be unnecessary here to go into further details ; I shall only remark, that if it be determined

to carry the work into effect, an early commencement might be made even before the land plans are matured, because the land owners being also the coal proprietors are the parties who would be immediately benefited and would, as I understand, offer no obstruction but on the contrary render every assistance. Considering the benefits they will derive from the branch, they ought to give over the land on the most favourable terms. The whole work could be done in 9 months from the date of commencement.

The present yield of the Collieries in the valley of the Singareon is more than would suffice for one train a day. The section shows Chowkedangah Colliery to be 338 feet above Howrah Dock Bill, or 310 feet above the level of the rails at Howrah Station. Extension to the River Barrakur.

Trial sections have been taken on three lines, hut the one which Mr. Turnbull reoommends is called the " Nooneah Line." It leaves the present line a little to the west of the Raneegunge station, goes between the Raneegunge and the Searsole Collieries, and about a mile to the west of the river Nooneah it bends to the north west, crosses the Trunk road near the suspension bridge, and maintains nearly a straight course between the Trunk road and the Nooneah river for about 7 miles, passing near Mr. Jackson's Collieries, and so onwards in a good general direction to the river Barrakur, bending to the south at its approach to that river and having a station near the present crossing of the Barrakur. The estimate of this line amounts to Rupees 15,31,7-10-0. Distance from Raneegunge to the river Barrakur 22 miles 316 yards, estimate per mile £6,898.

The balance, as regards cost, is in favour of the Nooneah line; but the reason for which I would recommend its adoption is, that of the three Hues under discussion, it affords the greatest accommodation to the Coal Traffic. That is to say, that it affords the greatest accommodation to the greatest number of collieries. The main body of the coal lies nearest to the line which I have recommended. The sections are all taken, or extended across the river Barrakur and up to a point on the Grand Trunk Road at Neersshah for comparison, this point is about 8 miles west of the river Barrakur. Although Neersshah is not even at the end of the Coal-field, as defined in

Mr. William's map, and although I am informed there is more coal to be found to the west-ward, and to the south of the Trunk Road, yet I would not recommend any prolongation of the line beyond the river Barrakur at the present time, for the following reasons: first, the opening up of the Singareon valley and the 22 miles through the heart of the Coal-field, will develop such an amount of Coal Traffic as cannot but satisfy the wants of Calcutta, its Railways and its steamers for a series of years to come, in fact will afford such a supply as need be practically contemplated or looked forward to. Secondly, because a bridge over the Barrakur, with foundations for a double road, and Iron-work for a single road, would cost not less than £60,000, and need not, I think, be undertaken unless with a view to the further extension of the Railway to the west. It is for these reasons that my estimate is only for a line up to, but not crossing the Barrakur, and in each case I have estimated a station at the Barrakur at £s.1,00,000. The cost of which is included in the mileage rate.

The worst gradient between Howrah and Raneegunge is 1 in 264 or 20 feet in a mile. On the Nooneah line, here recommended, there is one gradient of 1 in 180 but as the section is only a trial one, I believe it can be considerably improved by closer investigation and searching out the country; still I doubt whether a better than 1 in 200 can be obtained without going into heavy cuttings, which are most undesirable works in this country. The difficulty to surmount is a broad ridge of high land which skirts the river Barrakur on its left bank. The station at the river Barrakur would be 400 feet above Howrah Dock Sill or 372 feet above the level of the rails at Howrah station, the distance would be 1-13 miles.

I am, dear Sir,  
Yours faithfully,  
GEOUGE TURNBULL,  
Chief Engineer.

## Bibliography:

1. Turnbull to Baker, 25 June 1852, Rly. Letters Encl., Vol. VI.
2. Report on Coal Resources and Production of India by T. Oldham,
3. App. III, p. XXIV, 1867, Selection Govt, of India, No. 64.
4. Mineral Statistics: Memoirs of the Geological Survey of India, Vol. III.
5. Turnbull to Noad, 30 June 1851, Rly. Letts. End., Vdl. III.
6. McCulloch's Commercial Dictionary (London 1859), Vol. 1,
7. Memoirs, Geol. Surv. Ind., VIII, page 321 (1872).
8. Railways of India by Edward Davidson 1868
9. THE ENGINEER'S JOURNAL, RAILWAY, July 15, 1859.
10. THE ENGINEER'S JOURNAL, RAILWAY, January 3, 1859.
11. Statement exhibiting the moral and material progress and condition India, during the year 1859-60 ' "India. Office, \ T. L. SECCOMBE, 14 May 1861.) Secretary, Financial Department. Ordered, by The House of Commons, to be Printed, 4 July 1861.
12. Giridih Coal fields , Travelogue by Rudyard Kipling
13. V. Anstey, The Economic Development of India, London, 4th ed. 1952
14. East Indian Railway: 1906 History of the EIR by George Huddleston
15. Gazette of Burdwan
16. Gazette of Hazaribagh
17. Report of the Committee for Investigating the Coal and Mineral Resources of India for the year 1838
18. Report of the managing director of East Indian Railway company to chairman in April 8, 1846
19. Friend of India, May 25, 1854
20. Engineers Journal February 1 1861
21. Report on Coal Resources and Production of India by T. Oldham, 1867, App. III, p. XXIV, Sel. Govt, of India. No. 64.
22. Rendel and Turnbull to Noad. 23 July 1855, Rly. Home Correspondence 'A', Vol. IX. 1 Report to the Sec. of State for India in Counc. on Rlys. in India
23. J.E.O Connor in Review of the Trade in India 1878-79
24. Friend of India, May 10, 1855