

**COMMERCE BY RIVER IN THE
PUNJAB.
(1861-62 to 1871-72.)**

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“ It is down the valley of the Indus, whether by land or water, that the surplus produce of the Punjab must find its vent.”

*Punjab Government Administration Report for 1853-54
and 1855-56.*

“ It is essential for the development of the resources of the country that the Flotilla on the river Indus be kept up.”

Captain Reddie's Report on the River Indus (1864).

“ There is no question of greater importance to material interests of the Punjab, than the navigation of its rivers.”

Punjab Government Administration Report for 1860-61.

PREFATORY NOTE.

IN this interesting monograph the author gives a full account of the old Marine Department and its activities. The introductory chapter on early commerce in Northern India links up well with the story of the attempt of Government to make the navigation of the rivers of the Punjab a really paying concern. The scheme failed as it showed a steady loss which could not justify the continuance of the Department the overhead charges of which were very heavy.

The author has gone very fully into the question of the personnel of the Department, but perhaps one ought add a word or two more. The navigating officers were warrant or petty officers from the Royal navy and were efficient enough. The senior engineers, too, appear to have discharged their duties satisfactorily. But the junior engineers were whatever could be got and judging by frequent complaints about them appear to have been a drunken and insubordinate lot. There is an enquiry among the department papers into the death of one of them who fell overboard while drunk and was drowned. According to the inventory of his possessions his wordly goods appear to have consisted of "a cap and fifteen clay pipes."

The trade statistics, freight charges, etc., which are given in full in appendices may be found of interest to a student of the history of economic development in the province.

H. L. O. GARRETT,

*Keeper of the Records of the
Government of the Punjab.*

LAHORE :
October 1930.

PREFACE.

“ In the history of past times, the exploits of conquerors who have desolated the earth, and the freaks of tyrants who have rendered nations unhappy, are recorded with minute and often disgusting accuracy, while the discovery of useful arts, and the progress of the most beneficial branches of commerce are, passed over in silence, and suffered to sink into oblivion.”¹ In fact the history of commerce above all other history has a claim upon the attention of mankind, as prosperity and plenty, civilization and culture, and other arts of peace follow in its train. The accompanying monograph, therefore, is devoted to the study of a portion of commerce of the Punjab, *viz.*, the Commerce by River.

An attempt has been made in the Introduction to give a brief account of the Punjab Commerce both by Road and River from times immemorial to the time of the Annexation of the Punjab. The first Chapter is a connecting link between the commerce of the pre-British and the British days. Chapter II gives a brief sketch of the navigation of the Lower Indus, which had existed long before the organisation of the Marine Department of the Punjab Government in 1861-62. Chapters III to VII collectively exhaust every aspect of the work of the Marine Department, which began to run its steamers on the Indus in 1862. Chapter VIII gives a brief description of the commerce by country boats in the Punjab. And the concluding remarks discuss the advisability of reviving the river navigation.

The sources of this monograph are mostly original. All the original records of the Marine Department and those bearing on river navigation in the proceedings of the General Department of the Punjab Government have been consulted. Some of them have been given in the shape of a Bibliography in the Appendices. The information contained in Chapter VIII has

¹Robertson History of India, page 69.

been gathered from personal enquiries at Jhang, Lahore, Multan, Ludhiana, and Ferozepore. The authorities for statements in the introduction and Chapter I have been quoted in the footnotes.

In the end I must thank Lieut.-Colonel H. L. O. Garrett, M.A., I.E.S., the Keeper of Government Records, Lahore, for the personal interest taken in this monograph. In fact it was due to his guidance that the author was saved from many a pitfall. I also owe a debt of gratitude to L. Sita Ram, Kohli M.A., Assistant Keeper of Government Records, Lahore, for timely suggestions and general guidance. To my Professors Rev. Ross Wilson M.A., and Rev. J. B. Weir, M.A., of F. C. College, Lahore, this monograph owes its present form. I am very thankful to them for corrections and useful suggestions.

I also feel obliged to F. F. Haigh, Esq., Under-Secretary, Irrigation Branch, and R. Trevor-Jones, Esq., Under-Secretary, Buildings and Roads Branch, Public Works Department, Punjab, for their very kindly lending me old Survey Maps from which the Maps of the river channels appended to this monograph have been prepared. S. C. Stubbs, Esq., Secretary, Provincial Communications Board, Punjab, and his Head Clerk Pt. Munshi Ram, deserve my thanks for supplying me with information regarding the roads in the Punjab and the scheme for reviving Inland Water Transport. Last but not least I acknowledge my debt of gratitude to Lala Lal Chand, Head Draftsman, Irrigation Branch, and Mehta Manohar Lal, Head Clerk, Executive Engineer, Lahore Division, Public Health Branch, Public Works Department, Punjab, for the help they gave me in the preparation of Maps and collecting information for Chapter VIII.

FAQIR CHAND, ARRORA,
AND LALA MURRARI LAL,
of the Election Commissioner's office, Lahore.

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INTRODUCTION.

"THE subjects of Oriental traffic were splendid and trifling."

Gibbon, II.

THE geography of India points to her natural isolation. A glance at a map of Asia reveals her as a separately marked out unit. By giving her high mountains in the north and deep sea in the south as the guardians of her frontiers, Nature, it seems, meant her to remain isolated from other centres of human activity. But that splendid isolation was never maintained. There is ample evidence to show that from very ancient times, an intercourse of political as well as commercial nature has existed between India and other countries of the world. The importance of India in connection with this intercourse, particularly that of the commercial type, was and is really very great. At present she is merely a country which supplies raw material to the outer world, but there was a time when her manufactured articles were prized all over the civilized world. Though at present her commerce is carried on by the enterprize of others, yet for full thirty centuries, she stood out as the very heart of the old world, and maintained her position as one of the foremost maritime countries.¹

Not was she merely the centre of maritime trade, but she was also connected with the commercial centres of the outer world. These routes, though they passed over dark and separated mountain ranges, glowing with heat and devoid of life; over barren tracts of land and stretches of burning sand, and though they were not infrequently infested with marauding bands of nomads, yet for many centuries have continued to be the busy highways of commerce. And it was through these channels of commerce that the specie which made India rich, flowed down to the plains of India for many a century.

The geographical isolation of India and commercial intercourse.

Intercourse both by land and sea.

¹ Mungerji, Radakumud, "A history of Indian Shipping and Maritime Activity from the earliest times," page 6.

**The Gate-
way of India**

These routes connect the centre of India with the countries of the West. "It was precisely in that direction that the Indian desert presented a waterless void extending north-eastward from the mouth of the Indus to within two hundred miles of the Himalayas. It is only through this gap that there is an easy gateway into India, and this gap has played in Indian history the part that the plain of Palestine played in the history of Assyria and Egypt, and that the plain of Flanders has played in the history of Europe."¹ On its eastern extremity stretches the famous plain of Panipat—"a dreary yellow waste, the dead level of its surface sometimes heaving into slight undulation, sometimes broken up by tufts of coarse grass and scrubby bushes showing where a little moisture has struggled through the burning sand—but everywhere weighing upon the beholder with the same sense of desolation and flatness."² Occupying the angle where the Himalayas, which stand as a high wall on the northern frontiers of India, meet the Sulaiman which serves the same purpose on the west, and stretching between Hindustan proper and the passes, by which alone the access from the great Asiatic Continent is possible, "the Land of the Five Rivers" can aptly be called "the Gateway of India." This place has been a centre of great commercial activity from times immemorial. It is this commerce that we intend to describe briefly in this monograph.

A.—THE BEGINNING OF COMMERCE IN THE PUNJAB.

1. COMMERCE IN THE VEDIC PERIOD.

THE earliest inhabitants of the Punjab of whom anything certain is known were the Aryans. Probably about 3,000 years before Christ, they came down in many groups from the highlands of the north to the fertile valleys of the Punjab rivers. They were not uncivilized and barbaric people, but on the contrary, were highly civilized (as compared with the standards of the times) and had sufficiently progressed in the arts of peace. But they were not essentially a commercial people. Their main industry like that

**The Aryans
essentially
agricul-
turalists.**

¹ Trevaekia, "The Land of the Five Rivers."

² Festing, Gabrielle, "When Kings rode to Delhi."

of their descendants in the present age, seems to have been agriculture. In fact the very designation of Arya is said to be a variation of a root, which means 'to cultivate'. Thus writes Mr. R. C. Dutt, "Certain it is the word Arya is the one word in the Rig Veda which distinguishes the conquerors as a class, or even as a caste, from the aborigines of the country. And there are remarkable passages (in the Rig Veda) also, which show that the new settlers in calling themselves Arya, had not altogether forgotten the original signification of the word." One instance will suffice.

'O' Ye two Asvins! You have displayed your glory by teaching the Arya to cultivate with plough and sow corn, and by giving him rains for the production of his food, and by destroying the Dasya by your thunderbolt." (I. 117.21, Rig Veda).¹

This shows that the Aryans were essentially agriculturists rather than a pastoral or commercial people, as there are few allusions to the latter in the Rig Veda.

The Rig Veda is a collection of hymns. And as might be expected the reference to such a subject as commerce must necessarily be rare in such a book. But there are certain verses here and there in this book, which throw an interesting light on the economic life of the community. One of them runs as under :—

"One sells a large quantity for a small price, and then goes to the purchaser and denies the sale, and asks for a higher price. But he cannot exceed the price once fixed on the plea that he has given a large quantity. Whether the price was adequate or inadequate, the price fixed at the time of sale must hold good." (iv, 24, 9, Rig Veda)².

This clearly shows that a transaction, if once completed, was final. It indicates the presence of some sort of current money. It must be stated in this connection that there is no distinct allusion to coined money in the Rig Veda.

Commerce
in Vedic
times.

¹ Dutt, Ramesh Chunder, "A History of Civilisation in Ancient India."

² *Ibid.*

Early
Commerce
in the
Punjab.

First Stage.

Such a state of society surely does not warrant the belief that commerce on a wide scale existed in the Punjab. The Aryans, as is well known, lived in small scattered villages under their chiefs, who may or may not have owed allegiance to Rajas or Chiefs stronger than themselves. These villages were more or less self-sufficient economic units. Even the families forming the clans which occupied the villages must have grown their grain and cotton required for food and clothing. And as in those days the clansmen were generally related to one another by blood, their mutual dealings were not based on modern commercial principles.

Second
Stage.

This state of society did not continue for a long time. Shortly there came a stage, when villages grew in extent and population. All of the inhabitants of a village were no longer related to one another, and were not of the same social status owing to the admission of the conquered slaves into the Aryan fold. The people came to possess a greater amount of wealth as they had, by this time, acquired a greater knowledge of the land and its physical features than before. Such circumstances brought about a rudimentary sort of commerce. A sort of specialization took place, and society became divided into two parts, the Upper and the Lower. The former included the richer people, the fighting men of the village, the priests, and agriculturists and traders of the Aryan stock—the 'twice-born' of the caste system which developed some-time afterwards. The latter division included the common labourers and those who had taken to occupations, which were not honourable according to Aryan ideas, but, however, were necessary for the smooth working of society. This division was probably formed by the members of the conquered classes. Thus there came about a rude specialization and exchange of services by means of *barter*. In such a state, the village weaver supplies the cloth to the community. The teacher imparts education to the young. The priest performs sacrifice to the gods of the community, and so on. They gather at the harvest time and get their share of the produce, which is generally sufficient for the interval between the two harvests. At this time, it is custom that rules the society.

" But the hard clear-cut lines of that definite bargaining, which so largely fashioned human life for good or for evil, came to the front when strangers sought for the satisfaction of their own wants and the disposal of their superfluities. Trade proper, and specially trade organised by a distinct class of traders or merchants, arose first out of the relations between groups of men, clans, or other rudimentary economic nations. It was international trade rather than domestic trade."¹ " At the end of this stage described above, such a trade began to grow between village and village. Means of communications are provided by linking village with village by means of roads. Mr. Havell describing the village plan of the Aryans writes, " the largest of the main streets, which ran east and west, was known as the Kings Street—*Rajputana*, the shorter one was called *Mahakala* or *Vamana*, signifying Broad Street or Short Street. These two streets, wider than the rest and planted with trees, were the two main lines of communication linking village with village and forming the *highways of commerce*."² We do not know about the exact nature of commerce at this time; and probably it was not considerable. Only in times of famine and scarcity grain and other articles of necessity may have been carried by bullock carts,—the typical Indian conveyance—to the affected places. A medium of exchange, money consisting of pieces of precious metal, such as has been referred above,³ may have been used.

The beginning of commerce between different clans or groups of men.

Such was state of things prevalent on the eve of the Epic Age.

2. COMMERCE IN THE EPIC PERIOD.

The Aryans had by this time moved further east probably as far as Bengal. They had driven away the aborigines from the plains of northern India into the south, thus getting rid of the greatest peril to their existence. This gave them time to settle down peacefully and to consolidate their political and social system. The natural result was that the old tribal system gave place to larger

¹ Trevaekia, "The Land of the Five Rivers," page 80.

² Havell, E. B., "The History of Aryan Rule in India," page 23.

³ See page II.

states and kingdoms, and the village settlements grew into large towns and cities. "The royal capitals became industrial and trading centres, the duties imposed upon merchandise forming part of the State-revenue. The Indus and other waterways upon which the early Aryan settlements were placed, were important trade routes linking together the military roads maintained by the State, along which passed the caravans laden with gold, precious stones, and spices from Southern India which added to the magnificence and luxury of the royal courts of Arya Varta as well as those of Western Asia and Europe."¹

The development of the Caste System.

The state of civilization described in the Ramayana and the Mahabharata bears ample testimony to this statement. The extension of the Aryan Pale to the length and breadth of Northern India, must have been accompanied by the growth of commercial intercourse throughout the Pale. And as the danger of reprisals from the conquered people having ceased or at least lessened, the community settled down and took to the arts of peace. In course of time, they felt the need of specialization, and thus there arose the four castes, or division of society in four classes.

The 'Vaisha' Varuna.

The importance attached to trade and commerce at this time is clearly pointed out by the fact that the third Varuna of Vaishas is absolutely set apart for its pursuit. "That it was not merely petty trade, but an extensive intercourse between distant regions which is contemplated, is proved by the nature of the duties which are enjoined. Their principal occupation is defined to be the keeping of herds of cattle (with which in India commodities are transported from place to place), to carry on trade, to lend on interest, and cultivate the soil. Hence they are to turn their attention to practical knowledge. They must be thoroughly acquainted with all commodities and soils, with the productions and wants of other countries, with various dialects and languages, and with whatever else has direct or indirect reference to purchase and sale. In one word they are to be perfect men of business."² It was in the

¹ Havell, E. B. "The History of Aryan Rule in India," page 38.

² Irving's "Theory and Practice of Caste," page XI, and his "The Commerce of India," page 62;

hands of the members of this class that trade and commerce flourished in these pre-historic days.

3. COMMERCE IN THE PUNJAB BEFORE THE MAURYAN DOMINATION.

The earliest written Indian records depict Northern India in the sixth or seventh century B. C., as divided into a multitude of independent states, some monarchies and some tribal republics and owning no allegiance to any paramount power. "The most ancient literary traditions, compiled probably in the fourth and fifth century B.C., but looking back to an older time, enumerate sixteen of such states or powers extending from Gandhara, on the extreme north-west of the Punjab, comprising the modern districts of Peshawar and Rawalpindi to Avanti or Malwa, with its capital Ujjain, which still retains its ancient name unchanged."¹ This was also almost exactly the position in the Epic Age. At this time 'the Land of Five Rivers,' was probably also divided into many petty states, monarchies, oligarchies and republics—managing their own affairs and owning allegiance to no single paramount power. In such a state of things, the healthy and invigorating influence which is brought about upon the commerce of a country by the existence of one supreme political power over the whole area is absent. Consequently trade and commerce must have suffered from many handicaps such as the absence of royal protection on the highways and the prevalence of varied systems of tolls. And therefore we can not expect an active commerce between the communities at this time.

Darius, son of Hystaspes, autocrat of the Persian Empire from 521 to 485 B.C., "at some date later than 516 B.C."² sent an expedition to prove the feasibility of a passage by sea from the mouth of Indus to Persia. Its Commander, Skylax, with his companions, succeeded ultimately in reaching the Red Sea. As a consequence of this the Indus Valley was annexed to the Persian Empire. It formed one of the richest provinces of the Empire and

The invasion of Darius and its implications.

¹ Smith, V. A., "Early History of India," page 29; also Rhys David, "Buddhist India," page 23.

² Smith, V. A., "Early History of India," page 29.

paid the enormous tribute of 360 Euboic talents of gold dust, or 185 hundredweights, worth fully a million sterling, and constituting about one-third of the total bullion revenue of the Asiatic provinces.

This fact implies the following :—

1. The very idea of invasion implies some sort of commercial intercourse between India and countries on the west of Asia.
2. The sailing down the Punjab rivers in boats by Skylax implies that the native boats plied in the rivers in those days, *viz.*, 6th century B. C.
3. The very richness of the province implies a state of society sufficiently advanced in the arts of peace and therefore active internal commerce must have existed.
4. Henceforward the sea route between India and Persia was opened to commerce.

Alexander's
invasion
326 B. C.

After about two centuries concerning which we know very little, we come to the time of Alexander's invasion of the Punjab in 326 B. C. We are told that at this time there were many independent petty states in the Punjab and that the Indus formed the Eastern boundary of the Persian Empire. The Indians were well-advanced in the arts of peace and war and were rich and highly civilized. Such a state of society presupposes advanced methods of commerce.

Taxila, an
ancient In-
dian mart.

The city, which stood predominant during Alexander's campaign, was Taxila. It has been described as a very flourishing mart, where Asiatics of all nationalities used to gather for commercial purposes. Moreover, some of the inhabitants of Taxila followed certain customs, as that of exposing their dead to be eaten up by vultures,¹ and that of the poor parents selling their daughters of marriageable age in the open market,² which were surely not Aryan. Their prevalence in an Indian city can only be explained by assuming that they were the outcome of the foreign element in the population of the city, which must have been considerably

¹ 'The Cambridge History of India,' Volume I, page 416.

² *Ibid.*, page 414.

strengthened by the Persian occupation of the Indus Valley. Thus the commercial intercourse between this part of India and the West is clearly proved at this time.

Secondly "the rapidity with which Alexander penetrated into the Punjab is only to be accounted for on the supposition of his army following some well-appointed highways."¹ which must have been used for commercial purposes. In fact, "in the earliest times, as well as under the Moghal empire, the great roads engaged the peculiar attention of the Government."²

The route taken up by Alexander in the Punjab.

Thirdly that the progress of inland commerce was materially facilitated by the convenience of transport afforded by the numerous rivers of the Punjab; and that the rivers were used for this purpose is proved by the fact that the boats necessary for the crossing of the Jhelum in order to attack the recalcitrant Poros, were readily supplied to Alexander. Again on his return the fact that the forces of Alexander sailed down the Jhelum to the sea in a flotilla built on the shore of this river, proves that the natives were aware of the advantages which the rivers afforded for the purposes of commerce.

The Punjab rivers used as the high-ways of Commerce.

Fourthly the fact that a portion of Alexander's army under Nearchos went by the sea-route to Babylon warrants the belief that since Skylax's expedition this route had been opened to commerce.

The sea-route.

It is now commonly believed that Alexander's campaign did not produce any permanent results. "India was not hellenized. She continued to live her life of 'splendid isolation,' and soon forgot the passing of the Macedonian storm."³ And what is more, "Alexander's expedition did not lead to the opening up of new highways between East and West—rather the reverse."⁴ It is perfectly true that as an immediate result of the Macedonian Conqueror's raid, no commercial routes were opened; but as a result of this invasion, there were established some Greek principalities on the

The results of Alexander's campaign.

¹ Irving, B.A., "The Commerce of India," page 62.

² *Ibid*, page 62.

³ Smith, V.A., "Early History of India," page 118.

⁴ Havell, E.B., "The History of Aryan Rule in India," page 63.

north-west border of India and even in the plains of the Punjab. These supplied the connecting link between the East and the West, and thus stimulated commercial intercourse.

4. THE COMMERCE OF THE PUNJAB UNDER THE MAURYS.

“ The East bowed low before the blast
 In patient, deep disdain,
 She let the legions thunder past,
 And plunged in thought again.”

Mathew Arnold.

The rise of Chandragupta Maurya.

Alexander left India and soon afterwards died at Babylon. His Indian provinces revolted and soon the Greek Governors were turned out. “ The wounds of battle were quickly healed ; the ravaged fields smiled again as the patient oxen and no less patient husbandmen resumed their interrupted labours ; and the places of the slain myriads were filled by the teeming swarms of a population, which knows no limit save those imposed by the cruelty of man, or the still more pitiless operations of nature.”¹ But this brilliant feat of arms is important in another way. It led up to the rise of Chandragupta Maurya, and the foundation of the Mauryan Empire in 321 B. C., which embraced the whole of Northern India and some parts of modern Afghanistan and Baluchistan.

The establishment of Mauryan supremacy stimulated internal as well as external commerce.

The foundation of the Mauryan Empire united the whole of Northern India, and supplied protection on the roads, and introduced a uniform system of tolls in the Empire. These measures naturally stimulated internal as well as external commerce in the country.

The means of communication in the Empire.

Such a vast Empire as that of Chandragutpa could not be kept together without being linked by up easy means of communication. This the Mauryan potentate was able enough to perceive ; and the Empire was supplied with a net-work of roads, which served military as well as commercial purposes. These radiated from the

¹ Smith, V. A., “ Early History of India,” page 118.

centre at Pataliputra towards the four quarters of the Empire, and covered up the entire territory embraced by it. One of these roads, with which we are concerned here, was that which has been mentioned in Megasthenes as the "Royal Road." It began at Pucelastis (Pushkalavati, now Charsadda), passed by the Kabul Valley, and went across the Indus, through Taxila, across the Hydaspes (Jhelum), the Hyphasis (Beas), the Hesydrus (Sutlej), and the Jamanes (Jamna) and then through Hastinapur reached the Ganges. Then the road went by ways of Rhodôpha (Dabhai), Calina paxa (Kanauj), Prayag (Allahabad) and Phalibothra (Patna), and ended at the mouth of the Ganges probably at Tamluk.¹ This is clearly the fore-runner of the modern Grand Trunk Road.

The "Royal Road."

The fact that this road almost exactly followed the route taken up by Alexander in the Punjab prompts us to believe that in the Punjab at least Chandragupta did not build this road, rather it existed before him, and he only connected it with the road to Pataliputra.

In addition to the 'Royal Road' or '*Raj marag*', there were various kinds of roads and trade-routes with various designations. Some of them are mentioned below :—

Other kinds of roads.

(i) Roads classified according to their use :—

1. *Rajmarag*.—The King's highway was usually 32 feet wide.
2. *Rathya*.—Road for chariots, was 32 feet wide.
3. *Rathpath*.—Road for smaller chariots was 10 feet wide.
4. *Pashupatha*.—Road for cattle in general was 8 feet wide.
5. *Mahapashupath*.—Road for large animals.
6. *Kashudarpashupath*.—Road for small animals was 4 feet.

¹ See Warmington, E. H., "The Commerce Between the Roman Empire and India," page 31; also Law, N. N. "Studies in Ancient Hindu Polity," pages 70, 71 and Megasthenes, B. K. IV. Fragment VI.

7. *Khroshtarpath*.—Road for asses and camels, was so made that it could be used in all seasons.
8. *Chakarpath*.—Was the road meant for carts.
9. *Padpath ; Manushyapath and Anspath*.—The roads for pedestrians were 4 feet wide.

Trade routes
proper.

The Arth-Sastra describes some of these roads as trade-routes proper '*Vanikpath*.' They were *Chakarpath, Padpath Anspath* and *Khroshtarpath*.

(ii) Roads classified according to the destinations they led to :—

10. *Rashtrapath*.—32 feet wide, was the road leading to the districts.
11. *Vivitpath*.—32 feet wide, was the road leading to pastures.
12. *Sayonipath*.—Led to the fields under cultivation.
13. *Daronmukhpath*.—32 feet wide, led to the fort in the centre of 400 villages.
14. *Sthaniyapath*.—32 feet wide, led to the fort in the centre of 400 villages.
15. *Vayukpath*.—Was the road which led to a military station.
16. *Shamshanpath*.—Led to the cremation grounds.
17. *Grampath*.—Was a road which led to and through a village.
18. *Vanpath*.—Led to forests.
19. *Hastikashetarpath*.—Led to forests infested with elephants.
20. *Setupath*.—Were roads which passed over elevated and difficult places like embankments.

(iii) Roads peculiar to forts :—

21. *Rathcharyasanchar*.—Roads for chariots, paved with planks cut from the trunks of palms, or with broad or thick slabs of stones.

22. *Prthi*.—Was a passage between two towers.

23. *Devpath*.*—Was a passage leading to a temple.

The maintenance and upkeep of these roads was one of the cares of the State. "Along these main routes trees were planted, wells were dug, and post-houses, police-stations, and hostels for travellers were built at regular intervals. Megasthenes mentions that pillars were set up at every ten stadia (about 1½ miles) to mark distances and serve as signposts.² Special fines were levied on those who did any damage to the roads.

The main-
tenance of
roads.

Various kinds of vehicles plied on these roads. They were the *Devarath*, the car used for carrying sacred images; the *Pushyarth*, the car used at the time of public festivals; the *Sangramik*, the war-chariot; the *Pariyanik*, the ordinary travelling car; the *Parpura-bhiyanik*, the car used in expeditions only, and the *Venik*, used only for training. These were drawn by camels, bulls, horses and asses, which along with human porters, were also used for carrying merchandise.

Means of
transporta-
tion.

Besides roads, rivers were regarded as the best military routes and the most important highways of commerce. There were several classes of water-routes, such as the *Kulya*, the ordinary river-routes and the artificial waterways; the *Kulpath*, the routes for coastal traffic; and the *Sanyanpath*, the ocean-routes. On these routes plied several kinds of boats and vessels, such as the *Sanyatyahnava*, the ocean-going vessels; the *Shankh-mukht-grahnah navah*, the boats used for pearl fishing; the *Mahanavah*, the boats used in large rivers; and the *Kashudrakanavah*, the boats used in small and shallow rivers. In addition to these, such primitive arrangements as rafts of timber, and bamboo tied together, baskets covered with skin and inflated leather bags were prevalent for crossing the rivers.

Means of
communi-
cation in
the Empire
—the water-
ways.

A considerable water-borne traffic was carried on at this time. It was regulated by a separate State Department, which also main-

Chandar-
gupta's Ad-
miralty De-
partment.

* See Laws' Studies in Ancient Hindu Polity, Volume I, pages 71—75.

² Havell, E. B., "History of Aryan Rule in India," page 72.

tained harbours, ferries and bridges, and protected travellers and merchants against river and sea-pirates.

The articles
of Com-
merce.

Such an organized system of roads and water-routes presupposes an active and brisk trade throughout the Empire. And in fact there was a considerable amount of trade between north and south, and east and west. Kautilya, the author of Arthshastra, attaches more importance to the routes leading to south than those leading to the north, as the former were famous for the traffic in such valuable commodities as diamonds, pearls, gold and conch shells, while the latter supplied blankets, skins, and horses to the markets of Magadha.

Commerce
with foreign
countries.

As is well-known the Maurya potentates had political relations with many kingdoms on the west as far as Egypt. These relations naturally stimulated commerce, particularly the political as well as religious relations of Asoka with other states did much in that direction. Hence a very important feature of the time was a considerable increase in commerce with countries on the West. We would now trace the history of this commerce, which is very important on account of the flow of specie to India in return for objects exported, which were at once 'splendid and trifling.'

B.—THE COMMERCE BETWEEN INDIA AND THE COUNTRIES IN THE WEST.

The anti-
quity of the
external
commerce.

The commerce between India and the countries in the West has been carried on from times immemorial. It appears in the very dawn of history. "The first commercial adventure on record" is that which was "conducted by a company of Ishmælitæ, come from Gilead, with their camels bearings spicery, and balm, and myrrh, going to carry it down to Egypt."¹

The Arabs,
the first
carriers of
trade.

Thus the Arabs seem to have been the first carriers of oriental trade. The most distinguished among them were the Sabæans, who occupied the southern portion of the Arabian peninsula. Thus situated happily, and protected from the barbaric ravages from

¹ Macpherson, David, "The History of the European Commerce with India."

which Western Asia suffered from time to time, they long continued to be the principal commercial agents between the nations of the East and those of the West. They supplied the coveted articles of oriental traffic to the Egyptians, who diffused them further west and north.

The rise of the Persians and afterwards that of the Macedonians gave a death blow to the commercial activities of the Egyptians. After the death of Alexander, Ptolemy, one of the Generals of the Macedonian army, established himself in Egypt. He succeeded in drawing away the oriental commerce from Sidon and Tyre to his new capital Alexandria. Till the rise of the Romans, this city remained the channel of the oriental traffic for the West.

The rise of
Alexandria.

The first century before and after Christ witnessed great and important convulsions both in the East and the West. In the East, the Kushans were endeavouring to establish themselves in north-western India, while in the West, Rome was absorbing the remains of the Empire of Alexander. Under Augustus, the Roman Empire was at its zenith. And being aware of the advantages of Indian commerce, the Romans immediately endeavoured to participate in the commerce with India.

The rise of
the Romans.

The accession of Augustus had a far-reaching influence on the commerce with India. Many embassies from Indian Kings, one of them being that sent by Kadphises I,¹ the founder of the Kushan Empire, reached him in his capital. This was in itself the result of the growth of commercial intercourse. "It was the great development of trade between India and the West, both by sea and land, in the palmy days of the Roman Empire which was the direct cause of the frequent diplomatic conversations between the courts of Indian kings and Rome."²

The com-
merce with
Rome.

This commerce between India and Rome continued to thrive during the 2nd and 3rd centuries A. D. Meanwhile a captain named Hippalus, discovered that the monsoons could be used to

¹ Rawlinson, H. G., "India and the Western World;" also Benerjee, Geurangnath, "India as known to the Ancient World," page 21.

² Havell, E. B., "The History of Aryan Rule in India," page 140.

sail successfully to the Indian shores. This made the maritime trade more important than the land trade. After the reign of Nero, there was a gradual decrease in the demand for Indian luxuries till the time of Caracalla, A. D. 217, when it almost stopped. This was probably due to the growth of the Persian Empire in Western Asia.

Commerce with Central Asia.

Although the busy commerce with Rome had stopped, the commercial intercourse with countries on the north-west of India never ceased till recent times. Leaving this topic for the future, we will now briefly describe here the chief commercial routes between the East and the West.

Early trade-routes between the East and the West.

There were several routes, both by land and by sea, by which the commerce was carried on with the West.

(a) Routes by sea were as under :—

1. By way of the Persian Gulf, and up the Tigris and Euphrates to Mesopotamia ; thence by means of caravans to cities along the eastern shores of the Mediterranean. From this place the Tyrians in ancient times, and the Venetians and the Genoese in the Middle Ages, transported the oriental commodities to European marts.
2. By the Red Sea to the Arabian cities, and thence to Alexandria in Egypt and the European marts.

These routes were generally frequented by the commerce of the south-western coast of India and Sind. The Punjab commerce was mostly carried on by the land-routes, which are given below.

(b) Routes by land—

1. Through the Khyber Pass to Balkh and Khiva, and along the shores of the Caspian, to the towns on the Euxine.
2. The trade route between China and India *via* Kabul and Bactria, or through Kashmir, Tibet and Tartary joined the great silk route in Bactria.

Considerable trade was carried on by these routes. But there is a good deal of controversy over the question whether the routes by sea or by land were the more important. It is very difficult to decide this controversy once for all. But it seems that before the discovery of the monsoons, the land routes on the north were more important than the sea-routes ; but later on, the latter became more important on account of the great amount of insecurity on the land routes. But the commerce by the land-routes never stopped completely till the discovery of the Cape of Good Hope route. Even then the commerce of Central Asia was carried by these routes.

The comparative importance of land and sea routes.

“The objects of oriental traffic,” as Gibbon puts it, were “splendid and trifling.” The tremendous amount of risk involved on the way confined the traffic only to the articles of luxury. There was a large demand for them in the markets of Rome, so that there was a continued drain of specie from Rome to India. The Roman Emperors tried to check the luxurious tastes of their subjects in order to stop this drain, but failed. The articles exported from India consisted of living animals and birds, such as apes, monkeys, tigers, elephants, and parrots, peacocks, dogs and snakes ; cotton cloth, muslin, and chintz of various kinds ; silk cloth and thread ; indigo, and other dyes ; cinnamon and other spices ; sugar ; diamonds, pearls, and emeralds ; steel ; drugs, and aromatics. Rome suffered from an adverse balance of trade and paid for her imports mostly in specie, but the following articles were also imported into India :—

The Articles of Commerce.

Coarse and fine cloth (probably woollen) ; brass ; tin ; lead ; coral ; glass ; antimony ; perfumes and wines.

Imports.

The Punjab played a very important part in this commerce. All the land-routes which connected the interior with the West passed through its fertile plains, and thus encouraged the inhabitants of the Punjab to profit by it. Under the Kushans, its marts, such as Taxila and Parashpura, were the emporia of trade from the West and the East. Some of its rulers had even political rela-

The place of the Punjab in this commercial intercourse.

tions with the Roman Emperors, which must have stimulated the commerce of the Punjab with that country.

**The Punjab
Commerce
in the time
of the Gup-
tas.**

After the downfall of the Kushans, the Punjab suffered from the successive inroads of the Sakas, and later on of the Huns. The whole of it does not seem to have formed part of the Empire of the Guptas, and therefore did not benefit from the beneficent rule of those far-famed Emperors. Its position being that of a frontier province, it suffered at the time from the frequent inroads of the barbaric invaders. The commerce at the time, therefore, could be anything but active and brisk.

**In the time
of Harsha.**

Similar must have been the condition of commerce in the time of Harsha. The Punjab proper was not one of the provinces of that illustrious monarch, and had continued to be "No man's" land. Under such a state of political affairs the commerce with distant countries must have been unsafe; but probably on account of the relation of the ruling tribes, such as the Sakas and the Huns, with Central Asia, there was a considerable trade between the Punjab and the countries of Central Asia.

C.—THE COMMERCE OF THE PUNJAB IN THE MUHAMMADAN PERIOD.

**The rise of
the Muham-
madans.**

The sixth and seventh centuries after Christ witnessed the establishment of Muhammadan supremacy in Asia. In the eighth century after Christ, Sind was invaded and conquered. The Punjab struggled on until it was annexed by the Ghaznavids in the eleventh century A. D. Henceforward the Punjab was connected intimately with the countries of Central Asia commercially as well as politically. Caravans must have come to the Punjab from all parts of Central Asia at the time of Mahmud and his successors.

**The Afghan
rule in the
Punjab.**

From the hands of the Ghaznavids, the Punjab passed into the hands of Shahab-ud-Din Ghorî, after whose death Kutb-ud-Din Aibak established himself as an independent sovereign. Henceforward till the battle of Panipat in 1526, the Punjab was under the rule of the Afghan Kings. They as a rule were not disposed to build roads for commercial purposes, and therefore commerce

could not have been very active at the time. The names of Feroz Shah Tughlak and Sher Shah Suri stand forth predominant among the rulers of the time, who took good care to keep roads in proper order. The latter is said to have not only rebuilt Chandragupta's old 'Royal Road', but to have kept it in proper repair and free of robbers. The comparatively peaceful reigns of both these monarchs must have stimulated internal as well as external commerce, though we do not know any definite particulars about it.

Babur, the founder of the Mughal Empire, wrested India from the hands of the Afghans in the battle of Panipat. He was an able statesman, and is said to have repaired the great royal road; but he, and also his son, Humayun, could not get time to look after the commerce of India. This the great Akbar did. He not only extended the limits of the Mughal Empire, but also consolidated it. He bestowed good care on the means of communications, and we read of roads connecting Agra, the Imperial capital, with Surat, and Lahore and thence to Kabul. These roads were kept in good order according to the standards of the time. "Though the roads were unmetalled, the main routes of land travel were clearly defined, in some cases by avenues of trees, and more generally by walled enclosures of brick or stone (serais), in which travellers and merchants could pass the night in comparative security. These contained a well supplied with baths and a tank with fresh water, with attendants to look after them and to wait on the travellers."¹ The chief roads were marked by Kos-minars.

India is a little changing country. Her people prefer to stick to the customs and institutions of their predecessors. This is why Hindu Society has remained essentially the same throughout the ages. Such has also been the case with the means of transport. The pack animals, asses, horses, and camels, etc., which were used for the purpose of carrying goods in ancient times, continued to be used in the Mughal period; but in addition to these the improved state of roads in these times stimulated the use of wheeled traffic, viz., bullock carts and ekkas.

The Punjab
under the
Mughals.

Means of
communications by
land.

Means of
land trans-
port.

¹ Trevisa, "The Land of the Five Rivers," page 188.

Means of
communications by
water.

The waterways also continued to be used as the highways of commerce. The *Ain-i-Akbari* furnishes very interesting details about water-borne traffic in the reign of Akbar. We are told that there was a separate 'Admiralty Department,' which had to perform the following duties:—

1. To see to the supply of ships and boats for the purposes of navigation, and to supervise their building.

[It may be mentioned in this connection that boats and ships were of various types and sizes, and were put to various uses. Some were meant for the transportation of elephants and other animals; others were used for the conveyance of merchandise; and others were meant to be used as pleasure-boats.]

2. To see to the supply of men, efficient and experienced mariners, for the ships and boats.
3. To watch the rivers, and to regulate traffic at the ferries.
4. To impose, realize or to remit duties. Akbar is said to have remitted a large number of duties.

River-tolls
in Akbar's
time.

As No. 3 above suggests there were elaborate regulations regarding the river-traffic. No one was permitted to swim across a river. The boats were not allowed to travel at nights save in special cases. The goods could only be landed at the public wharfs. River-tolls were charged. "For every boat was charged Re. 1 per *kos* at the rate of 1,000 *mans* provided the boat and the men belong to one and the same owner. But if the boat belongs to another man and everything in the boat to the man who has hired it, the tax is Re. 1, for every 2½ *kos*. At ferry places an elephant has to pay 10*d.* for crossing; a laden cart, 4*d.*, ditto, empty 2*d.*, a laden camel, 1*d.*, empty camels, horses, cattle with thin things, ½ *d.*, ditto, empty, ¼ *d.*; other beast of burden pay 1/16 *d.*, which included the toll due by the driver. Twenty people pay 1*d.* for crossing, but they are often taken gratis."¹

Commerce
by water in
the Punjab
in the Mu-
ghal Period.

Such an elaborate system of regulations presupposes a good deal of commerce by water. The numerous rivers in the Punjab

¹ "Ain-i-Akbari"; Blochmann's translation.

must have been very easy highways of commerce. Moreland says, "Full use was made of the river system of the Indus and Ganges, as well as of the net-work of the Channels in Bengal, and the rivers were undoubtedly the principal highways of Northern India."¹ It may be stated here that the strength of the flood and the direction of the wind were important factors in such a traffic, the decrease and increase in which therefore depended on a particular season.

It has been mentioned above that the roads were kept in proper order. But in considering such a statement, it should be remembered "that the standard of the seventeenth century traveller was not that of the present day: highway robberies were to be expected in Europe as well as in India, and conditions which would now be regarded as almost intolerable might be described as satisfactory by a traveller of the time of Jehangir."² And so, though we have called the conditions satisfactory, there were many obstacles in the way of the free growth of commerce. *Firstly* the roads, though generally safe, were infested with thieves in places. William Finch, an English traveller of the time of Jehangir, says that the road from Delhi to Karnal was "thievish", but from Karnal to Lahore, there was no trouble. *Secondly* the road watchmen were not trustworthy. They would try to squeeze as much as they could from the merchants. *Thirdly* heavy inland dues were charged from the merchants; and what is more the provincial and district officers were in the habit of claiming a large amount for themselves. In spite of these handicaps, the trade under the Mughals was in a flourishing condition. Merchants, who were "as subtle as the devil,"³ and knew how to evade the illegal demands of the district officers and other Government officials, moved in large caravans from place to place. But "the cost of official levies and non-official robberies, together with the time which the slow-moving caravans took to reach their destination, com-

The commerce by road in the Punjab in the Mughal period.

¹ Moreland, W. H., "India at the Death of Akbar," page 241.

² *Ibid*, page 41.

³ William Finch in his 'travels'.

bined to confine markets within narrow limits, and to make prices depend on the stock of a commodity actually on the spot other than on the supply generally available."¹ There was trade only in valuable commodities such as textile goods and indigo, which could bear the expenses of carriage from place to place.

**The Roads
after Akbar.**

As has been mentioned above the inland transit dues were charged in the Mughal Period. Akbar passed orders remitting them twice during his reign, but the orders of the Central Government could be easily evaded by the Provincial Governors; and therefore they continued to be levied to the end of Akbar's reign. Jehangir, on his accession to the throne, forbade the levy of road and river tolls, and also directed that the bales of the merchants should not be opened without informing them and obtaining their leave. In spite of his efforts, the roads in Jehangir's times had considerably deteriorated according to Hawkins, who wrote that "the country is so full of thieves and outlaws that almost a man cannot stir out of doors, throughout all his (Jehangir's) dominions without great forces."² Probably much the same conditions of things continued to prevail to the time of Aurangzeb.

**The Ex-
ternal
commerce
of the Pun-
jab during
this period.**

At this time there were two regular trade routes which connected Punjab with Afghanistan and other countries on the north-west and ultimately with Europe. The first went from Lahore to Kabul and then to the Black Sea and Constantinople. Kabul on this route was a great commercial centre, where merchants from China, India, Persia and Turkistan met and exchanged their commodities.

The second route went from Multan to Kandahar, and thence to Persia. "Both these routes carried a considerable volume of traffic when judged by standards appropriate to the conditions prevalent at the time."³

**Direct com-
merce with
Europe.**

An important feature of the commerce of this period is the growth of direct commerce with Europe by sea. But this con-

¹ Trevaakin "The Land of the Five Rivers," page 134.

² Moreland's "India at the Death of Akbar," page 46.

³ *Ibid*, page 219.

merce did not have any great effect on the commerce of the Punjab till the time of Ranjit Singh. We, therefore, prefer to ignore it at this place.

During the reigns of Akbar's successors, Jehangir, Shah Jehan and Aurangzeb the commerce of the Punjab continued to be in much the same condition as that in the reign of Akbar; though the means of land-communications were not kept in proper order. After the death of Aurangzeb, India suffered from the absence of a single supreme power. The Punjab continued to be under the decayed Mughal rulers for some time, but later on her fortunes were connected with that of the Afghan Power on the North-West. During these days, on account of the absence of efficient Government in the land, the commerce in the Punjab could not have been in a flourishing condition. The political connection of Kabul and the Punjab must have kept alive the intercourse between the commercial marts of the Punjab and Afghanistan.

**Punjab
Commerce
after
Aurangzeb.**

A striking feature of these troubled times was the rise of the Sikhs. During the time of the later Mughals they gradually gathered strength. When the Punjab went under the sway of the Afghans, they under their chiefs—the Sikh Sirdars—owed allegiance to the Afghan Amir. Thus it was the Amir of Kabul, Shah Zaman, who appointed Ranjit Singh the Governor of Lahore. This remarkable man in a few years established himself as an independent ruler of the Punjab and Kashmir. The Punjab again was under a strong Indian ruler.

**The rise of
the Sikhs in
the Punjab.**

D.—THE COMMERCE OF THE PUNJAB TO THE TIME OF ANNEXATION.

Ranjit Singh gave an established Government to the inhabitants of the Punjab. But his Government was a military despotism. He took greater care to preserve order and peace and increase his income from land revenue than to improve the means of communications and stimulate commerce. On the contrary, in his time, the merchants passing from his territory had to pay very heavy tolls and duties. The old route from Kabul to Lahore was, therefore, abandoned.

**Commerce
of the
Punjab
under Ranjit
Singh.**

Routes of
commerce
with
Afghanistan.

Hence the commerce of India which formerly passed through Lahore, and *vid* the Khyber Pass to Kabul, on account of the heavy duties charged by the Sikh Government and the Governor of Peshawar and the unsafe condition of the road between the Khyber and Kabul, took the following routes :—

1. That coming from Calcutta, came to Delhi, and then deviated towards Hansi, Bahawalpore, Multan, and crossed the Indus at the ferry of Kaheri. And then through the Gomal Pass to Kabul *vid* Ghazni.
2. That coming from Bombay proceeded through Gujrat to Palli in Marwar; and then through the desert of Rajputana to Bikaner, and joined the above route at Bahawalpore.
3. The third route was through Sind to Kandahar and then to Ghazni and Kabul.

The com-
merce be-
tween the
Punjab and
Afghanistan.

These routes touched only the fringes of the Punjab territory. They were joined at Jhang by a route from Amritsar, the commercial capital of the Punjab. The Punjab exports to Afghanistan went by this route to Jhang on the Chenab, and thence *vid* Dera Ismail Khan to Kandahar.

The carriers
of this com-
merce—the
Powindahs.

No account of the commerce of the Punjab would be complete without a reference to the Powindahs. It were they who carried the commerce from Bombay and Calcutta, on the one hand, and to Kabul and Bokhara on the other. They were Afghans, but did not belong to any particular tribe, the majority of them belonging either to the Ghilzais, the illegitimate, or to the Lohanis, the legitimate descendants of Lodhi, the chief of Khorassan. They occupied the territory lying between the western slopes of the Suleiman range and the Derajat. In summer they would move to the highlands of Afghanistan, and further on to Bokhara with Indo-European goods. In autumn they would come back to the banks of the Indus. Leaving their families there in the vicinity of Dera Ismail Khan to graze their spare cattle, they would move with Afghan

goods to Multan, Lahore, Delhi, Cawnpore, Calcutta and even to Madras and Bombay. They would manage to return to the Dera-jat about the month of March to move on to Afghanistan.

They had to face a good deal of opposition and blackmail on their way to Kabul from the Waziris and others. They would therefore move in large caravans consisting of four or five thousand members, and would ever be ready to fight their way. "It is an interesting sight to watch a Powindah caravan wending its way through the Gomal Pass. Long trains of gaudily equipped camels, their head-stalls ornamented with bands of worsted work and strings of coloured shells. On their backs are slung the covered Khajawahs containing the wives of the richer merchants. These form the main body of the procession, which is made up of other camels laden with bales of merchandise; droves of sheep, goats, troops of ragged urchins, screaming and laughing, in their endeavours to aid the women in maintaining some sort of order in the apparently chaotic mass. A few men armed with knife, sword, and match-lock, guard the main portion, but a few hundred yards ahead may be seen a compact body of the fighting men of the clan, mounted and dismounted, all armed to the teeth, who constitute the vanguard. On either flank, crowning the heights with greatest care and almost military exactitude, move a similar body of footmen, whilst in rear follows an equally strong party, all on the watch for their hereditary enemy, the Vaziris. As the caravan nears the halting stage, pickets are posted, the camels are unladen and permitted to crop the herbage of the hills in the immediate neighbourhood of the caravan, but even here they are strongly escorted and driven to the encampment as dusk draws on. The black blanket tents are pitched, fires lighted and the evening meals cooked in readiness for the return of the camel escort." This is the description of a Powindah caravan given by Sir W. P. Andrew in his book "Our Scientific Frontier."¹

Such were the carriers of the commerce between India and the countries on the north-west. They carried on a considerable ex-

The articles
of com-
merce.

¹ Page 80.

port and import trade. The following were the exports from this country :—

Exports.

English cotton piece-goods, silks of all sorts, chintzes, European coloured clothes, merinoes, velvets, copper, tin, tea, cardamums, pepper, betel nuts, sugar, country muslin, indigo, dried jinger, borax, sal ammonia, turmeric, carbonate of potash, salt, pewter, steel, firearms, gun-powder, money, cotton, and various medicines.

Imports.

The following were the imports :—

1. From *Bokhara* and *Samarkand*—silk, horses, drugs, manna, wool, gold coins, furs, and gold and silver wire and thread.
2. From Herat Herat silk, Persian carpets, currants, turquoises, antimony, quince seed, saffron, and goats' hair.
3. From Kabul—Pistachio nuts, dried grapes, almonds, pomegranates, melons, grapes, pears, apples, asafetida, dried apricots, cinnamon seeds, goats' hair for shawls, country clothes, sheep skins, choqas or camels' hair cloaks, and dyes.
4. From *Ghazni* and *Kandahar*—Madder, sheeps' wool, liquorice, rice, ghee, sarsaparilla, gum arabic, mint, rhubarb, and fruits.

The total imports were about one million sterling annually.

The condition of inland commerce during this period.

During the Sikh regime means of communication were bad. "The old Mughal roads had degenerated into mere tracks through the woods and jungle and were always infested with robbers."¹ The roads, such as they were, being *kachha*,² they would become impassable during the rains on account of mud, so much so that the camels would sink up to their haunches in mud, while the oxen would be unable to extricate the carts, which would get jammed in the mud. Such a condition of roads coupled with the six famines which overtook the Punjab during the Sikh regime could but have a baneful influence on the commerce of this province.

¹ Trevaekia, "The Land of the Five Rivers."

² Unmetalled.

Yet a certain amount of commerce was carried on between the different parts of the Punjab. Amritsar, the sacred city of the Sikhs, was the commercial capital of the Punjab. Merchants from Kashmir, Afghanistan, Bokhara, Delhi and other parts of the Punjab gathered there from the exchange of goods. Other important cities were Multan and Jhang in the Sikh territory, and Ferozepore and Ludhiana in the Cis-Sutlej territory.

A considerable amount of commerce was also carried on by means of rivers. Under Ranjit Singh attempts were made to regulate it by means of treaties.¹ between the British and the Sikh potentate.

At the time of the annexation the conditions were much the same. But the introduction of the British element in the Government of the country had restored confidence among the merchants, who began to use the roads more frequently. Thus the road from Kabul to Lahore, *vid.*, Peshawar was again opened to commerce.

The policy of the new Governments was to develop the resources of the country and to improve the means of communication and thus stimulate commerce. The old roads were repaired and the new built; the Railways were planned: and attempts were made to improve river navigation. In order to accomplish the last mentioned object, the Marine Department of the Government of the Punjab was organized in 1861-62. The accompanying monograph attempts a sketch of the history of this Department for the period of its existence from 1861-62 to 1871-72.

The condition of things at the time of the annexation of the Punjab.

The policy of the British.

¹ See Chapter 1 below.

CHAPTER I.

A Connecting Link.

A glance at the extreme North-West on a map of India shows us a system of rivers. The land through which they pass derives its name from them and is known as the Punjab—the land of the Five Rivers. The position of this province is that of a frontier province for the rest of India. Being nearest the "Gateways of India" on the North-West—the only loopholes in the defensive armour of this country—it has in consequence of its unique position suffered more than any other province and has also derived certain benefits. While on the one hand, the land of the Five Rivers has been trampled down by the successive inroads of hordes of invaders of many nationalities Persians, Greeks, Indo-Scythians, Mongols, Arabians, Afghans and Turks, it has on the other hand grown stronger by the very reason of the ever present possibility of these inroads. As a result of these inroads, new and invigorating blood, as well as new ideas, have been frequently introduced into this land, thus keeping the inhabitants both physically and intellectually fit. This is why the Punjab is and has been one of the advanced provinces of India.

**The Punjab:
its geogra-
phical
position.**

Another advantage to this province from its geographical position is of a commercial nature. All trade, which flows down through the 'Gateways' on the North-West into the interior of the country, and all trade which goes up to these countries towards the North, has to cross its five rivers. In other words, it is situated on the highroad of commerce with the countries on the North.

**The Com-
mercial
Advantage.**

The shrewd inhabitants of the Punjab realized this at an very early stage, and have ever since made the fullest use of it. Their commerce, therefore, as has been related in the Introduction, has been carried on with steady continuity from times immemorial. This was an overhand commerce and the mer-

**The com-
merce with
Gantral
Asia.**

chants had to bear many hardships on the route which passed over hills country, barren crags and thinly populated deserts. And yet it was kept going on with continuity mostly by the "men of the North". The daring traders of the Punjab, however, fully co-operated with them. They had their correspondents in so far-off places as Kabul, Kandahar, Herat and even further north in Turkistan.

The river Indus.

The river which figures largest in this commerce is the Indus. On the extreme North-West of the Punjab proper, it flows down from the North almost horizontally towards the South. A broad stream at ordinary times, it becomes a veritable sea in the rainy season. The Central Asian Commerce had to cross it. This was done at three points, at Attock to Peshawar and Kabul *viâ* the Khyber, at Darya Khan to Dera Ismail Khan and on to Afghanistan *viâ* the Gomal Pass, and at Shikarpur in Sindh. It is, therefore, of obvious importance from this point of view.

Its importance.

It is not only important from this point of view but is equally so, from the political and military points of view. It is one of the natural barriers for all those who live on this side of the river against the incoming hostile forces from the North. And any State in India, if it wants to keep invaders at arm's length, would do well to have it as a line of defence.

The Punjab, a sort of "No man's land."

The neglect of this fundamental precaution, probably supplies the clue to the fact that so many leaders of barbaric hordes of men succeeded in sweeping down the plains of the Punjab as far as Delhi and in subverting the Empires of Hindustan. Consequently the history of this province reveals a very frequent change of masters. It has been a sort of "No man's land", which has successively experienced the rule of the Persians, the Greeks, the Hindus, the Afghans, the Turks and the Sikhs. The rise of the last of them was a remarkable phenomenon in the annals of this land.

The rise of the Sikhs.

The Sikhs originally a religious sect founded by Guru Nanak in the 16th Century, was later on, transformed into a

military brotherhood for the purpose of self-defence. To describe how this happened, though very interesting, would be going beyond the limits of this thesis. It must suffice to say that when the English had almost succeeded in establishing a paramount Power in Central and Southern India, and were dealing death blows to the pride and already waning hopes of the Marathas in the South, a Power of very great significance was rising on the North-West.

This was in the person of Ranjit Singh—a man of outstanding genius. This wonderful man succeeded in mobilising the hitherto mutually antagonistic forces of the Sikhs into one single whole. Nor was this his only work. He also accomplished the all but impossible task of bringing out a wholesome body-politic from amidst the prevailing chaos. In other words, he subdued the Sikh factions, known as Misls, and established a well-organized State in the Punjab.

Ranjit Singh, the ruler of the Punjab.

In close proximity to the dominions of the Maharaja an equally, probably more remarkable task in the annals of India, had been accomplished. A Company of traders belonging to a country several thousands of miles away and upholding an utterly different culture and civilization had established itself as a paramount political power in India. They had succeeded in gradually building a magnificent edifice in the shape of the British Empire in India. At this time, the Empire included all Hindustan save a strip of country on the North-West, which consisted of the territories of the Maharaja and some other chiefs. The Company even succeeded in extending its sway over the hitherto independent states as far as the Sutlej, during the lifetime of Ranjit Singh and against his will.

The establishment of the British Power in India.

The "Land of the Five Rivers" alone was left outside the sway of the conquerors, though its subjugation was to take place sooner or later. The Maharaja had also foreseen this. It is reported of him that on seeing a map of India with most of its surface in red, he remarked that all would soon be red, meaning

The Punjab and the British Territory.

thereby, that in the near future everything would be British. He was, however, capable enough to prevent this during his lifetime.

The Relations of the British with Ranjit Singh.

Probably it was not the intention of the British to add the Punjab to their possessions at this time. They were interested rather in the stability and strength of Ranjit Singh's power, because it served the purpose of a buffer-state against the Napoleonic invasion of India from the North-West and the ever present Russian peril. They, therefore, sought the friendship of the "Lion of the Punjab", who being aware of the consequences of refusing it, was not slow to show it. The result was that several treaties were concluded between the parties to seal this mutual friendship.

The Commercial Treaties.

It is not intended here, to go into a detailed story of the relations between the British and the Master of the Punjab. It must suffice to say that some of these treaties were of commercial importance. Their provisions were directed towards the opening up of the Punjab Rivers, particularly the Indus and the Sutlej, for commercial purposes.

It has been remarked above, the opening up of the Indus was desirable from both the military and commercial points of view. But for the time being, it was thought better to have friendly buffer states in the Valley of the Indus, *viz.*, the Punjab and Sindh, rather than to assume the full and direct responsibilities of defence, as long as these states were sufficiently powerful to serve the desired object. In the absence, therefore, of military occupation it was of the utmost importance to find some way of communication with the interior of the Valley. The most advantageous route in this connection for the most powerful naval power of the world was apparently that of the river Indus, which connected the interior with the sea-board.

The Policy of the British.

The British had long perceived this. Lord William Bentinck, the Governor-General, received specific instructions from home "to acquire the control of trade on the river Indus"¹. No body

¹ "Bentinck," *Rulers of India Series*, page 168.

would venture to criticise this policy in 1930. He was perfectly right in his desire to convert the Indus into a British Indian waterway considering how important a trade-route the Indus had been in ancient times.

It seems desirable, even at the risk of repetition, to emphasize here the importance of the Indus from the commercial point of view. The route of the Indus, as a highway of commerce not only with Central Asia and the north of Europe, but with the whole of the West is of as ancient duration as the 7th Century A. D. "When Egypt was torn from the Roman Empire by the Arabians, the industry of the Greeks discovered a new channel by which the productions of India might be conveyed to Constantinople. They were *carried up the Indus*, as far as that great river is navigable: thence they were transported by land to the banks of *the River Oxus*, and proceeded down its stream to the Caspian Sea. There they entered the Volga, and sailing up it were carried by land to the Tanais, which conducted them into the Euxine Sea, where Vessels from Constantinople waited their arrival"¹. The commerce by this route, though lessened at times by disruptions and disorders in Western Asia, never ceased altogether. Particularly the commerce between the Punjab and the countries of Central Asia has ever thriven.² Moreover like other rivers of the Punjab, the Indus has always served as a great highway between the Northern and the Southern cities of the Punjab. It was to open and control this highway that the English were striving.

The importance of the Indus as a commercial highway.

B.—Commercial Treaties with the Amirs of Sindh.

To do this it was necessary to enter into treaty relations with the Punjab, Bahawalpur, and Sindh—the provinces of the Indus. Lord William Bentinck, therefore, commenced negotiations with the Amirs of Sindh. It naturally took some time to

Negotiations with the Amirs of Sindh.

¹ Robertson's *America*, Book I, quoting from Ramusio; also, quoted by Alexander Burnes, in his *Travels into Bokhara* Volume II, page 396; and by Sir W. F. Andrew in his *Indus and its Provinces*, page 2.

² At a very early date an Indian Trading Colony—described as 'Multanis' was located at Balkh on the Caspian Sea.

arrive at certain decisions with them, as they or any other Indian Chief could not but distrust the intentions of the British Government regarding the opening of the Indus for commercial purposes. This distrust was in fact based on quite legitimate grounds. "That a mightly military power should view commerce as an end in itself, without ulterior designs of conquest, is a conception quite foreign to the Oriental Mind".¹ "The establishment of British merchants had, as a matter of fact, been invariably followed sooner or later by the establishment of a British Protectorate, if not direct British dominion".² This, it may be argued, was not intended at the time; but later on history repeated itself also in this case. "The mere knowledge", therefore, "that the Indus was being, so to speak, officially investigated, aroused in the minds of the Punjab and other Chiefs suspicions and distrust".²

**The First
Treaty with
the Khair-
pur Family.**

Nevertheless the negotiations resulted in a Treaty with the Khairpur family, which was signed on the 4th April, 1832, the relevant articles³ of which are given below:—

Article 3.

"The British Government having requested the use of the river Indus and the roads of Sind for the merchants of Hindustan, etc., the Government of Khairpur agrees to grant the same within its own boundaries, on whatever terms may be settled with the Government of Hyderabad, namely, Mir Murad Ali Khan, Talpore".

Article 4.

"The Government of Khairpur agrees to furnish a written statement of just and reasonable duties to be levied on all goods passing under this treaty, and further promises that traders shall suffer no let or hinderance in transacting their business".

Thus the Mir Rustam agreed to throw open the navigation of the Indus, on the some conditions as might be settled with the Hyderabad Amirs.

¹ Gough and Innes, "Sikhs and the Sikh Wars," page 38.

² *Ibid*, page 38.

³ A collection of "Treaties, Engagements and Sanads," etc., by Aitchison, C. U., B.C.S., Volume VII 1909 Edition, page 354.

The latter agreed to the following terms by a Treaty,¹ concluded on 20th April, 1832.

Article 3.

“That the British Government has requested a passage for the merchants and traders of Hindustan by the river and roads of Sindh, by which they may transport their goods and the said Government of Hyderabad hereby acquiesces in the same request on the three following conditions :—

Treaty with
the Hyder-
abad Go-
vernment.

- I.—That no person shall bring any description of military stores by the above river or roads.
- II.—That no armed vessels or boats shall come by the said river.
- III.—That no English merchants shall be allowed to settle in Sindh, but shall come as occasion requires, and having stopped to transact their business, shall return to India.”

Article 4.

“When merchants shall determine on visiting Sindh, they shall obtain a passport to do so from the British Government, and due intimation of the granting of such passports shall be made to the said Government of Hyderabad by the Resident in Kutch, or other officer of the said British Government.”

Article 5.

“That the Government of Hyderabad having fixed certain proper and moderate duties to be levied on merchandize and goods proceeding by the aforesaid routes, shall adhere to that scale, and not arbitrarily and despotically either increase or lessen the same, so that the affairs of merchants and traders may be carried on without stop or interruption, and the custom-house officers and farmers of revenue of the Sindh Government are to be specially directed to see that they do not delay the said merchants on pretence of awaiting for fresh orders from the Government,

¹ Atchison's "Treaties and Sanads, etc.," Volume VII, page 354.

or in the collection of the duties, and the said Government is to promulgate a Tariff or Table of Duties leviable on each kind of goods, as the case may be.”

The Supple-
mentary
Treaty with
the same
Govern-
ment.

These terms were supplemented by a Treaty,¹ concluded on 22nd April, 1832, between the Honourable the East India Company and His Highness Mir Murad Ali Khan Talpore Bahadur, ruler of Hyderabad in Sindh. It runs as under :—

Article 1.

“ It is inserted in the 5th Article of the Perpetual Treaty that the Government of Hyderabad will furnish the British Government with a statement of duties, etc., and after that the officers of the British Government who are versed in affairs of traffic will examine the said statement. Should the statement seem to them to be fair and equitable and agreeable to custom, it will be brought into operation and will be confirmed ; but should it appear too high, His Highness Mir Murad Ali Khan, on hearing from the British Government to this effect through Col. Pottinger, will reduce the said duties.”

Article 3.

“ The Government of the Honourable East India Company and of Khairpur, namely Mir Rustum, having provided, in a Treaty concluded between the States, that whatever may be settled regarding the opening of the Indus at Hyderabad shall be binding on the said contracting powers. It is, therefore, necessary that copies of the Treaty should be sent by the British and Hyderabad Governments to Mir Rustum Khan for his satisfaction and guidance ”.

The Treaty
of 1834.

A toll of Rs. 570 between the sea and Rupal, was substituted for a duty on goods by a Treaty, ² dated the 2nd July, 1834, con-

¹ Aitchison's "Sansads and Treaties, etc." Volume VII, page 356.

² *Ibid* page 357.

cluded between the East India Company and the Government of Hyderabad. The relevant clauses run as under :—

“Whereas in the 1st Article of the supplementary Treaty concluded between the Honourable East India Company and the Government of Hyderabad on the 22nd day of April, 1832, corresponding with the 20th of Zeekad 1247 Hegira, it was stipulated that the Government of Hyderabad was to furnish the British Government with a statement of duties, etc., and after that the officers of the British Government who are versed in affairs of traffic shall have examined the same statement, should the statement seem to them to be fair and equitable and agreeable to custom, it will be brought into operation and will be confirmed ; but should it appear too high, His Highness Mir Murad Ali Khan, on hearing from the British Government to this effect, through Col. Pottinger, will reduce the said duties. Now according to the terms of the above stipulation, the contracting States, having made due inquiry, hereby enter into the following agreement :—

Article 1.

“In lieu of a duty on goods proceeding up or down the river Indus, in virtue of the 5th Article of the perpetual Treaty of Hyderabad, there shall be levied on the rivers, between the sea and Rupar, a toll on each boat of Tatta Rupees 19 per Tatta Khurrrar, of which amount Rs. 8 shall be receivable by the Governments of Hyderabad and Khairpur, and Rs. 11 by the other States possessing dominions on the banks of the rivers, namely, His Highness Bahawal Khan, Maharaja Ranjit Singh, and the Honourable the East India Company.

Article 2.

“To obviate any cause whatever of trouble or inconvenience to traders and merchants during their progress, and also to prevent disputes and doubts and consequent altercation and delay, touching the size of boats the toll is fixed on 30 Tatta Khurrrars. Be a boat large or small, she will pay toll according to this, and whether she measures 5 Khurrrars or 100 Khurrrars, she will be reckoned as one of 30.

Article 3.

“ The portion of the toll above described, appertaining to Sindh and amounting to Tatta Rs. 240 on each boat, shall be levied at the bundar or port of mouth of the river where the cargoes are transferred from the river to the sea boats, and *vice versa*, and divided as the Governments of Hyderabad and Khairpur may think best. ”

Article 4 provides for the appointment of a British Agent, who was not to be a European, at a port on the mouth of the river for the purpose of assisting in the realization of the toll due to Sindh, and in the satisfactory adjustment of disputes, if any.

Article 5 stated that if any portion of goods on board any boat passing up and down the river, be landed for sale, it was to become subject to the existing local duties as levied by the respective Governments within their own territories.

**Commer-
cial Articles,
1838.**

To take the matter further, certain commercial Articles were agreed upon by the British and Hyderabad Government. The most important of them was Article 6 by which permission was given to hold a commercial fair at Tatta or Kikkar in Sindh. This was calculated to introduce and popularise articles of British make in this part of the country.

**Other Pro-
vinces, 1838.**

Further in 1838, Mir Rustam Khan of Khairpur, in order to improve, by every means possible, the growing intercourse by the river Indus, promised “ all co-operation with the other powers in any measures which may be hereafter thought necessary for extending and facilitating the commerce and navigation of the Indus ”.

1839.

In 1839, the Amirs of Hyderabad agreed to the following :—

Article 11.

“ No toll will be levied on trading boats passing up or down the river Indus, from the sea to the northern most point of that stream within the territories of the Amir.

Article 12.

" But any merchandize landed from boats on their passage up or down the river and sold shall be subject to the usual duties of the country ; provided always that goods sold in a British Camp or cantonment shall be exempt from the payment of duty.

Article 13.

" Goods of all kinds may be brought by merchants and others to the mouths of the Indus (Gorabaree) at the proper season, and kept there at the pleasure of the owners till the best season of the year for sending them up the river ; but should any merchant land and sell any part of his merchandize, either at Gorabaree or anywhere else (except at the British Cantonment), such merchants shall pay the usual duty "

In 1841, the Amir of Mirpur, Mir Sher Mahomed Khan and in 1842 the Amirs of Khairpur also agreed to abide by the above-mentioned terms.

The right to fell wood for the use of steamers navigating the Indus and rivers communicating therewith " within one hundred yards of both Banks of the Indus, within the territories of the Amirs " was granted to the British Government by a Treaty between it and the Amirs of Hyderabad in 1842.

The right
to fell wood.

The same year the whole of Sindh, with the exception of the possessions of Ali Murad, who was established as Chief of Khairpur, was annexed to the British Empire. This was the culminating point of the struggle in Sindh which had begun with the negotiations instituted by Lord William Bentinck for acquiring certain rights to navigate the Indus.

The Annexation of
Sindh.

C.—Commercial Treaties with the Government of the Punjab.

" At the same time that it negotiated with the power which held the approach to the Indus from the sea, the Indian Government made friendly overtures to Ranjit Singh, whose attitude had become more conciliatory to us"¹ (the British). In July,

Overtures to
Ranjit
Singh.

¹ " Bentinck," Rulers of India Series, page 168.

1831, a special mission under Alexander Burnes, who was entrusted with a letter from William IV, King of England, and some English horses as a present for Ranjit Singh, was sent by way of the Indus to the latter's court at Lahore.

Burnes' Report.

The said gentleman fulfilled his mission quite satisfactorily. Regarding the commerce with these parts of India, and the opening up the Indus for that purpose, he expressed himself most emphatically in favour. He observes "There is, perhaps, no inland country of the globe which possesses greater facilities for commerce than the Punjab, and there are few more rich in the production of mineral, vegetable and animal kingdoms".¹ And again, "the navigation of the Indus and its tributary rivers, when laid open to the merchants, must advance the interests of commerce."² In addition to this, he reported that all the rivers of Punjab were more or less navigable. There could not be a more favourable report. The British Government, therefore, determined to take up the matter seriously.

The First Treaty, 1832.

A commercial Treaty to regulate the navigation of the Indus and the collection of duties on merchandize was concluded with Ranjit Singh on 26th December, 1832.

The duties to be levied.

A tariff, exhibiting the rate of duties leviable on each description of merchandize was to be established. This was to serve as the standard for the guidance of the Superintendents and Collectors of Customs, if approved by both the Governments. (Article 5). Moreover this was to apply exclusively to the passage of merchandize by that route, and not to the transit duties levied on goods proceeding from one bank of the river to the other, nor with the places fixed for their collection. (Article 2).

Merchants were invited to adopt the new route with perfect confidence. No unnecessary molestation was to be shown to them (Article 6). But they were required to secure a passport before entering the territory of the Maharaja, by applying to the latter's Agent at Harike, or the Company's Agent on the left bank of the river Sutlej (Article 4). They were further required

¹ Alexander Burnes' "Travels into Bokhara," Volume II, page 396.

² *Ibid*, pages 396 and 396.

to show due regard to the authority of the Maharaja and to the civil and religious institutions of the Sikhs in the territory of their Government (Article 3).

At Mithankot and Harike where alone, the boats in transit on the river were liable to examination or stoppage, the Maharaja was to appoint officers for the examination of the goods and collection of the duties (Article 7).

The Superintendent stationed at Mithankot having examined the cargo was to levy the established duty, and to grant a passport, with a written account of the cargo and freight. On the arrival of the boat at Harike, the Superintendent at that station was required to compare the passport with the cargo; and to charge the established duty on any excess of goods (Article 9). The same rule held good regarding merchandize conveyed from Harike down the rivers towards Sindh. (Article 10). If the boats would stop on the way to take in or give out any cargo the goods were liable to the local transit duties. (Article 6). The Maharaja's Officers were to collect only his share of the duties on the right bank of the River Sutlej in virtue of the Maharaja's own dominions, and of those in allegiance to him. (Article 11).

The levy of duties on the value and quantity of the goods gave rise to misunderstanding. This system was, therefore, altered by a Treaty, concluded on 29th November, 1834. It was provided that a toll of 570 rupees shall be levied "on all boats laden with merchandize in transit on the rivers Indus and Sutlej between the sea and Rupar, without reference to their size or to the weight or value of their cargo". It was to be divided among the different States in proportion to the extent of territory which they possessed on the banks of these rivers. (Article 1).

Ranjit Singh's share of the toll was as under :—

	Rs. A. P.
In right of the territory on the right bank of the Rivers Indus and Sutlej ..	155 4 0
In right of territory on the left bank of the rivers Indus and Sutlej ..	67 15 0

The Second
Treaty 1834.

This was to be levied on behalf of the Maharaja only at Mithankot and Harike-Pattan. (Article 2). A British Officer and a native agent on behalf of the British Government were to reside opposite to Mithankot and Harike Pattan respectively to look after the trade. The agents of the Bahawalpur State and of Sindh residing at these places were required to co-operate with them. (Article 3).

The Third
Treaty 1839.

Objections were urged against the levy of the same duty on a boat of a small as well as of a large size. It was, therefore, agreed upon the 19th May, 1839, to levy duty on the merchandize, and not on the boats, at one place, either at Ludhiana or Ferozepore or at Mithankot.¹

The Fourth
Treaty 1840.

Mr. Clerk, Agent to the Governor-General in the Khalsa Durbar in May, 1840, explained to the Durbar, "The difficulties and inconvenience which seemed to result to trade under the system proposed last year, in consequence of the obstruction to boats for the purpose of search and the ignorance of the traders, and the difficulty of adjusting duties according to the different kinds of articles freighted in the boats",² and proposed to revise that system. A scale of duties proportionate to the measurement of boats, and not on the kind of commodities was, therefore, substituted.³ Moreover grain, wood and limestone were exempted from duty.

The annex-
ation of the
Punjab.

This took place in the reign of Maharaja Kharak Singh, the son and successor of Maharaja Ranjit Singh, in 1840. He died immediately, leaving the Punjab a veritable scene of chaos and anarchy. The Khalsa Army getting out of control, invaded the British territory, but was defeated at Aliwal, Mudki, Ferozshahr and Sobraon. As a result of this, a Council of Regency was established at Lahore. Again there was a revolt in 1848, which resulted in the final annexation of the Punjab to the British territory.

¹ For rates of duty leviable by Maharaja Ranjit Singh on merchandise navigating the Sutlej and the Indus, see Appendix No. I.

² Preamble to the Treaty.

³ For detailed account, see Appendix No. II.

D.—Commercial Treaties with Bahawalpur State.

The third state whose co-operation was required in this commerce was Bahawalpur. A Treaty, therefore, was concluded with the State on the 2nd of February, 1833. The Nawab agreed to similar terms regarding the river commerce as had been stated in the first Treaty with Ranjit Singh. In 1835, the Nawab also agreed to the levy of 570 rupees as toll on all boats laden with merchandize in transit on the rivers Indus and Sutlej. His share was fixed at Rs. 106-12-2.

Treaty with
Bahawal-
pur.
1833.

1835.

In 1838 the schedule of tolls was revised for those boats which did not traverse the whole length of Bahawalpur territory.¹ In 1840, grain, wood and limestone were exempted from duty (Article 1). Except these, duties were to be levied on all sorts of merchandize according to the three sizes of boats. (Article 2). Certain changes were also made in the duties to be levied.² In 1843, the duties were reduced to one-half. In 1847, these duties were altogether remitted. Again in 1855, the ferry rates on the Sutlej in the territory of the Nawab were reduced by him.

1838.

1843.

1847.

E.—Condition of navigation at the time of the annexation of the Punjab.

Such were the arrangements entered into by the British Government and the Punjab, the Bahawalpur and Sind Chiefs for the navigation of the Indus, and encouragement of the commerce by that route. As a result of these arrangements, a regular trade was established between the interior of the Punjab and the sea. This was done usually by native boats in the Punjab and steamers in Sindh, as the Punjab rivers were unsuited to navigation by steamers of heavy draught.

The Punjab was annexed in 1849 to the British Empire. The new Government was an enlightened one. Its policy as stated in the first Administration Report was as under :—

The Policy
of the New
Govern-
ment.

“ The resources of the country were to be developed ; trade, agriculture, and commerce were to be fostered ; canals were to

¹ For details, see Appendix No. III.

² See Appendix No. IV.

be cut; levels taken, roads constructed; the mineral resources of the Alpine regions, bordering on the Himalayas were to be explored. *River navigation was to be promoted*".

**The purpose
of this
Monograph.**

It is not our intention here to describe how for all this has been accomplished. We will refer only to the navigation of the Punjab rivers, and particularly that of the Indus, which was done under the supervision of the Marine Department of the Government of the Punjab.

CHAPTER II.

Navigation of the Lower Indus.

Early attempts.

Steamers had plied on the lower Indus long before they were introduced in the upper regions of that river. It was in 1835 that the Government of India placed its first steamer on the Indus. The number of steamers was subsequently increased, so that by 1847 ten vessels and forty-three barges were employed on the river. They were primarily meant to carry Government stores and troops ; but they had, from the very beginning, carried on considerable trade both up and down, and passenger traffic as far as Multan in the Punjab. The returns, it seems, were profitable though they varied from year to year.¹

Government
Indus Steam
Flotilla.

The Flotilla pertained to the Bombay Government, and was primarily meant for the lower reaches of the river. But its steamers usually went up as far as Multan and sometimes further. During the rainy season, they proceeded as far as Kalabagh on the Indus, Jhelum on the Jhelum, Lahore on the Ravi, and Ferozepore on the Sutlej. But this was very rare. They were, therefore, not very useful for commercial purposes to the Punjab. Moreover they, being primarily meant for the Government's own use were mostly occupied by passengers, troops, Government stores and treasure, and had very little accommodation for private or for commercial goods.

The Punjab
and the In-
dus Flotilla.

Moreover they had to compete with the native boats which plied regularly up and down the Punjab rivers to Karachi. The freighting for native boats from Lahore to Karachi was about

Compara-
tively high
freight.

¹ No statistics are available in the Punjab Government records, as the Flotilla was under the management of the Bombay Government.

one rupee per maund,¹ while that of the flotilla was sixty or eighty per cent. in excess of the rates of the native craft,² the freightage from Multan to Karachi—a much shorter distance than from Lahore to Karachi—being about ten or twelve annas per maund. This difference in rates was sufficient in itself to make these steamers useless for the purpose of the Punjab commerce.³

So, although they were of some use to the Government and the European community, yet they were incapable of materially helping the export or import trade of the Punjab as they were not sufficiently numerous, spacious, or economic.

The Board of Administration's attempt to make it useful for the Punjab.

As has been mentioned above, the Flotilla steamers as a rule went only up to Multan. To make up for this deficiency, the Board of Administration proposed to supplement this service by using native boats upstream. There was already a Steam Agency at Multan under the charge of Captain Hopkins. His duty was to receive the goods from the steamer at Multan, to transfer them to the store boat and then to deliver them to any one authorized to receive them. As a remuneration he received a percentage of five per cent. on all receipts through him of passage money or freightage of goods (downwards only) except Government stores.⁴ The Board proposed to extend the existing arrangements, and invited suggestions for the purpose in 1852. The result was that Captain Hopkins undertook the duty of looking after and forwarding packages for the payment of Rs. 50 per mensem.⁵ The matter was again taken up in 1855.⁶ It was suggested by Mr. Thornton, Commissioner and Superinten-

¹ Punjab Government Administration Report for 1853-54, and 1855-56, paragraph 121.

² *Ibid.*, paragraph 122.

³ For detailed account see Appendix No. V, Tables A and B.

⁴ Letter from Mr. Edgeworth, Esquire, Commissioner and Superintendent, Multan Division, to P. Melvil, Esquire, Secretary to the Board of Administration, No. 520 Multan (Proceedings 4th September 1852, Nos. 105-06, General Department.)

⁵ Letter from Commissioner and Superintendent, Multan Division, to the Secretary to the Board of Administration, No. 576, dated Multan, 22nd March 1852.

⁶ Letter from Edward Thornton, Esquire, Commissioner and Superintendent, Jhelum Division, to R. Temple, Esquire, Secretary to the Chief Commissioner for the Punjab, dated Murree, 4th September 1855.

dent, Jhelum Division, that native boats be used to establish a regular river communication between Multan and Jhelum. He proposed to have two agents, one at Multan and the other at Jhelum. Any person whose property reached Multan could consign it to the agent at Multan, who would forward it by water to the agents at Jhelum, whose duty it was to carry out any orders the owner might send them.¹ Mr. K. McIver of Multan and Messrs Jamusjee & Co., Parsee Merchants at Jhelum, expressed their willingness to act as agents at Multan and Jhelum respectively.²

A scheme to open up the Jhelum.

A boat or two was to leave Multan regularly each month on arrival of a steamer from Karachi. All the cargo accumulated at the time was to be despatched by this boat. This meant the detention of the goods at Multan for sometime and consequent delay in reaching their destination. In connection with this, in the letter referred to in the footnotes on page 18, Mr. Thornton, states, "I should think, however, that if there really is a considerable despatch of goods in this direction (Jhelum) from Multan the boat loads will accumulate rapidly and the detention at Multan will not be considerable at first and will soon diminish."³ If this difficulty could be got over, there was every chance for the scheme to succeed. The merchants were to be persuaded to use this novel way and to send for their goods by water rather than to use the circuitous and expensive route *via* Lahore by land carriage. Certain firms, such as the Firm of Messrs. Anderson and Co. at Murree actually expressed their willingness to do so. But unfortunately the scheme does not seem to have been fairly tried (probably on account of the Mutiny), as we do not hear anything about it in the correspondence thereafter.

Other arrangements in connection with this scheme.

¹ Letter from Edward Thornton, Esquire, Commissioner and Superintendent, Jhelum Division, to R. Temple, Esquire, Secretary to the Chief Commissioner for the Punjab, dated Murree, 4th September 1855.

² Letter to Commissioner and Superintendent, Jhelum Division, from K. McIver of Multan, dated 4th September 1855 (Proceeding week 15th September 1855).

³ Letter from Edward Thornton, Esquire, Commissioner and Superintendent, Jhelum Division, to R. Temple, Esquire, Secretary to the Chief Commissioner for the Punjab, dated Murree, 4th September 1855. No. 146 'P. S.' to the above.

The Punjab
Rivers.

This clearly shows that the Government was not indifferent to the navigation of the Punjab rivers. But the success of navigation clearly depended upon the channel of the rivers. Thus the improvement of the channel was of great importance. This was no light task, as the Punjab rivers were and are well-known for unreliability and fickleness. Their channels were full of impediments. Accumulated heaps of earth, sand and stones, the branches of trees and snags, etc., were only too common.¹ To add to all this the rivers were known to have changed their courses very frequently during recent times. It was, therefore, necessary, that the channels of the rivers be improved.

The im-
provement
of river
Jhelum for
navigation

Lt. H. W. Grounds, I. N., was deputed to survey the river Jhelum and suggest means for the improvement of its channel. He reported as under :—²

The channel of the river Jhelum was divided in many small channels at various places, which made the river shallow and, therefore, proved detrimental to the navigation of the river. In the cold season of 1852-53, there were eight places where the river Jhelum was divided into many small channels.

1. At the village of Naugeraine on the right bank, a short distance below Jhelum the river was divided into three channels.
2. At the ferry of Chotallal.
3. At Rasul the river was divided into four channels, that along the left bank being the best.
4. Between Muriabh and Malikpore on the right bank, there were two channels.
5. There were many small channels at about three to five miles below Jalalpore.

¹ See the accompanying maps of the channels of the rivers at the end and facing page 21.

² Letter from Lieutenant H. W. Grounds, I. N., Surveyor, Punjab Rivers, to E. Thornton, Esquire, I.C.S., Commissioner and Superintendent, Jhelum Division. Copy of this attached with L. No. 79 from the latter to R. Temple, Esquire, Officiating Secretary to the Chief Commissioner. (Proceedings for 29th July 1854, No. 84 B-D., General Department).

6. Between Burj Ahmad Khan on the right bank and Mul-urkwalli on the left bank, the river was divided into two main branches, that along the left bank being the best.

7. Near Pind Dadan Khan and Miani as per accompanying sketch (see the map facing this page).

8. There were minor channels in the neighbourhood of Chak Ram Das and Chotchu.

Now it is quite obvious that when the river is divided into two or more channels, the water it contains must be accordingly divided, thereby creating two shallower channels than there would have been if all the water had been confined to one channel. To deepen the river being the concern of greatest importance, Lt. Grounds suggested confining the water to one branch.

How this could be done was stated by him by describing a particular portion of the river near Pind Dadan Khan and Miani. As can be seen from the accompanying sketch from a single stream below Raipur, the river, opposite the village of Kharr, was divided in two branches, which in turn were further sub-divided. Thus a large bulk of water was divided to minor channels from the main one.

The River
Jhelum near
Pind Dadan
Khan and
Miani.

As the channel along the left bank was more direct and less intricate, it was suggested to keep it open. The water of the other main branch was to be directed to this channel by bunding it off, causing it immediately to scour and deepen. To do this, the bund should be commenced from the right bank at the most convenient point or where the depth of water was least, for instance at A from whence the piles ought to be commenced extending diagonally in the direction of the stream to B—a distance of two thousand of yards. But as such a bund would have been very expensive and would, moreover, have taken a very long time, probably it was more advisable to allow the river to take to the opposite side by throwing the bund from A to C, a distance of not more than seven or eight hundred yards. Below this smaller bunds would be required across the minor channels.

These and other similar measures were to be taken every year, because during the rainy season, a river in the Punjab is a veritable sea—a seething mass of water. Floods were and are so common that such bunds as were proposed would have been washed away. The first of October was suggested as the date when such measures were to be commenced every year, as at that time the rivers are considerably fallen and therefore sluggish and do not offer much obstruction to the work.

There was to be had a regular establishment to look after the works. It was to consist of a munshi, a pilot, three chaprasis, and two boats of 300 maunds each with their crews. The expenditure of the establishment and the works for the first year was estimated to be Rs. 10,000. This sum was to be realized from the profits which it was expected would accrue by running a regular steam communication. Part of this was also to be paid by the steamers of the private companies.

This was submitted to the Chief Engineer, Punjab, for opinion by the Punjab Government. He pointed out the following difficulties on the practical side of the scheme.¹

1. The destruction of the bund by winter freshets and consequent interruption to navigation. This interruption would cause great delay which in turn might entail mercantile loss, and hence the unpopularity of the route.

2. The destruction of land by the river being diverted in the cold weather to side channels, and thus having a direction given to it which might influence it in the time of inundations, and cause it to encroach upon the banks more than usual, and destroy cultivation and villages. To avoid this evil, the central channels should be selected, where possible, instead of the side ones.

3. Supposing the bunds to be permanent, and the river confined to the proposed channel, the silt picked up by the increased velocity would be carried lower down, and deposited at

¹ Letter No. 1877 of 1854-55, dated 31st July 1854, from Lieutenant-Colonel R. Napier, Chief Engineer, Punjab, to R. Temple, Esquire, Officiating Secretary to the Chief Commissioners for the Punjab.

the first decrease of velocity. This would probably have caused the sub-division of the river at places where it did not exist.

He, therefore, expressed his opinion that by the expenditure of Rs. 10,000 and in only one season, no satisfactory results could be arrived at. Along with this he suggested that it would be much better to expend money on building steamers of sufficiently light draught to suit the river. In his opinion this was equally applicable to the other rivers of the Punjab besides the Jhelum.

Another suggestion for the improvement of the navigation.

The above was submitted to the Government of India for orders. It concurred with Lieutenant-Colonel Napier and admitted the doubtful nature of the plan submitted by Lt. Grounds.¹ Henceforward all attempts were centered round Lieutenant-Colonel Napier's suggestion.

Attempts of Private Companies to navigate the Lower Indus.

Now let us turn again to the navigation of the Lower Indus. When attempts were being made to open up the Jhelum river, in addition to the Indus Flotilla Company, certain other private companies put their steamers on the lower regions of the Indus.

In 1858-59, the steamers of the 'Oriental Inland Transit Company' made their appearance on the Indus. They were of light draught and great power, but did not prove so successful as could be desired.

The Oriental Inland Transit Company.

The Sindh Railway launched its first steamer on the 27th of March, 1859. The number of the steamers was subsequently increased to six. These steamers were primarily launched with the purpose of doing away with the difficulties met with in the transport of materials for the Punjab railways and other Government stores.

The Sindh Railway Tug Steamers.

Another company by name, 'The Oriental Inland Steam Navigation Company' was started for the purpose under the fairest auspices in London. It attempted to commence its operations in the year 1859, but unfortunately the arrangement

The Oriental Inland Steam Navigation Company.

¹ Letter No. 3740 from G. F. Edmonstone, Esquire, Secretary to the Government of India, to J. Lawrence, Esquire, Chief Commissioner of the Punjab, dated Fort William, the 25th August 1854.

failed—" a consummation which could not be sufficiently regretted."¹

In 1862, however, it succeeded in placing on the river steamers and barges intended to form a long train of cargo-carrying vessels. The strength of the stream proved to be too great and therefore, after a few years, the company failed. Its property was sold, and the capital subscribed was lost.

Early Commerce by the route of the Indus.

Karachi, as a glance at a map of the Punjab and Sindh will show, is most obviously the natural port for the Punjab. In fact, "From the Sutlej to the Oxus, whosoever wishes to communicate with any place beyond the sea, must pass through Karachi. It occupies a position scarcely less favourable to commerce than that of Alexandria."² It is "a position of very great importance, whether regarded in a commercial, a political, or a military point of view. In a commercial point of view, it may be defined as the gate of Central Asia, and is likely to become to India, what Liverpool is to England."³

There has, therefore, always been a strong tendency of the trade to run towards Karachi. This is the natural route, if the surplus produce of the Punjab is to go out to other countries.

**The Export
trade of the
Punjab.**

The steamers in the lower Indus were primarily there for the convenience of the Government, but if accommodation were available, they would take in private merchants' goods bound in either direction. The downward trade usually consisted of such articles of export as cereals, indigo, sugar, cotton, linseed, rice, saltpetre, wool, oilseeds, spices, bees wax, shawls and silk.

**The Import
trade of the
Punjab.**

The upward or import trade comprised piecegoods, dye-wood, European stores, and bullion. The trade was quite thriving

¹ Punjab Government Administration Report for 1858-59, paragraph 118.

² Andrew, W. F. *Indus and its Provinces*, page 49.

³ Thornton *Gazetteer of India*, quoted in *ibid.*

and increased from year to year as is clear from the following figures¹ which show the returns of exports and imports at the port of Karachi :—

Year.	Exports.	Imports.	Total.
	£	£	£
1843	1,010	121,000	122,010
1847	154,000	287,000	441,000
1851	244,000	489,000	733,000
1854	604,000	629,000	1,233,000

The imports of 1854 included Manchester cotton goods to the value of £294,000 and silk from Persia and Central Asia worth £28,000. The exports consisted of wheat worth £66,000, oilseeds worth £137,000 and sheep's wool to the value of £221,000. This development in trade was more than satisfactory and led Lord Dalhousie to remark :—

“The channel of the Indus is becoming the great highway between Europe and the North-Western Provinces of our possessions.”²

The steamers of the flotilla were ill-adapted to the peculiar requirements of the country and were quite inadequate to meet the pressing demands for passage and commercial freight. So much so that goods frequently remained for months at Karachi and Multan from the want of the means to transport on the Indus. This is corroborated by the following statement made by Major G. W. Hamilton, Commissioner of Multan, in April 1857. “The freight afforded by steamers proceeding up the river was, however, quite inadequate to the demand. Every vessel was as full as she could hold; and had quadruple the number of vessels been employed, they would have obtained full cargoes. Goods were

The Govern-
ment Indus
Flotilla
inadequate
to meet the
growing
demand.

¹ “The Establishment of A Steam Flotilla on the Indus”—a pamphlet printed by W. M. H. Allen and Co., London, in 1857. (Punjab Government Proceedings).

² Minutes by the Marquis of Dalhousie, 28th February 1856, reviewing his administration in India.

often detained for months at Karachi for want of a means of conveyance; and the agents were eventually obliged to forward them to the Punjab by land on camels. This difficulty was chiefly felt by the European community in the Punjab; and *were the means of transport by the river more extensive, I am sure that nearly all articles of sea-borne produce used by Europeans in the Punjab, would be conveyed by the Indus instead of the line of the Ganges to the Punjab; it would also extend to the north-west provinces.*"¹ And further it was stated by another authority, "I have been repeatedly assured by the Government agents for the river steamers, that they every month reject twice as much freight as the steamers are able to carry, and that this freight is applied for with a knowledge on the part of shippers, that the chance of its being taken is very small. I have known instances of goods at Karachi intended for the Punjab being sent back to Bombay, with a view of being forwarded by the Peninsula and Oriental Company's boats, *vid* Galle and Calcutta, and so up the Ganges to the Punjab, because there appeared no hope of tonnage being available for them in the Indus river steamers for several months to come."²

The abolition of the Government Indus Flotilla.

This clearly shows the inadequacy of the flotilla for the purposes of commerce. This was the reason that made the residents in Sindh and the Punjab desirous that the impetus which private enterprise alone can impart, should be brought to bear on the navigation of the inland waters of the Indus. It was, therefore, decided by the Government of India to abolish it and to hand over the work of the steam navigation to a private company.³

The Services of the Flotilla during the Mutiny.

The above remarks should not be taken to mean that the flotilla was useless. On the contrary it supplied a crying need of a political nature. And it was predominantly for this purpose that it existed. Indeed it rendered a great and very important service during the Mutiny. The flotilla steamers were the sole

¹ Andrew, W. P., "The Indus and its Provinces," pages 146-147.

² *Ibid*, page 80.

³ "The Land of the Five Rivers and Sindh" by David Ross, published 1863. Also Punjab Government Administration Report for 1861-62.

means of communication with the sea-board, when all other means of intercourse of the Lahore Government were cut off during those anxious months. They speedily conveyed up the river to the interior the greater part of the much-needed three regiments of European infantry and one of cavalry, some fifty lacs of treasure, and a large amount of baggage and ammunition. In short they really proved themselves "essential to the existence of British rule in the Punjab."¹

But they proved inefficient from the commercial point of view, and therefore, as has been mentioned above, the management of the enterprise was entrusted to the hands of a private company in 1862. This private company was 'the Sindh Railway Company,' which was already managing the Railway from Karachi to Kotri. The five of the steamers with the flats and the barges of the Government Indus Flotilla were handed over to this company. A considerable amount of correspondence² passed between W. P. Andrew, Chairman of the Board of Directors of the Sindh Railway Company, and Sir James C. Melvill, K.C.B., etc., etc., of the East India House, London. Mr. Andrew proposed to place some efficient steamers on the Indus, so as to supply the missing link between the Punjab Railway, which ran from Amritsar to Multan *via* Lahore and the Sind Railway which ran from Karachi to Hyderabad. The steamers were to run between Kotri, the port of Hyderabad, and Multan. The line consisting of rail and river transit was to be further connected with the proposed Railway from Selencia on the Mediterranean to the head of the Persian Gulf by means of steamers plying in the Arabian Sea and Persian Gulf from Karachi to the head of the latter.³

The Sindh
Railway
Company's
Flotilla on
the Indus.

¹ Administration of the Punjab Territories for the years 1856-57 to 1857-58, paragraph 76.

² This has been published in the form of a pamphlet, "The Establishment of the Steam Flotilla on the Indus," printed in 1857 in London by W. M. H. Allen and Co., 7 Leaden hall Street (Punjab Government Proceedings of the General Department).

³ Letter from W. P. Andrew, Esquire, to E. Hammond, Esquire, Under-Secretary of State etc., (See *Ibid*), dated 2nd March 1857, Compare it with the Berlin Bagdad Railway Scheme of the pre-war days.

Importance
of the
scheme.

Thus a through steam transit by the line of the Indus from Lahore to the sea would be provided. This was surely very important from every point of view.

Political Advantages.

1. The flower of the British Army, numbering seventy thousand men, fifteen thousand of them being Europeans, was stationed in the Punjab. By establishing the proposed steam traffic, this force could be made moveable and thus able to meet and repel any attack along the line of the Indus.

2. And by uniting this line with that of the Euphrates, an additional importance would be imparted to the line; as any force advancing towards the Indus would not only be met on the Indus by the Punjab force, but would also be threatened along the sea-board of the Persian Gulf and the line of the Euphrates in their flank and rear.

3. The union of the Euphrates and the Indus would eliminate the danger of the isolation of Persia. And consequently the much-dreaded Russian invasion of India would be impossible.

4. The control of the channel of the Indus would be sufficient to check any possible disorders in the internal affairs of the Punjab and Sindh.

Commercial Advantages.

5. As this line was to afford a speedy and reliable form of transit, it was expected to prove of immense benefit to the inhabitants of the Punjab and Sindh. The European merchants at Karachi, it was hoped, would soon take to this route and thereby afford a medium for extensive shipments from the Punjab.

6. Such a line would also serve as the most convenient means for the distribution of European manufactures to the remote valleys of Afghanistan, as far as Herat, and in Balkh up to Khiva and Bokhara. This can be best illustrated by Mr. Andrew's own words, " Holding, as we do, the Indus, from Cashmere to

the sea, we have a power, which, if well understood and wisely improved, puts us in possession of the key to the whole commerce of Central Asia, which cannot be pursued without adding to the prosperity and productiveness of our new territories (*viz.*, Sindh and the Punjab).¹

Economic Advantages.

7. The new vessels drawing two feet of water, and of sufficient power to give an effective speed of ten miles an hour against the current of the Indus, were to afford ample accommodation for passengers. The average time for going upwards and downwards between Hyderabad and Multan was to be reduced to four days and a half. This in turn would attract a lot of passengers to this line resulting in profitable returns to the company.

8. It was expected that the pilgrims from the countries on our north-west border *en route* to Mecca and other holy cities, would supply traffic to the railway and steam flotilla and increase the intercourse already established between Karachi and the ports of the Persian Gulf.²

Along with these were considered the views of such an authority as Sir John Lawrence, who said, "Indeed, these two essentials, *viz.*, the rail-road and the steamers may be said with truth to be the crying wants of the Punjab in the Department of Public Works."³ And it was thought desirable to have such steamers on the Indus, as had been advocated by Mr. W. P. Andrew.

The Court of Directors of the East India Company had already expressed themselves in favour of entrusting such a business to a private company.⁴ The Sindh Railway Company was, therefore, allowed to give practical effect to the scheme,

Permission given to the Sindh Railway Company to give practical effect to the scheme.

¹ Letter from W. P. Andrew, Esquire, to Sir James G. Melvill, K.C.B., etc., etc., dated 5th January 1857.

² Andrew W. P. "The Indus and its Provinces," page 49.

³ Quoted by W. P. Andrew, Esquire, in his letter, dated 5th January 1857.

⁴ See the despatch of the Court, 4th June 1856 upon the want of sufficient means of transport on the Indus. The relevant portion is quoted here. "It is very desirable that the deficiency should be supplied by the enterprise of private associations, which might have the effect also of reducing the price of freights which is much complained of."

The company was to issue shares representing a capital of £250,000. The Government was to be a shareholder of the company to the extent of the value of the steamers and other property handed over to the new company.¹ The Government finally retired from the scene in 1862,² while the company carried on its work in the Lower Indus for a very long time to come.

¹ Letter from Sir James C. Melvill, K.C.B., to W. P. Andrew, Esquire, Chairman of the Sindh Railway Company, etc., etc., dated East India House, 17th June 1857.

² See page 27, above.

CHAPTER III.

Navigation of the Upper Indus.

"My opinion of the Upper Indus is that it is navigable throughout the year....."

Report of the 2nd Assistant Superintendent, Inland Navigation, Punjab.¹

A GLANCE at a map of the Punjab will show that the Punjab, *i.e.*, "The Land of Five Rivers," has in fact a system of six main rivers flowing in its territories. They are the Sutlej, the Beas, the Ravi, the Chenab, the Jhelum and the Indus. This system has been named "The Indus System" after the greatest of these rivers, the Indus. The Indus flowing from its source in the northerly direction enters Kashmir. After a long course through that valley, it bends southward and enters the plains of the Punjab at Attock. From Attock, it flows down through the Punjab and the Sindh and finally merges itself in the Arabian Sea. The other rivers originating from various sources in the hills, flow down through the plains of the Punjab and having united themselves at different places, throw their waters into the Indus at Mithankot making a single stream which flows down to the Arabian Sea.

The Indus System.

Thus in the Punjab, if full benefits were to be derived stream navigation must be commenced in all the rivers provided they were adaptable to it.

Now let us see if the extension of steam navigation from the lower region of the Indus to the upper regions of the Indus system (the Punjab) was really desirable. The need as well as the importance of the navigation of the river Indus, upper as well as lower, has been described above. The importance of the matter was

The desirability of establishing steam navigation on the rivers of the Punjab.

¹ Copy attached with the Report of Marine Department of the Punjab Government for 1883-84. (Punjab Government Marine Department Records).

recognised by all concerned and the work was begun in 1835 as described above. When the Punjab was annexed to the British Empire in 1849, the navigation of the Punjab rivers was really an important matter for the newly-established Government, because it could afford a speedy, reliable, effective and cheap means of communication with the Sea. Such a thing was really very important from the military and commercial points of view as was proved by the events of 1857. The Government was wise enough to make this question (River-Navigation) a part of their policy.¹

The suitability of the Punjab for navigation.

It might at first sight appear that Inland Navigation would be flourishing in the Land of the Fiver Rivers. Moreover it could be easily seen from the geographical situation of the Punjab, that it could be turned into 'The Granary of India,' and that the Indus would become the great highway for the export trade of the Punjab. And on this trade, it had been proved by this time, the Punjab would have been justified in setting her highest hopes.

Difficulties in the way of Steam Navigation.

This was to be accomplished ; but it was no light and easy task as might have been imagined. It is true that native boats had plied up and down the river from time immemorial, but the service had never been reliable and efficient because the boats, crude and unscientific as they were, were always unsafe against the proverbial hazards of the shifting and restless rivers of the Punjab. When there were such difficulties in the way of the navigation of these boats, surely there were more in the way of the navigation of steamers, which were to be larger and heavier.

Some of these difficulties were as follows :—

- (1) The Punjab rivers were restless and shifting and, therefore, unreliable.
- (2) They were not of uniform depth.
- (3) At places they were too shallow to admit of steam navigation.
- (4) Their courses were full of impediments such as snags, sand-banks, rock and sunken tree trunks.²

¹ Punjab Government Administration Report for 1849-50, page 30, paragraph 96.

² See the maps of the channels of the rivers at the end and facing page 26.

These were some of the difficulties. But, if they could be overcome by the means at the disposal of the Government, or by the application of the science, enterprise and capital of the Occident, there was a sure and great future for the poor and unhappy inhabitants of the Punjab.¹

Measures to overcome these difficulties could be taken in two directions. Either the channels of the rivers must be improved so as to admit of easy navigation or the steamers must be adapted to the rivers. Both were tried. Lieutenant Grounds, for instance, recommended a scheme for the improvement of one river, in this case, the Jhelum. But it was found in the very beginning that it was very difficult, if not, impossible, to stick to the first method on account of the unreliability of the rivers. The navigation of the Punjab rivers, therefore, hinged on whether suitable steamers could be constructed. And consequently it was decided to get them, if possible.²

Attempts to overcome them.

The Marine Department of the Punjab Government.

In September 1856, a full report was submitted to the Supreme Government on the navigation of the Punjab rivers. Along with this, proposals for the furnishing of steamers of small draught and great power to navigate the rivers upto the northern marts of the Province were also submitted. The events of 1857, though they proved the wisdom of the action to be taken, checked any further improvements. It was, however, decided in 1857-58 to run the steamers between Karachi and Multan, and even further north. But, as we have seen these ran regularly only up to Multan.

Report submitted to Supreme Government

In 1859-60, orders had been passed to effect a survey of the Punjab rivers, but the Commander-in-Chief of the Indian Navy was unable to take any action during the year. It was expected that with the better knowledge of rivers acquired as the result of this survey, the vessels would be able to ascend to Fazilka on the

¹ Unhappy because of the happenings of the period of the Anarchy which preceded the British rule.

² See for further information, page 37.

Survey of the Jhelum and the Indus by Lieutenant Forster.

Sutlej, to Jhelum on the Jhelum and even to Lahore on the Ravi. During the official year 1860-61 Lieutenant C. Forster of the Indian Navy effected the survey of the Indus and the Jhelum. He reported that the channels of the Punjab rivers were frequently shifting and, therefore, their maps and plans were useless for the purpose of navigation. He expressed his view regarding the type of steamers most adaptable to the Punjab rivers, which will be noticed in their due place.¹ As a result of this survey it was definitely established that the navigation of the Punjab rivers was feasible and should be undertaken.

Advantages of the navigation of the Upper rivers of the Punjab.

In 1861,² the Lieutenant-Governor submitted to the Supreme Government his reasons for proposing to navigate the upper rivers of the Punjab. He pointed out that—

- (1) By ³ completing the arrangements as regards river communications, the large military stations of Peshawar, and Rawalpindi could be easily and economically relieved, and supplied with military stores of every kind.
- (2) By thus facilitating the transport of British manufactures, an impulse to commerce with Kashmir, Afghanistan and the countries beyond, would be at once given.

To emphasize the importance of such commerce, the following is quoted from a speech delivered on 18th February 1857 by Mr. Bartle Frere, sometimes Commissioner in Sindh. "If the permanent tranquillity of Central Asia was to be secured ; if the triumphs of Great Britain were to be permanent, they must be rendered so by a mutuality of interests, by the material and civilizing influences of expanding com-

¹ See page 37 below.

² From Secretary, Punjab Government, to Supreme Government, No. 503, dated 15th August 1861.

³ Letter No. 208 from the Secretary to Government, Punjab, and its Dependencies, to the Secretary to Government of India, 13th August 1863 (The Punjab Government Marine Department Records).

merce. The great battle of the country for the tranquillity of Central Asia must be fought at Manchester and Liverpool. If we would command Central Asia, that dominion must be established by opening up a ready market for their raw produce, and subjecting them by force of their own material interests.¹

- (3) The political advantage of being able to strengthen any portion of the frontier at the shortest possible notice by means of these steamers was quite apparent.
- (4) It was later on pointed out by Captain Reddie in his report on the River Indus, that when the Bombay merchants would find a speedy and regular communication established to Dera Ghazi Khan and the upper stations, they would despatch agents for the purchase of cotton and wool. Thereby an impetus to trade would be given and the inhabitants of the district would be induced to turn their attention to the cultivation of cotton.

Other advantages.

This measure would tend greatly to civilize the frontier tribes and bring them, troublesome and wild as they were, to contented submission to the English rule. This would free the Government in course of time from some of the most fertile sources of anxiety and watching.

The Government of India had already recognised the importance of the navigation of the Punjab rivers. In a letter² addressed to the Chief Commissioner of the Punjab, it was stated, "The navigation of the Punjab rivers is so important in its probable effects on the best interests of the Province and of the Government, that it has long been present to the mind of the Governor-General in Council; and it will receive at the proper time all the consideration it deserves."

The approval of the Government of India.

¹ Andrew, W. P., "Indus and its Provinces."

² Letter from G. F. Edmonstone, Esquire, Secretary to the Government of India, to J. Lawrence, Esquire, Chief Commissioner, Punjab, dated Fort William, the 25th August 1854. (Proceedings of the General Department, Government, Punjab)

Now that time had come, when the proposal on the subject submitted by the Government of the Punjab required favourable consideration at the hands of the Governor-General in Council. His Excellency was pleased to express his satisfaction that the subject had received from the Government of the Punjab attention well worthy of it,¹ and approved the proposals submitted to him.

The intentions of the Government.

The Government was only acting the role of a pioneer in this work. It did not propose to continue it for pecuniary advantage. It only wanted to demonstrate that the proposition was profitable, and later on to retire in favour of private enterprise.²

The Marine Department of the Punjab Government organized.

In 1862 a special department for the purposes of Inland Navigation of the Punjab rivers was organized, at the total estimated cost of Rs. 4,03,499 as under :—

	<i>Cost per annum.</i>
	Rs.
Superintendent, Inland Navigation	7,200
1st Assistant	4,200
2nd Assistant	8,000
Establishment of 4 Steamers	58,644
Establishment of two Flats	10,560
Office and Medical Establishment including Contingencies and Travelling Allowances	20,947
River Conservancy Works	23,288
Factory	45,600
Fuel for Steamers and Factory	30,000
Stores for ships, Engines and Factory	2,00,000
Total ³	4,03,499

The item for 'Stores for ships, Engines and Factory' was rather high on account of that being the first year. It was expected that it would be reduced in subsequent years.

¹ Resolution No. 99, dated 23rd September 1861, mentioned in the letter from the Secretary to Government, Punjab, and its Dependencies, to the Secretary to Government of India, Marine Department, Calcutta, No. 208, dated Murree, 13th August 1863.

² *Ibid*, paragraph 18.

³ Punjab Government Administration Report for the years 1861-62.

The function of the department was to look after all matters connected with river navigation. It was to take care of the vessels, their trips, cargoes, earnings and repairs, as well as to make the river fit for navigation purposes. For these purposes the department was divided into four branches each under a separate office and all under the supervision of the Superintendent of Inland Navigation.

The work of the Department.

Captain Hampton, who had for many years commanded steamers on the Ganges, was selected by the Marine authorities in Calcutta for this post.

The Superintendent, Inland Navigation, Punjab.

These four were the Conservancy, the Factory, the Stores, and the Accounts branches. It is proposed to deal with them separately.

The four branches of the Department.

As has been remarked above, for the efficient and regular carrying on of the river navigation, it was necessary to adapt steamers to the rivers. The importance of the fact was recognised in the early stages of the experiment. During the official year 1860-61, Lieutenant C. Forster of the Indian Navy, was deputed to submit a report on the subject of the navigation of the Jhelum and the Indus, and made the following remarks upon the Upper Indus :—

The steamers for the rivers.

“ The river is in many respects superior to the Jhelum. Steamers somewhat larger than those recommended for the latter river may be designed ; and I think that for the low season, upon which, after all, the navigation of these rivers depends, the following approximated dimensions should not be exceeded :—

Length	..	..	..	..	170 feet.
Breadth of Beam	..	..	..	..	35 feet.
Depth	..	..	..	..	5 to 5½ feet.

Engines should be of from 80 to 90 horse power and the draught ought not exceed two feet.....

“ It would seem that steamers for that river (Indus) should be low, shallow, and broad ” like the native boats which were in use upon that river. In short it was

reported, "the navigation of the Punjab rivers hinges upon whether steamers of two feet draught can be constructed, possessing speed and capacity, and strong enough to bear occasional grounding without material injury."

The type of steamers purchased for the purpose.

This was the type of steamers required for the Punjab rivers. But Lieutenant C. Forster had himself expressed doubts if it was possible to obtain them. He said: "But with the present depth of hold which the flotilla steamers possess, there is no prospect of being able to construct others of so light a draught as is necessary on the upper rivers. In consequence, too, of this draught to which they may be limited, it may well be doubted whether, engines powerful enough to propel them against the current of inundation can be put on board them." Such were some of the difficulties in the way of getting proper steamers. Nevertheless, the Government of the Punjab, having received the approval of the Government of India, sent orders to the Bombay Government to place steamers at the disposal of the former Government. The Lieutenant-Governor of the Punjab was also desired to forward to the Central Government "a detailed description of the kind of boats required" for transmission to the Secretary of State for India, with a view to their being sent out from England.¹

In a subsequent letter² the Lieutenant-Governor proposed to have four steamers to establish regular communications which was also approved of by the Supreme Government.

The steamers from Bombay not satisfactory.

The steamers sent from Bombay were not in a satisfactory condition. They were in such a ruinous condition that for most of the time during the succeeding year they were detained for repairs. Consequently the returns shown by them during the year were not satisfactory. Moreover they were not exactly of the required draught. They drew three feet eight inches.³ They

¹ Letter No. 208 from the Secretary to Government, Punjab, and its Dependencies, to the Secretary to Government of India, Marine Department, Calcutta, dated Murree 13th August, 1863. (Marine Department Records, Punjab Government)

² No. 2304, dated 9th November 1861.

³ Letter from the officiating Secretary to Government of Punjab, to the Secretary to Government of India, Marine Department, No. 244, dated 18th September 1863, paragraph 3 (Punjab Government, Marine Department, Records).

were subsequently lightened somewhat, yet they were unsuitable to the shallow rivers of the Punjab and, therefore, unsatisfactory. Later on attempts were made to obtain an improved design.

It was originally suggested by the Lieutenant-Governor of the Punjab to navigate the rivers Jhelum and the Chenab. But after discussing the subject with the Marine authorities at Calcutta it was decided to open up for navigation the river Indus instead of the Jhelum and the Chenab : and for the following reasons :—

- (1) Lieutenant Forster had reported that the rivers Jhelum and the Chenab were not navigable save by vessels of very light draught. But the vessels which were obtained from Bombay had a draught greater than 8 feet, and were consequently unsuited to these rivers. Therefore the navigation of the Jhelum and the Chenab could not be tried.
- (2) The political advantage of traversing the Indus with steamers was quite obvious. And in the state of frontier politics in 1863, such an advantage was really worth something, as it meant nearly doubling the military strength on the frontier.¹
- (3) It was expected to effect a large saving in the conveyance of military stores up the Indus. This saving was estimated to be Rs. 48,000 yearly.
- (4) A nearly equal sum was expected to be saved from the conveyance of Ordnance stores.
- (5) Invalid soldiers being sent from Peshawar to Bombay had formerly to go by the land route *via* Lahore and therein to suffer great hardships. The Steam Flotilla was to save them from this march, if they cared to embark at Attock or Makhad. The saving to be effected thereby was estimated to be 10,000 rupees, besides finishing the journey much more quickly.

It was originally intended to navigate all the rivers of the Punjab.

The Indus
and
The Jhelum
and others.

¹ No. 1 paragraph 4. (Footnotes).

Altogether a saving of 1½ lakhs of rupees was expected.¹

- (6) On the other hand there were better prospects of commercial activity on the Jhelum, as it opened the way to the interior of the country. The force of this argument was minimised by the expectation that a sufficient amount of trade would be shortly started on the Indus.

Only the Indus to be navigated.

It was, therefore, decided to employ the steamers on the Indus alone. But the Punjab Government did not like to see the navigation of the Jhelum, Chenab and Sutlej completely abandoned; rather it strongly advocated their cause, and desired to induce a private company to take up the work.

The headquarters of the Marine Department.

The headquarters of the department were fixed at Mithankot—about 540 miles from the sea. In December, 1862 they were shifted to Sukkur, as Mithankot had been washed away by floods. The town of Sukkur was found by experience to be the connecting link with the towns of the Upper Indus. The steamers were first employed between the river ports of Mithankot and *Kalabagh* and shortly afterwards their field of action was extended to *Makhad*—the total distance of 357 miles. They commenced their work in June, 1862.

As has been remarked above² the steamers were only to ply on the Indus. It, therefore, seems necessary before we take up the other activities of this Department to observe the river—the field of action, as it was in those days and the subsequent attempts to improve its channel for the purposes of speedy, easy and safe navigation by steamers.

The Upper Indus.

The Upper Indus, unlike most other rivers in India rises and falls with great frequency. Even during the low season when other rivers remain at a fixed level, the Indus periodically rises.³

¹ Letter No. 208, from the Secretary to Government, Punjab, and its Dependencies, to the Secretary to Government of India, Marine Department, Calcutta, dated Murree, 13th August, 1863. (Punjab Government, Marine Department, Records).

² See page 50 above.

³ "Annual Report of the Marine Department, dated Sukkur, 26th May, 1864. (Original manuscript copy in the Punjab Government, Marine Records).

"Consequently the depth of the Indus was not fixed. Marked on the gauge at Sukkur, it varied from 149 inches in the middle of July, 1863, to zero in the beginning of March, 1864."¹ Even in the dry season, the subsiding of water was not regular and continuous. Sometimes after a steady fall for several days, it was not uncommon to find a rise of six to ten inches in a day.

Generally speaking the average depth of the channel between the Sukkur and the Chenab (Mithankot) was three feet six inches; and between that place and Dera Ismail Khan the same.² Between Dera Ismail Khan and Kalabagh shoals two feet below the surface were numerous.³ During the low season of 1863, two of them eighteen inches below came in the way of the steamers at Kalabagh and Isakhel and caused serious delay.

The average depth.

The shoal at Kalabagh was caused by the main body of water at the place having set down along the right bank. This was taking exactly the opposite direction to the direction of the previous channel, which was eastward. Thereby the steam was confined between two rocky banks, forming a narrow channel, which drained the other to the eastward of its supply. In this direction only a small quantity of water flowed. The current, therefore, was very weak and had not the scouring effect to deepen the channel, which as the river continued falling became shallower, and when it had reached its lowest level, there was a depth of only 18 inches left. This shoal in the opinion of the second Assistant Superintendent of the Inland Navigation of the Punjab, was created annually by the process described above and therefore was expected to be an annual annoyance, unless some measure was taken to destroy it. The only possible measure was to open out the Eastern Channel, the upper entrance of which was two miles below Kalabagh and the lower entrance near Kafirkot. But this could not be accomplished permanently by artificial means and was, therefore, to be left to chance.

The shoal at Kalabagh how formed.

¹ Punjab Government Administration Report for 1863-64, paragraph 230.

² *Ibid.*

³ Annual Report of the Marine Department, dated Sukkur, 26th May, 1864 (Original manuscript copy in the Punjab Government, Marine Records).

Further up stream between Makhad and Kalabagh, the river was safely navigable for vessels of deep draught. The water was deep between the two places, and the current never exceeded two miles per hour.

The rate of the current.

During the dry season, the maximum rate of the current was $3\frac{1}{2}$ knots and the average was about $2\frac{1}{2}$ knots. During the freshets, owing to the shallowness of the river being so widespread and divided, the current in places (where it is confined between sands or flowing over shoals) exceeded $7\frac{1}{2}$ knots. The average rate of current during the freshets was about $6\frac{1}{2}$ knots.¹

The importance of the Conservancy work on the Indus.

In short the capricious and variable nature of the stream was proverbial. Sudden falls, if heavy, often obliterated all traces of the channels, which were thus diverted from their original direction to make room for new ones. These, too, were ever changing and, therefore, were always difficult for navigation.

Such was the river in which the experiment of steam navigation was to be tried. It is quite apparent that there were many difficulties such as the shallowness of the river and the existence of shoals to be overcome, if efficient stream service was to be established. The attempt must be made to deepen the channel at places; the shoals must be removed; and the sunken trees and other impediments must be taken out of the river in the interest of the regular steam service.

¹ Annual Report of the 2nd Assistant Superintendent, Inland Navigation, Punjab, attached with the Annual Report of Marine Department, dated Sukkur, 23rd May, 1884.

CHAPTER IV.

The Conservancy Branch of the Marine Department of the Government of the Punjab.

The Conservancy Branch of the Marine Department was organized under Captain D'Arcy, the second Assistant Superintendent, Inland Navigation, Punjab, to look after the channel of the river. The importance of such a work was realized early, so that Captain D'Arcy observed in 1863, "In giving my opinion if the navigation can be kept open by extending the conservancy works to a greater extent and increasing the establishment, I certainly think *a greater improvement would be obtained by doing so*, as many of the smaller shoals may be deepened with bandals, as also snags and other impediments removed."¹ Thus the branch commenced its work with the inception of the department. But unfortunately in 1862 the headquarters of the department had to be shifted to Sukkur; consequently the conservancy work was suspended during the year.

The importance of the Conservancy Work.

In 1863-64, steps were taken to improve the channels below Kalabagh. A spur formed of pebbles and blocks of stone was run out to the length of 470 feet, with the object of closing an unnavigable channel, which being on a lower level drained off the water from the main stream.

The Work of the Branch.

Next year the conservancy work was transferred to the Department of Public Works. Some work in the way of clearing the channel was done.

During 1865-66, efforts were made with varying success for the formation of new, and the deepening, widening, or otherwise improving, existing navigable channels by the construction of bandals

¹ "Annual report of the second Assistant Superintendent, Inland Navigation," copy attached with "Annual Report of the Marine Department" for 1863-64 (Punjab Government Marine Department Records).

and bunds, thereby to control and direct the current, as a result of which the improvements to these channels were sought to be effected. A number of snags on roots of trees were also removed from the channel of the river.

An important work was undertaken for throwing a large body of water into the channel leading to Jalapur, below Kalabagh. The object was to deepen the channel thereby to make them fit for navigation. For this purpose, it was proposed to construct a bund of stones of about 4,000 feet to intercept the stream. During the year, about 4,000 feet of bund were constructed. As a result of this, the channels were considerably deepened, a great body of water having flowed into them. But during 1866-67, the river receded, and the bund was left almost in still water. Thus the experiment of diverting the channels by means of 'bandals' failed.

The 'bandal' work unsuited to the river Indus.

The attempts to improve channels by means of 'bandals' had also failed in some other cases. In one case the stream turned round slightly, thus silting up the 'bandals' and the head of the shallow channel. Moreover the rapid shifting of the river rendered improvement by means of 'bandals' very uncertain. This happened in two cases during the year. In one instance, a shoal channel was reported. Before anything could be done, a new channel opened out rendering the proposed work unnecessary. In the second instance a temporary rise of the river completely changed the channel.

The Conservancy Department then decided not to continue 'bandal' work, which had proved unsuitable to the river.¹ Henceforward the conservancy establishment was to be employed mainly for the purpose of removing snags.

During 1867-68, in accordance with the decision of the last year, a large number of snags or stems of trees were removed by chain-tackle or by blasting, about 2,500 lbs. of gun-powder being used in the process. In the western channel below Kala-

¹ Punjab Administration Report for 1866-67.

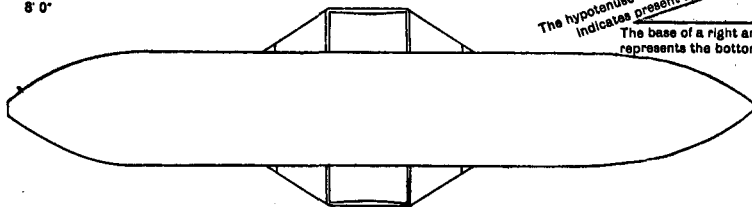
P. G. S. V. NAPIER.

The blue portion of the hull represents her spoon bow as at present.

The red part the proposed alterations to that portion in order to give her greater buoyancy and enhancing her speed.



DIMENSIONS.
 Length 100' FL.
 Breadth 24' 3"
 Depth 8' 0"



The hypotenuse of a right angle triangle indicates present spoon bow

The base of a right angle triangle represents the bottom of the hull

The perpendicular line represents the stem or bow as first entrance

bagh, four large masses of sandstone were removed. The channel below Dera Ismail Khan was cleared of the wreck of a large boat.

In 1868-69, the snags were removed from a distance of over 280 miles at an expenditure of 3,000 lbs. of gun-powder in 154 charges. Similar work was done, next year, between Kalabagh and Sheru—a distance of 250 miles.

B.—The Vessels.

We have described the river and the measures taken to improve it. Now we proceed to describe the vessels which plied on the river.

The importance of the right sort of steamers to the navigation of the Punjab rivers has been explained above. So we pass over to the attempts to procure such steamers.

The importance of the right sort of vessels.

The three steamers, "Jhelum," "Chenab," and "Napier," received from the Bombay Government were not exactly of the required type. They were of a deeper draught and, therefore, unsuited to a shallow river like the Indus. Moreover they were "in such a state of disrepair, that not only did they cost a large sum of money in repairs but also, by being laid up in dock for this purpose so long a time, their services were lost to the flotilla for some time." The vessels, however, began to run between Mithankot and Makhad in June, 1862. It was found out in a short time, however, that only the "Jhelum" was serviceable. The hull of the "Napier" was so heavy that her draught was 2 feet 7 inches. And the engines of the "Chenab" were nearly worn out. Thus the flotilla stood in need of a better sort of steamer.

The steamers from the Bombay Government.

The class of vessels which were best suited to the navigation of the Indus were as described by Mr. Hamilton. A vessel on the stern-wheel principle, 150 feet long, steaming 10 miles an hour with a draught of 2 feet 2 inches with 60 tons on board, was the right type

The right sort of steamers.

¹ Letter No. 244, dated 18th September, 1863, from the officiating Secretary to Government, Punjab, to the Secretary to Government of India, Marine Department (Punjab Government Marine Records).

of vessel.¹ The second Assistant Superintendent of the Flotilla had also recommended a similar type.² He stated "I think the class of vessels, running on the North American rivers and on the branch rivers falling into the Mississippi would answer on the Indus. They seldom exceed 160 feet in length with a beam of 40 feet and one large centre wheel, one well-raised shaft near the stern and drawing at steaming draught about 20 inches and of different horse-power from 100 upwards. If we had boats of this description, every commander of a steamer could almost insure the time of his arrival at all seasons of the year."³ Such were the vessels required. The steamers from Bombay were quite different. Further attempts were, therefore, made to get better steamers.

Recom-
mendations
for two new
steamers.

In 1864 Captain Reddie declared it to be essential for the development of the resources of the country to increase the flotilla by two new steamers of sufficient power to tow over the current. In order to be completely suited to the navigation of the Upper Indus, they were to be not too long, and were not to draw more than 2 feet 6 inches of water. In addition to this he recommended two new flats of the same draught. These, in order to be of the right sort were to be procured from England. The Government of India, having concurred in these recommendations,⁴ an order was placed for a new steamer, to be built on the stern-wheel principle, with Messrs. Hamilton and Co. of Windsor Iron Works, Liverpool.

The steam-
er
"Beas."

In 1866, the vessel "Beas" was added to the Punjab Government Flotilla. She was of 35 horse-power. Her draught, laden, 2 feet 3 inches, unladen 1 foot 9½ inches, was less than that of any of the other steamers at the time. She, with a barge in tow, took only 23 days for an up-trip to Makhad, so far the quickest voyage on record.

¹ See 'Annual Report of the Marine Department, Punjab Government for 1863-64 (Manuscript copy in the Punjab Government Marine Records.)'

² Annual Report of the second Assistant Superintendent, Inland Navigation, Punjab, attached with 'Annual Report of the Marine Department Punjab Government for 1863-64 (Manuscript copy).'

³ Letter No. 18, dated 27th June 1864, from Council of Government of India to the Secretary of State for India (Punjab Government, Marine Records).

Thus the working of the "Beas" being satisfactory the effectiveness of the stern-wheel principle was quite apparent. Captain Hampton, the Superintendent of the Flotilla, reported as under :—

The effectiveness of the stern-wheel principle.

"There cannot be a doubt but that the stern-wheel principle, as a driving power, is most effective and well adapted for river navigation. In shallow and narrow channels she could find her way without fear of injury to her wheel, and not having the projections from her side in the shape of paddle boxes, she took up less room with her barge alongside than either the "Jhelum" or the "Chenab."¹

However two defects in the "Beas" were noticed by Mr. Bain, an English ship-wright, who accompanied her on her first voyage. Her boilers were too small to obtain the requisite steam power with wood fuel, and that she was wanting in beam and length. It was hoped that if a new vessel without these defects could be built, it would be thoroughly suited to the Upper Indus.

The defects of the "Beas."

In 1869 such a vessel, viz., the "Ravi" with two barges was added to the flotilla. She was constructed at Liverpool on the stern-wheel principle, on the model of the "Beas," but with improvements suggested by experience of the practical defects of the latter vessel. She was nominally of 100 horse-power, but was, in fact, capable of steaming up to more than four times that power. Having arrived at Sukkur in September, 1869, she, with her two barges, proceeded upwards to Makhad. Unfortunately she had to stop at Dera Fateh Khan owing to some defect in her fittings. Consequently she returned to Sukkur, where her machinery was taken out and re-fitted. On the 12th of March 1870, she started on her second voyage to Makhad and back to Sukkur, and performed it successfully in 58 days.

The "Ravi."

This was the best vessel of the flotilla. But she too, had a serious defect in her draught, which was 2 feet 6 inches.

The defects of the "Ravi."

¹ Punjab Government Report for 1866-67, paragraph 283.

The vessels attached to the Punjab Government Steam Flotilla.

Thus the total number of vessels attached with the Punjab Government Steam Flotilla at the end of 1870-71 were as follows :—

(1) Steamer "Napier"	90 horse-power.
(2) Steamer "Jhelum"	60 horse-power.
(3) Steamer "Chenab"	60 horse-power.
(4) Steamer "Beas"	(stern-wheel) 85 horse-power nominal.
(5) Steamer "Ravi"	100 horse-power (stern-wheel) nominal.

with seven flats and barges.

The Factory of the Flotilla.

The need of the Factory.

It was essential for the smooth running of the vessels that they should be kept in good repair. This clearly indicated the need of a factory for the department in the very beginning.

With the removal of the headquarters of the department to Sukkur, the factory was also removed to that place and several additions were made to it.

The work of the Factory.

The work done by the factory was of an extensive nature. In addition to the petty repairs to the vessels, it did brass and iron casting work and even undertook to make such parts of machinery as paddle-wheels and shafts.

The Factory Establishment.

The factory worked under the supervision of Mr. Boyce, Superintending Engineer. He had a regular establishment of men under him. This included Mr. Hogan, General Assistant, Prem Chand, Boiler-maker, Mayaram and other artisans.

Great difficulty was faced in getting the proper kind of men required, although high wages were offered. Later on this difficulty was somewhat solved by getting some trained artificers of each grade from Bengal and elsewhere.

The Store Branch of the Department.

Another great difficulty, which the authorities had to face was to get marine stores, although a special branch of the department.

ment was organized for the purpose under Mr. DaCasta, the Store-keeper. In the beginning no speculator could be induced to take up the contract. Thus much unnecessary expense had to be incurred. This difficulty, it was proposed to solve by arranging with some respectable firm at Calcutta or Bombay for annual supplies.

The vessels received from Bombay were in very bad condition ; and it was with difficulty that they were kept running in the absence of proper machinery for effecting repairs. Repairs were, however, effected to the engines of the vessels. The heavy cylinders of the " Napier " were raised ; the bearings of the paddle shaft adjusted ; paddle-wheels were renewed and some changes were effected to the hull. To all the vessels excepting the " Multan " flat, proper rudders, with steering wheels were fitted. Although these operations enabled the vessels to go on, yet they could not possibly remove their inherent defects, as regards their draught and engines.

The work done by the Factory.

The " Chenab " again underwent repairs in 1865. Her bow was lengthened, thereby reducing her draught by six inches, and a cabin were constructed on her upper deck. These arrangements proved very convenient and were particularly suited to the climatic conditions of the province.

The " Chenab."

The steamer " Napier " was the oldest of the flotilla steamers and was far from satisfactory for river navigation. It was, therefore, thought advisable to get her examined thoroughly for the purpose of making her more efficient by effecting all possible repairs. This was done and a report was submitted on the subject on the 11th December 1866. The relevant portion of that is given below :—¹

The " Napier " again.

" *First*.—The fore and aft keelsons or iron sleepers on which the boiler rests and bilge frames below it are (as far as it is possible for the eye to reach) decayed ; and portions have succumbed to the pressure and weight of the boiler.

¹ Letter to Captain 21 ; H. Hampton, Superintendent, Inland Navigation Panjah, Sukkur ; dated Government Factory, Sukkur, 11th December, 1866.

COMMERCE BY RIVER

"*Second.*—The bottom of the boiler which originally was flat or level, now presents the appearance of a concave on the ice or water and steam pressure side ; the greatest deflection being six inches.

"*Third.*—The fore part of the boiler has sunk about one inch ; towards the star-board side the boiler has bodily fallen three inches.

"*Fourth.*—The deflection, rents, and bent of the boiler are evidently caused by the sleepers and frames giving away." In addition to this, the boiler keelsons, frames, &c., were in a very bad state. It was, therefore, stated that it was not safe to run the vessel."

(Sd.) G. W. JEFFROY,

Chief Engineer, Steamer "Napier" Engineer.

J. MOODY,

2nd-Assistant and Boiler Maker.

DAN, HOGAN,

General Assistant to Superintending Engineer.

The report was forwarded to Mr. Boyce, Superintending Engineer, Inland Navigation, Punjab, who further supported it. It was, therefore, finally decided that the "Napier" was unfit for service.

The history
of the
"Napier."

The "Napier" was originally a very different boat. She was neither so deep, nor so heavy. At the time of the war with Persia in 1856, she was raised for the purposes of carrying heavy guns and thus was converted to a gun-boat. She was materially strengthened as she had to run in the sea. This resulted in the increase in her draught and the decrease in her speed was so great so that when she was handed over to the Punjab Government Steam Flotilla, she drew more than 3 feet when light, and was unable to tow a barge against the current.

Subsequently as has been mentioned above, certain repairs were effected on her, which improved her a lot. But these did not prove to be permanent and she again showed symptoms of decay.

Proposals having been invited by the Superintendent of the Flotilla, it was suggested by Mr. Boyce that the new hull should be made 175 feet long with a break deck and 5 feet depth at each end.¹ The drawings show both the old hull and the proposed new hull.

It was estimated that the proposed new hull, if built in India, would cost Rs. 94,000, as under :—

	Rs.
Hull, decks, &c.	80,000
Taking out engines and boiler from old hull ..	2,000
Repairing engines and boiler	3,000
Re-erecting engines, &c.	3,000
Contingencies	2,500
Mast, yard and stores	3,500
Total ..	94,000

The proposed hull for the "Napier."

The cost of the proposed hull for the "Napier," if built in India.

The total cost of the proposed hull, if built in England was estimated to be Rs. 69,000 as follows :—

	Rs.
To build a new hull in England	80,000
Freight with landing in Karachi	10,000
Re-erecting hull and engines	20,000
Repairing engines and boiler	3,000
Contingencies	2,500
Mast, yard, store, &c.	3,500
Total ..	69,000

Cost of the proposed hull if built in England.

Mr. Boyce further considered that the vessel with a new hull, as suggested by him, engines, and a boiler of 60 to 70 horse-power nominal, capable of indicating to 800 horse-power of higher pressure, would be more useful than any other vessel.

¹ See the accompanying drawings facing this page.

The probable cost of fitting the steamer with such arrangements was estimated to be as follows :—

	Rs.
Hull and engines and boiler complete	70,000
Freight with landing	11,500
Re-erecting in Karachi	18,000
Contingencies	8,000
Total	<u>1,02,500</u>

The
"Napier"
as a reserve
vessel.

Nothing was, however, done with the "Napier" in this direction. On the other hand, she was put for sale but as no bids were received for her, she was "patched up" so as to be serviceable. Henceforward she was used only as a reserve vessel.¹

The break-
ing up of the
"Napier."

She, however, again began to show symptoms of decay in the early part of 1871, and was taken to pieces and examined by Mr. Boyce, Superintending Engineer, Punjab Government Steam Flotilla. He found the steamer in a very bad state, her hull, framings and decks, machinery such as condenser, air pump, and boiler, being all old and worn out. He, therefore, considered that "to attempt to do anything to her would be throwing away good material, and unnecessary expense of labour."² And he suggested that the hull and boiler be broken up, or sold as they were and that all the brass work about the engine be retained for use in repairs of other vessels.

Captain Hampton, having agreed to the above suggestion, the sanction for the purpose was asked of the Punjab Government, which was given on 20th February, 1871. And the proposals of Mr. Boyce were carried out.

The
"Jhelum."

In 1868 the cabin accommodation of the "Jhelum" was improved. Her boiler was also changed. This made her quite efficient. But unfortunately in June 1869 she struck a ridge in the Indus below Kalabagh, as a result of which one of her plates was fractured. It took about six weeks to set it right.

¹ Letter No. 14, dated Sukkur, the 8th February, 1871, from Superintending Engineer, Punjab Government Steam Flotilla, to the Superintendent, Punjab Government Steam Flotilla.

² Letter No. 14, dated Sukkur, the 8th February, 1871, from J. H. Boyce, Esquire, Superintending Engineer, Punjab Government Steam Flotilla, to the Superintendent, Punjab Government Steam Flotilla.

In 1868, the "Beas" remained under repairs for about eight months; during which time she was supplied with a new boiler, and some improvement was effected regarding cabin accommodation. Again in 1869, an accident occurred to her paddle shaft, which was renewed by the factory of the flotilla.

The "Beas."

The boiler of the "Chenab," which was found, in 1869, to be worn out, was renewed in 1870.

The "Chenab."

The facts detailed above serve to give a fair idea of the nature of the work done by this branch of the department. It will be observed that the factory was indispensable for the flotilla, as it would have been impossible to keep all the vessels afloat all the time in the absence of such an important and necessary service.

The work of Factory.

D.—The Fuel for the Vessels.

Another important matter for the smooth working of steam navigation was the supply of fuel. Elaborate arrangements were made to get it at suitable stations, yet the supply remained defective, on account of the difficulty of getting a sufficient amount of suitable wood. Fuel was stored in godowns and depôts at various places up the line. There were two godowns for this purpose at Kalabagh and Makhad. The following places had separate fuel depôts attached to them :—

The Fuel Depôts.

The name of the place.	The amount of fuel ready. ¹
Galiwala	100 maunds.
Lun-wala	180 maunds.
Hatti Mathla	200 maunds.
Dera Ghazi Khan	60 maunds.
Pir Ka Binyi	800 maunds.
Lundy	450 maunds.
Mathun ka Tul	200 maunds.
Nowshera	400 maunds.
Mithan Kot	150 maunds.
Isa-pore	No fuel.
Mali-wali	No fuel.
Shah-wali	800 maunds.

¹Such was the amount on 28th December, 1868, see letter No. 450, from W. H. Hampton, Superintendent, Government Steam Flotilla, Sukkur, to T. H. Thornton, Secretary to Government, Punjab.

The Kalabagh Coal:

The average consumption of wood per vessel being about 400 maunds per diem, great difficulty was felt in procuring the required amount of wood. Attempts were, therefore, made to use Kalabagh coal for this purpose. By 1865-66 it was advantageously used on the Upper Indus because it combined a maximum of heating power with a minimum of weight in addition to its being cheaper than wood fuel in that locality. Twelve-and-a-half to fourteen maunds of coal, costing from Rs. 5 to Rs. 5-9-0 was capable of producing the same amount of heat as 35 maunds of the best wood fuel costing Rs. 9.

Its defects:

But there was one great defect in this coal which stood in the way of its general employment. It took time to burn and when it did, it had a tendency towards spontaneous ignition.

The Kalabagh Coal pronounced satisfactory.

Further experiments were made in the use of this coal. As a result, the general opinion was that its working was satisfactory and therefore, it should be used.

Some of the opinions are cited below :—

- (1) "The Kalabagh coal in my opinion is of an excellent quality." Commander Tate.¹
- (2) "The Kalabagh coal much resembles shale in its general appearance....
- "In the quantity of steam I consider it equal to many of the coals used for steam purposes in England.
- "If it was properly screened, I consider it would be a very serviceable coal for the steamers on the Upper Indus, when the wood is often of a very inferior quality." Robert Arthur.²
- (3) "The result of the experiment in favour of Kalabagh coal was most satisfactory ; the consumption per hour being estimated by the Engineers who were

¹ From Commander Tate to Captain Hampton, Superintendent, Punjab Government Flotilla, Sukkur, dated 16th September, 1867. (Punjab Government Marine Records).

² No. 99, dated Sukkur 16th September, 1868, from Chief Engineer, Punjab Government Steamer 'Beas' to Captain Hampton.

on board at thirteen-and-a-half maunds against forty maunds of ordinary wood fuel.”

Captain Hampton.¹

This established the usefulness of the Kalabagh coal. The Government of the Punjab, having considered the above report to be satisfactory, allowed the coal to be used. Its use was, therefore, commenced on the Upper Indus where wood was to be had with difficulty.

E.—The System of Pilotage.

On an unreliable river like the Indus, the navigation depended to a great extent on the efficiency of pilots. Indian boatmen were employed to do the work. Their work was unscientific. They never marked out the channels with buoys or otherwise and professed to discover the depth of the channel by the mere appearance of the water. Such a system was really inefficient. Consequently there were occasional groundings of the vessels. It was proposed to improve such a system of pilotage in the interest of smooth steam navigation of the Indus.

The work of the Native Pilots inefficient.

The introduction of an improved system of pilotage like that maintained on the river Danube, was considered most satisfactory for this river. There the depth of the channel was constantly ascertained and marked out, thus affording a reliable guidance to the vessels.

The System of Pilotage on the Danube.

Such a scheme was more expensive, but if successful, would afford additional safety to the vessels. Moreover it was hoped that in addition to the numerous advantages which must result to the public from the avoidance of detention, and the more general use of the steamers, the increased outlay would be balanced by the saving on the actual cost of working, resulting from the reduction in time occupied on the trips. Mr. Purdon, officiating Superintending Engineer of the Lahore Division expressed himself in favour of the

¹ No. 416, dated Sukkur, the 16th December, 1868, from Captain Hampton, etc., to T. H. Thorton, Esquire, Secretary to Government, Punjab.

**The im-
provement
effected.**

scheme, and the Lieutenant-Governor of the Punjab, too, though not sure of the ultimate success of the scheme, considered it worthwhile to give it a trial.

As a result of this, the pilot establishment improved a little, so that fewer delays were experienced in 1865-66 from groundings. The average time taken in each trip up and down the river was also reduced from 37 to 36 days.

CHAPTER V.

The commerce carried on by the flotilla and the financial results.

THE NATIVE BOATS.

A.—COMMERCE CARRIED ON BY THE FLOTILLA STEAMERS.

Native boats had been plying up and down the Punjab rivers from very ancient times. During the period under review they carried on their work so effectively that the steamers failed to attract private merchandise. Thus a very considerable portion of the Indus trade was carried on by the native craft.

This commerce was registered first at Mithankot and later on at Sukkur. The figures thus obtained are given in the Punjab Administration Reports. But as they also include the commerce carried on by the steamers and as there is no means available of ascertaining them separately they will be described in connection with the trade by native boats.

The steamers of the Punjab Flotilla began to run in June 1862 from Mithankot to Makhad on the Indus, total distance of 357 miles. From Mithankot goods were transhipped by the private vessels to Multan and thence could be carried to Kotri by the Indus Flotilla vessels, Kotri being connected with Karachi by means of a railway. Thus the goods sent to Karachi from Dera Ghazi Khan or Dera Ismail Khan or *vice versa* had to be transhipped twice or thrice in order to reach their destination, which was not a convenient arrangement for the transportation of goods. Moreover different systems of freight rates were charged by the Punjab Flotilla, Indus Flotilla and the Sindh Railway. All this stood in the way of the steam line becoming popular.

The vessels of the flotilla were despatched twice a month after the opening of the line. During the first five trips very

The vessels run from Makhad to Mithankot.

Transhipment of goods inconvenient.

The result unsatisfactory in the beginning.

little cargo was carried by these steamers for the following reasons :—

- (1) The novelty of the change to the traders.¹
- (2) The continual fluctuation of the rates on goods at Multan.
- (3) The difficulty experienced in transferring the goods brought down in the flotilla vessels to those of the private companies at Mithankot.

The Line
extended to
Sukkur.

In December 1862, the town of Mithankot having been washed away by floods, the headquarters of the department was shifted to Sukkur and arrangements were also made to carry goods from Makhad direct to Sukkur. The result was that the vessels coming downwards were literally overladen with cargo, so great the demand for freight.² As the vessels came down so laden from Dera Ismail Khan that no space was left for the cargo which lay ready for shipment at Dera Ghazi Khan, it was arranged to leave a flat at Dera Ghazi Khan, while the steamer proceeded upwards to Makhad. Thus the merchants were afforded an opportunity to send their goods down the river.³

Proposals to
run the
steamers
from
Makhad
to Kotri.

By the arrangements described above the transhipment of goods at Mithankot was avoided but still the goods bound to Karachi had to be transhipped at Sukkur that being the terminus for the vessels of the Punjab Flotilla. This was rightly resented by the merchants. It was therefore proposed to run the steamers from Makhad to Kotri the upper terminus of the railway to Karachi.

Captain J. G. Reddie, Master Attendant at Calcutta in his report in 1862 recommended Kotri to be the lower terminus and Kushalgar to be the upper terminus of the flotilla vessels.⁴

¹ Letter No. 244, dated 18th September, 1863, from the officiating Secretary to Government, Punjab, to the Secretary to Government of India, Marine Department. 'How the Punjab Flotilla has been employed since its formation'. Printed as well as manuscript copy in the Punjab Government Marine Records), paragraph 8.

² *Ibid.*, paragraph 9.

³ Punjab Government Administration Report, 1862-63.

⁴ See his report paragraphs 46 and 54, attached with letter No. 16, dated 27th June 1864, from the Council of Government of India to the Secretary of State for India (Punjab Government Marine Records).

The goods between Kotri and Multan were conveyed both down and upwards by land or by native boats. The arrangements above suggested, therefore did not bring the flotilla vessels into competition with the vessels of the private companies. Handsome returns in freight were therefore expected if the above arrangement could be carried out.

The trade results¹ for the first year for the reasons given above were not encouraging. But there was no reason to despair as a similar thing had happened with the steam traffic on the Brahmaputra River, where the early voyages only yielded a few rupees, but in course of time a thriving trade was created.

The future prospects of the Indus trade.

When the line was extended to Sukkur, a steady increase in the earnings of the vessels took place, the vessels having conveyed a considerable amount of cargo. It was therefore confidently believed at the time that with the establishment of speedy and regular voyages up and down the river the merchants would entirely abandon native boats for conveyance of goods such as cotton wool, saltpetre and dyes. This would considerably increase the earnings of the flotilla because it would admit of the rates being increased.

In December 1862 there was such a great demand for transport of goods at Dera Ghazi Khan that the merchants offered unusually high rates. As there was no accommodation available in the vessels the merchants sent their goods across to Multan and thence by the vessels of the private companies to Kotri. In the face of such a state of affairs the rates could be easily increased provided regular steam communication could be established. The rates could be increased in such a way as to defray the expenses of the vessels by the charges for up-trip, thus leaving all returns on the downward trip to go as profit. This would admit of low rates being charged for the downward goods which would have enabled the flotilla to compete with the native craft on a better footing.

¹See below page 61.

The up-
wards and
the down-
wards
freight.

Thus there was every hope of the success of the experiment of steam navigation. Up to this time all efforts had been made to obtain downward freight which belonged almost wholly to private merchants. Consequently good downward freight had been obtained but the proceeds from this were too small to be profitable. The Lieutenant-Governor of the Punjab, therefore, persuaded the Public Departments to use this line in sending malt liquor and other commissariat and ordnance stores to the frontier stations.¹ This policy received the approval of the Governor-General in Council in 1864. In a letter to the Secretary to the Government of the Punjab the Secretary to the Government of India wrote:—

“The Governor-General in Council is of opinion that Government stores should always have the preference over the goods of native merchants and they should be credited with the freight charges at fair rates.”²

This policy added greatly to the earning of the flotilla although these charges were only “*pro forma*”.

The Down-
wards
Freight.

The downwards freight consisted mostly of private merchandize and comprised a portion of the exports of the Punjab. It consisted of cotton, wool, indigo, grain, silk, raisins, ghee and tobacco. Up to 1864, before the Government stores began to be sent by the flotilla vessels, the downwards cargo was greater than the upward cargo. But that was never enough to be profitable because the upper regions of the Indus were not thriving trade centres. Moreover the trade with Afghanistan and other parts of Central Asia which was carried on by the Powindah merchants had a determined tendency to flow towards Multan and thence to Lahore and Amritsar. In order to have profitable downwards freight for the Punjab Flotilla it was necessary to divert this trade towards Karachi. Attempts were made to do so, but they were not successful.

¹ Letter No. 208, dated Murree, the 13th August, 1863, from the Secretary to Government, Punjab and its Dependencies, to the Secretary to Government of India, Marine Department, Calcutta (Punjab Government Marine Records).

² Letter No. 1126, dated Simla, the 1st July, 1864, from E. C. Bayley, Esquire, Secretary to the Government of India to R. H. Davies, Esquire, Secretary to the Government of the Punjab and its Dependencies.

The upwards freight chiefly consisted of Government store, malt liquor, pepper and English piece goods. From 1864 the upwards freight was always greater than the downwards freight. The charges in this case were mostly "pro forma" as the greater part of the goods consisted of Government stores.

The Up-wards Freight.

B.—THE FINANCIAL RESULTS OF THE FLOTILLA.

I.—The earnings of the flotilla.

The following schedule shows the earnings of the flotilla from the year of its inception to the year of its abolition :—

Year.	Total amount realized.		Cash amount.		Pro forma charges.		REMARKS.
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	
1862-63 ..	11,969	13 3	2,219	11 1	2,750	2 2	This being the first year of the flotilla very little cargo was offered, hence a small amount was earned.
1863-64 ..	18,469	10 7	16,029	0 0	2,449	10 7	
1864-65 ..	46,044	12 2	28,490	4 2	17,554	8 0	The vessels had full cargoes on the up-ward trips. They chiefly consisted of mess and Government stores. The down-wards cargoes were comparatively smaller owing to the cotton crisis. The returns however show a steady increase. The average amount earned by each vessel per trip also increased from Rs. 1,539 in 1863-64 to Rs. 5,116.
1865-66 ..	50,231	6 1	13,173	9 6	37,057	12 7	The up-river trade was in a depressed condition. The average earning of each voyage however was about the same.
1866-67, 11 months.	33,120	9 6	11,104	3 6	22,016	6 0	The trade was in a depressed state.
Of the 12th month.	..	..	..	..	12,828	11 6	The figures indicate a steady improvement.
1866-67, 12 months.	45,949	5 0	..	..	..	..

COMMERCE BY RIVER

Year.	Total amount realized.	Cash amount.	Pro forma ohagros;	REMARKS.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1867-68 ..	85,953 7 1	10,464 11 11	75,488 11 11	The earnings show a steady increase; the amount earned this year being the highest.
1868-69 ..	83,568 14 3	17,320 6 3	66,248 8 0	To these figures should be added for the purposes of comparison Rs. 10,250, the earning of the last voyage of the Chenab, which returned to headquarters a few days after the close of the official year. This shows a steady increase though the 'Beas' could not work for greater part of the year. The demand for tonnage for the upward trips was very great, but for the downward freight was still comparatively small. A noteworthy thing (because considerable portion of the trade in these parts was carried on by these merchants) occurred during the year. Eight Powindah merchants going to Karachi for Mecca on pilgrimage, travelled in the flotilla vessel. One of them also returned by one of them with several bales of cotton. This year a scheme for through traffic between Karachi and Peshawar was taken in hand.
1869-70 ..	82,361 4 7	14,856 1 0	67,505 3 7	The decrease in earnings during the year was due to the following reasons:— (1) The vessels of the flotilla did not work satisfactorily on account of numerous accidents which occurred to them owing to the unusual shallowness of the river.

Year.	Total amount realized.	Cash amount.	Pro forma charges.	REMARKS.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1869-70 --	82,361 4 7	14,856 1 0	67,505 3 7	(2) The <i>pro forma</i> rate of charge for conveyance of malt liquor for troops was reduced during the year from Rs. 24 per hogs head to Rs. 16 in the high season and Rs. 20 per hogs head in the low season. Due to this cause the reduction in total earnings was Rs. 10,000. The amount saved by the Government by adopting this route in preference to Multan and Lahore route was estimated to be Rs. 40,628-8-0. This, if added to the actual amount realized would make Rs. 86,424-3-3 which is the largest amount earned so far.
1870-71 --	1,01,819 7 10	13,155 4 6	88,664 3 4	This was the highest sum earned so far. The saving to Government by adopting this route was estimated to be Rs. 5,186. This, if added to the actual sum realized would make Rs. 1,07,005-7-10.
1871-72 --	1,18,448 8 6	19,887 14 9	98,055 4 9	Orders were received to break up the flotilla. ¹
Total --	6,74,931 13 10	1,53,701 2 8	5,21,230 11 12	

¹See figures on page 66 below.

Note.—The above figures show only the net earnings, cash as well as *pro forma*, of the vessels. Other earnings such as that from the working of the factory and from the sale of old stores are not included.

Other remarks on the above statement of figures.

The above statement shows a remarkable increase in the earnings of the flotilla. But this increase in the amount earned was nothing as compared with the expenditure ¹ on the flotilla. In other words the experiment of steam navigation was not economically a sound proposition. Orders were therefore passed to abandon the experiment and to abolish the flotilla in 1871-72.

Another remarkable thing about these figures is that the "pro forma" charges represent much higher figures than the cash receipts. The "pro forma" charges being the nominal freight of Government stores conveyed up and down the river were not actually paid to the department. Thus a very small amount was actually paid to the department in cash.

Such proportionally high figures for "pro forma" charges imply that the flotilla was mainly employed in carrying Government stores only, and that the private goods continued to be carried on by native boats or by land. This the flotilla failed to attract. This was the chief reason for its failure as the income thus derived was not sufficient to meet the expenditure.

II.—The expenditure on the Flotilla.

The earnings of the flotilla have been shown above in the following schedule; the total expenditure incurred by the Marine Department and the total receipt of the same during the years of its existence are given for the purposes of comparison.

Explanation.—The total receipts, shown in the following table included in addition to the amount realized in cash or in "pro forma" on account of freight and passage the amounts realized from such items, as 'earnings of the Factory', the sale of the unserviceable stores, etc.

In order to give a correct idea of the total earnings of the department a detailed account of the total receipts for the official years 1864-65 is reproduced here.

¹ See for a detailed account on page 66 below.

The items that formed the income of the Department.

	Rs.	A.	P.
Receipts Ordinary.¹			
Amount collected in cash, being freight and passage returns of the vessels	28,490	4	2
Amount of <i>pro forma</i> earnings on account of public freight and passage	17,554	8	0
Total	46,044	12	2

	Rs.	A.	P.
Receipts Extraordinary.²			
Amounts received on account of repairs to public buildings	899	0	0
Out-door earnings of Factory	1,028	11	8
Amount realized by sale of unserviceable stores, timber, &c.	362	0	4
Amount realized by sale of Gun boat 'Fox'	3,000	0	0
Total Receipts	51,834	8	2

The Expenditure.

Similarly the expenditure included such diverse items as 'Pay of establishment, price paid for stores, Fuel', etc., etc. In order to give a correct idea of the total expenditure of the department a detailed account of the total expenditure for the official year 1864-65 is reproduced below :—

	Rs.	A.	P.
Disbursements Ordinary.³			
On account of pay of establishment	1,14,219	1	1
On account of labour of iron and wood work department	16,462	2	6
On account of stores and contingencies	29,732	6	0
On account of Fuel	17,744	14	8
On account of travelling allowances	804	0	0
Total	1,78,962	8	3

¹ As given in the Punjab Government Administration Report for the year 1864-65.

² The figures for Receipts given in the following schedule include all such items as shown above.

³ As given in the Punjab Government Administration Report for the year 1864-65.

COMMERCE BY RIVER

		Rs.	A.	P.
Disbursements Extraordinary.				
Amount advanced for repairs of Chenab	..	20,000	0	0
Amounts expended in repairs of buildings	..	899	0	0
Total	..	20,899	0	0
Disbursements Ordinary ..	..	1,78,962	8	8
Disbursements Extraordinary	..	20,899	0	0
Total disbursements	..	1,99,961	8	8

The Statement of figures.

The schedule follows:—

Schedule showing the total receipts and disbursements of the Punjab Government Flotilla for the years of its existence.

Year.	Receipts.		Expenditure.		REMARKS.	
	Rs.	A. P.	Rs.	A. P.		
1862-63 ..	10,141	8 8	1,69,646	1 5	..	The earnings bear no comparison with the expenditure. But this being the first year of the life of the Flotilla it was hoped that in due course of time the undertaking would become profitable.
1863-64	2,34,116	0 0	..	The increased expenditure amounting to Rs. 64,570-1-5 was partly caused by the cost on the erection of buildings at Sukkur necessitated by the removal of headquarters of the department from Mithankot to Sukkur.

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Year.	Receipts.			Expenditure.			REMARKS.	
	Rs.	A.	P.	Rs.	A.	P.		
1864-65 ..	51,334	8	2	1,99,961	8	3	1,48,627 0 1	There had been a steady increase in the amount earned yet the expenditure continued to be much higher than the receipts.
1865-66 ..	53,078	4	6	2,66,308	15	5	-2,13,230 10 11	
1866-67 11 months.	35,291	15	11	2,00,390	7	3	-1,65,098 7 4	
1867-68 ..	88,299	8	9	2,42,929	5	10	-1,53,629 13 1	
1868-69 ..	85,484	9	0	2,44,347	9	9	-1,58,863 0 9	
1868-70 ..	8,335	4	3	2,61,945	10	0	-1,78,595 5 9	
1870-71 ..	1,04,613	8	5	2,17,248	1	11	-1,12,634 9 6	
1871-72 ..	1,15,938	14	8	2,06,822	8	3	-90,883 9 7	
Total ..	5,46,883	5	4	22,43,616	4	1	-16,96,732 14 7	

REMARKS.—The above figures show that the income of the Flotilla gradually increased but it always fell short of the expenditure by a considerable amount. Thus the Government suffered a loss of about 14 lakhs of rupees during the period of existence of the Punjab Government Flotilla. In 1871-72 it was finally decided to do away with this loss by abolishing the Flotilla. The hopes which had been entertained in the beginning of making the experiment successful came to nothing. The experiment having failed commercially, was abandoned.

CHAPTER VI.

The Establishment of a through traffic between Peshawar and Karachi.

The existing arrangements in 1869.

It has been mentioned that the vessels of the Flotilla ran between Makhad and Mithankot only, in the beginning. Later on the line was extended to Sukkur, in order to attract a greater amount of trade by doing away with the difficulties of transshipment and consequent delays experienced by the merchants. Yet there was another great handicap in the way of the trade of the Indus. The transmission of goods from Peshawar to Seaboard, and *vice versa* was done by means of several independent Agencies, with varying tariffs.

Stages of Transshipment.

A merchant who wanted to send goods to Karachi, had to send them firstly to Attock. From *Attock*, the goods were carried by country-boats to *Makhad* or *Kalabagh*. From these places, the vessels of the Punjab Government Flotilla were available to carry them down to Sukkur. At *Sukkur* the goods had to be transferred to the vessels of the Indus Steam Flotilla, which ran to *Kotri*. From *Kotri* the goods were carried by railway to Karachi. Thus a man sending goods from Peshawar to Karachi had to make arrangements for the transferring of goods at *Attock*, *Makhad*, or *Kalabagh*, *Sukkur* and *Kotri*. It is quite obvious 'that the delay and trouble involved in despatching goods under such circumstances must effectively deter merchants from making use of the Upper Indus route, although it is at once the most direct and the cheapest line of communication with the nearest Seaport.¹

The scheme for through traffic put forward by the Superintendent of the Punjab Government Flotilla.

Accordingly it was thought advisable by Captain W. H. Hampton, Superintendent of the Punjab Government Flotilla to establish a through traffic between Peshawar and Karachi

¹ Letter No. 111, dated 27th April, 1869; from T. H. Thornton, Esquire, Secretary to Government, Punjab and its Dependencies, to Colonel W. H. Norman, C. B., Secretary to Government of India, Military Department, paragraph 2.

involving a fixed and uniform system of rates. He, therefore, in conjunction with the Agent of the Lower Indus Steam Flotilla and of the Sind Railway, put forward a scheme for the purpose.

Captain Hampton expected to derive the following benefits for the Departments in case the scheme turned out successful.¹

The expected benefits from the scheme.

- (1) There would be a large increase in the traffic on the Upper Indus.
- (2) A considerable amount of traffic would be created in localities along the line, where it did not exist at the time.
- (3) The scheme would help in diffusing English manufactures from Karachi into Afghanistan.
- (4) It would help in extending commercial relations with that country.

All this was expected to add to the earnings of the Flotilla.

The arrangements suggested by Captain Hampton proposed to transmit goods from Peshawar to Karachi under the supervision of the Marine Department, but with the direct co-operation of the Post Office, the Indus Steam Flotilla, the Sindh Railway and the Government Bullock Train. Agencies were to be established at Peshawar, Kohat, Rawalpindi, Nowshera, Dera Ismail Khan, Dera Ghazi Khan and Karachi. If a merchant desired to send goods from any of the above places to Karachi, or *vice versa*, he had only to hand over his goods to one of the Flotilla Agents at the above places. Afterwards the authorities were responsible for the carrying of goods to their destination, whether on the upper or lower Indus.

The Actual Scheme.

A uniform system of rates was evolved out of the chaotic system then prevalent. The Marine Department freighted goods per maund for stated distance. The Sindh Railway and the Indus Flotilla charged rates in accordance with the description of goods, which had been arranged in five classes. The new rates to be pre-

¹ See letter No. 209, dated Government Steam Office, Sukkur, 18th February, 1869, from Captain W. H. Hampton, etc., etc., to T. H. Thornton, Esquire, Secretary to Government, Panjab and the Dependencies.

valent on the line were to be the sum total of the Railway and the Indus Flotilla rates, and the rates charged by the Marine Department. Thus for instance, the freight for 1st class goods from Karachi to Sukkur, as charged by the Railway and Indus Flotilla was Re. 1-3-6. That charged by the Punjab Government Flotilla from Sukkur to Dera Ghazi Khan was Rs. 2. Thus the new rate from Karachi to Dera Ghazi Khan was Re. 1-3-6 plus Rs. 2, *viz.*, Rs. 3-3-6.¹

In short, the rates were such as to cover all charges up the stations at which the goods were to be delivered, plus the bullock train charges.²

The up charges were more or less fixed, but the down charges of freight were liable to fluctuate according to the state of the market. The minimum rates, therefore are shown.³ The rates of the Indus Steam Flotilla and the Sindh Railway Company were to be revised by those Companies, whenever they thought fit.

It was also intended not to freight conveyances and animals further than from and to these places, as it would have entailed great responsibility on the Department for looking after them for a considerable time at Sukkur, where they would have to wait for the arrival of the vessels.

Detailed statements of the proposed system of freights are given in the appendix.⁴

The Schedule in the Appendix No. VI (Table A) shows the up freight on goods between Karachi and Peshawar.

The Schedule in the Appendix No. VI (Table B) shows the down freight only on goods from Peshawar to Karachi and immediate stations.

The Schedule in the Appendix No. VI (Table C) shows the up and down freight on treasure between Sukkur and Makhad only.

¹ See Appendix .

² Letter No. 206, dated Government Steam Office, Sukkur, 18th February, 1869, from Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, Sukkur, to T. H. Thornton, Esquire, Secretary to Government, Punjab and its Dependencies.

³ See Appendix No. VI, Table B.

⁴ See Appendix No. VI, Tables A, B, C, D, E, F, G.

The Schedule in the Appendix No. VI (Table D) shows the up and down freight on conveyances and animals between Sukkur and Makhad only.

The Schedule in the Appendix No. V (Table E) shows the embarkation and landing fee payable to freight Agents, between Sukkur and Makhad.

The Schedule in the Appendix No. VI (Table F) shows the up and down freight on gunpowder and combustible articles, irrespective of distance between Karachi and Peshawar.

The Schedule in the Appendix No. VI (Table G) shows the up and down freight on small packages and parcels, irrespective of distance between Karachi and Peshawar.

The introduction of the scheme would necessarily have devolved extra work and duties on the Department. Particularly 'Freight Agents' were required in order to establish the additional agencies at Karachi, Attock, Nowshera, Peshawar, Kohat and Rawalpindi. Sanction was sought for the following additional establishment by the Superintendent, Punjab Government Steam Flotilla, Sukkur.

Extra establishment required for the proper carrying of the scheme.

Statement showing proposed additional establishment required for the through traffic between Karachi and Peshawar.¹

Name of locality.	Hands required.	REMARKS.
Karachi	1 Freight Agent.. 1 Munshi. 2 Peons.	A man of superior intelligence and address was recommended for the post. He was to be given a liberal salary, in addition to 2½ per cent. as commission fee on the actual amount of freight procured, so that he might exert his best to procure the largest amount of earnings.

¹ See Statement E; letter No. 206, dated Government Steam Office, Sukkur, 18th February, 1869, from Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, Sukkur, to T. H. Thornton, Esquire, Secretary to Government, Punjab, and its Dependencies.

Name of locality.	Hands required.	REMARKS.
Kohat ..	1 Freight Agent.	
Attock ..	Ditto	He must know English, as he would have to deal with Englishmen at the Station. He was, therefore, to be a man on a decent salary.
Rawalpindi ..	Ditto ..	This, being a large civil and military station with some trade, a Freight Agent who had a knowledge of English was required. His salary was to be comparatively liberal, in addition to 2 per cent. as commission fee on the actual amount of freight procured for the Department.
	1 Munshi. 1 Peon.	
Nowshera ..	1 Freight Agent..	He was to draw the same pay as the Freight Agent at Attock.
Peshawar ..	Ditto ..	This was to be the northern terminus of the line. It was a large civil and military station, with a decent amount of local as well as foreign trade. The Agency work was, therefore, to be heavy. A good business man and one well-up in English was required for the post. He was to be paid a liberal salary in addition to a commission fee of Rs. 2 per cent. on the actual amount of freight procured for the Department.
	1 Munshi. 2 Peons.	

Thus 14 extra men were required at the total estimated cost of Rs, 754 per mensem.

In addition to this, the establishment of the office of the Flotilla Superintendent's Office was to be strengthened.

All this was estimated to involve an additional expenditure of Rs. 1,014 per mensem or Rs. 12,168 per annum. But it was hoped that increased expenditure would be more than covered by the additional earnings—"Seeing that if the new arrangements secure even two additional full cargoes during the year, the extra freight would exceed Rs. 12,000."¹

The scheme, as described above, was submitted to the Government of India for sanction in April 1869.² There it was thrashed out completely by the Marine, the Finance and the Postal Departments. Colonel Arthur Broome, C.B., Controller-General of Military Expenditure, Marine Department, Accounts Branch, opined that the question involved in the scheme appertained more to the Revenue and Postal Departments than the Marine in its general bearing. He further stated, "The objects sought and the advantages to be obtained are entirely of a civil nature. The vessels of the Indus Flotilla will be employed as carrying agents for a part of the route, but so will the Scinde Railway and the Government Bullock Train; and the agency establishment required is for the purpose of carrying out the delivery of goods by a line of mixed transit, and would bore appropriately be attached to the Postal than to the Marine Department."³ In his opinion the Agencies at Karachi, Peshawar, Nowshera, Rawalpindi, etc., had no real connection with the Marine Department; and at Kotri, Dera Ghazi Khan, Dera Ismail Khan, Kohat and Kalabagh, all extra expenses of agency ought to have been a charge against the Postal Department. As regards the details and tariffs, he thought fit to express his approval "in the absence of other or more definite information".

Total additional cost.

The proposals submitted to the Supreme Government.

The opinion of the Marine Department of the Government of India.

¹ Letter No. 111, dated 27th April, 1869, from T. H. Thornton, Esq., Secretary to Government, Punjab, and its Dependencies, to Colonel W. H. Norman, C.B., Secretary to Government of India, Marine Department.

² *Ibid.*

³ See copy of a Memorandum No. 7-M., dated Simla, 18th August, 1869, from Colonel Arthur Broome, C.B., Controller-General of Military Expenditure, Marine Department, Accounts Branch.

The opinion
of the
Postal De-
partment.

Mr. A. M. Monteith, Director-General of the Post Office of India, however, held that the system was one which could not be conveniently worked by the Postal Department, as—

1. The rates of the Indus Steam Flotilla were to be revised or modified every six months.

2. The rates of the Indus Steam Flotilla and Sindh Railway were to be revised as might be deemed advisable by those Companies.

3. The down charges of freight was to fluctuate according to the state of the market. The only information which could be published, had reference to minimum rates.

4. The rates of the Indus Steam Flotilla and Sindh Railway varied with the class of goods according to a classification which was totally different from that of the Railway in Upper India. He wrote, "With all this complication and variation of tariffs must be on a local footing, and that a centralized administration like that of the Post Office would be quite inapplicable. Captain Hampton at Sukkur in close proximity to, and in constant communication with the Indus Flotilla authorities, could properly control the traffic management in a way adapted to the varying local tariffs and conditions, but this could certainly not be done satisfactorily by the local postal administration of Sindh and the Punjab under the control of a distant central office like mine; and even if managed by the Post Office, which has also to deal with the Railways of the Upper India, the great difference of classification would be an insuperable difficulty in the way of through booking.

"If therefore the organization is to be founded on the plan proposed by Captain Hampton, *i.e.*, of one Department taking sole charge of the through traffic, I feel certain that it will be better managed by Captain Hampton than by the Post Office."¹

¹ Copy of a letter No. 3341, dated Simla, the 15th November, 1889, from A. M. Monteith, Esq., Director-General of the Post Office of India, to R. B. Chapman, Esquire, Officiating Secretary to the Government of India, Financial Department.

In addition to the above remarks, he put forward another scheme for the purpose. It did away with any one Department taking sole charge of the through traffic and suggested arrangements to be made between the several carrying agencies respecting the offices where exchanges of traffic could be made, and a simple system of adjustment of accounts, so as to admit of the whole charge for transit being realized by one Department. Sukkur could be made the office of exchange between the Indus Steam Flotilla and the Punjab Government Steam Flotilla, and Attock or Rawalpindi or both could be offices of exchange between the Punjab Flotilla and the Post Office. Thus a package might be booked at Karachi or Peshawar. The Indus Steam Flotilla would make it over to the Punjab Flotilla at Sukkur *with a claim on its transit charge*. The Punjab Flotilla would in turn make it over to the Post Office at Attock, with a claim equal to that made at Sukkur, plus a further claim for transit to Attock. Then it would be the duty of the Post Office to carry it to Peshawar, and charge the addressee the whole amount claimed at Attock plus the Bullock Train charge for transit to Peshawar. The accounts could be easily adjusted from time to time between the various departments by means of their registers.

Another scheme to establish through traffic between Peshawar and Karachi.

This was the system to be followed, if the package were sent "bearing". If they were sent paid, "credit," and no "claims" were to be given at the various offices of exchange. This necessitated the knowledge of the rates charged by other Departments by the booking office at the starting place of the package.

This scheme had some sure advantage over the other scheme. It was surely *simpler* and more practical and *easier* to carry out. Most of all, this was less expensive than the other scheme, because it did away with the necessity of employing special *Agents* at various places such as Karachi and Peshawar.

The advantages of this scheme over the other.

It had also some drawbacks. Firstly the arrangements were to be made by various Departments and therefore the responsibility for the carriage of things was divided. A particular Depart-

Its drawbacks.

ment was responsible for the thing only for its own area. Secondly the evil of transfer of goods was still there. Thirdly the scheme made the accounts of the various Departments more complicated and, therefore, caused unnecessary confusion in their adjustment between the various departments.

The opinion of the Under-Secretary to the Government of India, Financial Department.

Such was another scheme. It was submitted to the Under-Secretary to the Government of India, Financial Department, who expressed himself in its favour.¹ All this correspondence was forwarded to Captain Hampton with orders to report, by the Punjab Government in January, 1870.²

Captain Hampton's opinion.

Captain Hampton, after studying the scheme fully, expressed himself against the scheme proposed by the Post Master-General for India. He wrote, "I am constrained to state that I am satisfied that it is not possible to work the through traffic in conjunction with agencies engaged and carried on by others than this Department."³ The following were the reasons given by him :—

- (1) The Post Master-General required the Marine Department of the Punjab Government to provide an Agent at Attock. Captain Wood doubted the Superintendent's ability to do so.
- (2) Goods were then booked by the forwarding Agent at Karachi for Sukkur and were carried to the various stations on the Upper Indus. The Agent of the Sindh Railway did not like him to do anything more than this,⁴ provided "Freight is paid in advance." Now the Traffic Manager being employed by a Company whose interests were closely connected with the Indus Flotilla, it was not likely

¹ See copy of letter No. 2889, dated Fort William, the 11th December, 1869, from G. H. M. Batton, Esq., Under-Secretary to the Government of India, Financial Department.

² See letter No. I, dated 3rd January, 1870, from T. H. Thornton, Esq., Secretary to Government, Punjab, to Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla.

³ Letter No. 4-C., dated Dera Ghazi Khan, the 23rd March, 1870, from Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, to the Secretary to Government, Punjab.

⁴ See letter No. 255, dated 7th February, 1870, from Agent, Sindh Railway Company, paragraph No. 4.

that he would persuade merchants to ship goods to Sukkur and up the river by the steamers of the Punjab Government Flotilla, because the Company to which he belonged derived a greater benefit by sending the goods up to Multan. This would cause the line either to stop altogether or to be too unprofitable to be carried on.

- (3) The Bullock Train Agents were also to book all goods that might be offered. This did not fulfil the objects with which the Agents were to be appointed. It was intended that they should go into the markets and induce merchants to ship the goods by this route; thus trying to divert the cargo from other lines to that of the Upper Indus."

Keeping in view the above, Captain Hampton declared the scheme to be impracticable and earnestly recommended its abandonment.

The Punjab Government having considered all the points for and against both the schemes decided for the original scheme, as proposed by Captain Hampton. The sanction was conveyed to him by letter No. 26, dated Lahore, 21st February, 1871,¹ to "the carrying out of the scheme, as proposed by you (Captain Hampton), *experimentally for one year.*" The necessary funds up to the extent of Rs. 12,000 were to be provided for the Marine Department from Provincial Funds by the Public Works Department.

Captain Hampton now undertook to take steps to carry on the scheme. But the reply of the Agent of the Indus Flotilla to the Superintendent's apprehension was most discouraging. In reply to his letter on the subject, he stated that the river carriage of goods between Kotri and Sukkur was contingent on the amount of traffic passing at the time being between Kotri and Multan.² and a

Permission
given to try
Captain
Hampton's
scheme.

Further
about the
scheme.

¹ Letter No. 26, dated Lahore, 21st February, 1871, from T. H. Thornton, Esq., Secretary to Government, Punjab, to the Superintendent, Punjab Government Steam Flotilla.

² No. 480—R-54, dated Karachi, 22nd March, 1871, from Captain John Wood, Agent, Superintendent, Sindh Railway and Indus Steam Flotilla Company, Karachi, to the Superintendent, Government Steam Flotilla, Sukkur.

preference over local shippers at the sanctioned rates was to be shown for goods from the Punjab Flotilla between Sukkur and Kotri only when the tonnage was available in the Indus Steam Flotilla vessels. Now the through passage of goods between Karachi and Peshawar depended to a great extent on the trade and tonnage available in the Indus Steam Flotilla vessels. Hence a serious responsibility would have fallen on the Marine Department, as the procedure to be followed by the Agent of the Indus Flotilla necessarily involved occasional unusual detentions of goods at Sukkur and Kotri. These long delays for indefinite periods would have caused discontent among the merchants. Moreover some of them might claim for the loss they might suffer from these delays. Thus in course of time, the line would become unprofitable. Captain Hampton conveyed this to the Government of the Punjab with the observation, "A flotilla that is dependent on another for the carriage of its goods cannot possibly work efficiently; under such circumstances, it would be safer to employ a vessel between this and Kotri (if one could be spared) for the carriage of goods for this new line between those places than to depend for the same on the Indus Steam Flotilla vessels."¹

A remedy suggested.

Captain Hampton was sure that the suggestion was economically sound. He, therefore, requested the orders of the Punjab Government on the subject and meanwhile suspended the operation of the scheme.

¹ From Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, Sukkur, to the officiating Secretary to Government, Punjab, letter No. 1 in the pamphlet containing correspondence about, "Abolition of the Punjab Government Steam Flotilla" paragraph 4 (Punjab Government Marine Records).

CHAPTER VII.

A.—The Abolition of the Punjab Government
Steam Flotilla.

Meanwhile the Government of India was thinking of abolishing the Flotilla as the experiment had proved a failure from the point of view of commerce and finance. In May 1871, the Marine Department of Government of India enquired of the Foreign Department whether the latter had any objection to the abolition of the Punjab Government Flotilla on political or general grounds, if the former decided to do so on economical grounds.¹

The Financial Department of the Government of India expressed itself in favour of the abolition of the Flotilla in September 1871 on the following grounds :—

- (1) The proposition was not economically sound as the Government had suffered a considerable loss since the very inception of the Flotilla.
- (2) The expense of sending goods to Peshawar was greater than would have been incurred in sending the stores by railway from Multan to Lahore and thence by Government train to Peshawar, for the Railway fare to the extent of one-half would have gone in reduction of the guaranteed interest payable to the Punjab Railway.
- (3) The transit of goods from London to Calcutta and thence to Lahore and Peshawar was probably cheaper than London to Karachi and thence by Punjab Inland steam service to Peshawar, because Karachi was then a less frequented port.

The Government of India in the Marine Department suggests the abolition of the Flotilla.

The opinions of the Financial Department.

¹ See copy of a Memorandum No. 49, dated Fort William, 25th May, 1871, from Colonel B. E. Bacon, officiating Secretary to the Government of India, Marine Department, to Secretary to the Government of India, Foreign Department.

- (4) The Punjab Steam Service could hardly be regarded as a cheap mode of conveying Government stores even after crediting that service with the whole of the earnings from private freight.¹
- (5) The small amount of earnings from private freight clearly showed that the steamers were not required on the Indus route for the transit of merchandise and that the country boats were sufficient for the trade on that river.
- (6) The net loss from the experiment could be considered as a price for political or military advantages that might have occurred from the service. But the importance of these advantages was expected to diminish by the completion of the Punjab State Railway which was at the time under construction.

The correspondence between the Foreign Department of the Government of India and the Government of the Punjab. The opinion of the Lieutenant-Governor of the Punjab.

It has been mentioned that the Foreign Department of the Government of India was asked to give its opinion about the abolition of the Flotilla. In June 1871 it desired to have 'the opinion of the Lieutenant-Governor of the Punjab from the political and administrative point of view as to the expediency or otherwise of maintaining the Punjab Government Steam Flotilla.'²

The Lieutenant-Governor of the Punjab in reply expressed himself in favour of the abolition of the Government Steam Flotilla for the following reasons³ :—

- (1) Since the year 1862 the working of the Flotilla had resulted in a loss of nearly 14 lacs of rupees.
- (2) Even the addition of new boats to the Flotilla for the carrying on the trade on the Indus did not lead to any large development of the private carrying trade.

¹ No. 3824, Government of India, Financial Department Simla, the 30th September, 1871.

² No. 1236-G., dated Simla, 13th June 1871.

³ See letter No. 356—99, dated Lahore, 19th September, 1871, from Lepel H. Griffin, Esq., Officiating Secretary to Government, Punjab, to the Secretary to Government of India, Foreign Department.

- (3) There were no future prospects of any great development taking place in the carrying trade.

It was therefore decided that the Punjab Steam Flotilla had proved a failure as a financial proposition.

- (4) As regards the political and military reasons to maintain it, the following statement was made :—

“ The Hon'ble the Lieutenant-Governor cannot consider that there are any military or political advantages occurring from the maintenance of the Punjab Steam Flotilla nor can he believe that there are any contingencies likely to arise between the present time and the completion of the Punjab State Railway which need be taken into consideration in the disposal of the present question.”¹

Thus, in the opinion of the Lieutenant-Governor of the Punjab, there was no need of the Punjab Government Steam Flotilla.

In addition to the above recommendation the Lieutenant-Governor of the Punjab urged the retention of the Steamer “ Ravi ” for his personal use during his tours on the frontier.

The Lieutenant-Governor also emphasized the point that the services of the officers of the Marine Department should be favourably considered.

Thus all had expressed themselves in favour of the abolition of the Flotilla. The Government of India therefore decided to do so. The orders to the effect were conveyed to the Punjab Government on 7th December 1871.²

In the same letter sanction was given to the retention the steamer “ Ravi ” for the personal use of the Lieutenant-Governor of the Punjab. Proposals for the disposal of the vessels and property were invited. The services of the officers of the Department were also to be considered favourably.

The steamer “ Ravi ” to be kept for the personal use of the Lieutenant-Governor.

The Final decision.

The detention of the “ Ravi ” sanctioned.

¹ No. 266-99, dated Lahore, 19th September, 1871, from Lepel H. Griffin, Esquire, Officiating Secretary to Government, Punjab, to the Secretary to Government of India, Foreign Department.

² Letter No. 26, dated Fort William, the 7th December, 1871, from Colonel H. K. Burne, Secretary to Government of India, Marine Department, to the Military Secretary to Government, Punjab.

The disappearance of the Flotilla.

The instructions received by the Marine Department for the abolition of the Flotilla were to a considerable extent carried out by the close of the official year 1871-72.¹ The Flotilla, therefore, ceased to exist from that time.

The Flotilla records to be sent to the Secretariat Office.

The Superintendent of the Flotilla was directed in March, 1872, by the Punjab Government to send all the Flotilla records to the Secretariat Office, Lahore, after closing the accounts and other matters.

The instructions were duly obeyed. All the records were sent to the Civil Secretariat Office at Lahore and were placed in the Record Office, Punjab Civil Secretariat, Lahore. Later on all the useful and interesting records were sorted out of the whole lot by the Keeper of the Records, Punjab Government.

B.—The men who worked the Flotilla.

Before closing the account of the activities of the Marine Department it seems proper to say a few words about those who carried on the work of the Department.

The importance of the Establishment.

The Establishment represents the human element of the four essentials, *viz.*, Land, Labour, Capital and Management of the modern organization of an industrial enterprise. It is quite obvious that the efficient working of an enterprise depends on the capability or otherwise of the people who are entrusted with the task of working it. In this case, therefore, every care was taken to have competent people to work out the experiment of river navigation. Liberal wages were paid to them, so much so that the pay of the establishment was almost the largest item in the list of disbursements of the Department.

The Establishment.

According to the nature of the work, the members of the Department were divided as follows :—

- (1) Factory Establishment.
- (2) Store Establishment.
- (3) Steam Establishment.
- (4) Office Establishment.

¹ Punjab Government Administration Report for 1871-72, paragraph 200, 3 and 4 letter No. 42, dated 14th March 1872 from Lepel Griffin, Esquire, Officiating Secretary to Government, Punjab, to the Superintendent, Punjab Government, Steam, Flotilla.

Captain W. H. Hampton who had for many years commanded steamers on the Ganges and had particularly distinguished himself during the Mutiny was selected by the Marine authorities at Calcutta in 1861 for the special duty of establishing the Punjab Government Steam Flotilla. He was a capable officer and performed his duties to the entire satisfaction of the Punjab Government during the period of existence of the Department.

The Superintendent, Punjab Government Steam Flotilla.

Captain Hampton had to face some difficulties in getting efficient men although liberal wages were offered. One of them was the climate of Sukkur, where the headquarters of the Flotilla were situated, which did not suit the Europeans. The other was the demand for Engineers at the time. He, however, managed to get capable subordinates to serve the Department and they performed their duties efficiently. Thus it was not through mismanagement that the experiment of river navigation failed and, therefore, liberal treatment was meted out to them at the time of their discharge.

The following schedules show the number of men employed and the annual expenditure incurred by the Department for paying them :—

The annual Expenditure on pay of the officers.

Schedule showing the strength of the Flotilla.¹

	1867-68.	1868-69.	1869-70.	1870-71.
Europeans and Anglo-Indians	25	22	29	18
Indians	191	191	250	256
Office Establishment	15	15	15	14
Freight Agents	3	3	3	3
Fuel Daroghas	3	2	2	4
Medical Establishment	4	4	4	4
Total	241	234	308	299

¹ Figures available only for four years.

Schedule showing the pay of Establishment and the amount spent on Travelling and Deputation allowances paid to the Establishment.

Year.	Pay of establishment.		Travelling and deputation allowances.		Total.
	Rs.	A. P.	Rs.	A. P.	
1862-63	1,14,941	4 10	Not available.
1863-64	Not available.		Not available.
1864-65	1,14,219	1 1	804 0 0
1865-66	1,13,523	4 2	349 6 0
1866-67	1,06,242	5 2	959 13 0
1867-68	1,15,906	12 7	561 0 0
1868-69	12,119	5 9	1,017 7 9
1869-70	1,23,945	1 6	1,281 8 0
1870-71	1,25,577	10 6	992 0 3
1871-72	1,19,621	0 1	..
Total	..		9,43,095	13 8	5,965 3 0

The services of the officers and other employees of the Punjab Government Steam Flotilla.

As has been mentioned above, the claim of the servants of the department for pensions and gratuities, &c., at their discharge were to be considered liberally.¹ A memorandum of the services of all the employees of the department was submitted to the Punjab Government for the purpose. As it gives information about the services of most of the employees it is reproduced here in brief.

¹ See page 81 ante.

¹ *Memorandum of the services of the officers and other employees of the Punjab Government Steam Flotilla.*

Factory Establishment.

Mr. Boyce, Superintending Engineer, served the Government for about thirty-two years seven months, inclusive of one year two months and a half on leave. He did excellent service and was without exception a thorough mechanic and an economical manager of a steam factory.

Mr. Hogan, General Assistant to the Superintending Engineer. He served for 13 years in the Bengal Marine and ten years in the Punjab Flotilla.

Prem Chand, Boiler-maker, was a native of Bengal and served the Flotilla for ten years. He was a good workman and was to a great measure responsible for training the Sindh artificers under him in lathe and machinery work.

Mayaram was the draftsman of the Flotilla Factory. He served the Government for fifteen years.

Contingent establishment of the Factory comprised the artisans employed therein. These men were from Bengal, Bombay, Goa, Punjab, and Sindh.²

Store Establishment.

Mr. Da Costa.—The store-keeper of the Department performed his duties which were of a very laborious and responsible nature to the utmost satisfaction of the authorities.

Tullaram was an efficient store sircar.

There were also some menial servants connected with the store branch.

*Steam Establishment.*³

Mr. J. C. Hand.—The Commander of the steamer "Ravi" was the senior officer afloat. He was a careful officer, and managed his vessel remarkably well.

¹ See Letter No. 518, dated 19th January, 1872, from Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, Sukkur, to the Officiating Secretary to Government, Punjab.

² In this connection also see page 88.

³ The Commanders were Warrant Officers taken on from the Navy.—*Editor*.

Mr. G. Peck was the Commander of the "Jhelum."

Mr. J. L. Plummer was the Commander of the "Chenab."

"He is an officer with whom I have had every reason to be well pleased being obedient to commands, willing, energetic and desirous of giving every satisfaction."
(*Captain Hampton*).

Mr. E. C. J. Tate had the command of the "Beas". He was active and intelligent and managed a river steamer very well.

Mr. Randle was mate of the steamer "Ravi" and served this Department for four years and four months.

Mr. J. H. Cooper, Mate, served the department for about seven years.

Mr. M. V. Honeylane, Mate, served the department for about four years.

Mr. C. Kinear, Mate, served the department for three years and four months.

Mr. C. P. E. Hampton, Mate, served the department for nearly two years and nine months.

Mr. J. Moody served the department as 1st class Engineer, 2nd Assistant Superintending Engineer and Boiler maker and again as 1st class Engineer. He was never at a loss for resources and kept his engines in good order.

He was a steady and intelligent man and possessed a thorough knowledge of his profession.

Mr. R. Arthur, Chief Engineer of the Steamer "Ravi" was sent out by the Secretary of State for India under a covenant to erect the steamer "Beas." As he proved himself to be a capable man, his services were retained. He was particularly intelligent, steady and attentive, very obedient to commands, with a thorough knowledge of his profession and perfectly capable of taking charge of machinery either ashore or afloat.

Mr. J. E. Meyers, 1st class Engineer of the Steamer 'Jhelum,' served for ten years.

Mr. H. Horton, 1st class Engineer of the Steamer 'Chenab' served the Department for seven years and nine months. He was a quiet steady man and very obedient to commands.

Mr. McDonald was 1st class Engineer of the Steamer 'Beas' and served the Department for nearly five years. He was hardworking and managed his engines well.

Indian Engine Drivers.—Four of them were in the 1st class, two in 2nd and three in 3rd class. They worked well and were qualified as Engine Drivers for River Steamers.

The India Establishment consisted of Pilots, three Agents and four Fuel Daroghas.

Office Establishment.

Mr. Stewart.—The Accountant served the department for ten years nine months and nineteen days' service. He was an excellent Accountant, very painstaking and punctual in the preparation of the papers. He was thoroughly acquainted with the management of an office and was of steady habits.

Mr. Bock.—The Assistant Accountant served the Department for two years, six months and nine days. He performed his duties well.

Mr. Davidson.—The Record-keeper, served the Department for two years. He was an excellent copyist, and good office hand.

Khushall, Clerk, was an old servant of the Government and had been in the Accounts Branch of the Department for six years. He was a good calculator and accountant.

Jugu Nath Tallya, Clerk served the Department for six years.

Sujan Singh served the Department for two years, on the centing list of the Factory, and in the Flotilla office.

Rangia Naidu served the Department for five months only.

Abdul Karim was a Munshi.

Ramdawaya was a Treasurer. There were also some menial servants.

Mr. T. Oliver.—Personal Assistant to Superintendent, Government Flotilla, served the Government for thirty years. “The hearty co-operation he has always given in carrying out my wishes in the interests of Government have made him out as a most trustworthy and reliable assistant, not only in general matters, but in the management and charge of the treasury of this Department which latterly devolved upon him.”—(*Captain Hampton*).

These men were given gratuities and pensions, &c., according to the rules of the service to the Punjab Government.

Gratuities to
Artificers of
the Factory
at Sukkur.

Captain Hampton.—Superintendent of the Flotilla—recommended to the Punjab Government that the “Artificers” of the Factory should be paid gratuities such as would be paid to inferior servants.¹ The list² of the “Artificers” who had served the Department for more than five years, which was sent to the Supreme Government included the following names:—

Names.	Vocation.	Period of service.		
		Years.	Months.	Days.
1. Tara Chand	Clerk	5	9	24
2. Ram Lall	Vice-man	8	10	26
3. Govinda	Turner	8	0	21
4. Buggyruth	Screw-utter	9	9	13
5. Chintamonee	Copper-smith	8	0	21
6. Banjun	Mate	8	5	10
7. Baineo	Rivet-man	8	0	2
8. Bindrabun Dass	Rivet-man	6	8	13
9. Umar Singh	Rivet-man	7	11	4
10. Chand Khan	Rivet-holder	8	11	18
11. Gal Muhammad	Black-smith	8	8	16

¹ Letter No. 598, dated 9th March, 1872, from Captain W. H. Hampton, Superintendent, Government Flotilla, Sukkur, to the officiating Secretary to Government, Punjab.

² Letter No. 32, dated 8th March, 1872, from J. H. Boyce, Esquire, Superintending Engineer, Government Steam Flotilla to the Superintendent, Punjab Government Steam Flotilla.

Names.	Vocation.	Period of service.		
		Years.	Months.	Days.
12. Chootah	Black-smith	7	2	13
13. Ochar	Hammer-man	7	0	2
14. Pascoal D'Silva	Carpenter	8	8	16
15. Chuttah	Carpenter	9	6	24
16. Lall Singh	Carpenter	7	6	24
17. Bira	Carpenter	9	6	24
18. Bungal	Carpenter	8	6	0
19. Umar Bekhah	Carpenter	5	10	0
20. Tahar	Carpenter	5	10	0
21. Ibrahim	Carpenter	7	3	14
22. Umar	Carpenter	6	2	5
23. Hussun	Carpenter boy	5	5	0
24. Jowahar Singh	Watchman	7	0	23

The Government of the Punjab proposed to grant gratuities to those artificers of the Factory at Sukkur, who had served for five years or more, and were thrown out of the employment by the closing of the Flotilla.

Sanction was solicited from the Supreme Government for this.¹ This was given by the latter in the following words:—

“The grant of a gratuity of Rs. 400 equal to five months' pay to Babu Tara Chand, Clerk of the Factory, and of a gratuity of three months' pay to each of the other persons,” whose names are given in the list given above.²

Such was the treatment meted out to those who served the Marine Department of the Government of the Punjab.

The orders
of the Gov-
ernment of
India.

¹ Letter No. 64, dated Lahore, 4th April, 1872, from Lepel Griffin, Esquire, officiating Secretary to Government, Punjab, to the Secretary to Government of India, Marine Department.

² Resolution No. 3510, Government of India, Financial Department, Fort William, the 22nd May, 1872.

These men, officers as well as subordinates, Europeans as well as Indians, all alike were efficient, laborious and hardworking. They were honest people and performed their duties well. The experiment (of Steam Navigation in the Punjab Rivers) failed, but that was not their fault.

CHAPTER VIII.

Commerce by Native Boats in the Punjab.

The foregoing chapters have been devoted to the activities of the Steamers of the Marine Department of the Government of the Punjab. They were not the only carriers of commerce by river in the Punjab. A considerable amount of commerce continued to be carried on during the period under review as of old (see Introduction) by means of native boats. It is intended to give a brief description of this commerce in this chapter.

The boats plied on all the rivers of the Punjab, and although they had to face dangerous situations in the proverbially restless rivers of this province, yet their construction was primitive. They were flat-bottomed wooden boats and were capable of holding from 400 to 600 maunds. If lightly laden they would draw 2½ feet of water; but if heavily laden their draught would be increased to 4 or 5 feet of water. They were meant for carrying goods as well as passengers. Towards the ends, they had covered platforms with seating arrangements for passengers. The middle portion was sometimes divided into two and sometimes in four compartments, and was meant for goods and animals, such as sheep, buffaloes, cows, horses and even camels.

These boats were made in the Punjab by the natives from indigenous timber. A considerable number of them were built in Gujrat, Jhelum and Multan. The price per boat ranged from Rs. 500 to Rs. 600.¹

The Punjab rivers, as has been mentioned above, were full of impediments. The maps of the channels of some of these rivers attached herewith, give some idea of these difficulties. There were sand banks, sunken trunks of trees, bushy growths, and divided channels, with which these boats had to contend. Yet

The boats that plied on the Punjab rivers.

The Punjab rivers.

¹ Punjab Government Administration Report for the years 1853-54, and 1855-56 paragraph 121.

they managed to pass down the Punjab rivers in all seasons with cargo. During the winter months when the rivers were shallow, the difficulties in the way of navigation were increased, and the cargo, therefore, was usually reduced to about 200 maunds.

The Commerce on the Sutlej river.

The Sutlej connects a very fertile part of the Punjab with the lower regions of this province, which is further connected with the sea by the Punjnad—the five rivers of the Punjab joined together. It has been therefore very important from the point of view of river commerce. It was navigable by the country boats from its confluence up to Ludhiana. There was a considerable traffic both up and down the river from Karachi to Ferozepore near the confluence of the rivers Beas and Sutlej. Ferozepore was a very important centre of trade in this part of the Punjab, so that the Deputy Commissioner of Ferozepore remarked in 1867 as under :—

“The importance of the river trade of Ferozepore which recent statistics prove to be greater than that of any other town in the Punjab, may be estimated from the fact that it employed several hundred cargo boats, many of which are capable of carrying 10,000 maunds.”¹

Other well-known trade centres on the bank of this river were Fazilka and Bahawalpur.

The Articles of Commerce.

There was a considerable trade both up and down the river. The articles for down trade consisted of cotton, oil seeds, grain, sugar, wool and ghee. And the articles imported from Karachi and carried up the river were European goods, specially iron, hardware and cotton goods, and tea, coffee, and shoes, etc.

Commerce on the Ravi River.

The Ravi is a shallow river. Its course is tortuous and it is known for its unreliability more than any other river in the Punjab. It has, therefore, been never very important for the purposes of commerce. This was long before perceived by Sir Alexander Burnes, when he visited the Punjab. He writes

¹ Letter dated Deputy Commissioner's Office, the 1st May, 1867.

in his "Travels to Bokhara," etc., Vol. II, that "The tortuous course of the Ravi, on which Lahore stands, with its inferiority to all other streams in depth and size, will ever prevent its becoming a line of traffic, and the more so since the trade of the capital is limited, and the great city of Amritsar can be approached within a distance of thirty miles by the course of the Sutlej."

The Chenab was navigable from its confluence with the Jhelum to Akhnur, in the Jammu territory about 50 miles above Wazirabad. A considerable amount of trade was carried on both up and down the stream. Gujrat, Wazirabad, Ramnagar, Kadirabad, Chiniot and Jhang were important trade centres on its banks. Timber from the Jammu Hills, sugar, ghee, wheat, coarse cotton cloth (*Khudder*), hides, and dry skins of sheep and goats were sent downstream to Multan, from which they were taken to Kabul *via* Dera Ghazi Khan by land by the Rowindah merchants, or sent to Sukkur and Karachi by boats. In times of scarcity in this part of the Punjab, corn was brought from places as far off as Ferozepore on the Sutlej. The boats laden with merchandise would come down the Sutlej, and then again go up the Chenab to Jhang. Though this was a very difficult task, yet such a trade was very remunerating and therefore popular.

Commerce
on the
Chenab
River.

The boats used on the Chenab were built at Wazirabad, Ramnagar, and Malahanwala. They were cheap, particularly strong and well-built.¹ The Chenab boatmen were regarded as very good sailors.

The Jhelum was navigable from its confluence with the Chenab to the town of Jhelum. Malakwal, Miani, Pind Dadan Khan, Bhera, Shahpur, Khushab, and Sahiwal were other important trade centres on its banks. Timber, salt from the Khewra mines, brass and copper wares, silk, lungies, cotton goods, blankets and shoes were carried down stream to Multan, which was an important trade centre of the Punjab.

Commerce
on the
Jhelum.

The Indus was navigable from Attock to Karachi. Khushalgarh, Makhad, Kalabagh, Isakhel, Bhakkar, Leiah, and Dera

Commerce
on the
Indus.

¹ Punjab Government Administration Report for the years 1853-54 and 1855-56.

Ghazi Khan were other important trade centres on its banks. A considerable amount of trade was carried on both up and down the stream by native boats, so much so that the Punjab Government Flotilla failed, as it was unable to divert the trade from these boats. Dry fruits were sent down the stream, while European piece-goods were carried up stream.

The freight charges.

The boats were generally owned by the boatmen who plied with them on hire. The rates were not absolutely fixed, and depended to a large scale upon the quantity of trade in a particular season, though custom and usage also played an important part. The freightage from Lahore to Karachi was on the average one Rupee per maund, while from Multan to Karachi was about half that amount.¹ It took about thirty-five days to go from Lahore to Karachi under favourable circumstances, but the voyage might last for six weeks ; while the upward trip would last as long as fifteen weeks.

The hazards of the trade.

All was not smooth sailing in the Punjab rivers ; and therefore a good deal of risk was involved in the trade. Frequent delays occurred on account of the stoppages caused by the sand banks. In addition to this, in the absence of any means to know beforehand, of the coming of floods, the boats were in a great danger of being caught by them. A dangerous kind of such a flood was called 'Kappar'. The boatmen generally took care to avoid it ; but when once they were caught in it, it proved fatal. The boats would sink, and the boatmen would sometimes be drowned and sometimes would save themselves by swimming to the bank.

The trade was very profitable.

In spite of these risks, a considerable amount of trade was carried on all the rivers of the Punjab, and it was worth the trouble too. There was always a very keen demand for the goods of the Upper Punjab at Multan, which was connected by trade-routes with the other commercial marts of the Punjab, and Afghanistan and Karachi. And therefore very high prices were paid involving high profits.

¹ Punjab Government Administration Report for the years 1853-54 and 1855-56.

The exports of the Punjab by water carriage down the five rivers were cereals, indigo, sugar, cotton linseed, rice, saltpetre, wool, oil-seeds, spices, and silks. The imports were piece-goods, spices, dye-wood, European stores and bullion. The down and up trade of the Punjab from Karachi was registered at Mithankot, just below the junction of the Punjab rivers. The statistics are reproduced here for the purpose of comparison :—

The articles of trade.

Year.	Boats.	Maunds.	REMARKS.
1855-56 ..	2,771	853,444	
1856-57 ..	3,340	1,071,907	In spite of the deficient harvest and the prevalent sickness, which effected the commercial and agricultural prosperity of the province the trade increased.
1857-58 ..	3,548	1,179,495	The abundant harvests and the diversion of trade from the route of the Indus caused a considerable increase in the trade.
1858-59 ..	3,965	1,396,397	
1859-60 ..	3,806	1,485,212	The decrease was probably due to better prices being obtainable for agricultural produce in the Punjab and Delhi territory.
1860-61 ..	2,945	1,111,824	The decrease was due to the division of the trade towards the North-Western Provinces, on account of that area being famine-stricken. The decrease was mostly in the quantity of cereals but there was increase in the quantity exported of wool, hides, Sujji, and madder, dried fruits and copper.
1861-62 ..	2,442	9,229,824	The decrease was chiefly in the quantity of cereals and saltpetre, while there was an appreciable increase in the quantity of cotton, indigo, sesamum seed and hemp.
1862-63 ..	3,185	1,237,264	There was an increased export of grain, cotton, salt, spices and linseed.
1863-64 ..	3,485	1,265,056	There was an appreciable increase in the quantity exported of cereals, wheat, barley, and rice on account of the high price prevalent in the Bombay Presidency.

COMMERCE BY RIVER

Year.	Boats.	Maunds.	REMARKS.
1864-65 ..	3,769	1,438,584	There was a further increase in the quantity exported of cereals, wheat, barley, mustard seed and majeth, but there was a decrease in the quantity exported of cotton, wool, saltpetro, spices and indigo. The weight and value of goods brought up the river were about one-seventh of the weight and value of the exports.
1865-66 ..	No figures available.	No figures available.	....
1866-67 ..	Ditto ..	Ditto ..	....
1867-68 ..	Ditto ..	Ditto ..	....
1868-69 ..	Up-trade ..	28,000	It chiefly consisted of Malt-liquor.
	Down-trade ..	51,482	
1869-70 ..	No figures available.	..	....
1870-71 ..	Ditto ..	..	....
1871-72 ..	Up-trade ..	153,791	It consisted of metals, spices, fruits, grains, dyes, sugar, drugs and piece-goods.
	Down-trade ..	1,015,160	The principal items were grains, cotton, wool, oil-seeds, sugar, ghee, country cloth.
1872-73 ..	Up-trade ..	95,286	
	Down-trade ..	587,646	
1873-74 ..	Up-trade ..	130,333	
	Down-trade ..	1,026,180	
1874-75 ..	Up-trade ..	76,620	
	Down-trade ..	867,584	
1875-84 ..	No figures available.	..	

Concluding remarks.

To solve the problem of transport in the north-western portion of the Punjab, the Marine Department of the Government of the Punjab was organized in 1861-62. It proved a failure and ceased to exist in 1871-72, but the native boats continued to

carry the Punjab commerce to the sea. Meanwhile the Government had undertaken to build roads and railways in this province on an extensive scale. This was too much for the native boats. The rivers gradually lost their importance as the best highways of commerce, so that by 1907, they were able to hold their own in competition with the railway only in the transport of heavy and bulky goods. But by now the commerce by river in the Punjab has almost entirely ceased ; and its place in the transport system of the province has been taken by the railways.

The system of transport by rail has done a good deal in the way of supplying a satisfactory system of transport in this province, yet it is far from perfect. The need for a cheap means of transport is keenly felt. With this end in view it was suggested in 1920 by the Punjab Government to revive the system of water transport on the Punjab rivers, and particularly on the Indus.

At the first meeting of the Provincial Board of Communications, held in January, 1920 it was resolved to appoint a sub-committee to report to the board what use could be made of the river Indus below Kalabagh for the purposes of transport. The Report of the sub-committee was favourable to the proposal. It was, therefore, decided to secure the services of an expert to investigate the potentialities of the Indus and other waterways in this Province with respect to inland water transport service. There was a considerable opposition to this appointment from certain quarters ; Mr. Ives, in particular Chief Engineer, Irrigation Branch strongly opposed it. But the Provincial Board of Communications was definite that "*prima facie*" it was conceivable that no use whatsoever could be made for inland water transport, of the five rivers of the Province and of the Indus, apart from the use of those canals which were originally constructed with a view to navigation as well as irrigation, and that the investigation should be carried out by an expert whose opinion could be accepted as final, in order that the discussion might be settled once for all.¹

¹ Report on the operations of Provincial Board of Communications for the year 1921-22.

Yet no investigation was carried out in the matter. And the proposal was shelved in 1922 by the board with the remarks that it was a matter for investigation by the Forest Department or by private enterprise.

At first sight it would appear that the water-supply of the Punjab rivers has been exhausted by the Irrigation schemes and therefore no use can be made of the rivers regarding transport on a commercial scale. There is undoubtedly an insufficient amount of water in the rivers in the dry season, but during the season when wheat is exported to Karachi, the rivers have ample supply of water. Moreover large quantities of timber, hides, grain, etc., can be profitably exported to Karachi but for the high railway freight. This is not, however, the place for an expression of opinion on such a technical subject.

APPENDIX No. I.

*Rates of duty leviable by Maharaja Ranjit Singh on Merchandize¹ navigating the
Sutlej and the Indus.*

	Rs.	A.	P.		Rs.	A.	P.
Shawl goods	..	10	0	0	Oil (Roghan Seeah)	..	..
Opium	..	7	8	0	Costus (Kooth)	..	..
Indigo	..	2	8	0	Sugar Candy (Nubat)	..	..
Almonds	Gall (Hullelehizurd)	..	..
Pistashes	The emblic myrobalans (Ahmleh)	..	0 4 0
Raisins, small and large	The belleric myrobalans (Bulleh)	..	..
Pine Kernels	Cotton (Pumbah)	..	..
Figs	Small Gall (Hulleleh Zungee)	..	..
And other dried fruits, Red Dye (Rubia Man- jit)	..	0	8	0	Walnuts (Akhrot)	..	..
Silk of all sorts	Cichrium Endwia (Kas- nee)	..	..
Manufactured and other- wise broad cloth of every description	..	0	6	0	Mellon Seed (Khurgarn)	..	..
Velvet	Turmeric (Zurdehob)	..	..
Satin	Ginger (Adruk)	..	..
Chintzes and figured	A kind of Collyrium (Russorit)	..	0 4 0
Velveteens	Alces (Sibi)	..	..
White cotton cloth of all sorts (Parcheb Sauffed, Raismanee Hummah Kissum)	..	0	4	0	Saffrom (Zafrah)	..	..
Chintzes of all sorts (Aki- sam-i-Cheert)	Catachu (Kutha)	..	..
Sugar (Sukurturice)	Soapnut (Retha)	..	..
Molasses (Shukur Soorkh) and Khand Seeah	The bark of the Birch Tree (Bhoj Puttur)	..	..
Clarified Butter (Roghan Zard)	Dry Ginger (Zungbeer)	..	..
					And other Groceries	..	..
					Cardamums small and large (Olachee Khurd and Kalan)	..	..

¹ By virtue of the Treaty concluded on 18th May, 1839, between Ranjit Singh and the British.

Rs. A. P.	Rs. A. P.
Seeds of Cardamums	Tea (Chah)
(Dann ah Illachee)	All sorts of Glassware
Cinnabar or Vermillion	(Aksami shee, sheh allat)
(Shingruf)	Assafetida (Angozeh)
Pellitory (Akurkurha) .. 0 4 0	B'dellium (Googul) .. 0 4 0
Cloves (Kuruful)	Maeen (Maeen)
Nutmeg (Jaesful)	Collyrium (Soorma)
Mace (Iavuttree)	Alum (Phitkuree)
Cinnamon (Darcheenee)	Multan earth (Gili Mul-
Dry Dates (Khoormai	tani)
Khooshak)	Copper (Miss)
Turbith Root (Toor-	Tin (Kulee)
bood)	Quick silver (Seemanl)
Cocoanut (Naryeel)	Lead (Soorb)
Asgundh (Asgundh)	Pewter (Just)
Orpiment (Hurtal)	Brass (Birinjee)
Bamboo Sugar (Tuba-	Bell Metal (Roeen)
sheer)	Articles of Ironmongery
Armenian Earth (Gili-i-	(Aksam-i-Ahum)
Armunnee)	And other Articles of Im-
Black Pepper (Filfil-i-	port from Bombay
Seeah)	Rice (Birunj)
Red Pepper (Filfil-i-	Wheat (Gundaom)
Durraz) .. 0 4 0	Gram (Nukhood)
Gallnut (Mazoo)	Maizes (Moth, Moongh,
Shells (Khurmohreh)	Mash, Adus.)
China Root (Chobchee-	Barley (Jau)
nee)	Aniseed (Koonjud Susuf)
Morinda Citrifolia (Aul)	Indian Corn (Bajrah,
Betelnut (Sooparee)	Mukkee, Jowar)

APPENDIX No. II.

A scale of duties agreed to by Maharajah Kharak Singh in 1840.

	Rs.	A.	P.
Duty on a boat not exceeding two hundred and fifty maunds of freight, proceedings from the foot of the hills, Rupar or Ludhiana, to Mithankot or Rojan, or from Rojan or Mithankot to the foot of the hills, Rupar or Ludhiana	50	0	0
<i>Vis.,</i>			
From the foot of the hills to Ferozepore, or back ..	20	0	0
From Bahawalpore to Mithankot or Rojan, or back ..	15	0	0
From .. to Bahawalpore, or back ...	15	0	0
The whole trip up or down	50	0	0
Duty on a boat above two hundred and fifty maunds, but not exceeding five hundred maunds, from the foot of the hills, Rupar or Ludhiana, to Mithankot or Rojan, or from Rojan or Mithankot to the foot of the hills, Rupar or Ludhiana	100	0	0
<i>Vis.,</i>			
From the foot of the hills to Ferozepore or back ..	40	0	0
From Ferozepore to Bahawalpore or back ..	30	0	0
From Bahawalpore to Mithankot or Rojan, or back ..	30	0	0
The whole trip, up or down	100	0	0
Duty on all boats above five hundred maunds	150	0	0
<i>Vis.,</i>			
From the foot of the hills to Ferozepore or back ..	60	0	0
From Ferozepore to Bahawalpore or back ..	45	0	0
From Bahawalpore to Mithankote or Rojan or back ..	45	0	0
The whole trip, up or down	150	0	0

Rs. A. P.		Rs. A. P.
	Seeds of Cardamums	Tea (Chah)
	(Dann ah Illachee)	All sorts of Glassware
	Cinnabar or Vermillion	(Aksami shee, sheh allat) ..
	(Shingruf)	Assafetida (Angozeh) ..
0 4 0	Pellitory (Akurkurha) ..	B'dellium (Googul) .. 0 4 0
	Cloves (Kuruful)	Maeen (Maeen)
	Nutmeg (Jaesful)	Collyrium (Soorma)
	Mace (Iavuttree)	Alum (Phitkuree)
	Cinnamon (Darcheenee) ..	Multan earth (Gili Mul-
	Dry Dates (Khoormai	tani)
	Khooshak)	Copper (Miss)
	Turbith Root (Toor-	Tin (Kulee)
	bood)	Quick silver (Seemaul) ..
	Cocoanut (Naryeel)	Lead (Soorb)
	Asgundh (Asgundh)	Pewter (Just)
	Orpiment (Hurtal)	Brass (Birinjee)
	Bamboo Sugar (Tuba-	Bell Metal (Roeen)
	sheer)	Articles of Ironmongery
	Armenian Earth (Gili-i-	(Aksam-i-Ahum)
	Armunnee)	And other Articles of Im-
	Black Pepper (Filfil-i-	port from Bombay
	Seeah)	Rice (Birunj)
	Red Pepper (Filfil-i-	Wheat (Gundaom)
0 4 0	Durraz)	Gram (Nukhood)
	Gallnut (Mazoo)	Maizes (Moth, Moongh,
	Shells (Khurmohreh)	Mash, Adus.)
	China Root (Chobchee-	Barley (Jau)
	nee)	Aniseed (Koonjud Susuf) ..
	Morinda Citrifolia (Aul)	Indian Corn (Bajrah,
	Betelnut (Sooparee)	Mukkee, Jowar)

APPENDIX No. II.

A scale of duties agreed to by Maharajah Kharak Singh in 1840.

	Rs. A. P.
Duty on a boat not exceeding two hundred and fifty maunds of freight, proceedings from the foot of the hills, Rupar or Ludhiana, to Mithankot or Rojan, or from Rojan or Mithankot to the foot of the hills, Rupar or Ludhiana	50 0 0
<i>Vis.,</i>	
From the foot of the hills to Ferozepore, or back ..	20 0 0
From Bahawalpore to Mithankot or Rojan, or back ..	15 0 0
From .. to Bahawalpore, or back ...	15 0 0
The whole trip up or down	50 0 0
Duty on a boat above two hundred and fifty maunds, but not exceeding five hundred maunds, from the foot of the hills, Rupar or Ludhiana, to Mithankot or Rojan, or from Rojan or Mithankot to the foot of the hills, Rupar or Ludhiana	100 0 0
<i>Vis.,</i>	
From the foot of the hills to Ferozepore or back ..	40 0 0
From Ferozepore to Bahawalpore or back ..	30 0 0
From Bahawalpore to Mithankot or Rojan, or back ..	30 0 0
The whole trip, up or down	100 0 0
Duty on all boats above five hundred maunds	150 0 0
<i>Vis.,</i>	
From the foot of the hills to Ferozepore or back ..	60 0 0
From Ferozepore to Bahawalpore or back ..	45 0 0
From Bahawalpore to Mithankote or Rojan or back ..	45 0 0
The whole trip, up or down	150 0 0

APPENDIX No. III.

Detailed statement of the amount of Toll leviable in the Bahawalpore Territory on boats proceeding up and down the river Sutlej and Indus.

	Rs. A. P.
1. On all boats laden with merchandize proceeding from beyond the eastern frontier of the Bahawalpore Territory to Khairpur Shargia, and <i>vice versa</i>	53 6 1
On all boats laden with merchandize proceeding from beyond the eastern frontier to Bahawalpore and <i>vice versa</i> ..	66 11 8
On all boats laden with merchandize proceeding from beyond the eastern frontier to Chachrah and <i>vice versa</i> ..	93 6 8½
On all boats laden with merchandize proceeding from beyond the north-east frontier to the south-west frontier, and <i>vice versa</i>	106 12 8
2. On all boats laden with merchandize proceeding from beyond the south-east frontier to Chachrah and <i>vice versa</i>	19 15 6
On all boats laden with merchandize proceeding from beyond the south-west frontier to Bahawalpore and <i>vice versa</i>	40 0 0
On all boats laden with merchandize proceeding from beyond the south-west frontier to the north-east frontier and <i>vice versa</i>	106 12 8
On all boats laden with merchandize proceeding from beyond the south-west frontier to Khairpur and <i>vice versa</i>	53 6 1½
3. On all boats laden with merchandize from the rivers of the Punjab that enter the channel of the Sutlej and Indus, opposite the ferry of Bakri, if they proceed from the above ferry to beyond the south-west frontier of the Bahawalpore Territory, and into a foreign territory or <i>vice versa</i>	26 11 ¾
On all boats laden with merchandize from the rivers of the Punjab that enter the channel of the Sutlej and Indus, on boats proceeding the ferry of Bakri to beyond the north-east frontier and into a foreign territory and <i>vice versa</i>	85 1 2½

* Approved by the Governor-General of India on the 11th October 1838.

4. On empty boats no duty was to be levied
5. "At whatever place in the Bahawalpore Territory merchants may stop to lay in, or dispose of, cargo agreeably to the former treaties, they will pay the established duties of that place on the purchase and sale of goods."

APPENDIX No. IV.

Proposed† rates for the Navigation of the Sutlej and the Indus by Mercantile boats (excepting the Nawab Bahawal Khan's own merchants and subjects) to be paid for the transit through the Bahawalpore Territory.

A boat not capable of containing more than 250 maunds of freight, proceeding from Rajhan or Kote Mithan, to the foot of the hills, Rupar, Ludhiana, &c., or from Rupar, or Ludhiana to Rojhan, or Kote Mithan ..	10	0	0
A boat above 250 maunds, and not exceeding 500 maunds..	20	0	0
A boat above 500 maunds	40	0	0

†Sanctioned by the Governor-General of India in Council on the 31st August, 1840.

APPENDIX No. V.

Fares for passage and rates of freight for private passengers goods, Government Officers and Soldiers, Stores, &c., &c., by the vessels of the Indus Flotilla Company, between Kotri and Multan.

TABLE A.

Upward fares for passengers from Kotri to Multan.

	Rs.	A.	P.
For 1st class passengers, Cabin accommodation and everything provided except cigars	250	0	0
For 2nd class passengers, saloon accommodation and everything provided except liquor	200	0	0
For 3rd class passengers on Deck	20	0	0
For children between 12 and 6 years of age	Half price.		
For children between 6 and 3 years of age	Quarter price.		
For Mail Guards and officer of the Post Officer Department (when on duty)	Free.		
For Military Officer, Troops and Government Artisans (when on duty or provided with passage at the expense of the Government) as follows :—			
1st. Those entitled to 1st class passage	200	0	0
2nd. Those entitled to 2nd class passage, Warrant Officers, &c.	70	0	0
3rd. Soldiers and non-commissioned officers	20	0	0

TABLE B.

Upward fares for Horses, Carriages, &c., from Kotri to Multan.

	Rs.	A.	P.
For a carriage or Buggy per 100 miles	5	0	0
For a Palanquin per 100 miles	4	0	0
For a horse, pony, bullock, &c., per 100 miles	10	0	0
For dogs, sheep or goats each per 100 miles	1	0	0

Upward Freights.

For seeds, grain, cotton, wool, and saltpetre per maund (of 82 lbs.)	0	8	6
For seeds and cotton, if from Kotri to Multan per maund (of 82 lbs.)	1	4	0

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For Railway permanent way materials such as rails, chains, fish plates, spikes, nuts and bolts, (a special rate, if from Kotri to Multan) per maund ..	Rs. A. P.	1 0 0
For all other goods per maund (of 82 lbs.) ..	..	0 4 6
For all other goods, if from Kotri to Multan per maund (of 82 lbs.) .. ..	.. ..	1 9 8
For Treasure (silver and gold per 100 miles) ..	..	1½ per cent.

Downward Fares and Freight from Multan to Kotri.

For passengers and goods, stores, carriages, horses, &c.	⅓rd of upward rates.
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N.B.—For original source for A & B, see the memorandum attached to letter No. 149, from the Under-Secretary to Government, Punjab, Railway Department, to the Secretary to Government, Punjab, dated Murree, 8th July, 1891. Also "Government Gazette, Punjab and its Dependencies" for 17th July, 1891.

APPENDIX No. VI.

The following tables show the rates of up and down freight as proposed by Captain Hampton for the through traffic between Peshawar and Karachi. They also show the up and down rates of freight charged by the Punjab Government Steam Flotilla between Sukkur and Mukhdud only.

TABLE A.

Karachi to	CLASS.					REMARKS.
	1st.	2nd.	3rd.	4th.	5th.	
	Rs. A.P.	Rs. A.P.	Rs. A.P.	Rs. A.P.	Rs. A.P.	
Sukkur per maund of 80 lbs.	1 3 6	1 6 7	1 8 1	2 1 0	3 5 5	I.—Freight on goods will have to be paid in transit.
Dera Ghazi Khan per maund of 80 lbs.	3 3 6	3 6 7	3 8 1	4 1 0	5 5 5	II.—An error being discovered in the freight charged, the deficiency will have to be paid prior of delivery of goods.
Dera Ismail Khan per maund of 80 lbs.	3 11 6	3 14 7	4 0 1	4 9 0	5 13 5	III.—Goods not cleared away with- in 48 hours of arrival will be liable to godown rent at one anna per package per diem.
Mukhdud per maund of 80 lbs.	4 3 6	4 6 7	4 8 1	5 1 0	6 5 5	
Attock per maund of 80 lbs.	5 3 6	5 6 7	5 8 1	6 1 0	7 5 5	
Rawalpindi per maund of 80 lbs.	6 5 5	8 7 5	5 10 1	6 3 0	7 7 5	
Peshawar per maund of 80 lbs.	5 9 6	5 12 7	5 14 1	6 7 0	7 11 5	
Kohat per maund of 80 lbs.	4 15 6	5 2 7	5 4 1	5 13 1	7 1 5	
Nowshera per maund of 80 lbs.	5 6 6	5 9 7	5 11 1	6 4 0	7 8 5	

TABLE B.

Down freight only on goods from Peshawar to Karachi and immediate stations.

Note.—Down charges of freight fluctuate according to the state of market and are therefore to be considered as the minimum rates, the rates of the Indus Steam Flotilla and the Sindh Railway are to be revised as may be deemed advisable by those companies.

No. 1.

	Class of goods.	FROM PESHAWAR.			
		Karachi.	Sukkur.	Dera Ghazi Khan.	Dera Ismail Khan.
		Rs. A.P.	Rs. A.P.	Rs. A.P.	Rs. A.P.
Block iron	1st	2 15 6	2 6 0	1 14 0	1 10 0
Seeds	3rd	3 1 1	2 6 0	1 14 0	1 10 0
Cloth (piece)	4th	4 1 0	2 6 0	1 14 0	1 10 0
Jeera Coriander	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Rice	3rd	3 1 1	2 6 0	1 14 0	1 10 0
Saltpetre	2nd	2 15 1	2 6 0	1 14 0	1 10 0
Tallow	2nd	3 10 7	2 6 0	1 14 0	1 10 0
Paper	2nd	3 10 7	2 6 0	1 14 0	1 10 0
Dry dates	2nd	3 2 7	2 6 0	1 14 0	1 10 0
Sugar	2nd	6 6 7	2 6 0	1 14 0	1 10 0
Cotton pressed	3rd	3 6 1	2 6 0	1 14 0	1 10 0
Cotton unpressed	4th	3 15 0	2 6 0	1 14 0	1 10 0
Cotton thread	4th	3 15 0	2 6 0	1 14 0	1 10 0
Dye stuff	3rd	3 8 1	2 6 0	1 14 0	1 10 0
Ghee or oil cakes	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Tobacco	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Manjeet	4th	3 11 0	2 6 0	1 14 0	1 10 0
Turmeric	3rd	3 6 1	2 6 0	1 14 0	1 10 0
Raisins	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Pepper	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Paper	4th	3 15 1	2 6 0	1 14 0	1 10 0
Borax	3rd	3 4 1	2 6 0	1 14 0	1 10 0

	Class of goods.	FROM PESHAWAR.			
		Karachi.	Sukkur.	Dera Ghazi Khan.	Dera Ismail Khan.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Carpets	3rd	3 14 1	2 6 0	1 14 0	1 10 0
Shoes	4th	3 15 0	2 6 0	1 14 0	1 10 0
Wool pressed	4th	3 7 0	2 6 0	1 14 0	1 10 0
Wool unpressed	4th	3 9 0	2 6 0	1 14 0	1 10 0
Country medicines	4th	3 15 0	2 6 0	1 14 0	1 10 0
Toys	4th	4 7 0	2 6 0	1 14 0	1 10 0
Indigo	5th	4 7 5	2 6 0	1 14 0	1 10 0
Dry fruit	3rd	5 3 5	2 6 0	1 14 0	1 10 0
Silk	5th	5 3 5	2 6 0	1 14 0	1 10 0
Ivory	5th	5 3 5	2 6 0	1 14 0	1 10 0
Tea	4th	3 11 0	2 6 0	1 14 0	1 10 0
Wines and spirits	4th	3 11 0	2 6 0	1 14 0	1 10 0
Ghee	4th	3 15 0	2 6 0	1 14 0	1 10 0
Fashmina	5th	5 3 5	2 6 0	1 14 0	1 10 0

TABLE B.

Down freight only on goods from Peshawar to Karachi and immediate stations.

Note.—Down charges of freight fluctuate according to the state of market and are therefore to be considered as the minimum rates, the rates of the Indus Steam Flotilla and the Sindh Railway are to be revised as may be deemed advisable by those companies.

No. 1.

	Class of goods.	FROM PESHAWAR.			
		Karachi.	Sukkur.	Dera Ghazi Khan.	Dera Ismail Khan.
		Rs. A.P.	Rs. A.P.	Rs. A.P.	Rs. A.P.
Block iron	1st	2 15 6	2 6 0	1 14 0	1 10 0
Seeds	3rd	3 1 1	2 6 0	1 14 0	1 10 0
Cloth (piece)	4th	4 1 0	2 6 0	1 14 0	1 10 0
Jeera Coriander	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Rice	3rd	3 1 1	2 6 0	1 14 0	1 10 0
Saltpetre	2nd	2 15 1	2 6 0	1 14 0	1 10 0
Tallow	2nd	3 10 7	2 6 0	1 14 0	1 10 0
Paper	2nd	3 10 7	2 6 0	1 14 0	1 10 0
Dry dates	2nd	3 2 7	2 6 0	1 14 0	1 10 0
Sugar	2nd	3 6 7	2 6 0	1 14 0	1 10 0
Cotton pressed	3rd	3 6 1	2 6 0	1 14 0	1 10 0
Cotton unpressed	4th	3 15 0	2 6 0	1 14 0	1 10 0
Cotton thread	4th	3 15 0	2 6 0	1 14 0	1 10 0
Dye stuff	3rd	3 8 1	2 6 0	1 14 0	1 10 0
Ghee or oil cakes	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Tobacco	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Manjeet	4th	3 11 0	2 6 0	1 14 0	1 10 0
Turmeric	3rd	3 6 1	2 6 0	1 14 0	1 10 0
Raisins	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Pepper	3rd	3 12 1	2 6 0	1 14 0	1 10 0
Paper	4th	3 15 1	2 6 0	1 14 0	1 10 0
Borax	3rd	3 4 1	2 6 0	1 14 0	1 10 0

	Class of goods.	FROM PESHAWAR.			
		Karachi.	Sukkur.	Dera Ghasi Khan.	Dera Ismail Khan.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Carpets	3rd	3 14 1	2 6 0	1 14 0	1 10 0
Shoes	4th	3 15 0	2 6 0	1 14 0	1 10 0
Wool pressed	4th	3 7 0	2 6 0	1 14 0	1 10 0
Wool unpressed	4th	3 9 0	2 6 0	1 14 0	1 10 0
Country medicines	4th	3 15 0	2 6 0	1 14 0	1 10 0
Toys	4th	4 7 0	2 6 0	1 14 0	1 10 0
Indigo	5th	4 7 5	2 6 0	1 14 0	1 10 0
Dry fruit	3rd	5 3 5	2 6 0	1 14 0	1 10 0
Silk	5th	5 3 5	2 6 0	1 14 0	1 10 0
Ivory	5th	5 3 5	2 6 0	1 14 0	1 10 0
Tea	4th	3 11 0	2 6 0	1 14 0	1 10 0
Wines and spirits	4th	3 11 0	2 6 0	1 14 0	1 10 0
Ghee	4th	3 15 0	2 6 0	1 14 0	1 10 0
Peashma	5th	5 3 5	2 6 0	1 14 0	1 10 0

No. 2.

	Class of goods.	FROM MUKHUD.			
		Karachi	Sukkur.	Dera Ghazi Khan.	Dera Ismail Khan.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Block iron	1st	1 9 6	1 0 0	0 8 0	0 4 0
Seeds	3rd	1 11 0	1 0 0	0 8 0	0 4 0
Cloth (piece)	4th	2 11 0	1 0 0	0 8 0	0 4 0
Jeera corinder	3rd	2 6 0	1 0 0	0 8 0	0 4 0
Rice	3rd	1 11 0	1 0 0	0 8 0	0 4 0
Saltpetre	2nd	1 9 1	1 0 0	0 8 0	0 4 0
Tallow	2nd	2 4 7	1 0 0	0 8 0	0 4 0
Paper	2nd	2 4 7	1 0 0	0 8 0	0 4 0
Dry dates	2nd	1 12 7	1 0 0	0 8 0	0 4 0
Sugar	2nd	2 0 7	1 0 0	0 8 0	0 4 0
Cotton pressed	3rd	2 0 1	1 0 0	0 8 0	0 4 0
Cotton unpressed	4th	2 9 0	1 0 0	0 8 0	0 4 0
Cotton thread	4th	2 9 0	1 0 0	0 8 0	0 4 0
Dye stuff	3rd	2 2 1	1 0 0	0 8 0	0 4 0
Ghee or oil cakes	3rd	2 6 1	1 0 0	0 8 0	0 4 0
Tobacco	3rd	2 6 1	1 0 0	0 8 0	0 4 0
Munjeet	3rd	2 5 0	0 0	0 8 0	0 4 0
Raisins	3rd	2 6 1	1 0 0	0 8 0	0 4 0
Pepper	3rd	1 14 1	1 0 0	0 8 0	0 4 0
Tape	4th	2 9 0	1 0 0	0 8 0	0 4 0
Borax	3rd	1 14 0	1 0 0	0 8 0	0 4 0
Carpets	3rd	2 8 1	1 0 0	0 8 0	0 4 0
Shoes	4th	2 9 0	1 0 0	0 8 0	0 4 0
Wool pressed	4th	2 1 1	1 0 0	0 8 0	0 4 0
Wool unpressed	4th	2 3 1	1 0 0	0 8 0	0 4 0
Country medicines	4th	2 9 0	1 0 0	0 8 0	0 4 0

	Class of goods.	FROM MUKHUB.			
		Karachi.	Sukkur.	Dera Ghazi Khan.	Dera Ismael Khan.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Toys	4th	3 1 0	1 0 0	0 8 0	0 4 0
Indigo	5th	3 1 5	..	0 8 0	0 4 0
Dry fruit	3rd	2 6 1	1 0 0	0 8 0	0 4 0
Silk	5th	3 13 5	1 0 0	0 8 0	0 4 0
Ivory	5th	2 13 5	1 0 0	0 8 0	0 4 0
Tea	4th	2 5 1	1 0 0	0 8 0	0 4 0
Wines and spirite	4th	2 5 8	1 0 0	0 8 0	0 4 0
Ghee	4th	2 9 0	1 0 0	0 8 0	0 4 0
Pashmina	5th	2 13 0	1 0 0	0 8 0	0 4 0

No. 3.

	Class of goods.	FROM DERA ISMAIL KHAN.		
		Karachi.	Sukkur.	Dera Ghazi Khan.
		Rs. A. P.	Rs. A. P.	Rs. A. P.
Block iron	1st	1 5 6	0 12 0	0 4 0
Seeds	3rd	1 7 1	0 12 0	0 4 0
Cloth (piece)	4th	2 7 0	0 12 0	0 4 0
Jeera Corinder	3rd	2 2 1	0 12 0	0 4 0
Rice	3rd	1 7 1	0 12 0	0 4 0
Saltpetre	2nd	1 5 1	0 12 0	0 4 0
Tallow	2nd	2 0 7	0 12 0	0 4 0
Paper	2nd	2 0 7	0 12 0	0 4 0
Dry dates	2nd	1 8 7	0 12 0	0 4 0
Sugar	2nd	1 12 7	0 12 0	0 4 0
Cotton pressed	3rd	2 5 0	0 12 0	0 4 0
Cotton unpressed	4th	2 5 0	0 12 0	0 4 0
Cotton thread	4th	2 5 0	0 12 0	0 4 0
Dye stuff	3rd	1 14 1	0 12 0	0 4 0
Ghee or oil cakes	3rd	2 2 1	0 12 0	0 4 0
Tobacco	3rd	2 2 1	0 12 0	0 4 0
Munjeet	4th	2 1 0	0 12 0	0 4 0
Turmeric	3rd	1 12 0	0 12 0	0 4 0
Raisins	3rd	2 2 1	0 12 0	0 4 0

No. 4.

				FROM DERA GHAAZI KHAN.	
Class of goods.				Karschi.	Sukkur.
				Rs. A. P.	Rs. A. P.
Block iron	..	1st	..	1 1 6	0 8 0
Seeds	..	3rd	..	1 3 1	0 8 0
Cloth (piece)	..	4th	..	2 3 0	0 8 0
Jeera corinder	..	3rd	..	1 14 1	0 8 0
Rice	..	3rd	..	1 13 1	0 8 0
Saltpetre	..	2nd	..	1 1 1	0 8 0
Tallow	..	2nd	..	1 12 7	0 8 0
Paper	..	2nd	..	1 12 7	0 8 0
Dry dates	..	2nd	..	1 4 7	0 8 0
Sugar	..	2nd	..	1 8 7	0 8 0
Cotton pressed	..	3rd	..	1 8 1	0 8 0
Cotton unpressed	..	4th	..	2 1 0	0 8 0
Cotton thread	..	4th	..	2 1 0	0 8 0
Dye stuff	..	3rd	..	1 10 1	0 8 0
Ghee or oil cakes	..	3rd	..	1 14 1	0 8 0
Tobacco	..	3rd	..	1 14 1	0 8 0
Munjeet	..	4th	..	1 13 0	0 8 0
Turmeric	..	3rd	..	1 8 1	0 8 0
Pepper	..	3rd	..	1 6 1	0 8 0
Pepper	..	3rd	..	1 6 1	0 8 0
Tape	..	4th	..	2 0 1	0 8 0
Borax	..	3rd	..	2 1 1	0 8 0
Carpets	..	3rd	..	2 0 1	0 8 0
Shoes	..	4th	..	2 1 1	0 8 0
Wool pressed	..	4th	..	1 9 0	0 8 0
Wool unpressed	..	4th	..	1 11 0	0 8 0

				FROM DERA GHASI KHAN.	
				Karachi.	Sukkur.
Class of goods.				Rs. A. P.	Rs. A. P.
Country medicines	..	4th	..	2 1 0	0 8 0
Toys	..	4th	..	2 9 0	0 8 0
Indigo	..	5th	..	2 9 5	0 8 0
Dry fruit	..	3rd	..	1 14 1	0 8 0
Silk ..	..	5th	..	3 5 5	0 8 0
Ivory	..	5th	..	3 5 5	0 8 0
Tea	..	4th	..	1 13 0	0 8 0
Wines and spirits	..	4th	..	1 13 0	0 8 0
Ghee ..	..	4th	..	2 1 0	0 8 0
Pashmina	..	5th	..	3 5 5	0 8 0

TABLE C.

The Up and Down freight on Treasure between Sukkur and Mukhud only.

NOTE.—Treasure will only be conveyed between Sukkur and Mukhud.

Stations.	PER CENTER.		REMARKS.
	Up.	Down.	
	Rs. A. P.	Rs. A. P.	
Sukkur .. ..	..	2 8 0	I.—Copper coin will be charged by weight as in Table A.
Dera Ghazi Khan ..	1 8 0	1 8 0	II.—Treasure will not be received unless securely packed and sealed and weighed in the presence of the shippers.
Dera Ismail Khan ..	2 1 0	1 0 0	III.—Treasure is deliverable only (as goods are) on the Bill of Lading only.
Mukhud	2 8 0	..	IV.—No treasure however short the distance will be shipped for less than Rs. 1-8-0 that is when the charge according to table rates is under that amount.

TABLE D.

Freight on conveyances and animals between Sukkur and Mukhud.

NOTE.—Conveyances were only to be carried between Sukkur and Mukhud.

Stations.	CONVEYANCES.						ANIMALS.					
	Empty four-wheeled conveyances.		Empty two-wheeled conveyances.		Palanquins Janjors or Doolies.		Horses.		Fenies or Bullocks.		Sheep or Goats or dogs.	
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.
	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.	Rs.A.
1. Sukkur .. ..	..	48 0	..	24 0	..	8 0	..	16 0	..	8 0	..	0 12
2. Dera Ghazi Khan ..	24 0	24 0	12 0	12 0	4 0	4 0	8 0	8 0	4 0	4 0	0 6	0 6
3. Dera Ismail Khan ..	36 0	12 0	18 0	6 0	6 0	2 0	12 0	4 0	6 0	8 0	0 0	0 3
4. Mukhud	48 0	..	24 0	..	8 0	..	16 0	..	8 0	..	0 12	..

1. The shoes of horses are to be removed by shippers, who are also to erect stalls at their own expense.

2. The keeper of animals will be charged a deck passage.

TABLE E.

*The embarkation and landing fee payable to freight agents between
Sukkur and Mukhud.*

Irrespective of distance.	ONE RATE UP AND DOWN.		
	Amount.		
	Rs.	A.	P.
For a horse, bullock or cow	0	8	0
For a calf, dog, sheep or goat	0	1	0
For four-wheeled conveyances	1	0	0
For two-wheeled conveyances	0	8	0
For a single package, an anna of which is to be paid to the Indus Flotilla	0	2	0

TABLE F.

*The Up and Down freight on Gun powder and combustible articles, irrespec-
tive of distance between Karachi and Peshawar.*

Irrespective of distance	ONE RATE UP AND DOWN.		
	Per maund of 80 lbs.		
	Rs.	A.	P.
	34	13	6

1. No less charge than one maund.
2. Vitrol, Aqua fortis and other dangerous liquids carried only by special agreement.

TABLE G.

The Up and Down freight on small packages and parcels, irrespective of distance between Karachi and Peshawar.

Irrespective of distance.	ONE RATE UP AND DOWN.		
	Per package.		
	Rs.	A.	P.
Under 20 seers each	5	0	0
Above 20 seers and under 30 seers each ..	5	0	0
Above 30 seers and under 40 seers each ..	6	12	0

Above 40 seers, the usual goods rate will be charged.

N. B.—Government Stores, etc., were to be conveyed free of charge : but the shippers were to furnish to Commanders of the vessels with a certificate stating that the articles were the *bona-fide* property of the State. Commanders were instructed to refuse articles unless furnished with such certificates, which were required to support a *pro forma* charge in the books, of the Department.

This rule also applied to Officers travelling on duty at the expense of the State, as well as to convicts, and their goods and also to troops ; for the passage of whom an embarkation order was to be furnished, signed by the chief Civil or Military Officer of the Station.

The freight Agents were, if required to land or ship Government Stores to be paid the actual expenses thereon incurred.

APPENDIX No. VII.

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B.—REPORTS, GAZETTEERS, &c.

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5. Accounts relating to trade by land of British India with Foreign Countries.
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C.—LIST OF THE SELECTED ORIGINAL RECORDS USED.

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4. Letter No. 2604, dated 15th June 1863, from the Secretary to Government of India, Financial Department, Calcutta, to the Secretary to Government, Punjab and its Dependencies.
5. Letter No. 508, dated 15th August 1863, from the Secretary, Punjab Government to Supreme Government.

6. Resolution No. 99 (of His Excellency the Governor-General in Council), dated 28th September 1861.

7. Letter No. 2304, dated 9th November 1861, from the Punjab Government to the Supreme Government.

8. Letter No. 244, dated 18th September 1863, from the Officiating Secretary to Government, Punjab, to the Secretary to Government of India, Marine Department.

9. Letter No. 1112, dated 27th June 1864, from the Secretary to the Government of India, Home Department, to the Secretary to Government, Punjab.

10. Letter No. 16, dated 27th June 1864, from the Council of Government of India, to the Secretary of State for India.

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12. Letter No. 190, dated Multan, the 12th June 1866, from William Ford, Esq., Commissioner and Superintendent, Multan Division, to T. H. Thornton, Esq., Secretary to Government, Punjab, Lahore.

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14. Letter No. 99, dated Sukkur, 16th September 1867, from Commander Fate to Captain Hampton, Superintendent, Punjab Government Flotilla, Sukkur.

15. Letter No. 99, dated Sukkur, 16th September 1867, from Chief Engineer, Punjab Government Steamer "Beas", to Captain W. H. Hampton, Superintendent, Punjab Government Steam Flotilla, Sukkur.

16. Report showing how the permanent Conservancy Establishment was employed during the official year 1867-68.

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“ THE CHANNELS OF THE RIVERS OF THE PUNJAB
IN 1866.”

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The coloured portion shows water—



shows sand-Banks, &c.



shows bushy growth.

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