

Indian mines, not Indonesian or S African, will meet country's needs

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Production and availability of coal has now become a parameter of the country's progress. We have well-defined coalfields in Bengal, Bihar, J h a r k h a n d ,

Odisha, Chhattisgarh, Madhya Pradesh and the north-east region, which contribute to a total production of 550 million tons (mt) per annum.

Who could have imagined that coal mining in India had such a humble beginning with a number of Indian and British entrepreneurs investing precious capitals to produce and transport coal over long distances to make it available to the industry. It is sometimes a good move to acknowledge the initiative and entrepreneurship of the people who took serious risks to develop the coal mines and areas. Credit also goes to an excellent crop of indigenous mining engineers who made it possible and then the massive contribution of the Railways to lay out the lines in the coalfields and to make it possible to bring coal for use to the industry located in Bengal, and later to as far away as Uttar Pradesh, Delhi and Punjab. Everyone associated with the coal industry of that time needs to be acknowledged and appreciated for the efforts of millions of people who made it possible. This article will trace the history of those efforts and compile some of the great work done by the pioneers in this field.

Formation of coal

The process of chemical formation of coal

in the womb of mother earth, as found out by researches, appears to be somewhat interesting. It is stated that vast areas of trees and jungles were uprooted and swept down, perhaps several million years ago, as a result of abnormally large storms, floods, earthquakes, avalanches or near deluge. The vegetable debris, pressed for ages under huge accumulations of silt and sand, got converted through natural and chemical action into lignite, coal, bituminous and anthracites. It is not, however, known who first discovered coal so formed under mother earth.

Coal industry – the oldest

The coal industry is admittedly the oldest amongst all industrial ventures in India. It had its birth 81 years before the first mile of railway track had been brought into commission by East Indian Railway in 1855. The first pound of Indian tea was brought into Calcutta in 1838, the first cotton textile plant was set up in Bombay in the mid-60s and first jute mill (Clive Jute) was established near Calcutta in 1873, the first iron foundry (Bengal Iron Company) was started in 1874 and the first paper mill (Bengal Paper Mill) went into production in 1891.

History of the Indian coal industry

No authentic record of the existence of coal could be available in India before 1774. A view has, however, been expressed in some quarters that the name Angarpathra is derived from the Sanskrit Angar Pathar (stone of charcoal) and other names like Barakar (a big mine), Kalipahari (a black hillock) and Kankanee indicate that coal and its uses were known in India several centuries ago.

Looking back to the early history of the coal industry in India, Bengal assumes a pride of place in establishing the first venture to exploit coal in the Raniganj coalfield in the

year 1774. Between 1839 and 1846, however, the output of Indian coal rose from 36,000 tons to 91,000 tons and the rise was in large part due to the formation in 1843 of the Bengal Coal Company on the foundations of an earlier venture to which were added other small mining leases in the neighbourhood.

The progress was facilitated by the systematic geological survey of the field which was undertaken in 1845-46 and again in 1858-60 and also by the installation of the first mile of railway track by the East Indian Railway in 1855 and by 1860 nearly 50 collieries produced about 282,000 tons of coal per annum in the Raniganj area.

During the 19th century, the Raniganj field was the most important producer of coal in India; out of an overall production of 6.12 million tons in 1900, the field raised 2.55 million tons. The importance of the Jharia field which opened in 1893, however, was becoming increasingly apparent by the end of the century and with the development of the additional railway facilities, output from the field grew rapidly and by 1906 exceeded that of the Raniganj field.

The beginning of coal mining in the Central Province dates from the year 1862 and in the Rewa state from 1884. The Singareni field in the Hyderabad state was discovered in 1872 and went into production some 15 years later. Appreciable developments also took place in Upper Assam from 1881 and in Baluchistan and in the Punjab in the last decade of the 19th century.

At the beginning of the present century, coal production in India had reached a total of about 6 million tons, of which nearly 5 million tons were obtained from the Raniganj, Jharia and Giridih fields. Further progress was made during the years preceding the First World War and a number of new fields (Bokaro, Pench Valley and Chanda Valley) were opened so that by 1914 the total Indian output had risen to nearly 16.5 million tons per annum. The Jharia and Raniganj fields, with output of 9 million tons and nearly 6 million tons respectively, however, continued to dominate the scene. In this period of rapid growth, by far the greater portion of the output was used for steam raising by Railways and industry.

But the development of the Jharia field, with its rich coking coal, may have provided some encouragement to the iron industry. The establishment of the Tata Iron & Steel

Company at Jamshedpur in 1911 was a very important step towards proper utilisation of the coking coal of Jharia.

The increased demand for coal during the 1914-18 war gave a further impetus to the coal industry. There was a considerable increase in industrial activity throughout the country and the requirements of the railways and, in the early years, coal exports also increased appreciably. By the end of the war, the output had increased to nearly 21 million tons per annum, of which the share of the Jharia and Raniganj fields was about 11 million tons and 6.5 million tons respectively.

Subsequently, there was a short-lived period of increasing production from 1927 to 1930. Many of the lost coal markets had been recaptured and there was also an appreciable revival of industrial activity. Equally, the continuing fall in prices made coal a more attractive proposition as a source of industrial power. But soon the economic depression of 1930 and of the subsequent years, aided and abetted by the fundamental weakness of the Indian coal industry, exposed it to the most serious economic blizzard in its history.

Railways' demand

Railway track mileage increased from 1,581 miles in 1861 to 28,084 miles in 1905. Surprisingly, however, even in 1907 the Railways' consumption of Indian coal was no more than 3.5 million tons. One explanation of this relatively low off-take was the use of wood fuel by Railways. Its consumption being as high as 4.9 lakh tons in 1903, which dropped, however, to 1.6 lakh tons in 1908. Still another reason why railway demand for Indian coal did not grow in the 19th century was its partial dependence on imported British coal.

Exports

India's coal industry established an export record of 5.4 lakh tons in 1900-01 when total production hardly exceeded 6.1 million tons. In 1906, however, exports rose to over a million tons and for almost a decade ending in 1915 exports stood at an average level of 0.77 million tons a year. In 1920, however, all previous records were broken and exports rose to 1.22 million tons but fell next year to 0.27 million tons. Then for a year or two Indian coal practically lost its overseas market.

By 1926, exports were revived at 6 lakh

tons which, after a rise to 7 lakh tons in 1929 went on diminishing to below 2 lakh tons in 1936. From the very next year an opposite trend set in and by 1940 exports stood at 2.1 million tons but again dwindled to 1 lakh tons in 1944. The most dramatic episode in the history of coal exports from India was recorded in 1951 and 1952 when the tonnage reached 2.8 and 3.3 million tons respectively. The exports were mainly through the shipping routes to Hong Kong, Ceylon, Burma and was tightly controlled by British companies and Thapars (KCT) were the first to break the monopoly by offering competitive rates.

Some quantities, interestingly were also sent to Pakistan via rail.

Imports

Even as early as 1857-58, that is to say, coinciding with the introduction of Railways in this country when the annual output of Indian coal was no more than 293,000 tons, there was a record import of coal in that year to the extent of 92,000 tons, with still higher imports of 8 lakh tons of British coal in 1881. In 1901, imports were still recorded at 142,000 tons.

Early methods of mining

The earliest mining of coal in India was confined to quarrying the outcrops of thick seams, the quarries being extended to the dip until the amount of over-burden made further exploitation uneconomical. Owing to the shallowness of a large number of seams and their closeness to each other, quarrying was the most favourable form of coal mining. All they had to do was dig for a few feet, remove the earth and rocks to get the coal seam. As they proceeded, the seam went deeper and the stage was reached when it was no longer possible to dig and remove a comparatively large mass of earth, stone and rock to remove every ton of coal.

At this stage, coal had to be worked by inclines. An element of mechanisation became necessary. The gin came into existence and coal was drawn by a rope wound round a gin turned by woman labourers. Later, steam haulage came into existence. When the distance of haulage became longer and the seams had to be worked deeper down, working by shafts and pits came into being and greater mechanisation of haulage etc

became necessary. To work a quarry did not require much capital or skill and technical knowledge. But to sink a deep shaft, capital was required and mining became not a matter of merely cutting coal but a specialised technical process of engineering and several British experts came over to the country.

S Heslop, in his Presidential Address – MGMI Transactions Volume V, Part I, 1910, observed that, "Quarrying generally is a most ruinous system for a colliery causing as it does constant and heavy inlets of water entailing permanent extra cost for pumping as long as the colliery or property lasts. Evidence of this can be seen in long lines of quarries along the outcrop of valuable seams. Extensive areas have been lost by thrust or by fire in the absence of adequate provision of isolation."

The next stage began when the more enterprising owners realised the limitations of quarry working, and began to sink inclines and shallow pits, and introduce winding and hauling arrangements. The head-gears consisted of two tall brick pillars supporting a wooden cross-bar and pulley, while the winding machine, known as a gin, was a vertical drum turned by animals or women, the coal being raised at the end of a hempen rope in a large basket or bucket and water in a leather container. The area worked from each shaft was limited by the distance coal and water could be carried economically by women from the working places, a new shaft being sunk when this limit had been reached.

Early history of perennial transport bottlenecks

The earliest exploitation of coal for commercial purposes dates back to 1774 when Summer and Heatly were granted permission by the government to raise and despatch coal from a large area at Sitarampur in the Raniganj field. But it was a tragic irony, as revealed in the Report of the Coal Mining Committee, 1937, that the work was abandoned after the first consignment of 2,500 maunds of coal was transported to Calcutta by river in 1775 and found to be inferior to English coal. No further prospecting was done until 1814 when Rupert Jones was deputed by the government to examine the area.

With government assistance, he opened mines at Egara village near Raniganj which

were taken over and worked until 1835 by Alexander & Co, and later by Carr, Tagore & Co, both of Calcutta. In 1824, Jessop & Co, opened mines at Damulia and Narainpur and worked them until 1839 when they were transferred to Gilmore, Homfray & Co.

In 1843, Gilmore, Homfray & Co and Carr, Tagore & Co amalgamated to form the Bengal Coal Company which was later the most important coal-producing company in India.

Apcar & Co were also among the pioneers in the Raniganj fields and were the first to put down shafts near Sitarampur to work the Dishergarh seam.

In those days, coal from the mine-head used to be brought down to Calcutta by the boats plying along the Damodar river. There are old records which show that the Calcutta authorities of the company sent in 1818 as many as 900 boats to carry coal from Panchet. But, unfortunately, only 200 out of this convoy could get near the mines. River-borne coal then used to sell at Calcutta at ₹15 per ton against British coal costing a rupee less landed at Bombay.

Development was slow owing to the lack of transport facilities. Rivers, the only means of conveying coal to the Calcutta market, were shallow and unsafe for boats to ply during the monsoon on the Damodar. The opening of the East Indian Railway up to Raniganj in 1855 was followed by more rapid development and the increasing demand

for coal for railway and industrial purposes resulted in a steady increase of output. Extension of the East Indian Railway to Barakar in 1865 soon brought in a further impetus. In 1871, East Indian Railway acquired extensive coal-bearing areas at Giridih and opened mines there to meet their increasing coal requirements.

Treharnee Rhees who made a study of the Jharia and Raniganj coalfields, reported inter alia in 1919 that the regular supply of sufficient wagons was of considerable importance to the coal industry. The number of wagons supplied to the collieries in the Jharia and Raniganj coalfields were totally inadequate and there was loss of coal on this score. He added that “coal being so largely the foundation of the future industrial welfare of this country, it is imperative that proper supplies of railway wagons for coal traffic should be provided without delay, for, until this is done much of the waste that is now taking place on the surface of the collieries cannot be prevented”.

Early history of coal prices

Prior to statutory control over coal prices, which was introduced for the first time in 1944, prices of coal, like those of any other commodity, were governed by the normal forces of supply and demand and contemporary financial and economic circumstances. As a result, prices fluctuated widely over a period of about 25 years. Thus,

in 1922, prices of coal, which stood, on an average, at ₹8 per ton, declined to a low level of ₹2-8 per ton. Price then gradually rose to ₹4-7 in 1942, after which again it registered a steep increase to ₹11-7 in 1943. Production rose and fell sharply as a result of these price variations. Many collieries unable to stand competition closed down, whilst others survived through the cut-throat exploitation.

The Second World War years of 1942-45 brought about a coal famine of unparalleled proportion. There was a sudden steep drop in production amounting to over 4 million tons in 1943 over the raisings of the previous year. Prices naturally rocketed sky-high. Coal was, therefore, brought under control in 1944 to arrest the decline and boost production. The rates quoted by the Calcutta Selected Coal Association, with due allowance for current wage costs, were made the basis of the controlled prices, and the prices fixed secured an adequate margin of profit to the collieries. These were enforced as “fixed prices”, and not “ceiling prices” to prevent unhealthy competition, and consequent wasteful forms of mining.

Initially, they were fixed under 3 sizes and 6 grades but, subsequently, revised to two sizes with an increased differential between the sizes. The reduction of sizes from 3 to 2 was to check the increasing tendency to despatch all coal as “run-of-mine” which gave the collieries the largest profits. In 1946, following labour discontent, wages were increased on the basis of a report of a Conciliation Board, and as promised to the industry, a committee was appointed to examine the costs of production of a few representative mines and to suggest revised prices for coal. Prices were revised accordingly in July, 1947.

Second World War

The most notable event in the year 1939 was the outbreak of war in Europe which had considerable repercussions on the coal industry. A legislation was introduced on stowing in the coal mines and the Coal Mines Stowing Board commenced functioning at the end of the year 1939.

Visit of Lord Linlithgow to Jharia coalfield

It will be a revelation to many that Lord Linlithgow, the then Viceroy and Governor-



General of India, paid a visit on December 14, 1940 to the Jharia coalfields where he inspected the various safety measures that were in operation in the fire areas. He visited the local fire area where sand-blanketing operation was being carried out by the Stowing Board. The viceroy and his party went round the area on foot and proceeded to see the Kusunda fire.

The following relevant extract of the Viceroy's speech delivered at the luncheon meeting with the members of the coal trade at the Railway Institute, Dhanbad on the same day may be of interest to the readers.

"The coal mining industry of India dates back to the time of Warren Hastings. Permission to work coal mines in Bengal was first granted in 1774 and the important total of about 100 tons of coal were delivered to the government in 1775. For various reasons, this adventure did not succeed. No further attempt was made for nearly 40 years until 1814 when mining was commenced in Raniganj. The first systematic geological survey of the field was made during 1845-46 and a more detailed examination was made during 1858 and 1860, by which time some

50 collieries were already in existence. The development since 1868 had been rapid. In 1868, the output of the coal mines in India was only about 500,000 tons. The present output exceeds 28,000,000 tons annually.

"During these years, with the growth of public consciousness in such matters, there has also been a gradual but marked development in the measures taken for the safety of those who work underground.

"This morning I have seen some of the work which is being financed by the Coal Mines Stowing Board set up under this Act. In the course of the last few years, the fires in the two areas which I have visited have resulted in several million tons of coal being burnt underground, and they have also threatened the safety of a large number of coal mines in the district."

Moral of viceroy's visit

What is the moral of this memorable visit of the then highest administrative authority of India, from the Viceroy's august lodge to the remote Jharia coalfields? Coal was then truly realised as the most important basic industry without the progressive development of

which the wheels of all other industries in the country would not have taken off.

Bringing in change

Till 1947, most of the mines belonged to the British companies who had imported British mining engineers and these personnel were manning all the important positions.

Employment of Indians was confined to the lower ranks like surveyors, mining sardars, overmen etc. The Indian School of Mines, fashioned along the lines of the Royal School of Mines, became an important institution whose students worked very hard to excel themselves in the science and art of mining. Subsequently, these mining engineers set very high standards for themselves and occupied all the senior positions in the British and Indian companies.

While persons like Grewal and Jabbi went on to become the chief inspector in the Inspectorate of Mines, there were heroes like J R Sharma in KCT, Dhadwal in Equitable Coal, Vashisth in Bird & Co, B H Engineer and R N Sharma in Tatas and lot of other personalities who had created an image larger than life. Of course, the list is not complete as I may have missed a large number of persons but we would like to pay a tribute to all of them who had the vision and the capacity to turn these mining companies into institutions well-respected by all. These mines were able to produce about 70 mt when the nationalisation of coal mines took place.

Thereafter, overnight, there was an increase in production by working the lower grade seams which were not considered viable earlier. The story has not ended as the country is now poised to increase its production from 500 mt to 1,000 mt with another 500 mt proposed from captive blocks.

The ambitious levels of production would help to run the wheels of the industry, fire the boilers which are going to produce power and also provide much-needed coal and coke for the steel industry. And, most important of all, Indian mines and not the Indonesian and South African, will meet the needs of the country. ■

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