ANCILLARY INDUSTRIES
&
THE COMMUNICATION NETWORK
The process of de-industrialisation of the indigenous industries went, as we have seen, hand in hand with the development of a new economy. The establishment of the tea, coal and oil industries, which had laid the foundation of this new economy in Assam, created new demands and opened up fresh avenues for the development of ancillary industries. Assam, with its rich natural resources, presented unlimited prospects. Yet only those industries were developed which did not require large capital investment while at the same time ensured profitable returns. A general survey of the resources of Assam revealed that a lucrative trade in timber could be set up. The prospects for the establishment of an iron and steel industry were equally bright. Hence at the outset, attention was directed towards the development of these two industries.

Another sector, which attracted the attention of the British, was the development of the transport and communication system. With the advent of the industrial revolution in England it had become apparent that the setting up of an efficient communication network was essential in any scheme of industrial development. Mechanical transport had created a revolution in the commercial and industrial importance of states. It had also brought about a new mobility of goods and persons as a result of which colonies had become increasingly valuable as markets and sources of raw materials when interiors were opened up. It was in this context that the development of the transport and communication system of Assam acquired some importance. As far as the British Government was concerned, railways and steamship were introduced in the province to facilitate the import of
manufactured goods into and the export of raw materials from Assam, as cheaply and as efficiently as possible.

It is thus apparent that the industrial development of the province was closely linked with the growth of the transport and communication system.

TIMBER

The establishment and growth of the tea, coal and oil industries saw the development of a new related industry, viz. the growth of the timber trade in Assam. The large requirement of timber for tea chests, railway sleepers, bridges, plankings, posts, buildings and a host of other uses by the municipality and local boards, made the exploitation of the existing forests of Assam an urgent necessity. As expected from the character of her surface and climate, the area of forest in Assam was very extensive. The diversified elevation of the land yielded a variety of trees. At certain places the forests were so dense that even sunlight could not penetrate into them. The mixed plain, Soom and Savannah forests were found in the plains, the Sal forests partly in the plains and partly in the lower hills, the lower hill forests from the foot of the hills to an elevation of about 3000 feet, the pine forests from 2,500 feet to 6,000 feet, and the upper hill forests above 4,500 feet elevation.¹

¹ W. Schlich, Memorandum on Forest Operations in Assam, A.S.R. File No.38/45, 1873, No.94 C.
The Sal forests were of considerable value owing to the timber they contained while the Soom forests were important on account of the silk manufacture. The mixed and lower hill forests were rich in bamboos, cane, evergreen trees and a variety of valuable deciduous trees including caoutchouc. The vast stretches of virgin forests in Assam thus presented rich economic potentials to anyone who sought to exploit them. Added to this factor of extensive availability, was the facility of the transport of timber. Robinson, in his account of Assam had written:

In viewing the physical aspect of the country, the beholder is at once struck with peculiarity of a perfect plain studded with numerous clumps of hills rising abruptly from the general level and surrounded by lofty mountains and intersected in all possible directions by innumerable streams and rivulets, which issuing from the bordering mountains, at length empty themselves into the great channel of the Brahmaputra.

The nearness of the forests to streams and rivers provided easy access to the Brahmaputra on which the main trading stations were situated. The logs could thereby be easily floated down. It was also generally agreed that "Assam is provided with much more timber and wood than is likely to be required for a long time to come." The prospect of utilising the surplus stock of timber for export was also an added incentive.

2 W. Robinson, A. Descriptive Account of Assam, p 5.
An initial survey of the forests resulted in the identification of the following more valuable trees.\(^4\)

<table>
<thead>
<tr>
<th>LOCAL NAMES</th>
<th>BOTANICAL NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sal</td>
<td>Shore a robusta</td>
</tr>
<tr>
<td>Sam</td>
<td>Artocarpus Chaplasha</td>
</tr>
<tr>
<td>Ajhar</td>
<td>Logerstroemia Regina</td>
</tr>
<tr>
<td>Nahor</td>
<td>Mesua Ferrea</td>
</tr>
<tr>
<td>Poma</td>
<td>Cedrela toona</td>
</tr>
<tr>
<td>Titasappa</td>
<td>Michelia Champacoa</td>
</tr>
<tr>
<td>Banjamu</td>
<td>Eugenia jambolana</td>
</tr>
<tr>
<td>Borjamu</td>
<td>Eugenia magnifolia</td>
</tr>
<tr>
<td>Gunseroi</td>
<td>Camphora glandulifera</td>
</tr>
<tr>
<td>Gomari</td>
<td>Gamelina arborea</td>
</tr>
<tr>
<td>Uriam</td>
<td>Bishopia javanica</td>
</tr>
<tr>
<td>Bola</td>
<td>Marlea</td>
</tr>
<tr>
<td>Koroi</td>
<td>Albizzia adoratissima</td>
</tr>
<tr>
<td>Sonaru</td>
<td>Cassia fistula</td>
</tr>
</tbody>
</table>

The **Sal** and **Sam** were used chiefly for boats and planking, **Ajhar** for boats and building purposes, **Nahor** chiefly for posts, **Poma** for furniture, planking and tea boxes (shooks), **Titiasappa** for boats and furniture, the two species of **Jamu** for building purposes and the rest for the generality of local requirements.\(^5\)

Regarding the areas occupied by the different classes of forests, the following estimate was made by **Mann**, the Assistant Conservator.

\(^4\) A.S.R., Forests, File No.57/95 of 1873.  
\(^5\) ibid.
### AREA UNDER FORESTS IN THE BRAHMAPUTRA VALLEY

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>REGION</th>
<th>AREA (IN SQUARE MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAMRUP</td>
<td>NORTH OF BRAHMAPUTRA</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>SOUTH OF BRAHMAPUTRA</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>122</td>
</tr>
<tr>
<td>DARRANG</td>
<td>KALING BOREE, KOREEPARA</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>CHARDOOAR</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>NADOOAR</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>CHARIDOOAR</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>585</td>
</tr>
<tr>
<td>NOWGONG</td>
<td>TOTAL</td>
<td>120</td>
</tr>
<tr>
<td>NAGA HILLS</td>
<td>TOTAL</td>
<td>888</td>
</tr>
<tr>
<td>SIBSAGAR</td>
<td>TOTAL</td>
<td>350</td>
</tr>
<tr>
<td>LAKHIMPUR</td>
<td>NORTH OF BRAHMAPUTRA</td>
<td>1090</td>
</tr>
<tr>
<td></td>
<td>SOUTH OF BRAHMAPUTRA</td>
<td>1410</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>2500</td>
</tr>
<tr>
<td></td>
<td>GRAND TOTAL</td>
<td>4565</td>
</tr>
</tbody>
</table>

The first step in the way of forests conservancy taken in Assam was the reservation of the Nambar forests in the Sibsagar district during the time that Colonel Jenkins was the Commissioner of Assam. A sum of Rs.150/- per month had been sanctioned by the Government of India as establishment cost. The preservation of the forest was to rest with the revenue authorities but arrangements were to be made with the Superintending Engineer of Assam in respect of disposal of the timber to the Public Works Department at such prices as were agreed upon. 7

With this exception, however, the forests of Assam had not been specifically dealt with until the establishment of the Forest Department in Assam in 1868. From that date upto 1871, the officer posted in Assam under the Conservator of Forest was occupied in examining the province generally. By 1870, the following tracts had been selected.

(PL. SEE TABLE AT PAGE 169 )

### SELECTED SITES FOR RESERVED FORESTS

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>RESERVE</th>
<th>SAL FOREST (So.Miles)</th>
<th>MIXED PLAIN AND LOWER HILL FOREST (So. Miles)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAMRUP</td>
<td>PANTAN</td>
<td>12.0</td>
<td>-</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>BORDOOAR</td>
<td>23.0</td>
<td>-</td>
<td>23.0</td>
</tr>
<tr>
<td></td>
<td>MATIAKAR</td>
<td>3.5</td>
<td>-</td>
<td>3.5</td>
</tr>
<tr>
<td>DARRANG</td>
<td>KALINGDOOAR</td>
<td>-</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>BALIPARA</td>
<td>0.75</td>
<td>69.25</td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td>NADDOOAR</td>
<td>-</td>
<td>54.0</td>
<td>54.0</td>
</tr>
<tr>
<td>NOWGONG</td>
<td>KHOLAHAT</td>
<td>7.5</td>
<td>-</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>DOBOKA</td>
<td>3.25</td>
<td>-</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>MIKIR HILLS</td>
<td>-</td>
<td>65.0</td>
<td>65.0</td>
</tr>
<tr>
<td>SIBSAGAR</td>
<td>NAMBOR</td>
<td>-</td>
<td>100.00</td>
<td>100.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>50.0</td>
<td>294.25</td>
<td>344.25</td>
</tr>
</tbody>
</table>

In the Lakhimpur district, the forests were so extensive that a permanent supply was expected without going into the expense of forming reserves. All the above reserves were drained by rivers emptying out into the Brahmaputra thereby providing excellent means of transportation. The reserves in the Kamrup district were situated close to the Kulsi river and its feeders which joined the Brahmaputra about thirty miles downstream of Gauhati, while the Balipara and Naddooar reserves were situated on both banks of the Bhorolinadi which joined the Brahmaputra just upstream of Tezpur. In the Nowgong district, the Kallang River acted as a highway while the Dhansiri River and its feeder, Doyang, supplied most of upper Assam with forest material.

In the beginning, the timber operations of the Forest Department were on a small scale. Fifty logs of Sal were brought to Gauhati and sold by public auction realising a net profit of Rs.8-9-7 per log, or eight annas per cubic foot. An additional ten logs realised a net profit of Rs.13-8-0. One hundred and fifty Sal trees were sold standing in the forest at the rate of Rs.8/- per tree. From this it was clear that the management of the Sal forests promised to be remunerative. Thereafter, a contract was entered into by the Assistant Conservator with one Govind Ram, who agreed to fell in

9 ibid.
10 ibid.
11 A.S.R., File No.40/48 of 1873, No.800T.
Mauza Rani, and to deliver near the Bhorolu bridge at Gauhati, one hundred and fifty to two hundred logs of Sal wood before the 31 July, 1872. However, due to non-availability of labour, he was unable to bring out the felled trees within the specified time of the contract. The Assistant Commissioner of Forests, therefore, decided to bring out fifty logs of timber with the help of the Department's elephants and auction the entire quantity at Gauhati. This was done on the 5th October 1872, resulting in a sale of Rs.742-8-0. It was henceforth decided to confine the contractor's work to felling, barking and stripping the sap wood, but having the timber brought out of the forest by the departmental elephants.

The trees were generally converted into logs in the forest and dragged by elephants to the nearest river from where they were floated down to the place of requirement. Trees could be felled only with official permits, and a royalty, at the rate of four annas per cubic foot, or Rs.6/- for each reserved tree, and one anna per cubic foot or Rs.2/- for each unreserved tree was charged. In the tea grants, the planters disposed off the timber as they wished. The usual way of getting rid of the jungle trees was to enter into a contract with the local Assamese to clear it at a fixed rate per acre. As the larger trees were cut down, unless the timber was

12 ibid.
13 A.S.R., File No.40/48 of 1873, No.149.
14 ibid.
15 ibid.
16 ibid., No.2095 T.
required for building purposes, charcoal pits were constructed in certain places while the felling progressed. The charcoal was stored in the gardens to be used in the tea house for firing.

The second class timber was generally converted into crates and large tea shocks.

The rate of royalty on this class of timber was as follows:

- Large Chests: 1 anna
- Medium Chests: 9 pie
- Half Chests: 6 pie
- Corner pieces: 1 anna 3 pie per cu.ft.

At the request of the Directors of the Sessi Saw Mills and Trading Company, the payment of royalty on corner pieces used for tea boxes was, however, lifted because most of the tea planters produced tea boxes on their estates for ten to twelve annas a piece whereas the saw mills were constrained to charge one rupee.

The first saw mill was run by steam and established on the Dihing River just above its junction with the Brahmaputra with a view to supplying tea chests.

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18 G.M.Barker, _A Tea Planter's Life in Assam_, p 150.
20 ibid.,
and timber to the tea planters and others. Subsequently a saw mill of the Planter's Stores Company was established at Dum Duma in the Lakhimpur district. As the demand for railway sleepers gradually grew, several other saw mills were established. The rapidity with which sleepers were cut and prepared created considerable astonishment among the local inhabitants. The forests on the bank of the Brahmaputra yielded sleepers to the tune of over one thousand pieces daily. By 1901 as many as fourteen saw mills were functioning in Assam. Dinanath Bezbarua, Bholanath Barooah, Manik Chandra Barooah and Chandra Kumar Agarwalla were among the leading timber merchants of Assam.

It is important to note here that the whole of the trade in timber was local in character. With a view towards encouraging the establishment of an export trade in first class timber, the Government set up certain experimental plantations for the artificial production of timber not indigenous to the province. Teak plantations were, accordingly, started at Makum, Jaipur and Kulsi, but the results were not very promising. Similarly, seeds of a variety of European trees, which were planted, also failed to bear good results. It was, therefore, decided that the extension of the cultivation of valuable indigenous trees such as Sal, Pome, Titasappa and Sam

22 Home Revenue and Agriculture Department (Forests) March 1882, Progs. Nos. 8-10.
24 A. Guha, Planter - Raj to Swaraj, p 35.
would prove more profitable than the introduction of new species.  
25 It was hoped, that with proper management, the forests of Assam would "bring the net revenue by degrees up to several lakhs of rupees." 

Apart from timber, the forests of Assam contained fairly large quantities of cane. In the beginning, there was little trade in this product, but the Government earned a considerable sum by way of payment for the right to cut cane in the forests. 
27 By 1893 the trade in cane had built up and in that year 11,100 maunds were exported as against 7,334 maunds the previous year. 
28 A small trade also grew in Agar wood which was used for the manufacture of a perfume much in favour throughout the East.  
29 However, there is no mention of the perfume being manufactured locally.

Another related industry was the plywood industry of Assam which owes its origin to the tea industry. It had a late start as the planters showed a preference for imported tea-cheats in the beginning. But as the saw mills developed and the quality of their products improved, the demand for local plywood also grew. However, it was only after 1918, when the Assam Saw Mill and Timber Company was floated, that the plywood industry really gained momentum.

26 ibid.
29 B.C. Allen, District Gazetteer, 1905, Darrang, p 554.
In any scheme of industrial development, iron and steel occupy an important place. In Assam, the iron industry was an offshoot of the more developed tea, coal and oil industries. Although, iron was found in several places in the province, the industry as such made a slow and hesitant start.

The existence of iron in Assam was known to the British from early times. The principal iron ores found in the province were clay ironstone from coal measures and an impure limonite from the sub-Himalayan strata. The former occurred "in oblate nodules varying in size from that of a walnut to the size of a man's head, but lumps considerably larger also existed." When freshly broken, the nodules were light-grey in colour but changed after a time to a brown tint. The ore was also found in thin bands, interstratified with the shale and sandstone.

In former times, both descriptions of ore, but more especially the clay ironstone, were worked extensively by the Assamese. Tirugaon and Hattighar appear to have been two of the most important centres of manufacture, and thirty to forty workshops were said to have been established there at one time. But even before the incursion of the Burmese, the industry had greatly decreased on account of the disturbed state of the

31 ibid.
country and, according to Colonel Hannay, the iron workers and smiths, who numbered three thousand during the most flourishing period in Upper Assam, did not exceed hundred after the invasion.\(^{32}\) As early as 1828, when Bruce visited the Saffrai Valley, clay-ironstone, which he got by sinking pits to a depth of 10 ft to 40 ft, was being smelted at the hill east of Tirugaon. The raw iron was worked up into *dhaus* which were exchanged with the Nagas for the produce of the hills.\(^{33}\) According to Robinson, the manufacture of iron in Upper Assam was all but extinct in 1841. The causes leading to its abandonment were the injudicious taxes levied on the ore by the Raja, and the underselling of the home made iron by the manufacturers from the Khasi Hills, where no duties were levied, and still more by that from England.\(^{34}\) Colonel Hannay states that in 1856 there were "only from forty to forty-five persons in the Sibsagar district who understand the smelting and working of iron ores."\(^{35}\)

With the establishment of the tea, coal and oil industries, the importance of local iron naturally grew. As early as 1851, Major Hamilton Vetch, the Deputy Commissioner of Assam, had informed the Government at Fort William of the availability of iron in Upper Assam and of "the advantages which might arise from a careful investigation into the mineral resources of the valley of

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Specimens of iron ore from Assam sent for examination to the Revenue Department at Fort William, received most favourable comments. The officiating Secretary wrote:

All specimens of iron which were sent in bars have been found to bear laminating very well, and to be adapted for the ordinary purposes to which refined English iron is now applied; in fact Mr. Sterling, the inspector, is of opinion that with the exception of one or two exceedingly poor ores, every kind of ore would be equally good if subjected to the same treatment. I am led to believe that Assam might be made capable of supplying Bengal with iron, as the ores are good and water carriage available to the spot.

He further hoped that with improved means of extraction and the setting up of smelting furnaces and rolling mills, the produce of Assam could be considerably increased, so as to make the Eastern Region completely independent of imported iron.

The extensive availability of both iron and coal in Assam should have resulted in the establishment of a flourishing steel industry in the region, considering the additional factor of the great volume of demand. But this was not the case. An example to the point was the case of Messers Shaw Finlayson and Company which, while acquiring the concession of the Makum coalfields also had the monopoly of the iron of the region, but made no

36 A.S.R., File No.252/598 of 1885.
38 ibid.
The industrial enterprise of the province could have been greatly developed since there was much demand for machinery for tea factories, rails and other railway gears, enamelled ironware for the agriculturists and galvanised ironsheets for buildings. Yet, the iron industry in the province was largely confined to the industry of the village blacksmith, and, to a much lesser degree, the higher branches of the industry in factories, e.g., railway workshops, private iron foundries and workshops. No iron was smelted in the province. The volume of the industry of the local blacksmiths is reflected in the quantity of raw iron and steel imported into the province. The provincial trade figures for 1892-93 show a total of almost 220,000 maunds of imported iron.

Agricultural implements, cooking utensils, tools and other articles used in various handicrafts, and weapons of various kinds were the main articles manufactured by the village blacksmith. Almost every important village had a blacksmith who was generally a Hindu and also an agriculturist. By the end of the century there were six hundred iron forges in the Brahmaputra Valley employing around two thousand people. One reason why this indigenous industry

39 A.S.R., (Revenue and Agriculture), January 1895 No.149.


41 G.N. Gupta - A survey of the Resources of Eastern Bengal and Assam 1907-08, p 43.

42 Jackson, Monograph on the Iron and Steel Works of Assam, 1907.
survived was perhaps because it faced little competition from the imported articles which usually consisted of the heavy machinery required for the tea, coal and oil industries. It is also worth noting here, that unlike the copper or bellmetal industry, women also found employment in the village iron industry.\textsuperscript{43}

There were no large iron and steel factories in Assam comparable to those of Bengal. The only one worth mentioning was the railway workshop at Jorhat set up with European capital and under European management.\textsuperscript{44} Cast iron railings, light posts, gates etc. were manufactured there but heavy machinery were not produced. Most of the big tea gardens had their own workshops. Both old broken iron and pig iron were used for castings. In view of the extensive resources and vast scope for development, Assam could have become a leading iron and steel producer of India, but during the period of our study, progress in this respect was extremely slow.

INSECTICIDES AND FERTILISERS

Two requirements which were directly related to the plantation industry of Assam were insecticides and fertilisers. By 1872, the total area under tea had risen to 27,000 acres.\textsuperscript{45} However, certain tracts were seriously injured by an insect commonly known as the Tea Bug or Red Spider. Private attempts at controlling the insect having failed, a number of planters of Assam and

\textsuperscript{43} ibid.

\textsuperscript{44} Gupta, Op.cit., p 44.

\textsuperscript{45} E.A. Gait, Land Revenue Manual, pp LXI-LXII.
Cachar sent a memorandum to the Governor General. They brought to his notice the seriousness of the situation and requested the services of Dr. King, Superintendent of the Royal Botanical Gardens, and Wood Mason, entomologist of the Imperial Museum, to investigate the matter. The Governor General, in reply, stated that in the absence of a suitable replacement for Dr. King, he could not be spared; but that Wood Mason would be deputed to make an appraisal of the situation and to suggest remedial measures. The recommendations of Wood Mason are not known, but that the problem of pests continued to exist is evident from later reports. In 1893, the proceedings of the Jorehaut Tea Company recorded that fifty fumigating pots, ten cwts tobacco paper and fifty covering sheets of size six yards square, were ordered for the purpose of trying to prevent the spread of insect blights on plantations. The result of the fumigation is not mentioned. However, in a separate note, there is reference to a sanction given by the Board to the Superintendent to use his discretion to get rid of the insects by burning the tea bushes. Even as late as 1904, this drastic method of killing the insects appears to have been the most widely prevalent one. The scope for the development of an insecticide industry in Assam was, therefore, definitely present. Yet nothing appears to have been done in this line during the period of our study.

46 Home, Revenue and Agriculture Deptt., (Agriculture and Horticulture), March 1880, Progs. Nos. 16-21.
47 Ibid, July 1880, No. 114. The Governor General sanctioned a deputation allowance of Rs. 300/- per month to Wood Mason, and the bonafide travelling expenses of himself and three servants for the period of his employment on the investigation.
49 Ibid, pp 97-98.
50 Ibid
Another related problem was the requirement of fertilisers. It was estimated that a crop of 1000 lbs per acre could remove, approximately, 55 lbs of nitrogen, 30 lbs of potash and 10 lbs of phosphoric acid from the soil. Nevertheless, till the beginning of the twentieth century, not much importance was given to this aspect. It was considered satisfactory enough to get an area to give five maunds of tea an acre. A section was worth keeping if it gave three maunds an acre, and if it did not, it was abandoned.51 The idea of obtaining a higher yield through the application of artificial fertilisers was a later phenomenon. Initially, the only manures that were approved of were natural manures, i.e., topsoiling and cattle manure. Manuring by top soiling entailed retrieving earth from hoolahs and small streams and filling in the vacancies created around the tea bushes by deep hoeing.52 This was a relatively expensive proposition and the more popular form of manure was cattle manure.53 With the passage of time, artificial manures were also introduced. There is reference to a fertiliser developed by M/s Compton and Company which they offered for salt at Rs.100 per ton with free.

51 ibid, p 98.
52 ibid.
53 Apart from the common application of dung, experiments were made in the cattle-box manufacture of manure. The system, briefly, was as follows: Over a pit sunk about two and half feet in the ground a shed was erected with eaves overhanging in such a manner that neither the sun's rays could penetrate (except at an oblique angle) to dry up the manure, nor the rain fall on or run into the pit to unduly wet the contents. The cattle were housed in this shed at night. In the morning, a little litter, stalks of plants, leaves etc. were strewn over the box, especially where the dung had been dropped. Nothing was removed till the pit was full, when the bulk of the manure was carted away to the fields. Home Revenue and Agriculture Dept., (Agriculture & Horticulture) February 1880, No.70.
delivery at Calcutta. They also agreed to arrange the delivery at Rs. 90 per ton, of any quantity of bone dust which, they claimed, formed a highly effective manure when combined with poppy or castor oil cake. The fear of the adverse effect of this type of artificial manure, was eventually overcome only towards the beginning of the twentieth century. At first, the total requirement was imported. Gradually, as fertilizer plants were set up in India, much of the need was met by them. In Assam, however, the first fertilizer plant was set up at Namrup only in 1969.

COMMUNICATION NETWORK

Industrialisation always brings in its train the instruments of material progress in some form or the other. The growth of industries in Assam brought about certain changes which transformed the province to a large extent, breaking not only her isolation but also earning for her a place in the economic map of the world. Improved means of transportation and communication was a direct outcome of this new economy.

One very important economic feature of the nineteenth century was the application of steam to water and land transport and the introduction of the railway and steamship. The new methods of transport were capable of bridging great distances very rapidly, they could carry heavy loads at cheap rates and could function

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54 Revenue, Agriculture and Commerce Dept., (Agriculture and Horticulture A) April 1872, Prog. No. 12.
irrespective of the prevailing climatic conditions. The result was that the areas hitherto hampered by distance, difficult terrain or by adverse climatic conditions, suddenly developed great economic possibilities. Although in a limited scale, Assam was no exception to this general phenomenon.

When the British occupied Assam, most of the areas in the province were covered by thick Virgin Jungle stretching for hundreds of miles over steep hills and deep valleys through which flowed torrential streams. Most of the inhabitants settled along the fertile tracts of the Brahmaputra or on the banks of its tributaries. These alluvial plains opened out into a wilderness of tall grass beyond which lay the inhospitable and impenetrable jungles.

The only means of communication available at that time was, therefore, by boat, elephant and palki (palanquin), the former being preferred whenever possible. Railways were unheard of and even the simple modes of wheeled traffic, like the bullock cart, were non-existent. Even roads worthy of a mention did not exist. It is indeed paradoxical that roads which figured so largely in the Ahom Buranjis during the period 1650-1750, should practically have ceased to exist a century
later, although the other monuments like palaces, tanks and temples, signifying the glory of the period, are seen even today. Remarking on the roadways of Assam during the Ahom rule Rutherford, P.A. Central Assam wrote:  

No country in India had been provided with such a splendid system of highways which were carried uninterruptedly throughout the whole country from Gwalpara from either banks of the river to Sadiya to the great cross roads between the principal towns and the minute ramification which connected all the Villages.

Yet in 1853, Anandaram Dhekiyal Phukan, deplored the lack of highways and roads connecting the different places of Assam. "Owing to this want of means of inland communication," he wrote, "the poor classes can never stir out of their homes during the five rainy months of the year,"  

The only possible explanation of this decadence appears to be the intercine warfare and confusion that culminated in a large scale devastation of the province by the Burmese. The recurring floods in the Brahmaputra Valley may also have been an additional factor.

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55 Of these, Gohain Kamali Ali extended from Cooch Behar to Narayanpur, Bengal Ali from North-east Darrang to North Gauhati, Bar Ali from Kolibabar to Rangpur and Dhodar Ali in the Sibsagar District.


It was thus the Brahmaputra, navigable over a distance of a thousand miles from the sea, that made the establishment of the tea industry possible in Assam half a century before the advent of proper roads or railways.

WATERWAYS

The Brahmaputra was the only highway which connected the province with the rest of India and the journey was very long and tedious. The original Commission of Enquiry, set up by Lord Bentinck in 1834 to ascertain the possibilities of growing tea in Assam, had taken four and a half months to reach Sadiya from Calcutta. The entire journey was made by countryboat up the Brahmaputra.\(^{57}\) M’cosh, writing in 1860, stated that a large boat took between six and seven weeks to reach Gauhati from Calcutta though the post, which was conveyed in small canoes, rowed by two men (who were relieved every fifteen or twenty miles), reached Gauhati in ten days.\(^{58}\) The post from Calcutta was carried via Murshidabad, Malda, Dinajpur, Rangpur to Dhubri, but this route was almost impassable during the rains. The only route of travel was then by river. The journey downstream by country boat, from Goalpara to Calcutta took from twenty-

\(^{57}\) H.A. Antrobus, n. 48, p 66.

\(^{58}\) M’Cosh, *Topography of Assam*, p 82.
five to thirty days, and in the opposite direction, about one week longer. There were no Government steamers plying on the river. The tea companies, therefore, had to rely largely on private boats which were not only scarce but also irregular. The acquisition of boats was not easy either. There is reference to small, native boats of 300 maunds capacity costing Rs.250 each. In the bigger stations like Calcutta and Dacca, the Assam Company is recorded to have started building up its own fleet, having to pay about Rs.37 per month as hire charge for a boat of 300 maunds capacity and to take on the crew for a year's service at a time.

The first Government inland steamer, "The Lord William Bentinck," commenced services on the Ganges in 1834 between Calcutta and stations upto Allahabad. By 1836 the Government fleet had been increased to four steamers, but they rarely plied on the Brahmaputra, and when they did so, it was only upto Gauhati. The inconvenience caused by inadequate transport facilities grew with the expansion of the tea industry, for the transport of labour was only part of the planter's problems. With the growth and development of the other industries the problems multiplied. The supply of essential provisions like agricultural implements, medicine and most food stuffs, including rice to a large

60 Antrobus, A. History of the Assam Company, p 349.
61 ibid.
62 ibid.
extent, had to be imported from other provinces. Apart from the difficulties in transporting the packed tea from the factories to the river ghats, there was also the problem of obtaining small coin for the labour. In the early days of the growth of industrialisation of Assam, there were none of the innumerable Mahajans or Kayah's shops where cheques could be exchanged for coin. The Government treasuries at Jorhat and Gauhati seldom had coin to the extent required by the companies. The Accountant General of Bengal would send bullion by Government steamer if one was available, and, as mentioned earlier, even then it did not proceed beyond Gauhati. The Companies had, therefore, to make their arrangements without any security of an insurance. It is on record that owing to the delay in supplying essential commodities, the managements, at times, had to face labour unrest.

The Assam Company, as the premier tea company in Assam had, therefore, to take the initiative towards solving this acute communication problem. Urgent requests to the Board in London resulted in the Company's steamer, 'Assam', which was the first commercially owned steamer till 1842, to attempt the navigation of the

63 ibid. p 356-57.
In 1847 the first Government steamer was deputed to ply between Calcutta and Gauhati. The services that were subsequently introduced were not at all dependable because the vessels were not only small and ill-equipped, but utterly deficient in power to ply against the currents of the mighty Brahmaputra. Moreover, since space was very limited they could not be utilised for carrying cargoes. Nevertheless, three years later, the Commissioner, Major Jenkins, made the proposal that three to four times a year these steamers should be allowed to proceed up the valley to Dibrugarh. His suggestion was turned down by the Marine Department on the ground that the voyages would be financially a failure. However, his views were strongly urged on the Government by Moffatt Mills when he visited the province in 1853. In the meanwhile, the Assam Company had also submitted a memorandum to the Governor General, Lord Dalhousie, requesting him to look into the matter urgently. Mills recommended the extension of the steamer service to Dibrugarh as the Brahmaputra was navigable by steamers throughout the year and because of the abundance of locally procurable coal and fuel. He believed that steam communication would not only add to the efficiency of the various departments but also reduce the expenditure of the Government incurred in the transportation of troops, considering that the fleet of army boats, which had to be maintained at considerable

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66 A.S.R., No.236, 1851.
67 B.C. Allen, Gazetteer of Bengal and North East India, 1905, p 224.
69 ibid., Appendix-E.
cost, could then be drastically reduced. The recommendations met with the approval of the Lieutenant Governor. Instructions were issued for the despatch of a steamer in that year and several voyages were made with results that were not unsatisfactory, even from the financial point of view. The journey from Gauhati to Dibrugarh and back took no more than fifteen days. This was in extraordinary contrast to the interminable delay of the same voyage in a country boat. The cargo tendered soon exceeded the carrying capacity of the steamers. In 1855 Lt. Col. Jenkins complained that the vessels reached Gauhati fully laden with goods shipped for upper Assam, with the result that Gauhati and the ports below derived practically no advantage from the downward service of the steamers.

In 1860, the Indian General Steamer Navigation Company entered into a contract to run two vessels every six weeks provided the Government boats were taken off the line. Together with the River Steam Navigation Company, with which they were associated, a fairly regular service was at last introduced.

Yet, in spite of the quickening effects of private enterprise, travelling still continued to be a comparatively slow affair. As might be expected, the rates charged at first were fairly high. A ticket from Calcutta to Gauhati cost Rs.150/- whereas freight on ordinary stores was at the rate of Rs.1/- per cubic foot. Hence, for a long time, the greater part of the trade of the province continued to be carried by country

70 ibid., p 23.
72 ibid., p 225.
73 ibid.
boat. The planters could never count on being able to despatch their tea by steamer and were thus compelled to keep up an establishment of country boats, and having got the boats, to use them. The same difficulties had been faced by the native merchants. In 1861, Colonel Hopkinson, Commissioner of Assam, painted this sordid picture of the isolation of the province:

With the furious current of the Brahmaputra still unconquered by steam, opposing a barrier to all access from without, and not a single road fit for wheeled carriage, there is such an absence of the full tide of life running through Assam, such a want of intercourse between man and man, as does and must result in apathy, stagnation and trepidity, and a terrible sense of isolation, by which enterprise is chilled and capital and adventurers scared away. The profits of tea cultivation should attract hundreds where tens now come, but the capitalist is not always to be found who will venure his money in a country to which access is so difficult as it is to Assam, through which his correspondence travels at the rate of a mile and a half an hour, and in which it may take a month to accomplish a journey of two or three hundred miles.

It was, however, not until the arrival of George Campbell as Lieutenant Governor of Bengal that the Government looked into the matter with some urgency. Campbell convinced the Government of the necessity of a regular steamer service between Goalundo and Dibrugarh and also of the fact that the Government would have to subsidize the existing steamer companies if such a

74 ibid., pp 226 - 227.
regular communication was established. The Government of India agreed to pay half the subsidy, if it was of a reasonable amount, for a period of five years. Accordingly, tenders were invited from the existing companies. Eventually, Messers Macneill and Company, who offered to conduct a weekly service for an annual subsidy of Rs.104,000 or a fortnightly service for Rs.78,000, was recommended for acceptance. However, the new Government of Lord Lytton declared that funds for the project were not available and expressed the hope that "means might in future be found to effect such improvements in steam communication in Assam as the growing development of the great natural resources of the province from time to time might require."

With the increase in the number of steamers of the navigation companies, the situation gradually improved. A considerable amount of cargo was carried in these vessels, but special cargo steamers with flats were pressed into service to transport bulky freight. In 1884 a daily mail service was introduced between Dibrugarh and Dhubri. This represented an enormous development in communication between Assam and the outside world. It combined regularity with speed, a fact which was reflected in the postal system. The following table shows the development of the postal business for the district of Lakhimpur.

76 ibid.
### POSTAL STATISTICS FOR LAKHIMPUR DISTRICT

<table>
<thead>
<tr>
<th>NUMBER OF POST OFFICES</th>
<th>NUMBER OF LETTERS AND POST CARDS DELIVERED</th>
<th>NO. OF S/B ACCTS</th>
<th>BALANCES AT CREDIT OF DEPOSITORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1875</td>
<td>1903-04</td>
<td>1861-62</td>
<td>1870-71</td>
</tr>
<tr>
<td>6</td>
<td>35</td>
<td>4,000</td>
<td>70,000</td>
</tr>
</tbody>
</table>

The introduction of the Despatch service in 1886 greatly facilitated goods traffic from Goalundo to Upper Assam. Thus from these modest beginning grew various steamer services of the later years.

### ROADWAYS

Road development in Assam has been a very slow process. A serious handicap, no doubt, has been the extreme difficulties of the terrain. The ranges of mountains within the province and on its borders made road construction an extremely difficult task. Moreover, the cost of bridging the many large rivers flowing from these ranges, placed the development of any but the most meagre road system quite beyond the province's unaided resources. In the Brahmaputra Valley or Assam proper,

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with which we are mainly concerned here, another handicap was the heavy rainfall which necessitated embankments for roads in the plains districts. The lack of road metal in these regions, combined with the prohibitive cost of transporting the metal from other regions, made it impossible for the majority of the roads to be metalled. The river embankments were crossed by high raised pathways which were again joined by smaller embankments. This system, by connecting the villages and fields, formed a most commodious means of communication while at the same time afforded opportunities for retaining or keeping out the inundations throughout the region.

It cannot however be denied that the handicaps facing road development in Assam could have been overcome had the Government been more sympathetic. In fact the most serious handicap in the development of communication in Assam was the unsympathetic attitude of the Government of Bengal who always complained of the lack of funds.

Jenkins realised that the development of the province largely depended on the improvement of communications. He sought to set apart a certain percentage of revenue for the repair and construction of roads. He believed that "not only would the wastelands

80 Antrobus, n.60, op.cit., p 369.
be rendered accessible but people would then have the means of clearing them to put into their hands."\textsuperscript{81} In this way the initial outlay on the roads, he felt, would be returned to the Government by way of increased revenue.\textsuperscript{82} In support of his appeal for funds, Jenkins quoted contemporary developments in Cooch Behar, a district also under his jurisdiction, where owing to improved roads, the bullock cart had been introduced as a labour saving device in the transport of commodities.\textsuperscript{83} The tea companies did maintain intergarden roads to the best of their ability, but owing to the extreme reluctance of the Government in granting funds for road development, the public roads were sadly neglected. A minute of the Calcutta Board of the Assam Company states.\textsuperscript{84}

Since the Government will not assist in repairing such roads, it would be imprudent for the Company to expend money on roads not confined to their own particular grants.

Even the bullock cart, therefore, made an extremely late appearance in the province. Though an improvement on human labour, the bullock cart was still a very slow and, therefore, comparatively expensive means of transport. G.M. Barker, a contemporary records.\textsuperscript{85}

\begin{thebibliography}{8}
\bibitem{82} \textit{ibid}.
\bibitem{84} \textit{ibid}.
\bibitem{85} G.M. Barker, \textit{A Tea Planter's life in Assam}, p 150.
\end{thebibliography}
Each bullock ghari will take for shipment seven to eight chests (of tea) to the river where they await the first steamer going downstream. Factories situated close to a tributary of the Brahmaputra can ship their products down to the main stream at much less expense than others who have not got the advantage of a waterway.

An illustration here will perhaps enable us to appreciate fully the difficulties experienced owing to the absence of proper communications. A boiler was required for an estate situated beyond a riverway. Shipped from London to Calcutta, it was put aboard one of the steamers plying on the Brahmaputra. Sealed and thrown overboard, it was floated up a tributary river, and then a stream until three miles of solid virgin rain forests barred the way. A road was then cut and paved with felled trees. A team of fourteen elephants took ten days to bring the boiler to the site of the factory, and only then did the tea house become a power driven one.

It is true that her innumerable waterways made Assam less dependent upon roads than other parts of India. Yet it is equally true that they were deliberately neglected by the Government for a long time. Apart from forming an important infrastructure for the industrial growth of the province, proper road communication were also important from the security point of view. As early as 1836 the necessity of "a road for the purpose of facilitating military movements at all seasons of the year", was urgently felt. In view of

86 S. Barkataki, Assam, p 118.
87 F.P.C., April 1836, No.4, Secy., Govt. of India to Captain Jenkins.
the above it was seen that the existing road from Cherrapunjee through Nongkhlow to Gauhati, which connected Gauhati with Sylhet (then in Bengal), was inadequate as Gauhati was situated in Lower Assam and the danger was on the North-Eastern frontier. The necessity of an alternate route was urgently felt. Accordingly it was suggested that:

Bissenath, on the confines of Upper Assam, where the Assam corps is stationed, is the direction in which a military force is more likely to move; and I have a plan by Captain Rutherford by which the construction of a road running from Cherrapoonjee through the northern part of Jyntea to Ruha, and thence up the Kullung to Bissenath, is shown to be quite practicable. It is very desirable to have opened another route, leading from Cachar to Ruha, so that in the event of war, troops stationed in Cachar might move into Upper Assam.

In spite of these recommendations nothing much appears to have been done. In 1852, Colonel Jenkins once again stressed the need for improved road communications in Upper Assam. He wrote:

The road from Debroogarh to Sibsagar should be repaired with as little delay as possible under the state of our relations with Ava.....the road in the direction of Sibsagar and Jorhat is, for a portion of a distance, quite impracticable and the latter town, with rich districts round it, is approachable by a short and not difficult pass for a light party of invaders from the thickly populated Shan district on the Kuenduen River.

88 F.P.C., April 1836, No.1, Note on the North-Eastern Frontier of Bengal.
89 ibid., Minute by Robertson.
90 F.P.C., March 1852, No.192, From Jenkins to Grant, Secy. to the Government of Bengal.
From time to time after this, correspondence was carried on with the Government of India on the subject but nothing substantial evolved. As already mentioned earlier, the usual excuse was the paucity of funds. In 1861, Hopkinson, the Commissioner of Assam, tried to impress upon the Government that the investment on roads was a good one which would ultimately yield first rate returns. He proposed the doubling of the land tax and to devote the surplus income thus obtained towards the construction of Trunk Roads in the province. 91

However, it was not until 1865 that steps were taken to construct a road through the whole length of the Brahmaputra Valley. This road ran along the south bank of the Brahmaputra from Sadiya to Dhubri, where it was connected by steam ferry with the road system of Goalpara and Northern Bengal. Gauhati was joined by a metal road to Shillong, which was further connected via Cherrapunji, Theriaghat and Companyganj with Sylhet and Cachar. From Cachar a bridle path led to Manipur. A cart road from Manipur passed through Kohima, Dimapur & Golaghat which finally led to Brahmaputra. A second Trunk Road ran along the northern bank of the Brahmaputra. Apart from the trunk roads the most important feeder roads were: the

road from Tura, in the Garo Hills, to the Brahmaputra; the road from Gauhati to Disangmukh; the road from Rangamatighat to the North of Mangaldai; and the Dhodar Ali in the Sibsagar District. 92

In the Assam Valley, the ordinary bullock carts of Northern India were generally used, but some with wheels of solid wood were also seen. 93 The following table shows the total mileage of roads in the province of Assam in the years 1890-91 and 1903.

**TOTAL MILEAGE OF ROADS IN ASSAM** 94

<table>
<thead>
<tr>
<th>STATUS</th>
<th>1890-91</th>
<th>1903</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPERIAL</td>
<td>293 MILES</td>
<td>1869 MILES</td>
</tr>
<tr>
<td>PROVINCIAL</td>
<td>2119 MILES</td>
<td>1625 MILES</td>
</tr>
<tr>
<td>LOCAL FUND</td>
<td>3095 MILES</td>
<td>4483 MILES</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5507 MILES</td>
<td>7977 MILES</td>
</tr>
<tr>
<td>MAINTENANCE COST</td>
<td>Rs.470000</td>
<td>Rs.887000</td>
</tr>
</tbody>
</table>

It is significant to note here that in spite of the increase in mileage, only 144 miles (less than 2%) of the roads were metalled in 1903-04. 95 The extent of the road system in the Brahmaputra Valley can be seen from the table given below:

93 *ibid.*, p 91.
94 Tabulated from information in *ibid*.
95 *ibid*.
TOTAL MILEAGE OF ROADS
IN THE BRAHMAPUTRA VALLEY
1903-04

<table>
<thead>
<tr>
<th>DISTRICT PROVINCIAL</th>
<th>LOCAL BOARD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>METALLED</td>
<td>UNMETALLED</td>
</tr>
<tr>
<td>KAMRUP</td>
<td>16</td>
<td>160</td>
</tr>
<tr>
<td>DARRANG</td>
<td>-</td>
<td>165</td>
</tr>
<tr>
<td>NOWGONG</td>
<td>-</td>
<td>154</td>
</tr>
<tr>
<td>SIBSAGAR</td>
<td>-</td>
<td>237</td>
</tr>
<tr>
<td>LAKHIMPUR</td>
<td>20</td>
<td>211</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
<td>927</td>
</tr>
</tbody>
</table>

Of the total mileage of 3173 miles, only 42 miles were metalled. This amounted to only 1.3%. The official reason for this was that the cost of metalling was very high, owing partly to the high rate of wages prevailing, and partly to the difficulties in obtaining material. The Government was not prepared to incur any additional expenditure if it could be avoided. Thus, in spite of Hopkinson's repeated assertions that an unmetalled road in Assam was a total waste of money as it was bound to be "destroyed in the course of one or two rainy seasons".

96 Tabulated from information in the District Gazetteers 1905, of Kamrup, Darrang, Nowgong, Sibsagar and Lakhimpur.

the situation remained practically unchanged. Even as late as 1939, out of 5412 miles of roads in the province, only 732 miles (14%) were metalled. Of the remainder, 1109 miles (20%) were gravelled roads or creteways and 3571 miles (66%) unearthed roads. It can thus be clearly seen that road development in Assam continued to be neglected for a long time. Only those roads which were considered absolutely necessary for strategic reason were opened up. With a view towards making the Local Boards partly responsible for road development and other welfare projects, a District Cesses Bill was passed in Bengal which became Act X in 1871. Under this act, District committees were constituted with the District Magistrate as the chairman, for the management of district roads. Funds were provided from tolls and other miscellaneous sources. This was, in reality, an extremely half-hearted measure on the part of the Government. First, the money available was totally inadequate for the amount of work involved and, secondly, the District Committees had little independence of action in directing the expenditure entrusted to them, or in suggesting means for raising additional money.

Therefore, for all practical purposes, the majority of the roads of Assam could be used only for a few months in a year. In fact the first motor car in Assam made its appearance only in 1904 when Newton Gill, a planter, brought his Darraco to Assam. The poor condition of

100 Report on the Administration of Assam, 1874-75, p 92.
the roads naturally therefore resulted in the diversion of the trade channels to water ways and railways.

RAILWAYS

In the beginning, the tea gardens in Jorhat and Dibrugarh were served by the river ports at Kaliamukh and Dibrugarh respectively, but as the tea estates expanded far beyond the riverways, it became increasingly difficult to bring the produce to and from the tea gardens. The Sadiya Road, though raised in most parts above flood level, was unmetalled, and was thus unable to bear the burden of the heavy load which resulted from the opening out of the numerous tea gardens beyond the riverways. An alternate means of transport, therefore became essential. The attention of Sir Stuart Bayley, the Chief Commissioner, was drawn to the subject when he visited the district in December 1878. Bayley was convinced of the great need for improved communications as the development of the tea industry continued to increase with extraordinary rapidity. The difficulties in the working of the coal beds in the Makum area were also brought to his notice. Taking stock of the situation, Bayley observed that there was "a tendency for all capital seeking investment in Assam to gravitate to this part of the country,". He therefore proposed to the Government of India the construction of a metre gauge railway from Dibrugarh, along the Sadiya Road, under the guarantee of an annual subsidy for a term of years.

102 In 1878 there were no less than 60 gardens along this line of road, employing 20,000 imported coolies, for whom 150,000 maunds of rice had to be imported annually. The weight of tea exported was 60,000 maunds.

Bayley's positive comments and constructive proposals regarding the introduction of railways in Assam, led to an attempt by Dr. Berry White and his friends to invite applications in London for shares in the proposed Assam Railways Company Limited. The main object of the Company was the construction of a railway line from the steamer ghat near Dibrugarh to the 51st mile on the Sadiya Road, together with three branch lines. Unfortunately, in spite of a Government subsidy of Rs.100,000 the application for shares in the proposed company were not sufficient and the whole project fizzled out.

The first rail route from Calcutta towards Assam was the single line to Paradaha in 1862, the extension to Goalundo in East Bengal being complete in 1864. The Annual Report of the Jorehaut Tea Company for 1878, issued on 25th June 1879 stated:

Railway communication from Calcutta to Assam has been slightly extended from Rungpore to the bank of the Teesta River; but from Teesta to Doobrie, on the Brahmaputra River, there are yet about 40 miles to be sanctioned by the Government of India, the construction of which would be a great boon to Assam, as the traffic from the province would then be tapped by the railway at the station of Doobrie, and great facilities would then be afforded to travellers and labourers proceeding from Calcutta to Assam.

104 (i) Dibrugarh to Nagahuli, (ii) Panitola to Hopwell on the Rangagora Road, (iii) Dumduma to the River Buridihing.


106 ibid., p 6.

In 1879 the nearest approach to Assam by rail from Calcutta was by the Eastern Bengal Railway to Kauma on the Teesta, or to Goalundo. The journey to Dibrugarh from either of these two places took approximately, a fortnight.\textsuperscript{108}

Towards the end of 1882, the project of Dr. Berry White was brought to the notice of Benjamin Piercy, an engineer from London, who had been responsible for the construction of railways in England and other parts of the world. Piercy agreed to support the scheme which was widened, on his advice, to include the opening of the Makum coalfields in addition to timber and petroleum rights. He stipulated, however, that the statements placed before him should first be verified by his own trusted agents. Accordingly, after verification and a subsequent report "that the whole scheme promised to provide a most remunerative investment", the Assam Railways and Trading Company was incorporated on 30th July 1881.\textsuperscript{109}

In Piercy's view, the inclusion of coal had been the "sole means of attracting the shareholders and filling the subscription list; the old company had to abandon the scheme because they put forward railways

\textsuperscript{108} Gawnthrop, \textit{Op.	extit{cit}.}

\textsuperscript{109} \textit{ibid.}, p 13.
In a memorandum handed over to the construction engineers, Benjamin Piercy stated:

In fixing the line between the River Dehing and the coal, you will be guided by the coal measures, and so arrange it that it will command the spots nearest the Dehing which will yield coal of good quality in the greatest quantities, with the simplest and least costly means of getting at it.... you will bear in mind that the petroleum concession is likely to pass into the hands of our Company, and therefore, whenever there is a choice of routes between the Dehing and the coal field, you will choose that which will pass nearest to the petroleum wells, leaning in that direction in proportion to the prospects of abundant petroleum.

After an initial survey, the first consignment of rails, locomotives etc., shipped from the United Kingdom, arrived at Dibrugarh. With sleepers cut locally the first few miles of track were promptly laid. On 1 May 1882, the first metre gauge locomotive in Assam passed over that section of the line extending from the steamer ghat to the Jaipur Road. By the end of the year, the line was opened for goods traffic, first up to the Dinjan River and then to Chabua. Two years later the coalfields of Upper Assam were connected by railway lines. The Jorhat Provincial Railway connected the tea gardens at Mariani and Titabar with the river port of Kaliamukh in 1885, while the Tezpur-Balipara Railway connected tea gardens with the port of Tezpur.

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110 ibid.,
111 ibid., p 16.
112 ibid.
113 B.C. Allen, Gazetteer of Bengal and N.E. India, 1905, p 89.
It is evident from the above that all these three railway systems were essentially a part of the tea and coal industries of Assam and remained totally aloof from the main railway system of India. Moreover, the older trading centres like Barpeta, Golaghat and Sibsagar were completely bypassed. As more and more importance came to be laid on the tea, coal and oil areas, these once flourishing commercial centres gradually dwindled into insignificance. The local people looked at this new innovation with fascination. For them it was little more than an object of curiosity for these railways were not meant for public transport.

It is interesting to observe here that a section of the planters adopted an obstructionist attitude towards the advent of the railway because they feared that the railways would affect their labour force adversely. They foresaw their labour being enticed away from their gardens to work on the railways, not only on its construction but also on its maintenance in future. They also feared that the railways would introduce disease and bad characters into the neighbourhood.

The fact that such views were held by the planters adds significance to a minute in the proceedings of the Board of the Joehaut Tea Company of 13 May 1896, which reported that the various estates through which the Assam Bengal Railway was to pass, had combined to demand the following rates as compensation:
Rs.800 per acre for land planted with tea,

Rs.150 per acre for the simple forest land,

Rs.80 per acre for revenue paying grass lands,

and that in default of the Deputy Commissioner awarding these rates, a case was to be placed before the High Court at Calcutta. After negotiations, payment for land comprising 77.88 acres was made finally towards the end of 1900. Against the Rs.800 per acre, the Government paid Rs.900 per acre, and this was augmented by other compensations which brought the value paid for the small area of 5.84 acres at Kharikatia, up to about Rs.1134 per acre. For forest and waste land, the rates paid by the Government varied between Rs.6 and Rs.20. In view of the trend of negotiations it is important to remember that most of the land which the companies had taken up had originally been Government waste land. These lands had been exempted from further land revenue by payment of around Rs.2 or Rs.3 per acre. Even for those lands bought at auction sales, the price did not exceed Rs.8 per acre. Thus the high rates of compensation charged by the companies reflected the huge profit that they made.

The investment in the railways of Assam were shared or subsidised by the Government as in the Dibrusi-Sadiya Railway where the Government paid a total subsidy

115 ibid.,
116 ibid., p 77.
of Rs.1.2 millions between 1884-1903. In the Tezpur and Balipara Railway half the share capital was owned by the tea companies and almost one-fourth of the paid up capital was subsidised by the Tezpur Local Board. 117

For over a decade after the introduction of railways in Assam, the railway system in the Brahmaputra Valley continued to be essentially an internal one. It was only after the formation of the Assam Bengal Railway in 1892 that steps were taken to connect the province with the rest of India through the Surma Valley. 118 A strong motivating force appears to have been a general consensus on the necessity of improved communication facilities for immigration into Assam. Both, officials and non-officials, believed that the future of Assam depended by and large on large-scale immigration. As much of the cultivable land remained uncultivated, it was hoped that immigration would lead to rapid reclamation of the Brahmaputra Valley thereby resulting in an increased revenue of the province.

By 1896 the railway was opened from Chittagong to Badarpur, in the Surma Valley including branches to Noakhali and Chandpur in East Bengal. The Lumding Badarpur Hill section presented difficulties of an exceptional character. It ran for the most part, through

117 A Guha, Planter-Raj to Swaraj, p 36.
shale of the worst description, often intermixed with bands of kaolinite, which swelled when exposed. This caused heavy slips and exerted immense pressure on the sides of the tunnels. To counteract this, very heavy masonry was required, cuttings had to be arched in, and special measures taken to allow the drainage to escape. Though this section was only 113 miles in length, it contained 24 tunnels, 7 covered ways, and 74 major bridges. Apart from the special engineering difficulties, other inconveniences resulting from shortage of labour and food supplies, were also experienced. Hence this section was completed only in 1903. While this work was in progress in the southern section, the construction in the northern section in Assam had been commenced from Gauhati. By March 1899, trains were running to a temporary station at Lumding. The Gauhati-Jamunamukh section of the Assam Bengal Railway was opened in 1897 but was closed temporarily because of the earthquake. The line was finally completed in 1903. The East Bengal Railway line from Calcutta was extended to Dhubri in 1902 and to Amingaon in 1909-10.

In 1891 there were only 114 miles of railway in the province. By 1902-03 the figure had risen to 715 miles, and ten years later, the railway system in Assam extended over 870 miles. The total capital which had

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119 The tunnelling was done by Cornish miners imported for the purpose by M/s Lewis and Jones, the contractors. Mortality among these miners was very great. Antrobus, n.48, Op.cit., p 79.


121 ibid., p 89.
been expended on the minor railways, i.e., the Dibru-Sadiya Tezpur-Balipara and Jorhat Railways, amounted to Rs.94,69,000 in 1903. In that year 567,000 passengers and 317,000 tons of goods and minerals were carried by these railways. The gross working expense were Rs.5,95,000 and the net revenue yielded was 5% on the capital employed.122

**RAILWAY NETWORK IN ASSAM 1911-12**123

<table>
<thead>
<tr>
<th>RAILWAY SYSTEM</th>
<th>GAUGES</th>
<th>MILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DHUBRI GAUHATI SECTION</td>
<td>3'-3/8&quot;</td>
<td>160.7</td>
</tr>
<tr>
<td>OF THE EAST BENGAL RLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ASSAM-BENGAL RAILWAY</td>
<td>3'-3/8&quot;</td>
<td>569.2</td>
</tr>
<tr>
<td>(ASSAM PORTION)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. JORHAT PROVINCIAL STATE RAILWAY</td>
<td>2'</td>
<td>30.0</td>
</tr>
<tr>
<td>4. DIBRU-SADIYA RAILWAY</td>
<td>3'-3/8&quot;</td>
<td></td>
</tr>
<tr>
<td>(i) SAIKHOWA GHAT BRANCH</td>
<td></td>
<td>86.0</td>
</tr>
<tr>
<td>(ii) LEDO-TIKAK, MARGHERITA COLLIERY RAILWAY</td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>5. TEZPUR-BALIPARA RAILWAY</td>
<td>2'-6&quot;</td>
<td>20.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>871.5</strong></td>
</tr>
</tbody>
</table>

122 ibid., p 90.

123 Assam Administrative Report, 1911-12.
The construction of the Assam Bengal Railway was encouraged for two main reasons. First, it was hoped that since the line passed through the garden tracts it would be very convenient for the transportation of labour and other immigrants who could be tempted to settle in the land abundant Brahmaputra Valley. Secondly, it was assumed that this railway would "cross the southern hills of Assam, probably at the North-East corner of the valley, and connect with the Burma Railway system" which had received the Government's sanction for extension into the borders of China. It was hoped that in the near future it would result in a great Asiatic Continental Highway, from Bombay or Karachi, across India, through Assam and Burma, and across China to Shanghai.\textsuperscript{124}

It is significant to observe that the industries which we have discussed in this chapter were ancillary to the three major colonial industries, viz, tea, coal and oil and the communication network developed by the colonial administration was to facilitate the long distance trade associated with these industries. The steamer and railways, therefore, claimed priority. The steamer service on the Brahmaputra maintained the commerce with Calcutta, while the Lumding-Badarpur railway line connected Assam with the Chittagong port. The road system was basically meant for the internal communication within the Brahmaputra Valley. The only road which directly connected the valley with Bengal was the Gauhati-Sylhet Road, constructed in 1829, across the Khasi Hills. Even after Sylhet and Cachar, then called

\textsuperscript{124} H.K. Barpujari, \textit{The American Missionaries and North-East India}, p 90.
Surma Valley, were transferred to Assam from the Dacca division of Bengal in 1874, this road continued to be the major surface link. As the tea chests of Assam were to pass through the Chittagong port, it was necessary to introduce the Lumding-Badarpur railway section in 1896 to connect Assam with Chittagong. It is on record that long before the hill section to Chittagong was completed, the Government was being asked to improve shipping facilities at Chittagong. At a meeting on December 13, 1899, the Board of the Jorehaut Tea Company authorised its chairman to sign a memorial to be presented to the Lieutenant Governor General of Bengal, to have steps taken to carry out an improvement in the port of Chittagong to permit ocean-going steamers to enter and leave the port.125

In fact much before the creation of the province of Eastern Bengal and Assam in 1905, the British Government had considered a proposal of providing the Assam administration with control over the Chittagong port by transferring the entire Chittagong Division, consisting of the Chittagong, Noakhali and Comilla districts, as it was geographically contiguous to the Surma Valley. When the Chin-Lushai Conference of 1892 recommended the transfer of South Lushai Hills to Assam, William Ward, the Chief Commissioner of Assam, impressed upon the Government of Bengal that this transfer should be postponed until the Chittagong district as a whole could be transferred to Assam.126 W.B. Oldham, the

126 H.P.B., May 1894, Nos. 190-91.
Commissioner of Chittagong also supported the idea, though he wanted the implementation to be deferred till such time that the administrative machinery in Assam was made comparable to that of Bengal.\textsuperscript{127} Dr. R. Lyall, the commissioner of Cooch Behar observed that the people of Assam would gain tremendously from the transfer since Assam was about to be connected to Chittagong by rail, which would then provide her with outlets both by land and sea.\textsuperscript{128} The Board of Revenue also agreed that the Chittagong port, particularly its foreign trade, would flourish better under the Assam administration. However they wanted the transfer to be postponed till the extension of the railway was completed.\textsuperscript{129} This view was also taken by the Lieutenant Governor of Bengal.\textsuperscript{130}

The extension of the Eastern Bengal Railway to Lumding established the communication between Assam and Chittagong. Before long, Bengal was partitioned in 1905 on political considerations, and a new province of Eastern Bengal and Assam was created. An important argument in favour of a new province of this nature was that Chittagong was the natural port of Assam.\textsuperscript{131} J. B. Fuller, the Chief Commissioner of Assam, for example, felt that territorial expansion was necessary for the development of Assam and for the speedy completion of the Assam-Bengal Railways. He argued that the railway must

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{127} H.P.A., May 1897, No. 206.
\item \textsuperscript{128} ibid., No. 208.
\item \textsuperscript{129} ibid., No. 210.
\item \textsuperscript{130} ibid., No. 209.
\item \textsuperscript{131} ibid., No. 235; see Sir Edward Collin's note dated 20 April, 1897.
\end{itemize}
\end{footnotesize}
look for enough traffic to justify its construction, that the future of the new railway line depended on the Chittagong port and that as the only outlet of Assam, this port would receive better attention from the Government for its development. The economy of Assam largely depended on its tea industry, and the prosperity of that industry largely depended on the facilities for export. He believed that "it was obviously in the interest of the tea industry that the control of the port should lie in the hands of the Government which is directly interested in the promotion of its welfare." H.H. Risley, Home Secretary to the Government of India endorsed the views of Fuller. He observed that the reorganisations would not only ease the excessive burden of the Government of Bengal but would also facilitate the industrial expansion of Assam by providing her with a maritime outlet. In his opinion the real justification of the transfer of the eastern districts was to be found in the commercial and financial interests of the Government. The transfer would not only benefit Assam but it would also help in the general development of trade and the working of the Assam-Bengal Railway. The improvement of the Chittagong port was bound to ensure more business to the railways and immensely benefit the tea-owning interests. He also pointed out that the tea gardens in the Surma Valley found it cheaper to send their tea chest from Chittagong to London than from Calcutta where the loading and shipping charges were

132 ibid., December 1903, No.140.
higher and the brokerage rate exhorbitant. While approving of the proposal for the creation of the province of Eastern Bengal and Assam, the Government of India paid due consideration to the views of Fuller and Risley. The Viceroy, Lord Curzon, observed that since the main port of the Assam-Bengal Railways was to the south of the hill range, the Badarpur-Lumding section needed to be speedily completed so as to establish an unbroken connection of the oil fields of Digboi, the coal mines of Margherita and Makum, and the tea gardens of Upper Assam with the port of Chittagong. For this he felt it was necessary for the entire railway line to be under one administration. From this it is evident that the communication network was set up and extended to promote the colonial industries, and that even a major administrative reorganisation, like the partition of Bengal, was inspired by this interest.

133 ibid., Nos. 149-60.
134 ibid., Minute of the Viceroy, 3 December 1903.
135 ibid., Curzon's note dated 1 June 1903.