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THE GRAND TRUNK ROAD  
IN THE PUNJAB

BY  
K. M. SARKAR, M.A.

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General Editor :—H. L. O. GARRETT, I.E.S.  
*Keeper of the Records of Government.*

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THE GRAND TRUNK ROAD  
IN THE PUNJAB.

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1849—1886.

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## PREFATORY NOTE.

THE accompanying monograph is the first of a series based upon research work undertaken in the Record Office by Post-Graduate History students. The Punjab University requires an original thesis for the M.A. degree. These theses were formerly written upon old and time-worn subjects and were of little value as an addition to knowledge. This has now been changed and the reorganization of the Record Office has rendered the latter accessible to research students and made it possible for theses to be written upon more modern and less hackneyed topics.

In the present monograph Mr. Sarkar tells the story of the inception and completion of the Grand Trunk Road. Mr. Sarkar has consulted a number of authorities and original documents, and the result is a vivid and interesting account of the Road. His work might be supplemented by other references. The Emperor Jahangir, a frequent traveller on the Road in his numerous journeys to Kashmir, makes several allusions to it in his memoirs. Invaders like Ahmad Shah—whose guns fell into the Jhelum *en route*—have passed along its length, and it has seen generation after generation of humbler travellers.

There are many famous highways in the world. England has the Pilgrims' Way with all its associations with mediæval pilgrimage and the Great North Road with its stories of mail coaches and highwaymen. Rome has her Appian Way, with all its memories of the greater days of the Imperial City. Our own great thoroughfare need suffer by comparison with none of these in richness of historical association.

H. L. O. GARRETT,

*Keeper of the Records*

*Lahore, December 1926.*

*of the Government of the Punjab.*

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## PREFACE.

“ THE cost of the road is great, but it is justified by the importance of the line and the substantial goodness of the work itself. It is of value both to Government and the people of India. ” So says one of the Punjab Administration Reports. So might Chandra Gupta, consolidating the Mauryan Empire, have well said. So might Asoka, Sher Shah, Akbar and a host of others have repeated. From the very dawn of Indian History to modern days, all great Emperors who have held the destiny of India in their hands, have realised the vital importance of this great highway of India—perhaps the ‘ greatest highway in the world. ’

It is with the history of a portion of this great highway that this monograph is concerned. The Punjab is the gateway of India, and the Grand Trunk Road has a special significance here, linking up as it does all its important military stations. Its importance during the Mutiny can hardly be over-estimated. In fact, along with the Telegraph, it can claim to have saved India for the British. Troops had to be brought hastily to the siege of Delhi; stores and ammunition sent to them; constant communication kept up with the head-quarters. All this would have been impossible, indeed the capture of Delhi itself would have been impossible, at least for a considerable length of time, without this roadway. No less significant has been its utility in later frontier wars.

I have endeavoured to give in the following pages a consistent history of the construction and completion of this grand road-way of the Punjab. In the introductory Chapter I have given a brief account of the entire route (from Peshawar to Calcutta) from early times to modern days. The proper, scientific construction of roads may be said to have begun with the establishment of the Public Works Department in India—the first experiment of a Department of this kind being tried in the Punjab. Even during the early days of the Company and the rule of the

Military Boards, not much progress in this direction was made. Progress began with the much needed reform in the management, and was accelerated later on by the stimulating influence of the Railway, and with the extension of local self-government the golden age of roadmaking might be said to have commenced in India.

Lieutenant-Colonel Napier, who had previously served under the Council of Regency was appointed Civil Engineer to the Board of Administration in the Punjab in 1849. The chief item on the programme which was soon drawn up by him was the reconstruction of this ancient roadway right up to Peshawar to facilitate communication between the important military stations of Northern India. Dalhousie was greatly interested in the work and from time to time encouraged and congratulated the Engineers working on the line, fully appreciating the thousand and one natural difficulties which they had to encounter. Napier was an energetic worker and was fortunate in having an able and competent staff of officers working under him. It was due to their combined efforts that the Grand Trunk Road had made sufficient progress to facilitate transport during the Mutiny. By 1866 the Grand Trunk Road was completely metalled throughout its whole length. Some of the bridges over difficult streams, however, took some more years to finish.

In the concluding chapter, some account of the *serais* and Dak bungalows, the trees on the roadside, the means of transport during the years preceding and following the Mutiny has been sketched. A brief reference has also been made to the laying of the Telegraph along the Grand Trunk Road just in time to be of service during the Mutiny, and the important part played by the Grand Trunk Road itself in preserving British rule in India. It has not been possible to give any estimates as to how much the road cost, because the figures given in the Reports are very confusing and are generally for all the roads taken together, sometimes including, sometimes excluding the cost of repairs, bridges, etc. To juggle with them, as we have been constrained to admit later on, is simply to make confusion worse confounded.



This monograph has chiefly been based on the original records of the Government of the Punjab, Colonel Napier's Report (1853-54), and the Administration Reports of the Province. My thanks are due to Professor H. L. O. Garrett for giving me permission to handle these records and for valuable suggestions and encouragement and above all the personal interest he has taken in the work. A list of books consulted is given in the Appendix.

*Lahore.*

**K. M. SARKAR.**

# PLAN.

## CHAPTER I.—“From Early times to Modern Days.”

1. Pre-British history.
2. Under the Company, Military Boards—P. W. D. in 1853, development of roads, causes and factors.

## CHAPTER II.—“The Conception of the Road.”

1. Description of the roadway, Powindahs and ancient trade routes.
2. Napier appointed Civil Engineer 1849. The commencement of the G. T. R.

## CHAPTER III.—“The Construction of the Road” (Pre-Mutiny).

1. A proper P. W. D. establishment, 1853-54, Napier.
2. Classification of Roads.
- 3 & 4. *Peshawar to Delhi* (563 miles), taken up in 3 sections—1st Section, *Peshawar to Lahore* (263 miles). Dealt with in 7 divisions,—Cardinal points. Progress upto 1856.
5. 2nd Section, *Lahore to Ludhiana*—4 alternative routes, Lahore to Beas to Sutlej, Lahore to Ferozepore. Short cut through *Eminabad*.
6. 3rd Section, *Ludhiana to Delhi*.—Ferozepore to Ludhiana, Ludhiana to Karnal. Difficult streams (Karnal to Delhi in 8).
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8. Summary of progress made before Mutiny.

## CHAPTER IV.—“The Completion of the Road” (Post-Mutiny).

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2. 1st section, *Peshawar to Lahore*—Bridges, Indus tunnel (abandoned.)
3. 2nd Section, *Lahore to Ambala*—Lahore to Ferozepore, Sutlej Crossing, Beas to Sutlej via Jullundur and Phagwara. Bridges and drainage problem.
4. *Ambala to Delhi* (3rd Section)—Metalling and bridging.
5. Boat-bridges.
6. Estimate, explanation.

## CHAPTER V.—“Conclusion.”

1. Crossing the Ghaggar 42 years ago. Means of conveyance (1850—1880).

Laying of the *Telegraph* lines : the Telegraph and the Mutiny.

2. *Serais* in pre-British days ; under the Company later developments. The *trees* question.
3. The G. T. R. and the Mutiny; how the G. T. R. saved India. Other wars.

The future of the Road.

“ These be the joys of the Grand Trunk Road ;  
A cheery heart and an easy load ;  
The sun by day and the stars by night ;  
And the blaze of the evening firelight ;  
The songs and the tales of a travelling band ;  
While the *hookah* passes from hand to hand ;  
The lips that smile by the warm, red fire ;  
While the silver smoke curls higher and higher ;  
The white moon rising behind the palm ;  
The evening hush with its soothing charm ;  
The crimson dawn on the field of wheat ;  
The clink of harness and the ring of feet ;  
The creak of the bullock-cart crawling along ;  
The morning fresh as a new heard song ;  
The hope of adventure along the way ;  
And the sights and the sounds of another day.”

F. M. VELTE.

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“ We’re marchin’ on relief over Injia’s coral strand,  
Eight ’undred fightin’ Englishmen, the Colonel and the Band.  
Ho ! get away you bullock-man, you’ve ’eard the bugle blowed,  
There’s a regiment a ’comin’ down the Grand Trunk Road.”

KIPLING.

## CHAPTER I.

### “ From Early Times to Modern Days. ”

ONE of the things which must have impressed Megasthenes when he crossed over the frontier into India was the ‘ Royal Road,’ extending from the far end of the Mauryan Empire to their Capital at Pataliputra. It was constructed, we are told, in Eight Stages and ran from Purushpur to Takshashila; from Takshashila across the Indus to the Jhelum; then to Beas near the spot where Alexander raised the 12 altars to mark the end of his victorious campaign; then across the Sutlej and the Jumna, *via* Hastinapur, the ancient Capital of the Kurus, to the sacred Ganges; from the Ganges to the town of Rhadopha and thence to Kanya Kubja, the modern Kanauj. From Kanauj the road leads to the sacred town of Prayag at the confluence of the Ganges and the Jamna, and thence to Pataliputra—the famous Mauryan Capital built by ‘ no human hands.’ From the metropolis it continued its course down to the very mouth of the Ganges at Tamruk. And along this great highway, right upto the capital, Megasthenes “ had travelled into lands never before beheld by Greek eyes.”<sup>1</sup>

The ‘ Board of Works ’ organised by the Mauryas was responsible for the upkeep of the road. At every mile, along its whole length, stones were placed to indicate the by-roads and the distances. Not only did these milestones prove useful to the travellers, but they were also of immense value to Geographers interested in computing the distances between different places. Probably this high-road was conceived by the great Chandra Gupta to facilitate his scheme of a consolidated empire in India, though it is likely that he utilised many of the already existing routes. Some scholars are of opinion that the idea may have been suggested by the Royal Road in Persia, and consider it to be one of the many signs of Iranian influence in Mauryan India.

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<sup>1</sup> Page 42, Rawlinson “ India and the Western World. ”

One can hardly over-estimate its importance from a commercial or military point of view. Troops could easily be moved from one place to another—even from the capital to the far confines of the frontier; it linked together all the important cities and commercial centres—Taxila, Kanauj, Hastinapur and Prayag with the seat of government. “Goods from the Golden Chersonese and beyond, silk from the Seres, Gangetic muslins, spices from Arabia, species from the west, all poured into the bazaars of Pataliputra, and the caravans could pass uninterrupted from the Ganges to Khyber.”<sup>1</sup> The prosperity of the foreign trade is proved by the elaborate regulations made by Chandra Gupta for the entertainment and supervision of foreign traders.

What Chandra Gupta had begun his grandson Asoka perfected. Trees were planted on the roadsides and wells constructed at every half koss. Serais and hostelries were built at suitable intervals for the benefit of the travellers.

During the centuries that followed the road underwent various vicissitudes of fortune. Under strong and capable rulers it must have been kept up and protected from the inroads of robbers and brigands. Nothing important, however, is mentioned about this continuous highway in contemporary history till we come to the days of Sher Shah Suri and Akbar who once more restored it to its former glory. The Moghuls never lost sight of the importance of providing security to life and property on this and other much frequented routes, and considered it a primary duty to mark out the routes and guard them. The old kos minars or brick pillars, which marked the Moghul trade routes still exist in many places, specially between Karnal and Lahore. The embankments in the Margala Pass, of great strategic importance, are said to have been built by Sher Shah Suri. Some people are of opinion that it was Shah Jahan who built these important works to secure the line of communication with the frontier.

## II

The writer of the Imperial Gazetteer claims that, before the

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<sup>1</sup> Rawlinson “India and the Western World,” page 42.

advent of the British in India roadways, in the modern sense of the word, were practically unknown ; and even after its establishment there were few to be found except within urban limits until 1839, when it was decided to connect Delhi with Calcutta by means of a good metalled road, suitable for wheeled traffic, with bridges over small streams and proper ferries across the larger rivers.

The justice of this remark is seen if we consider the type of roads in pre-British days. From the accounts that are available it appears that, even in the palmy days of Moghul rule in India, the roads were little better than "mere fair weather tracks, level with the country, and marked with lines of trees, with tall minars dotted through the jungle to indicate the way from stage to stage and to mark the distance."<sup>1</sup> At the time of the advent of the British, of course, the roads must have been in a chaotic condition, for the governor of the Provinces were busy in carving out fortunes for themselves, and could hardly afford to think about the condition of the roads or the security and comfort of travellers. Even the Punjab prior to 1849 was in no better condition. Mr. French, who accompanied Lord Auckland to Lahore in 1838, formed a very poor opinion of Ranjit Singh's roads. In his journal he gives a description of the route they followed from Ferozepore to Amritsar. "The road was often lost amidst the brush wood," while when travelling from Lahore to Delhi he notes that "the roads were as bad as they generally are in the Punjab, and it would be highly creditable to the Sikh Government if an improvement in the means of communication were established, means which are neglected altogether by a wealthy ruler."<sup>2</sup> Moreover, Ranjit Singh levied heavy transit and custom duties, which together with the badness and insecurity of the roads paralysed both export and import trade. When the British annexed this province these burdensome duties were swept away and commerce was encouraged by improving communication.

But perhaps the chief reason why roads were in so bad a condition was, that, in the level plains of India scoured by numerous

<sup>1</sup> Sohan Lal—Article in the Punjab Economic Journal, page 405.

<sup>2</sup> *Ibid.*

streams which were easily fordable for 8 months in the year, communication between different localities was not a very difficult problem. Transport was chiefly by pack animals, while travellers could ride or be carried in palanquins. Even from a military point of view, as Sir G. Chesney pointed out, this state of things had its advantages. "The want of roads taught Indian armies how to do without them. The whole system of military transport and supply being necessarily adapted to a roadless country, the ordinary requirements under this head during peace differed in no material degree from the requirements of a time of war.....To pass from a state of peace to war involved little change of system.....on the breaking out of war nothing had to be improvised, and the troops took the field without difficulty or confusion."<sup>1</sup>

The East India Company maintained many of the old roads *e. g.* the highroad following the alignment of the present Grand Trunk Road. These roads were generally guarded at intervals by *Choukis* (posts); between the *Choukis*, the road was marked out by stones, pillars and avenues of trees. The Zimindars, through whose lands the road passed, had to provide the Choukidars, while as compensation they were allowed to levy a small toll on the passing traffic. The amalguzars or magistrates were responsible for all goods stolen within their jurisdiction. The security thus given must have been fairly efficient, for when, towards the end of the eighteenth century, the Resident of Benares—Jonathan Duncan—abolished the *Chouki* fees on the roads leading to Benares, the merchants at first objected on the ground that they would prefer to go on paying the toll rather than run the risk of being robbed.<sup>2</sup>

In the first few decades of the Nineteenth Century things did not advance very far; the roads were improved chiefly with a view to facilitate postal communication. It was not until the Grand Trunk Road, or rather various sections of it, were commenced that the necessity of providing for wheeled traffic was seriously taken into consideration.

<sup>1</sup> Quoted in the Imperial Gazetteer, page 402, volume 3.

<sup>2</sup> Imperial Gazetteer, volume 3, page 403.

The principal roads were under Military Boards—one for each presidency—without any extensive or even sufficient powers either financial or administrative. Later on the general control of roads in Bengal and Northern India was given to the Military Board at Calcutta. The Reports of this Board to the Governor General (1841-49) bear eloquent testimony to the confusion under which the provision and maintenance of the roads were carried on. The actual work had to be carried out by the Provincial authorities ; while the funds were sometimes provided by the supreme government, sometimes by the local government and partly by Zimindars. In the Military Boards, however, were vested extensive supervisory powers.

It was in 1849 that, for the first time, a “properly organized department for carrying out public works” was formed in the recently acquired Punjab by Captain Napier—afterwards Lord Napier of Magdala. This proved so successful that in 1854-55 the Military Boards were abolished, and regular Public Works Departments organized in all the Provinces under the general control of the supreme Government. After this much needed reform the improvement and up-keep of the roads went on in a very much more methodical and satisfactory manner than before.

The chief object of these roads, which were rapidly covering the face of the country, was to facilitate the export of surplus production. Mr. Malony, talking about the districts between Nagpur and Jubbalpur remarked that, “for the prosperity of the country cheap and easy communication for the excess of produce was indispensable.”<sup>1</sup> But the introduction of Railways soon began to have a considerable influence on the “function and character” of the new roads. Whereas the majority of early roads were “mere embankments across low lying places, with easily graded approaches to river banks and cleared and levelled surfaces elsewhere,” the Railways necessitated “the construction of bridges and metalled communication which would give access to the Railway line at all times.”<sup>2</sup> Though it is true that, in many

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<sup>1</sup> Quoted in the Imperial Gazetteer, volume 3, page 406.

<sup>2</sup> Imperial Gazetteer, volume 3, page 406.



places old routes were superseded by the Railway, yet, on the whole, the effect of Railways was to stimulate the construction of roads and develop their traffic. In fact, roads were constructed to feed rather than compete with the newer means of communication.

Another great factor in stimulating the construction and upkeep of roads was the extension of local self-government. The primary duty of the District Boards was to apply the funds at their disposal to the maintenance and improvement of local communication. At the same time the labour of workers whom the government had to support in times of famine was largely devoted to roadmaking. The Ambala-Kalka road, an off-shoot of the Grand Trunk Road in the Punjab, might be quoted as an example of an important work in which the labour of famine-stricken people was utilised.<sup>1</sup>

Some idea of the nature of the roads is obtained from the figures quoted in the Administration Report of the Government of India for 1848-49. The money spent on the Grand Trunk Road between 1839-49 amounted to 49 lakhs.<sup>2</sup> It was estimated that another 33 lakhs would be required to complete it—a very poor estimate indeed, when we come to consider the large amounts which were to be spent on the Punjab section of the Road alone.

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<sup>1</sup> Administration Report (1861-62), page 65.

<sup>2</sup> Imperial Gazetteer, volume 3, page 406.

## CHAPTER II.

### “The conception of the Grand Trunk Road in the Punjab.”

#### I.

The route followed by the Grand Trunk Road, especially in the Punjab, was meant by nature to be a great highway, nay, “the greatest highway in the world.”<sup>1</sup> To a traveller passing through this portion of the country the Punjab would appear to be “the Garden of India.” “From the base of the Himalayan Range southwards stretches a strip of country 50—80 miles broad, watered by mountain rivulets, and for fertility and agriculture unsurpassed in Northern India. In their downward course the rivers spread wealth and fruitfulness on either side and their banks are enriched with alluvial soil and fringed with the finest cultivation. These tracts though unadorned with trees and unrelieved by picturesque features are studded with well-peopled villages, blest with two harvests in the year, and are the homes of a sturdy, industrious and skilful peasantry.”<sup>2</sup> Within this tract are situated the two sister capitals of Lahore and Amritsar and many of the other chief cities—Deenanagar, Batala, Sialkote, Wazirabad, Gujranwala, Ramnagar and Gujrat.

The country in the Sindh Sagar Doab in the north-west is, no doubt, much less productive. But the fiscal and the commercial importance of the Salt Range, with its almost inexhaustible veins of rock salt, should not be overlooked. The plateau through which the Grand Trunk Road passes in these parts is abrupt and rocky, in places it undulates into numerous valleys and glens, which are rich in produce especially near Sarai Kala and Rawalpindi, past both of which the highway runs. Near Sarai Kala, between the

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<sup>1</sup> Sir James Douie—“North West Frontier Province, Punjab and Kashmir,” page 126.

<sup>2</sup> Administration Report, volume I, page 2.

Margala Range and the Kala-Chitta Hills is the Margala Pass, commanding the line of communication to the frontier and therefore a position of great importance. Here the embankments, built in Moghul times are still extant, and a noble monument, erected in memory of General Nicholson, stands silent and alone overlooking the valley.

The submontane zone has the most equable and pleasant climate in the plains. The average annual rainfall is about 30"—40"—five-sevenths of which falls during the monsoon months between June and September. The north-western area has a longer and a colder winter and spring. The rainfall becomes less and less as we proceed westwards. Rawalpindi has on an average about 30" of rainfall while Peshawar gets only 13". The monsoon winds come much later and are much less abundant.

The numerous streams, nallahs and rivers which come in the way are fordable during the greater part of the year. The difficulty, however, comes with the rainy season, when the rivers swell up to many times their original volume and cause great damage to the bridges, roads and their embankments for miles around. The governmental correspondence of the period under review, and the Administrative Reports are full of the damages done by floods and the consequent loss they entail.

This route the muse of history has claimed for her own. Even Alexander the Great, "carrying out the first scientifically conducted military expedition of the world,"<sup>1</sup> in 326 B. C., followed an almost identical track up to the Beas. Later invaders have utilised it from time to time, and the prosperous cities lying in the vicinity or on the route itself have had many a time to pay the penalty of greatness.

In times of peace the merchants and the Powindahs with their long strings of kafilas (caravans) have for ages been a common sight along this road. The first Administrative Report of the Punjab for 1849-50 (page 7) gives an interesting description of these familiar figures. "Merchants coming from the west are a

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<sup>1</sup> Holdich's India, page 13.

remarkable class. They travel with great caravans and long strings of camels. Having to pass through defiles tenanted by the most savage and ferocious tribes, they are armed to the teeth; quite as much warriors as traders they bear about them the marks of many a conflict. With most amazing perseverance they travel over half the length of Asia and exchange the products of Tartary, Kabul and Tibet for the commodities of Europe in the quays and marts of India right down to Calcutta."

Not less interesting is the account given by Colonel Holdich "The Powindahs belong to the Ghilzai tribe.....Leaving their families and arms encamped within British territory, under the protection of frontier political officers, the Powindah makes his way southwards with his camels and goat hair or sheep-skin goods, carpets and other merchandise from Kabul and Bokhara, and conveys himself through the length and breadth of India..... He returns to the cool summits of the Afghan hills and the open grassy plains, where his countless flocks of sheep and camels are scattered for the summer grazing." <sup>1</sup>

It is curious to note that at the time of the British occupation of the Punjab the caravans which travelled from Delhi to Ghazni—the two most important cities of the Muhammadan Empire—followed a most difficult and circuitous route. Emerging from the passes of the Suleiman Range at Dera Ismail Khan, they toiled through the wilds of the Sindh Sagar Doab to Multan and then turned northwards to Lahore; thence they proceeded to Ferozepore and Ludhiana. Sometimes they travelled downwards from Multan to Bahawalpur and other foreign states and became subject to various vexatious taxes. The two *ancient trade-routes* in these regions were—(1) From Dera Ismail Khan *via* Mankhera, Shorkot, Harappa, Pakpattan, Fazilka, Patiala to Delhi; (2) From Dera Ghazi Khan *via* Multan the route proceeded to meet the former one at Pakpattan. Pakpattan was the famous "Ferry of the Pure" over the Sutlej, where Mahmud and Timur are said

<sup>1</sup> Holdich's India (pages 80-81).

to have crossed the river. Almost the very first work undertaken by the British in the Punjab was the construction of decent roadways joining Dera Ismail Khan and Lahore *via* Multan and *via* Jhang. These roads often passed through arid and desolate tracts, and wells and hostelries were provided at suitable intervals without which they would have been useless.

## II.

Immediately after the annexation of the Punjab, the Board of Commissioners submitted several proposals to the Government of India among which the chief was the appointment of Colonel R. Napier as Civil Engineer of the Punjab. This officer had in November 1847 been appointed chief engineer to the Durbar<sup>1</sup> and had served for the past 2 years under the Council of Regency. The Engineer's staff subordinate to Colonel Napier, was sanctioned<sup>2</sup> on the 19th December 1849 at the following strength :—

Executive Officers (covenanted)	..	..	12
Assistant Civil Engineers (covenanted) holding executive charges	..	..	7
Assistant Civil Engineers (covenanted)	..	..	5
Assistant Civil Engineers (uncovenanted)	..	..	15
Overseers	..	..	59
Surveyors	..	..	12

The planning and construction of all public works with which the Board was concerned, were entrusted to the Civil Engineer. He was also to control the operations of the local improvement committees, for it was considered important that "even detailed works should be carried on by concerted principles and the aid of Science."<sup>3</sup> The principle item on the programme was "the construction of the great military road from Lahore to Peshawar."<sup>4</sup>

A sum of 5 lakhs was sanctioned annually.<sup>5</sup> This amount set apart for current and ordinary improvements was exclusive

<sup>1</sup> Book 190, page 267.

<sup>2</sup> Letter No. 388, Press List, volume XII.

<sup>3</sup> Administration Report, 1849-50, page 125.

<sup>4</sup> Letter No. 388, Press List, volume XII.

<sup>5</sup> Letter No. 471, Press List, volume XII.

of any grants which would be conceded for works of special magnitude, *e. g.*, Grand Military roads and canals.

The money was to be repaid from incomes :—

Ferry Fund—2½ lakhs.

Excise Revenue—2 lakhs.

The surplus ferry fund was to be utilised for local improvements.

The works to be undertaken by the Board were classified in the following manner:—<sup>1</sup>

(a) *Military Works*—Cantonments, Forts, etc.

(b) *Public Works*—for civil purposes.

(c) *Roads*, bridges and viaducts.

(d) *Canals*.

The Roads described as “ the great veins and arteries of the body politic—adapted either for the marching of troops or for commerce, domestic and foreign ” were further classified as—

(a) *Military Roads*.

(b) *Roads for external commerce*.

(c) *Roads for internal commerce*.

In the above classification the primary object was kept in view. Lines constructed directly for military purposes incidentally served commerce, while the commercial roads were often used for the transit of troops, stores and munitions.

The chief of the military roads undertaken was the Grand Trunk Road—along which line the British army was massed. Dalhousie gave it his “ special attention.”

A few years later, reviewing the work done and the great expenditure involved the Government laid down clearly the object with which this “ Grand Military Road ” was undertaken. “ The project has the special approval of the most Noble the Governor General (Dalhousie). From a political and military point of view its consequence can hardly be over-rated as binding together all our important Northern Cantonments and maintaining communication with Peshawar, our greatest frontier station. In this

<sup>1</sup> Administration Report, 1848-49, page 126.

respect it is of the greatest strategic importance to the Punjab and to India. But to the Punjab it confers another great benefit by forming a great highway, passing through the upper districts and the chief cities and commanding the entrance to Hazara and giving access at several points to Kashmir.....It thus constitutes a great artery from which numerous branches separate off in various directions. Lastly, it is the great outlet and channel for the import and export trade between India, Central Asia and the West.<sup>1</sup>

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<sup>1</sup> Administration Report (1852-53).

## CHAPTER III.

### “The construction of the Road (1849-57).”

#### I.

In 1853 several changes were made in the Administration of the Punjab.<sup>1</sup> The ‘Board of Administration’ was abolished and a Chief Commissioner appointed in its place who was to be the head of the local executive administration and exercise control over the frontier force and police. Under him were 2 Commissioners—(a) Financial Commissioner (b) Judicial Commissioner. The former was mainly concerned with the collection, settlement and arrangements connected with revenue while the latter in addition to his judicial duties was given several purely executive functions, *e. g.*, the superintendence of roads, supervision of education, etc.

It has already been noticed that the experiment of a regular Public Works Department was first tried in the Punjab. In May 1854 the organization of this Department was changed according to the recommendations in letter No. 380 (Vol. XIII) of the 17th of December 1853. Previous to this, the control of all military works throughout the Punjab and in the Cis and Trans-Sutlej States had rested with the ‘Military Board’ acting directly under the Government of India ; while the control of Public Works in the Punjab proper and defensive works on the Trans-Indus frontier were in the charge of a civil engineer (Colonel Napier) subordinate to the Punjab Administration.<sup>2</sup> Under the new scheme, all engineering work—civil, military or public was placed under one department at the head of which was a Chief Engineer under the supervision, financial or otherwise, of the Chief Commissioner acting through his Judicial Commissioner.

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<sup>1</sup> Administration Report, volume II, page 2.

<sup>2</sup> Administration Report, volume III, page 46.



Colonel Napier was appointed as the first Chief Engineer. Under him were two Superintending Engineers each in charge of a circle—one east and the other west of the Ravi.

The territories were divided into 40 Executive Divisions. There were—

Executive Officers	..	..	..	..	44
Assistant Executive Officers	..	..	..	..	33
Civil Engineers	..	..	..	..	3
Assistant Civil Engineers	..	..	..	..	30
Conductors and Sub-Conductors (acting as Assistant executive officers)	..	..	..	..	5
Overseers	..	..	..	..	126

“ This,” as the Administration Report (Volume III) sums up, “ constitutes perhaps the most extensive and certainly the most varied and arduous engineering charge in India.”

## II.

Of the 3 classes of Roads (*a*) Military, (*b*) Roads for External Commerce, (*c*) Roads for Internal Commerce we are more directly concerned with class (*a*) The Chief of the roads taken up to facilitate external commerce—routes joining Dera Ismail Khan and Lahore, favoured by the Powindahs,— we have already mentioned. As regards the roads for internal commerce, the military roads provided outlets for the import and export trade of the Punjab towards the west. Among other roads which were undertaken for this purpose were routes connecting Multan with the important cities such as Lahore, Jhelum, Sialkot, etc., and others to open up the resources of the Salt Range. Multan was an important city to be considered because its commercial importance was daily increasing on account of the regular steam navigation which plied up and down the Indus. It is interesting to note that in the construction of this road, completed by October 1851, Captain Marsden showed an actual balance of more than eight thousand Rupees<sup>1</sup>—a thing unique in the History of road making in the Punjab.

<sup>1</sup> Letter 2238, Supplementary volume.

## III.

For the sake of convenience, we will divide the Grand Trunk Road into 3 sections while considering the history of its construction—

- (i) Peshawar to Lahore.
- (ii) Lahore to the Sutlej.
- (iii) The Sutlej to Delhi.

The total length of the road undertaken at first was 563 miles.<sup>1</sup> Of these 563 miles the first section alone claimed 264 (or 265½ miles according to a later report—volume III, page 49).

To begin then with this first section running from *Lahore to Peshawar*. The very first Administration Report emphasised the ‘arduous engineering difficulties’ which had to be faced. “The bridging of the Bedh and the Bagh Bacha Rivers in the Rechna Doab ; the passing of the Kharian defiles in the Chuj Doab ; the spanning of the Deenah, Bukrala, Bishundoor, Sohan and Hurroo torrents and the cutting through the crest of the Bukralah Range, the excavation of the Margalla Ridge, all in the Sindh Sagar Doab ; and the skillful manner in which the Geedar Gulley Pass is avoided and the rocky ridge over-hanging the Indus is skirted . . . . . the crossing and threading of the endless succession of ravines in the Peshawar Valley ; all these obstacles denote a country of extreme difficulty and a work of no less magnitude.”

This portion of the road was considered by Lord Dalhousie to be most important, and soon after the annexation of the Punjab while sanctioning the 5 lakhs of rupees to be annually spent on roadmaking he wrote to say that the “immediate commencement of a convenient and practicable road from Lahore to Peshawar . . . . . is of infinite moment and should take precedence over every other road.”<sup>2</sup> The Honourable Court of Directors later on endorsed this view. They referred to it as a “highly desirable object,”<sup>3</sup> and considered it to be not only “important” but

<sup>1</sup> Administration Report, volume III, page 47.

<sup>2</sup> Letter 231, Supplementary volume.

<sup>3</sup> Letter 3223, Supplementary volume.

“absolutely necessary.” Both Dalhousie and the Honourable Court while not forgetting the commercial importance of the road laid great stress on its “military purposes.” For this reason it was to be “passable at all seasons, and that there should be no danger of a stoppage at any point.”<sup>1</sup>

The line was surveyed by Lieutenant Taylor with the personal assistance in some parts of Lieutenant-Colonel Napier. It followed generally the direction of the already existing road and deviated from it only in those places where a more favourable course could be selected. The width proposed was 40 feet ; the road was to be metalled throughout ; numerous small rivers and nallahs were to be crossed by timber bridges while across the four great rivers—the Ravi, the Chenab, the Jhelum and the Indus,—bridges of boats were to be thrown. The bridge across the Indus was to be maintained throughout the year while those over the other 3 important rivers would be disconnected during the rainy season and the boats used as ferries.<sup>2</sup>

For executive purposes the entire line was divided into seven Divisions, each having its own distinctive features.<sup>3</sup>

- (i) The first division comprised that part of the road which runs through the Rechna Doab with its lower terminus at Lahore and upper terminus at Wazirabad.
- (ii) The second included the road through the Chuj Doab—between the Chenab and the Jhelum.
- (iii) the third division extended from the River and City of Jhelum to a little beyond the Bukrala Pass and River.
- (iv) & (v) Divisions 4 and 5 both lay in the Rawalpindi Division—the road was carried on past the important military station of Pindi to within 26 miles of the Indus.

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<sup>1</sup> Letter 3223, Supplementary volume.

<sup>2</sup> *Ibid.*

<sup>3</sup> Administration Report, volume II, page 49.

(vi) The sixth division continued the road to the Indus ; then crossing that mighty river conducted it some ten miles towards Peshawar.

(vii) The last division completed the road to Peshawar.

As is obvious, the first two divisions embracing the Rechna and the Chuj Doab (*i. e.*, between the Ravi and the Jhelum) were the two least difficult to manage. The whole of this line from Lahore to Peshawar was 'traced, surveyed and put well in order' by the time the first Report of the Province was ready (1851). The next convenient year to consider the progress of the road is 1853—the second Report being published early in 1854.

(i) *The first division*, comprising the section of the Grand Trunk Road running through Lahore and Gujranwala districts was 59 miles long. It was almost completed and opened throughout by 1853. The road intersected the drainage of the Doab. The ground for the first 35 miles being rather low considerable embankment had to be constructed. Six large bridges were completed by that year, of which one had 3 arches of 30 feet span. Of the 31 drain bridges required all were completed except one, on the extreme edge of the division—an improved lattice bridge, with 3 openings of 65 feet each over a stream which ran immediately under the city of Wazirabad.<sup>1</sup>

(ii) From the *Chenab to the Jhelum* was a distance of 40 miles of comparatively easy country except for the last few miles through the Kharian Pass on the left bank of the Jhelum—a low range of light clay and friable sandstone running parallel with the river. This portion was also completed by 1853 and opened up for traffic. The earthwork was completed while cuttings, embankments and bridges through hilly places, and the cause-way up to the Jhelum were strongly made. Of the 3 large bridges, one near Gujrat of 6 arches each of 13 feet span was completed while the other two had been taken in hand. Forty-six drain bridges were constructed to facilitate the drainage of the doab. The low

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<sup>1</sup> Administration Report, volume II, page 158.

Chenab Valley had necessitated massive embankment right up to Wazirabad. The object of the embankment was to provide a road-way, lower the channel of the river, and thus enable floating bridges of moderate length to be extended. The embankment completed was claimed to be "one of the finest works of its kind yet finished on the road."<sup>1</sup> In passing it might be remarked that the Punjab rivers, rising in the rainy season, spread their waters along such low valleys; the flooded area at such times often becomes more difficult to cross than the main river itself.

(iii) The *third section*, through Jhelum District, was 39 miles long. For the first march out of Jhelum the road ran through a comparatively even plain; but thence it had to be excavated through the marl to the Bakrala River and through solid rock beyond it. The section for the most part was opened by 1853 while temporary lines were laid where it was not complete. A ridge, 1,200 feet broad, had yet to be either cut through or tunneled. As regards the bridges.

The large bridge over the Bakrala could not be commenced before the next cold season (1854).

While 2 other large bridges had not yet been commenced.

Two smaller bridges were completed.

One was under construction.

While 8 still remained.

Of 50 drain bridges 27 had been finished. Most of the earth-work had been completed. The Bakrala works was considered "to be the most formidable in the whole line."<sup>2</sup>

(iv) & (v) Comprising the *Rawalpindi Division* were both together about 60 miles long. It is really remarkable that within the short space of 4 years, even this difficult section was almost opened. Of 13 miles in rocky ground 11 were completed; and of 18 in open ground 12 were well advanced. This section was "almost a continuous line of embankments and cuttings."<sup>3</sup> The

<sup>1</sup> Administration Report, volume II, page 379.

<sup>2</sup> Administration Report, volume II, page 159.

<sup>3</sup> *Ibid.*

most difficult and tedious excavation was through the Margalla Range. The spur of the Range concerned “ was of the hardest limestone—a most infrangible rock which successfully resists all instruments except of the finest temper, and could only be pierced through in the course of time.”<sup>1</sup> The work of necessity could but progress slowly.

Two quite big rivers—the Sohan and its feeder the Lab had to be bridged and required masonry works “ of extreme difficulty and magnitude.” The Sohan River could only be approached by cutting through its rugged bank over a considerable extent.

	Feet.
Its waterway under the bridge .. .. .	1,100
Its waterway of the Leh bridge .. .. .	300
Its waterway of the Kala viaduct (under construction)..	200

Of the minor bridges 69 had been finished ; 19 were in progress ; while 23 had not yet been commenced.

(vi) The 6th Division began at the Chalbat River and continued to Akora—a distance of  $44\frac{1}{4}$  miles, of which  $34\frac{1}{4}$  miles were in Rawalpindi and 10 in Attock District. In its Cis-Indus course it had to cross the Hurroo River while in the Trans-Indus portion the rocky range known as ‘ Geeder Gully ’ had to be circumvented. This route could only be partially opened by 1853.<sup>2</sup> The Hurroo Bridge, of 300 feet span, was under construction while the subsidiary embankments and cuttings were almost complete. The difficult cuttings for about 4 miles through the hills near the Indus had been completed. Of 122 minor bridges and culverts 55 had been finished.

(vii) The last division comprised the section of the Road between Akora and Peshawar—about 34 miles in length. Owing to the want of an Executive Engineer this road had not been surveyed till 1851. The scarcity and dearness of labour had caused

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<sup>1</sup> Administration Report, volume II, page 159.

<sup>2</sup> Administration Report, volume II, page 100.

much delay and the work could not be taken in hand before 1852. It intercepted the drainage from the Kuttuk Hills to the Kabul River, and therefore “required more bridges than any other portion of the line, frequent as such works were everywhere.”<sup>1</sup> Altogether 127 bridges were required of which only one large one and 18 smaller ones had been completed, though 22 miles of the roadway, lying in low and undulating ground had been finished by 1853.

The following summary will give an idea of the general progress<sup>2</sup> made by the end of 1853—only 4 years after the work was taken up.

*Road* (Lahore to Peshawar)—

	<i>Miles.</i>
Total Length .. .. .	264
Opened .. .. .	160
To be opened shortly .. .. .	60

*Bridges*—

103 large ones ..	}	Completed .. .. .	25
		In progress .. .. .	33
459 minor ones ..	}	Completed .. .. .	238
		In progress .. .. .	47

*Excavations.*—There were “6 cardinal points” where the excavations were most difficult—

- (1) Kharian Pass (2nd Division)—on the left bank of the Jhelum.
- (2) Sohawa and Huttee Ranges on both banks of the Bakrala (3rd Division).
- (3) Margala Pass (4th and 5th Divisions)—between the Margala Range and Kala Chitta hills, near Kala Sarai.
- (4) Undulating grounds near Hurroo (6th Division).
- (5) Geedur Gullee cliffs near the Indus (6th Division).
- (6) The great embankments in the alluvial plains of the Chenab and the Jhelum. Of these (1), (2) and (6) had already been surmounted, while good progress had been made with the other 3.

<sup>1</sup> Administration Report, volume II, page 100.

<sup>2</sup> Administration Report, volume II, page 161.

The above, however, gives but a poor idea “of the real difficulties, which rock, sand, flood, earthy strata, ravine and cliff have presented to be successively overcome.”<sup>1</sup> Nor were natural difficulties the only ones encountered. The scarcity of *labour*, specially in the Sindh Sagar Doab and the Trans-Indus section where the population was thin while the country was most difficult to tackle, was another serious problem. Labourers had to be imported and claimed higher wages. Nor was such labour always procurable. In one of his letters to the Secretary of the Chief Commissioner, “regarding the procuring of labour for works in the Punjab from the Meerut and Delhi Districts,”<sup>2</sup> Napier reports that he is unable to supply the required amount of labour.

Among other difficulties *material* was often found to be very dear, “bricks selling from Jhelum to Attock at Rs. 10—12 per 1,000,”<sup>3</sup> though it must not be overlooked that in some places good serviceable stone could be procured for the work.

As regards *metalling*—it has been recognised long ago that the whole route “could” and “should” be metalled. But the operation, it was estimated, would cost anything between 20 and 25 lakhs<sup>4</sup> and some uncertainty naturally still existed.

(a) *Kunkar*—could be procured from the Rachna Doab itself (especially from the left bank of the Ravi). It would cost Rs. 3,830 per mile.

(b) *Stone*—for places where no *Kunkar* was available from Jammu. The drawback was that its conveyance would cause great expense and raise the cost to Rs. 7,698 per mile.

(c) *Stone*—In the Sindh Sagar Doab costing 5,000 Rs. per mile.

The *floating bridges* across the four large rivers were not forgotten. For this purpose 325 boats<sup>5</sup> were required—

The Ravi—70 boats needed—all were ready.

The Chenab—100 boats needed—61 were ready.

<sup>1</sup> Administration Report, volume II, page 161.

<sup>2</sup> Letter 389, volume XV.

<sup>3</sup> Administration Report, volume II, page 161.

<sup>4</sup> *Ibid.*

<sup>5</sup> Administration Report, volume II, page 162.



The Jhelum—100 boats needed—50 were ready.

The Indus—55 boats needed—30 were ready.

The build of the boats it was reported “was excellent.” There will be a double road-way 26 feet broad which the heaviest burden can traverse.”<sup>1</sup> They were expected to be ready by the next winter (1854), when the waters would subside. As for the Summer bridges, “which are to expand over the broad flood swollen by melted snows of the Himalayas they will be ready by the ensuing rainy season.”<sup>2</sup> It is interesting to note that 3 of these were ready by the winter of 1854—

- (a) The *Chenab* bridge of boats was opened for traffic on the 2nd of November 1854.<sup>3</sup>
- (b) The bridge of boats across the *Indus* at Attock was “completed” on the 27th of October 1854.<sup>4</sup>
- (c) The bridge over the *Jhelum*—was opened “for wheeled traffic on 18th October 1854 with a single road-way.”<sup>5</sup>

It is not to be supposed that this great work could be carried on without a considerable number of ‘*Supplementary Works.*’ At Jhelum (where wood was abundant) there were workshops, timberyards and also a saw mill worked by water-power.<sup>6</sup> At Rawalpindi there were the Superintendent’s office and headquarters and workshops. At Attock there were worksheds and building yards for the Indus boats and also a powerful saw mill. Tramways had been laid down at Rawalpindi and Sohawa from the stone quarries to the Sohan and Bakrala works. At all the great works earth was conveyed by means of horse-carts and wheel-barrows, baskets not being used for the purpose. Fourteen road stations for the use of officers and overseers on duty had been erected. Some 127 groves of 250 square yards each were planted with forest trees and regularly watered.<sup>7</sup>

<sup>1</sup> Administration Report, volume II, page 162.

<sup>2</sup> *Ibid.*

<sup>3</sup> Letter 906, volume XV.

<sup>4</sup> Letter 904, volume XV.

<sup>5</sup> Letter 934, volume XV.

<sup>6</sup> Administration Report, volume II, page 162.

<sup>7</sup> *Ibid.*

IV.

By May 1856 another 32 miles of the *Peshawar—Lahore Road* was completed bringing up the total mileage opened for traffic to 192 miles. This excluded, of course, a few breaks which occurred in places where difficult streams had to be bridged or where refractory rocks had to be cut through or deep depressions traversed. But although the portion not yet ready was small yet it was this short space which required the greatest amount of labour and expense. In order that traffic might not be materially interrupted temporary road-ways had been provided in these regions, Eighty-nine bridges of all sizes and 6 temporary timber bridges had since been completed.<sup>1</sup>

In their enthusiasm for an efficient roadway the engineers and officers concerned could not be bound down by the original *estimates* prepared. The first estimate, it was soon found, was all too inadequate, for the object had been to build up hastily some sort of road for military exigencies. The thousand and one difficulties of the task especially the vast drainage encounters by the entire line had not been fully anticipated. As local knowledge increased it was discovered that “no road not of the first efficiency and no works short of the highest calibre could furnish anything like a permanent way.”<sup>2</sup> To face the difficulties of the Sindh Sagar Doab with inferior works was simply to court failure, even disaster, at the time of the annual floods. There seemed, therefore, to be no other alternative but “to surmount great difficulties with great works.”

	Rs.
Upto the 1st of January 1854—the sum actually spent	
was .. .. .	24,66,000
And expenses to be incurred .. .. .	26,74,661
Total .. .. .	51,40,661

Roughly 51½ lakhs—the average for 1 mile being Rs. 19,472. This was excluding the cost of metalling beyond the Jhelum. By May 1856 a total of 64½ lakhs of rupees, Rs. 23,450 per mile, had been spent. But still more elaborate plans were in preparation for which

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<sup>1</sup> Administration Report, volume III, page 49.  
<sup>2</sup> Administration Report, volume II, page 164.

it was expected that the total would exceed 1 crore, *i.e.*, Rs. 40,000—45,000 per mile. A fine jump this from Rs. 19,472 to Rs. 45,000 per mile in a few years.

But man proposes while God disposes. The engineers and the Punjab Government little knew that they were on the eve of a Revolution which would shake the British Empire in India to its very foundations. In the shock of that convulsion the golden schemes and elaborate plans tumbled down, and the Public Works Department had to content itself with a moderate estimate of 11 lakhs for some time. The immediate object during and immediately after the Mutiny was “to make the work already executed available for traffic and bridging with temporary wooden bridges all remaining unbridged streams, with the exception of the 4 great rivers and 2 hill streams.”<sup>1</sup>

Before passing on to the next section of the Grand Trunk Road from Lahore to the Sutlej it might be mentioned that a project was prepared under orders of Dalhousie for an Iron suspension bridge over the Indus. This bridge was to cross the Indus near the fort of Attock by a single span of 750 feet at a probable cost of 12 lakhs—“a most noble work which would be of incalculable value not only to the defence of the frontier but also to the political and civil strength of the government.”<sup>2</sup> The idea had to be abandoned on account of the Mutiny.

To sum up then, the condition of the Peshawar to Lahore section of the Road on the eve of the Mutiny “The roadway is broad, the general style of the works is excellent, and the earth work good, though as yet no part of it has been metalled. The whole design is upon a grand scale.”<sup>3</sup>

## V.

Lahore could be connected with Ludhiana on the left bank of the Sutlej by three different routes.<sup>4</sup>

(a) *Via Ferozepore*—the route would be important from a military and commercial point of view.

<sup>1</sup> Administration Report, volume IV, page 39.

<sup>2</sup> Administration Report, volume II, page 163.

<sup>3</sup> Administration Report, volume III, page 49.

<sup>4</sup> Letter 747, volume XII.

(b) *Via Hureekee*—originally proposed by Colonel Cunningham, but not recommended because the line would run through *Khadara* (low ground) though there would have been a saving of 12 miles.

(c) *Via Jullundur and Amritsar*—important commercial towns. The route was shorter than (a) by 6 miles.

A fourth possible route through Tarn Taran had been rejected by Napier in 1847, while acting as Engineer to the Durbar, as it would leave out Amritsar, one of the most important commercial towns of the Punjab.<sup>1</sup>

A double line of communication was eventually sanctioned *via Ferozepore* and *via Amritsar*—a sum of 3½ lakhs being reserved for the purpose.

The road between *Lahore and Beas* (62 miles) was early taken up and completed with the necessary earthen and masonry viaducts crossing the drainage of the Bari Doab. A loop had also been projected from Amritsar to the new Cantonment of Sialkot, joining the Grand Trunk Road again at Wazirabad. The road (proper) was partially embanked through the valley of the Ravi and a very large lattice built over the stream which ran underneath the city of Lahore.<sup>2</sup> By 1856 a third coating of metal was laid upon it<sup>3</sup> so that it was perfectly ready on the eve of the Mutiny. It had cost Rs. 4,42,525 or Rs. 7,121 per mile.<sup>4</sup>

The first two Reports are silent about the section between the *Beas and Ludhiana*. In the third we have just a brief remark about it saying that the new road was being planned while the old road was kept up in 'ordinary repair;' the traffic being great, however, "it is much cut up."<sup>5</sup> This road was evidently in a very unsatisfactory condition at the time of the Mutiny. Soon after the Mutiny, however, it was properly taken up—a lakh of rupees being sanctioned for a reconstruction of the old line. The route

<sup>1</sup> Page 267, Book No. 190.

<sup>2</sup> Administration Report, volume II, page 165.

<sup>3</sup> Administration Report, volume III, page 49.

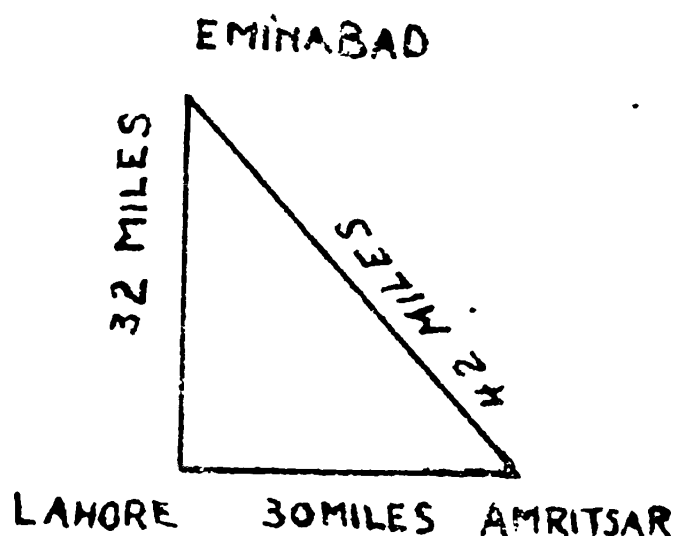
<sup>4</sup> Letter No. 837, volume XV.

<sup>5</sup> Administration Report, volume II, page 49.

adopted was to pass close to the town of Phagwara and Jullundur, and though not the shortest, was the best adapted both to the commercial and military needs of the Punjab.<sup>1</sup>

The Lahore route that we have so far traced, it might be noticed, is not a very direct one. The authorities had early realised this fact and in a correspondence between Montgomery (then Commissioner and Superintendent of Lahore Division) and Melville (Secretary to the Board of Administration) in 1851 there is a reference to a direct route from Amritsar *via* Eminabad to Wazirabad.<sup>2</sup> The argument was based on the well-known geometrical truth that as two sides of a triangle were together greater than the third, troops naturally went *via* Eminabad to Wazirabad so saving 20 miles or 2 marches. This line had been surveyed by Col. Napier and the construction begun by Mr. Saunders. The road

was purely military and specially built for the march of troops. It had been constructed at a cost of Rs. 200 per mile.



The road between *Ferozepore* and *Lahore* had been traced out as early as 1847 by Napier, then working under the

Durbar<sup>3</sup> and some sort of a temporary road-way was opened by 1851. But the more elaborate scheme sanctioned in that year had not been carried out and the road was still unmade in 1857.

## VI.

Roads in the Trans-Sutlej and Cis-Sutlej States had originally not been directly or indirectly under the control of the Civil Engineer's Department created in December 1849. With the reorganisation of the Public Works Department in 1854, however, they were brought under the supervision of the Punjab Administration.

<sup>1</sup> Administration Report, volume V, page 17.

<sup>2</sup> Letter 1746, Supplementary volume.

<sup>3</sup> Page 267, Book No. 190.

From *Karnal to the Sutlej via Ambala, Ludhiana and Ferozepore* was a distance of 201 miles :—

Karnal to Ludhiana	..	121 miles.
Ludhiana to Ferozepore	..	76 „
Ferozepore to the Sutlej	..	4 „

This portion had been commenced under the Military Board in 1852 by Major Laughton and remained under his supervision till May 1854<sup>1</sup> During this period 87 miles had been opened up for traffic and after 1854 the work progressed at a rapid pace.

The *Ludhiana to Lahore Section via Ferozepore*. (and not through Hureeke) had been sanctioned in 1851.<sup>2</sup> The military significance of the road was borne out by the fact that at first the Road ran through the Cantonment direct to the Sutlej, ignoring the city altogether,<sup>3</sup> although the most direct line would have been through the city. Of course, in that case the Cantonment would undoubtedly have suffered. As matters stood, however, the trade of the city suffered, and to remedy the defect a branch road passing through the city and meeting the Grand Trunk Road at Koondah was sanctioned by the Chief Commissioner in 1854.<sup>4</sup> By 1856 the road was made, bridged and metalled in a most efficient manner and was claimed to be “the most complete piece of road yet constructed in these territories.”<sup>5</sup>

Reporting to the Secretary of the Board of Administration in 1851<sup>6</sup> the Commissioner and Superintendent of the Cis-Sutlej States points out the bad state of the road between *Karnal and Ludhiana* and from Ludhiana to Phillaur. The line had been planned and surveyed in 1848, postponed on account of the Second Sikh War and again taken up in a rather desultory fashion in October 1849. Little progress, however, was made in the next few years and this caused great delays to the mail. In some parts

<sup>1</sup> Administration Report, volume III, page 47.

<sup>2</sup> Letter 1731, Supplementary volume.

<sup>3</sup> Letter 706, volume XV.

<sup>4</sup> *Ibid.*

<sup>5</sup> Administration Report, volume III, page 47.

<sup>6</sup> Letter 1648, Supplementary volume.

only horses and runners were used, carts not being able to pass through. This, as the report acknowledged was a great contrast to the progress made in the Trans-Sutlej districts, inspite of the fact that these Cis-Sutlej districts had been enjoying British protection for nearly half a century. The officials pleaded 'lack of funds' while another probable cause for the slow, initial progress was the natural difficulties of the route.

The plain between the Sutlej and the Jamna was bounded on the north by the Himalayan Range. Consequently the innumerable streams, small or large, which ran through the tract lay almost parallel to the important rivers instead of converging towards them. The prevalence of sand at the same time often obliterated the lines of the road, and it was no uncommon thing for the ditches to get choked up by every passing sandstorm.

Under these circumstances, it was no mean achievement on the part of the engineers to have opened up the section between Ludhiana and Ambala (76 miles) throughout by May 1856. The road was 'efficiently metalled, embanked and bridged' except the Bomgna streams, the valley of Rajpura and the old or lesser Ghaggar Stream which were temporarily provided for by strong wooden bridges. The *Ghaggar* is thus described in the Report<sup>1</sup> "The great *Ghaggar* is a violent and powerful mountain torrent, which in the rainy season has a deep current with wide spreading inundation and a bed of which the subsoil presents peculiar difficulties for foundations." A bridge 450 ft. long with 9 arches of 60 ft. span and of the most solid masonry, costing about 9 lakhs, was under consideration.

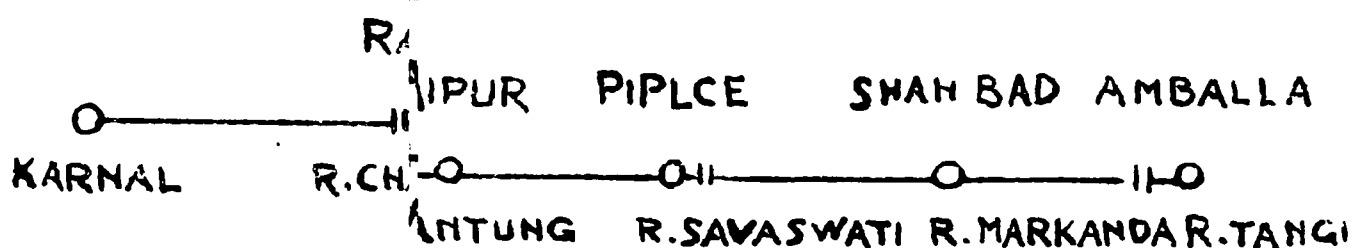
A portion of this road, it will be noticed, runs through the territory of the Maharaja of Patiala. In 1852 Captain Laughton (Offg. Superintendent, G. T. R.) had proposed the construction of a new route through the Maharaja's territory<sup>2</sup> on the grounds of economy and expediency. It was more economical, he had

<sup>1</sup> Administration Report, volume III, page 47.

<sup>2</sup> Letter 2718, Supplementary volume.

argued, to construct a new road than fill in the deep and dangerous trenches at the side of the old line. The question naturally arose whether Maharaja should defray a portion, at least, of the expenses of the new road through his territory, for he did not stand to gain anything from it, the object of the road being to keep the line of communication, between the new and the old British provinces open at all times and under all circumstances. The Maharaja wanted the new line to follow the old one as he had spent large sums in erecting serais and police stations along the old route, or it should at least pass through or near Sirhind. The Governor-General in Council decided that the Maharaja was to pay nothing nor have any voice in the construction of the road.<sup>1</sup> The route actually followed passed very near Sirhind.

Between Amballa and Karnal (45 miles) were seven streams of more or less importance (exclusive of minor streams) of which the two most important were Tangri and Markanda. The following diagram will give some idea of the nature of the route—



The *Tangri* was a 'treacherous and impetuous torrent' which required a bridge of 10 arches of 60 ft. span with deep and massive foundations.

The *Markanda* was a dry, broad space of sand for the most part of the year, but during the rainy season the collected drainage of the neighbouring Himalayan Range descended down the river in mass. The volume of water as it approaches, appears to the spectator like a moving wall, and in a few minutes the broad channel previously dry is swept by an overwhelming tide. A more troublesome and dangerous obstacle to transit than the *Markanda* cannot well be imagined.<sup>2</sup> The very nature of

<sup>1</sup> Lett.

<sup>2</sup> Adm. Report 2826, Supplementary volume.

Administration Report, volume III, page 48.



the stream forbid ferry boats or wooden bridges ; permanent works could only proceed at a slow pace. The project under consideration was a massive masonry work extending over 500 yards and comprising 30 arches each 2 of 36 feet span.<sup>1</sup>

By May 1856 the road-way proper, however, between Ambala and Karnal, had been completed and metalled with the minor streams bridged. On the Tangri and the Markanda crafts with casks were used as means of transport when the first rush of the floods had subsided.

The whole route then, from Karnal to Ferozepore was practically open by May 1856 except at 4 or 5 difficult places. It is even recorded that horsed carriages could run up from the terminus at Calcutta right up to "within a few miles of Ambala."<sup>2</sup> Of the 201 miles—

185 miles were completed and metalled : 150 bridges : of different sizes were ready (most of them of several arches, some having between 10—20 arches) :—

	Rs.
Total Cost	21,36,700
Cost per mile inclusive of bridges ..	23,076
Cost per mile (exclusive of important bridges) .. ..	12,076

(The cost per mile compares favourably with that of the other sections of the road.)

Work on this road steadily went on and it was to play a great part in the siege of Delhi in the following year.

## VII.

At this stage of its progress, we might leave the Grand Trunk Road for a while, and consider the part played by some of the men who were responsible for its construction. The natural difficulties of the route we have already considered at some length. To these, as we have seen, were often added the question of funds, the dearness of material, the scarcity of labour and the inclemency of

<sup>1</sup> Administration Report, volume III, page 48.

<sup>2</sup> Administration Report, volume III, page 38.

the elements. But the road was of vital importance, and in comparison the difficulties and the enormous cost shrank to nothing. The important question was to find qualified and capable officers who would work conscientiously, with the strictest regard to economy and not simply fritter away the money entrusted to them.

The first place naturally belongs to Lt.-Col. *Napier*. For the energetic and able manner in which the work was carried on, as well as for enthusiastic co-operation in all engineering and military question, the Punjab Government was indebted to him for he spared "neither time, health, nor convenience to the duties entrusted to him, for which the Board cannot too warmly thank him."<sup>1</sup> In the appreciative comments that Lord Dalhousie made on receipt of a report of the progress made in road-construction in the Punjab (1849-54), Lt.-Col. *Napier* is given "the honour that is due to him . . . for the deep devotion with which he has laboured in the discharge of many and various duties of his important office" and "his eminent success equally conspicuous in all departments. Whatever may be the credit due to those whose efforts have been directed to the physical improvement of the Punjab, a principal share of that credit is justly due to Lt.-Col. *Napier*, whose professional abilities, unwearied industry, and judicious guidance have contributed so largely to the material result which has happily been attained."<sup>2</sup>

In the same letter all employed in the Public Works Department were congratulated warmly for the "spirit and energy with which the work had been carried on." Among the names particularly mentioned are those of (1) Lt. *Oliphant* of the 3rd Division of the Lahore-Peshawar Road (Jhelum Division), specially for the "organisation of labour." This officer had already been personally congratulated by the Governor-General in 1853 when the road through the Kharian Pass had been opened for the passage of mail-carts and sufficiently advanced to allow the march of troops through it.<sup>3</sup> (2) Captain *Robertson* and Mr. *Ninian Steel*

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<sup>1</sup> Administration Report, volume I, page 133.

<sup>2</sup> Letter 898, volume XV.

<sup>3</sup> Letter 330, volume XV.

of the 4th and 5th Divisions (Rawalpindi Section). (3) Lt. *Henderson* of the 6th Division (Attock Section) who “ had a varied and difficult task to perform.” (4) Lt. *Gully* of the 7th (Peshawar) Division who had made slow though steady progress in spite of natural difficulties and scarcity of labour. (5) For “ the general plan of the work, the careful consideration of details and the scientific application of means to the end sought which characterize the whole of the work which has been undertaken in constructing a line of road from Lahore to Peshawar the highest credit was give to Lt. *Taylor* who had been entrusted with the general direction and superintendence of the work.”

*John Lawrence*,—the Chief Commissioner, was also greatly interested in the progress of the Road and kept himself regularly informed about it. He was specially interested in the question of planting trees on the roadside and drew up a lengthy memorandum, running over several pages on the tree question, which will be taken up in detail later on. The interest he took in the work is proved by the profuse comments and criticism in his almost illegible script in the correspondence regarding the road. In one of the letters, concerning a section of the road between Phillaur and Wazirabad, Lawrence insists that it should be called a portion of the Grand Trunk Road.<sup>1</sup> On another occasion, when the comic muse had decided to enliven the History of the military roadway a D. C. had fought with an engineer over the question of the lands lying on the sides of the road and employed his thana people to expel the gang of men working under the engineer. To solve the difficulty Napier had proposed that ground 10 ft. wide on either side of the road should be taken up. John Lawrence while asking for further particular wrote on the margin that if land was so “ urgently wanted ” well, “ it had to be bought.”<sup>2</sup>

From what has been said in this and previous chapters the lively personal interest taken by Lord *Dalhousie* is self-evident. He was not an armchair critic, but had travelled up the route,

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<sup>1</sup> Letter 2687, Supplementary volume.

<sup>2</sup> Letter 678, Supplementary volume,

fully appreciating the difficulties which these pioneers had to face and never forgetting to encourage and congratulate them from time to time. In the report of which we have talked at length, he wrote "the Governor-General can personally testify to the formidable nature of his (Lt. Henderson, Attock Division) work; having himself witnessed the great operations of blasting the cliff over the Cabul River with a charge of 18,000 lbs. of powder 3 years ago, and traversed the rugged line on which the officer was acting." To some it is given to perform the work "to others to inspire." Dalhousie was an inspirer of all those who were working on the road.

There are several references in his private letters to Sir George Couper which throw an interesting sidelight on the question. "I have returned," he writes in November 1851, "to Simla by the new road which I commenced one year ago (1850) and which when it will be finished will not be surpassed . . . . by any mountain road in the world. About 40 miles are now finished. . . My project is to extend it to the Chinese frontier. I hope to see it well advanced though I shall not see it finished, and I shall feel a right to be a little proud of it."<sup>1</sup> We can well imagine with what thrill of satisfaction, a man of his nature, who could feel proud of a small branch of the Grand Trunk Road, viewed the prospect of a rapid completion of the work itself, which in his own words "by its usefulness would repay a thousand fold the labour and the treasure it has cost. . . ."<sup>2</sup> The joy that he felt on receiving the Report in 1854 he hastened to share with his dearest friend Sir G. Couper. In his characteristic way he described the 3,600 miles of road completed, 880 under construction, 2,700 surveyed and 800 traced out in five years time! "This is the report of *one* branch of the Department of Public Works, in *one* province, recollect, it surely serves to show that we are not so inert as is supposed."<sup>3</sup>

<sup>1</sup> Page 180, Private Letters of Dalhousie.

<sup>2</sup> Dalhousie's Minute : (Ramsay Muir : Making of Br. India page 375).

<sup>3</sup> Page 327, Private Letters of Dalhousie.

## VIII.

To summarise briefly the progress made by 1857—

*Lahore to Peshawar*—of 264 miles—192 completed (not metalled).

*Lahore to Ferozepore*—Unmade.

*Lahore to Beas*—Completed efficiently.

*Beas to the Sutlej*—Unmade.

*Ferozepore to Ludhiana*—Completed efficiently.

*Ludhiana to Karnal*—Almost complete—difficult streams unbridged.

*Karnal to Delhi*.—Unfortunately no mention is made of this portion of the road either in the Report or in the letters. To guess, however, from Reports after the Mutiny, the condition of this road was not very satisfactory ; in fact, “ the worst along the whole of the Grand Trunk Road.”<sup>1</sup>

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<sup>1</sup> Administration Report, volume V, page 17.

## CHAPTER IV.

### “The completion of the Road (1857-1886).”

The storm of the Mutiny passed by in 1857-58 and British ‘statesmanship was strained in every timber to the last degree of tension.’ We have seen how the plans of the Punjab Engineers had been upset by this unforeseen hurricane. We have now to take up the story of how the Grand Trunk Road was completed after the storm had passed by and peace had once again been restored in the land.

The strain on the finances caused by the Mutiny had been very great, and all public works, not of military or political importance, had necessarily to be postponed for some time. Had not this been the case, the Grand Trunk Road would have been completed and metalled at a much earlier date than it actually was. Much of the permanent road-way had been constructed, the obvious gaps being, Ferozepore to Lahore, Beas to Lahore, Delhi to Ambala, difficult places in the Peshawar-Lahore section and the streams in the Ambala region. The “bridging” of streams was the most important problem to be solved. Not much progress in this line, however, was possible immediately after the Mutiny.

We will consider the road-way, as before, in 3 convenient sections :—

- (a) Peshawar to Lahore.
- (b) Lahore to Ambala.
- (c) Ambala to Delhi.

#### II.

As we have already mentioned, the elaborate plans prepared in 1856 could not be carried into execution, and a moderate estimates of 11 lakhs only had been allowed to make the *Lahore-Peshawar Road* available for traffic, and for bridging the hitherto unbridged streams, by temporary structures of wood. Progress was somewhat retarded for a time on account of difficulty

in procuring labour. In 1859 Lord Canning travelled along the whole length of the road and determined that it should be metalled throughout as early as practicable.<sup>1</sup>

1860-61 was a bad year for roads, hardly any progress being made in any of the roads. In 1861 the metalling of the road was properly begun. The metal used was kunker or broken stone, the latter of many varieties according to the kind of stone available at different places. The work was carried on vigorously, and by 1864 the road was metalled throughout to a width of 12 ft. except for few short gaps, and to a greater width in the upper parts of the line where abundant slate shingle was procurable. 'Fascine roads had been constructed across the sandy beds of the rivers, to meet the bridges of boats with metalled approaches on either side.' These metalled approaches, were, in fact, short, diversions of the Grand Trunk Road required every year to meet the shifting position of the boat bridges.

In some parts, *e.g.*, between *Rawalpindi and Jhelum* a second even a third coat of metalling had been applied for some miles (50 miles of 2nd ; 38 of 3rd coat between Rawalpindi and Jhelum).<sup>2</sup> The construction of railing for the high embankments had also been commenced in the Jhelum, Rawalpindi, Attock and Peshawar sections about this time. The railings and earth-works were almost completed by 1866—the business henceforth being to keep the road in proper repair and renew the metalling from time to time. In 1870 the *Lahore to Jhelum* section, which had been deteriorating for the last 2 or 3 years, owing to the heavy additional traffic caused by the construction of the Railway and insufficient allotments of funds, was made over to the officers of the Northern State Railway which was being constructed on one half of the road. The necessary repairs and renewals were carried out and the road restored once again to proper order.<sup>3</sup> In 1875, an assignment was made from the provincial funds for the maintenance of this section.

<sup>1</sup> Administration Report, volume VI, page 32.

<sup>2</sup> Administration Report, volume X, page 60.

<sup>3</sup> Administration Report, volume XIX, page 105.

The years 1878-1880 were darkened by war clouds in the west, and there was frequent transit of troops, war-material, commissariat along the Grand Trunk Road. The immense traffic caused a severe strain especially north of the Jhelum River, where the metal, by 1879, was completely worn away and the road deteriorated to such an extent that nothing short of a new coat of metal of the full thickness could restore it to its previous good condition.<sup>1</sup> Though rates had increased considerably and contractors were rather diffident to take up the work, it could not be neglected, and by 1882 the road was put in a fair state of repair.<sup>2</sup> The completion of the Railway to Peshawar diverted some of the heavy traffic of the road and made its restoration all the more easy.

The Report of 1861-62, gives us an imposing table of the bridges under construction in this section<sup>3</sup> :—

*Deena.*—112 miles, 3 spans of 60 feet. Piers on well foundations.

*Bishendour.*—130th mile, 3 spans of 60 feet.

*Vah.*—192nd mile, 10 spans of 30 feet.

*Gondul.*—216th mile, 5 spans of 40 feet.

*Bridge 162-250th mile,* 12 spans of 30 feet. Piers on well foundations.

*Bara.*—258th mile, difficult, foundations 18 feet deep.

*Hurroo.*—204th mile, 10 spans of 40 feet.

*Bagh Bacha.*—10th mile, timber bridge on well foundations.

*Bhimber.*—70th mile, 15 arches of 30 feet span.

*Chekoree.*—82nd mile, 13 spans of 40 feet.

*Bukrala.*—120th mile, 12 spans of 30 feet.

*Leh.*—163rd mile, 1 span of 270 feet (timber).

(The last 5 had not yet been commenced.)

This imposing list and innumerable minor bridges, whose names are not even mentioned give some idea of the difficult problem of providing outlets for the proper drainage of this area.

<sup>1</sup> Administration Report, volume XXVI, page 115.

<sup>2</sup> Administration Report, volume XXVII, page 181.

<sup>3</sup> Administration Report, volume VIII, page 66.



entered the tunnel and required to be continually pumped to keep the passage clear. It had subsequently to be abandoned as too dangerous and expensive.

### III.

There were two routes between *Lahore and Ambala*, as we have already seen, the one *via* Ferozepore and Ludhiana, avoiding the Beas altogether and important chiefly from the military point of view ; the other passed through the important commercial town of Amritsar, crossed the Beas, touched Jullundur and threaded its way over the Sutlej at Phillaur meeting the other routes at Ludhiana. Of the first, the sections between Ferozepore and Ludhiana and Ludhiana and Ambala had been efficiently completed by 1857 except for the bridging of some difficult streams near Ambala, *e.g.*, the Ghaggar. Of the second, the portion between Lahore and the Beas had been completed long ago, the 4th coat of metal being laid in 1859. The *Beas to Sutlej* section was, however, in a very bad condition, and it was not until 1858 that the Supreme Government sanctioned the reconstruction of the old road, which was to pass close to the towns of Jullundur and Phagwara, as best adapted to the military and commercial needs of the country.<sup>1</sup> The sum of one lakh was reserved for this purpose.

The difficulty about this section (Beas to Sutlej) was, that the land in this area was low and necessitated a large embankment which could not be finished before 1860. The embankment by obstructing the natural drainage of the Doab created a problem in itself. The waterway provided was very inadequate, and great damage was done to the road during the floods especially in 1878 when an additional waterway had to be provided (by the construction of metalled gaps) to allow the flood water to escape through the embankment which ran almost at right angles to the direction of the river.<sup>2</sup> Another precaution was also taken in 1878, to save both the Grand Trunk Road and the Railway from the destructive floods of the Beas River. Spurs were constructed at the

<sup>1</sup> Administration Report, volume V, page 17.

<sup>2</sup> Administration Report, volume XXVI, page 115.

head of the Beas River (near Mauli and Naushahra) and 5 miles of the Miani and Naushahra Road (Hoshiarpur District) were embanked,<sup>1</sup> the object of these works being to confine the Beas River, and prevent the excess water from it at flood time from finding its way into the neighbouring lowlands, and thereby causing considerable damage to both the Road and the Railway.

It was originally proposed to macadamize the entire road from Delhi to Lahore when this section (Sutlej-Beas) had been metalled.<sup>2</sup> The 6 inch of metal laid, proved too weak to stand the constant wear and tear to which it was subjected, and until it had been raised to 9 inches the road could not be considered to have been finished. The original width to which the road had been metalled was 16 feet, but the cost of maintaining it was very heavy, and in 1867 the width was gradually reduced to 12 feet, except in the vicinity of large stations.<sup>3</sup> Several layers of metal were consolidated from time to time, the material chiefly used being Kunkar.

The difficulties in crossing the *Ghaggar*, north of Ambala, have been mentioned in the previous chapter. The bridge over the river was begun in November 1861, the superstructure being completed in 1867, and the 1,500 feet of railing for the approaches to the bridge in 1870. The Ghaggar also meets the Ambala to Kalka branch of the Grand Trunk Road about half way between the two stations. Here, it is an unsolved problem even today, and very frequently we have complaints from motorists in the local newspapers about the "primitive dithering" bridges across the stream unable to support vehicles exceeding one ton in weight. Another important bridge between the Sutlej and Lahore was the masonry bridge spanning the *West Beya* River, between Jullundur and Amritsar, completed in 1872. The river was formerly crossed by a bridge of boats maintained by the Raja of Kapurthala, very ill-suited for the passage of traffic along the Grand Trunk Road.<sup>4</sup> Hence the need for a proper masonry bridge.

<sup>1</sup> Administration Report, volume V, page 17.

<sup>2</sup> Administration Report, volume VI, page 32.

<sup>3</sup> Administration Report, volume XIV, page 67.

<sup>4</sup> Administration Report, volume XIV, page 72.

The *Ferozepore to Lahore Road* did not lag behind and was ready by 1863. The chief problem of this section was the very lengthy *crossing of the Sutlej* at Ferozepore, about 5 miles long, including several channels of various widths into which the river had divided, crossed by boats bridges. The Executive Engineer in 1861, to improve this tedious crossing, had prolonged the embanked road-ways from the south-side into the river channels, thus shortening the crossing by 2 miles. This work was continued the next winter and another mile of the crossing saved. The embankment was protected by spurs, and its object was, to divert the various streams of the divided river which bore down upon it into other more central channels.<sup>1</sup> The spurs were placed on the up-stream side, to check the current in the flood season and encourage the deposition of silt. The work was severely tested by the high floods of 1863, "which rose, agitated with waves, within a few inches of the embankment." It proved equal to the occasion, though damage was subsequently repaired and raised.

#### IV.

The last division of the Grand Trunk Road, between *Ambala and Delhi*, had not been in a very satisfactory condition during the Mutiny. The heavy traffic, moreover, during the two dark years of the Mutiny, and especially the siege of Delhi, had further impaired the road-way, and the rapid reconstruction was one of the urgent duties of the Punjab Government. The work to be done was two-fold (a) repairing and metalling the road, (b) the bridging of the streams. Of these, the first was obviously the easier of the two, and every effort was made by 1859 to remove the reproach that this section was among the worst for travelling along the whole of the Grand Trunk Road. Indeed, by that date, except for 2 or 3 miles, the road had been metalled along its whole length in some places 2 or 3 times over.<sup>2</sup>

The bridging of the streams, especially those near Ambala, was not such an easy business. These streams with their broad

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<sup>1</sup> Administration Report, volume VIII, page 64.

<sup>2</sup> Administration Report, volume V, page 17.

sandy beds and periodical floods, presented great engineering difficulties. Temporary bridges had been thrown across these and many other minor streams to tide over the period of acute financial stringency after the Mutiny. Bridges of a permanent nature were, however, in contemplation. In 1859, a Civil Engineer was deputed to take sections across the whole of the country between the road and the hill range, and accurately calculate the waterway, which would have to be provided for by costly viaducts. Careful surveys, designs and estimates were prepared. Most of the streams, *e.g.*, the Markanda and the Tangri, had not only to be bridged, but metalled road-ways across their beds were required to shorten the crossings.

Of the numerous bridges of different sizes we need consider only two, *i.e.*, the *Markanda Bridge* and the *Tangri Bridge*, both between Shahabad and Ambala. The former was properly begun in 1861; and though the work was retarded for a time by the unusual floods of October 1863, which came down in full force long after the actual termination of the rainy season, filled in the excavations, and carried away a considerable portion of the material collected close to the work;<sup>1</sup> the bridge was opened for traffic by the close of 1865<sup>2</sup>. A new 'apron and curtain wall' and the parapets were finished by 1866. The work for protecting the up-stream wing, when completed the next year, gave the finishing touch. The floods of 1871, however, proved very severe, and it had to be supplemented by a 'screw-pile spur' of 600 feet.

The *Tangri Bridge*, on account of the want of supervision, could not be commenced before October 1864, though the necessary material had been collected some time previously.<sup>3</sup> The bridge when complete was very severely damaged by the heavy floods of 1871 and had to be renewed in the course of that year.

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<sup>1</sup> Administration Report, volume X, page 8.

<sup>2</sup> Administration Report, volume XII, page 59.

<sup>3</sup> Administration Report, volume XI, page 72.

## V.

The important rivers of the Panjab, as we have seen, were crossed by *bridges of boats*, the *Sutlej* at Phillaur and Ferozepore ; the *Beas* at Beas ; the *Ravi* at Shahdara near Lahore ; the *Chenab* at Wazirabad ; the *Jhelum* at Jhelum and the *Indus* at Attock. Iron Pontoon Bridges, used in many parts of the Grand Trunk Road outside the Panjab, had been discarded in the very beginning, because the rivers here had “ rocky beds, spreading waters and shifty shores.”<sup>1</sup> Besides, they were very costly, nor easily procurable nor available as transport for military purposes, whereas the Jumna Pontoon Bridges chiefly served a commercial purpose.

Though Ranjit Singh had paid great attention to boat building, inland navigation had not flourished to any very great extent in the Panjab, and at the time of the British occupation the boats in use on the chief ferries were of indifferent build with very weak cordage. It was very necessary, therefore, to build an efficient fleet of boats to bridge the rivers in winter and serve as ferries during the rainy season, with adequate mooring chains and anchors. The work was begun soon after the annexation and most of these bridges were ready, and had been opened for traffic by the winter of 1854-55. The chief business after the Mutiny, therefore, was to maintain these bridges in proper order, repair and renew the superstructure whenever necessary, and shorten the river-crossings by embankments (*e.g.*, at Ferozepore), fascine or metalled roadways.

The annual cost of maintaining these bridges often amounted to the heavy sum of 2 lakhs, inspite of the fact that some of them, *e.g.*, the Phillaur bridge (Rs. 2,636 in 1883-84), yielded a profit. The reason presumably was, that not all of the boats used in the bridges belonged to Government ; some of them had to be hired. The Report for 1882-83 calling attention to the boat bridges,

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<sup>1</sup> Administration Report, volume I, page 132.

maintained 'in the land of the five rivers' gives the following interesting table :—

	Number of Gov- ernment boats.	Number of hired boats.	Length in feet.
Sutlej at Phillaur .. ..	83	10	1,652
Sutlej at Ferozepore .. ..	60	8	2,914
Ravi at Shahdara .. ..	31	...	1,200
Chenab at Wazirabad .. ..	33	24	2,537
Jhelum at Jhelum .. ..	6	23	983
Indus at Attock .. ..	38	2	1,296

Among all these bridges, it was the *Ravi Bridge* at Shahdara alone that was kept up throughout the year. All the others were dismantled during the floods, the boats being used as ferries to carry travellers across the swollen rivers.

During the period under review, several of the boat bridges were abolished on account of the construction of Railway bridges. The Delhi boat bridge was the first to be abolished when the under-road-way of the Railway girder bridge was opened for general traffic in 1868. The *Beas bridge* was no longer maintained after 1870, except temporarily in 1871 when the Railway bridge was injured by the floods. Consequently it is not mentioned in the table for 1882-83 quoted above. The combined road and Railway bridge at *Attock* was completed by 1884, and the boat bridge was, therefore, not re-established after the rains that year. The bridges at *Wazirabad*, *Jhelum* and *Phillaur* were abolished in 1884-85 and ferry trains substituted in their place.

In one of the old letters,<sup>1</sup> dated 30th January 1855, we come across an interesting reference to the boatmen of Attock. The "Village of Mullah" as Mcleod, the writer of that letter, reports

<sup>1</sup> Letter No. 972, volume XVI.

“ was long held in *Jagir* by the boatmen of Attock.” The *Jagir* was worth Rs. 1,000 per annum and had been granted by the Moghul Emperors 300 years previously, as remuneration to the boatmen for their services on the ferry at that place. The village Mullah was situated in the Rawalpindi District, Hasanabdal Tahsil, and derived its name from the trade of the grantees. Mcleod recommended the releasing of the village to the boatmen during the pleasure of the Government, and the Governor-General was pleased to sanction it.

## VI.

It will be noticed, that we have hardly given any figures regarding the expenditure on the road, in this chapter. To try and give any estimates whatsoever is a hopeless task. The figures available sometimes include, sometimes exclude, the cost of metalling, bridging, even of repairing, and to juggle with them is merely to make confusion more confounded. All that we can say is, that both the Imperial and the Provincial Governments shared the cost.

One figure, however, we might quote with advantage, as throwing some light on the problem of the repair and up-keep of this grand military road-way. The list of the Reports (1885-86) with which we have dealt has the following:—

“ The usual repairs of the Grand Trunk Road, from Delhi to Peshawar (563 miles) were effected at a cost of Rs. 3,45,846.”

The road-way had, no doubt, cost a fortune to construct. Its up-keep will none-the-less cost a fortune every year.

## CHAPTER V. “ Conclusion.”

### I.

Col. H. R. Goulding, in an article contributed last year to the *Civil and Military Gazette* (April 22, 1925) gave a very interesting account of the “ crossing of the Ghaggar 41 years ago—” the Ghaggar where it crossed the branch road between Ambala and Kalka. The stream had not at that time (1884) been provided with any sort of bridge whatsoever. The Ghaggar in the summer was a wide expanse of sand with two or three ankle-deep channels meandering lazily in their downward course. Even so, the river could not be negotiated in the ordinary way and the horses of the *dak-gharris* the usual means of conveyance in those times, had to be replaced by bullocks, to haul the carriage through the sand and water. During the monsoon the swollen Ghaggar presented quite a different spectacle, and travellers and the mail could only be carried across by elephants. Relating this personal experience in August 1884 Col. Goulding thus describes the crossing “ side by side the two huge beasts entered the water, cautiously feeling the way with their trunks. We were now exposed to the full force of the current, which was running at great speed and gaining velocity with each step as we got nearer the mid-stream. The red brown waves, crested with foam and carrying with them broken branches, uprooted grass, and other spoils of their raid were rising higher and higher. It was interesting to watch the methods adopted by the elephants...First the trunk felt under water, then one massive leg was cautiously advanced and firmly planted, and at the same time the elephant swung round to face the current...Slowly and patiently this process was repeated until the shallows were reached...Some idea of the force of the current may be realised when it is mentioned that notwithstanding the clever manœuvring of the elephants and their enormous strength, the landing was effected half a mile below the starting point.”



If travelling was such an adventure on an important branch-line of the Grand Trunk Road as late as 1884, we can well imagine the condition of the travellers when the bridges had not been built and the means of conveyance were in no way efficient on the main line itself. The Grand Trunk Road, of course, was the arterial line of postal communication in the Punjab even before the Mutiny. The *dak-gharris* in addition to their usual business of carrying the mail, usually gave a lift to travellers going up or coming down the road. The *Government Bullock Train*<sup>1</sup>—consisting of covered waggons drawn by bullocks—ran along the line as far as Lahore, at a pace of 3 miles per hour for eight months in the year discontinuing only during the rainy season. Its primary object was the transportation of Government stores, but it also conveyed a large amount of private goods and a considerable number of passengers, thus proving a great boon to the public. Private companies which ran their carriages and waggons from Calcutta to Karnal, had not in 1856 carried their business into the Punjab, but only awaited the proper completion of the road. In addition to horses and other pack animals *ekkas*, the *palanquin*, which from times immemorial has been the favourite means of conveyance of the Indian traveller, was a very common sight on the Grand Trunk Road.

In December 1853, Mr. O'Shaughnessy, the Superintendent of Electric Telegraphs in India, requested the co-operation of the Commissioner of the Punjab<sup>2</sup> in the construction of Electric Telegraph from the Sutlej *via* Lahore and Attock to Peshawar. The work which had been commenced some time previously was vigorously carried on in 1854, and by October the line was in working order as far as Lahore. By March 1855, the telegraph communication was carried as far as Attock<sup>3</sup> and soon continued to Peshawar. The Telegraph followed the route of the Grand Trunk Road throughout the Punjab, providing instantaneous communica-

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<sup>1</sup> Administration Report, volume III, page 67.

<sup>2</sup> Letter 391, volume XV.

<sup>3</sup> Letter 1056, volume XV.

tion between all the large northern stations. The wire was supported by posts of Himalayan fir timber, which though excellent for the purpose, could not withstand the ravages of white-ants and required periodical renovation. In difficult places, such as banks or beds of rivers, solid masonry pedestals were used, while the wire was carried across the great rivers by means of cables underneath the surface of the water. There was no subterranean line, though originally it had been proposed, for safety's sake, to carry the line underground beyond Attock.<sup>1</sup> Eventually it was found, that even the Peshawar *Pathan* treated the Telegraph "with as much respect as any other people."<sup>2</sup>

Fortunately for the English, this rapid means of communication had been established before the storm of the Mutiny swept over the land, connecting the important military stations situated along the Grand Trunk Road. During the crisis the military and political correspondence was carried on by telegraph. Orders of vital importance were communicated by those means and measures concerted with the commander of the forces before Delhi. It gave the British an immense advantage over the mutineers. To quote one instance, the authorities of Lahore, warned by telegram of the disaster at Delhi, disarmed the troops before they could obtain information by post. "The ignorant Sepoys," wrote Lt.-Col. Edwardes to Montgomery in 1858, "rising against European civilization, were slow to appreciate its (telegraph) imperial triumph, and the wire was not cut down till it had done its work and electrified the Empire."

## II.

To provide a mere road-way from one end of India to another would by itself be useless, if it were not supplemented by serais and wells at suitable intervals, and shady trees along the roadside to protect the travellers from the scorching rays of the sun. Kings of old had realised this, and Sher Shah, we are told, even as Asoka before him, had caused serais to be built 10 *kos* apart, with ac-

<sup>1</sup> Letter 391, volume XV.

<sup>2</sup> Administration Report, volume III, page 70.

commodation both for Hindus and Muhammadans ; fruits trees were also planted along both sides of the highways. Jehangir, to surpass his predecessors, had ordered serais of brick and stone (not mere mud as by Sher Shah) to be constructed 8 *kos* apart while proper baths and tanks of fresh water were to be installed in each, with regular attendants to look after them. Mulberry and other broad-leaved trees were planted at every halting station between Lahore and Agra ; *kos* minars 20 to 30 feet high also being erected along the same road.

Under the East India Company *dâk* bungalows had been erected along the Grand Trunk Road at intervals of about 10 miles. Those near a post office were placed under the control of the Post Master General ; the others were handed over to the local Executive Engineer. After the annexation of the Punjab when a continuation of the Grand Trunk Road to Peshawar was taken in hand, it was proposed to " place serais, or hostelries, with camping grounds for troops, guarded by police officers at convenient intervals, along the main lines of road ; a set of buildings which within the same enclosures . . . shall include the hostelry, with store-houses and accommodation for travellers, a *thana*, and a *tahsil*, at which an officer vested with some judicial powers would generally reside."<sup>1</sup> The project was very economical, and very easy and efficient on paper ; and though the Report of 1851-53 takes pride in having accomplished most of the work, especially between the Sutlej and the Chenab, as so that " this portion of the road is not inferior in these respects to the best ordered division of the Grand Trunk Road in Hindustan," we have the incriminating letter No. 2388, (vol. xiii) which leads us to suspect that things were not so satisfactory as they were painted . The letter complains that rest-houses were badly wanted for European soldiers and their families travelling by bullock-train, and directs the Commissioners to give positive orders for all the Police Chowkis and Serais along the Grand Trunk Road to be made available when required. In the same letter Mr. I. P. C. Dillon (Offg. Supdt., Mail and Train

<sup>1</sup> Administration Report, volume I, page 131.

Establishment Jullundur Division) reports with regret to the Post-Master General, of the death of Anne Hughes, a young soldier's daughter<sup>1</sup> (died on 14th June 1858).

After the transference in 1864 of the maintenance of staging bungalows, *etc.*, from the Postal Department to the Civil Authorities, whatever shortcomings there might have been were rapidly made good, and every year after this we hear of additions and improvements made. The same year the works for water supply for travellers in the Margalla Pass in connection with the Nicholson monument were completed.

Incidentally we might observe that, in the good old days when living was not so dear, people were much more hospitable than they are now. Even the Government was not unaware of this, for in one of the letters of 1849, we find it stated that at Jhelum and Rawalpindi difficulty of accommodation was not felt, "because the travellers partake of the hospitality of the residents."<sup>2</sup>

No one was more aware of the utility of *plantations* on the roadside, nor more desirous of encouraging them than Lord Dalhousie. In this, he was ably seconded by John Lawrence, who drew up a lengthy memorandum running into several pages on the "Tree question." 'The tree questions' briefly put was the controversy, as to how the trees were to be planted—whether in the form of avenues or in topes. The chief argument used against avenues was that, they were merely ornamental and did not offer the same effectual shade to travellers nor were so easily reared as topes. In the latter, the young plants sheltered each other and could be more easily and economically looked after.

The measures,<sup>3</sup> to encourage the growth of trees, proposed by Lawrence and others in favour of topes, were—

- (a) *Groves* to be planted 3 miles apart on the main roads ;  
land to be given rent free to care-takers.

<sup>1</sup> Letter No. 2388, volume XV.

<sup>2</sup> Letter No. 147, volume XII.

<sup>3</sup> Letter No. 2541, Supplementary volume.

- (b) *Trees* to be planted round Government buildings.
- (c) *New cuts from canals* to be made only where the Zimindars were willing to plant trees on both sides of the water-course at intervals of 14 feet.
- (d) *Proclamation* to be made informing the people of the desire of the Government to encourage plantations.
- (e) *Certain remission of assessment* at the time of revision.

It is difficult to say which party gained the victory temporarily for we have hardly any records to work upon. According to the later reports, however, trees were planted "both in avenues and groves." Their upkeep was a costly undertaking, the figures for 1884-85 and 1885-86 being 81,000 rupees. The trees commonly planted on the roadsides were—the Shisham, Siris, Kiker, Babul and even Farash (Tamarisk). Several species of ficus, especially the Pipal and the Bor (Banyan), were also popular trees with the planters.

### III.

One of the most brilliant chapters in the History of the Grand Trunk Road has yet to be mentioned—the part played by the road-way during the *Mutiny of 1857*. Indeed, it would be no exaggeration on our part to make the rather bold statement that, "the Grand Trunk Road saved India." Incidentally a boon to commerce, this grand road-way had been constructed chiefly with the Military object of linking together all the important military stations of the Punjab. It was natural, therefore, when the Mutiny broke out and Delhi fell into the hand of the rebels, for the 'Moveable column' proposed by Nicholson to be organised along this very route. The rapid movement of troops, whenever and wherever required was only made possible by the Grand Trunk Road, then not quite complete. The 'Guide Corps' when the news reached Peshawar, marched from Mardan to Attock (a distance of 30 miles) in one day a "worthy beginning of one of the rapidest marches ever made by soldiers."<sup>1</sup> Thence they pushed on to Delhi, it being necessary to give General Anson every available

<sup>1</sup> Mutiny Reports, volume II, page 136.

man to attempt the recovery of that imperial city. This distance of about 580 miles or 50 regular marches was accomplished in 21 marches with only 3 intervening halts, and those made by order. Would this rapid march have been possible without the Grand Trunk Road ?

But no one could appreciate its utility more than the Punjab Government itself. "It was along this road," says the Report for 1856-58, dilating upon the importance of the Cis-Sutlej Section, "that the troops, stores and siege-trains proceeded to the siege of Delhi. It may be truly affirmed that, at that rainy season of the year, if there had not been this good road ; if the line had been in the same condition as it was five years ago ; the vast amount of material and munitions of war could not have reached the scene of action ; and that without this road it might hardly have been possible to take Delhi at least during the Autumn of 1857."

This great road-way which had played such an important part during the Mutiny has also served India well during the Second and Third Afghan Wars and the numerous border campaigns. The recent Military manœuvres at Attock on and in the vicinity of the Grand Trunk Road, conclusively prove that it has not lost its military significance even in modern times.

Such is briefly the story of the Grand Trunk Road in the Punjab. The Railways some have feared will diminish to some extent the importance of the road both from a military and commercial point of view. But the steam engine, which has antiquated the bullock-cart and the *dâk-gharri*, is today in its turn being superseded by motor-cars requiring petrol instead of steam, and no rails at all. Tourists all over the world prefer the motor-car to the Railway because it gives them more freedom to move about as they like. The motor lorry is fast becoming a favourite means of conveying heavy loads ; in modern warfare its utility, both as regards speed and convenience has fully been realised. During the Great War (1914—18) as also in the Third Afghan War, the railway proved utterly inadequate to meet the strain of the traffic in the Panjab. A Road Board was created in 1918, which

later on became the Communication Board to consider the question of communication whether by rail, road, water or air. Special attention is being paid to the roads by this newly instituted Board, and we may be quite sure that the Grand Trunk Road will not easily lose the prestige it has enjoyed from antiquity. The future is full of possibilities. Only events will show whether the engine on rails, even when driven by electricity, will be able to compete successfully with machines which do not require rails or, what is the same thing, whether the railway will supersede the road-way. We feel justified, therefore, in concluding with the quotation with which we began this Monograph :—

“The cost of the road is great, but it is justified by the importance of the line and the substantial goodness of the work itself. It is of value both to the Government and the people of India.”

K. M. SARKAR.

## APPENDIX.

(I).

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(II).

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