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Annual Report of the Communications Board, Punjab,

For the year 1922-23.

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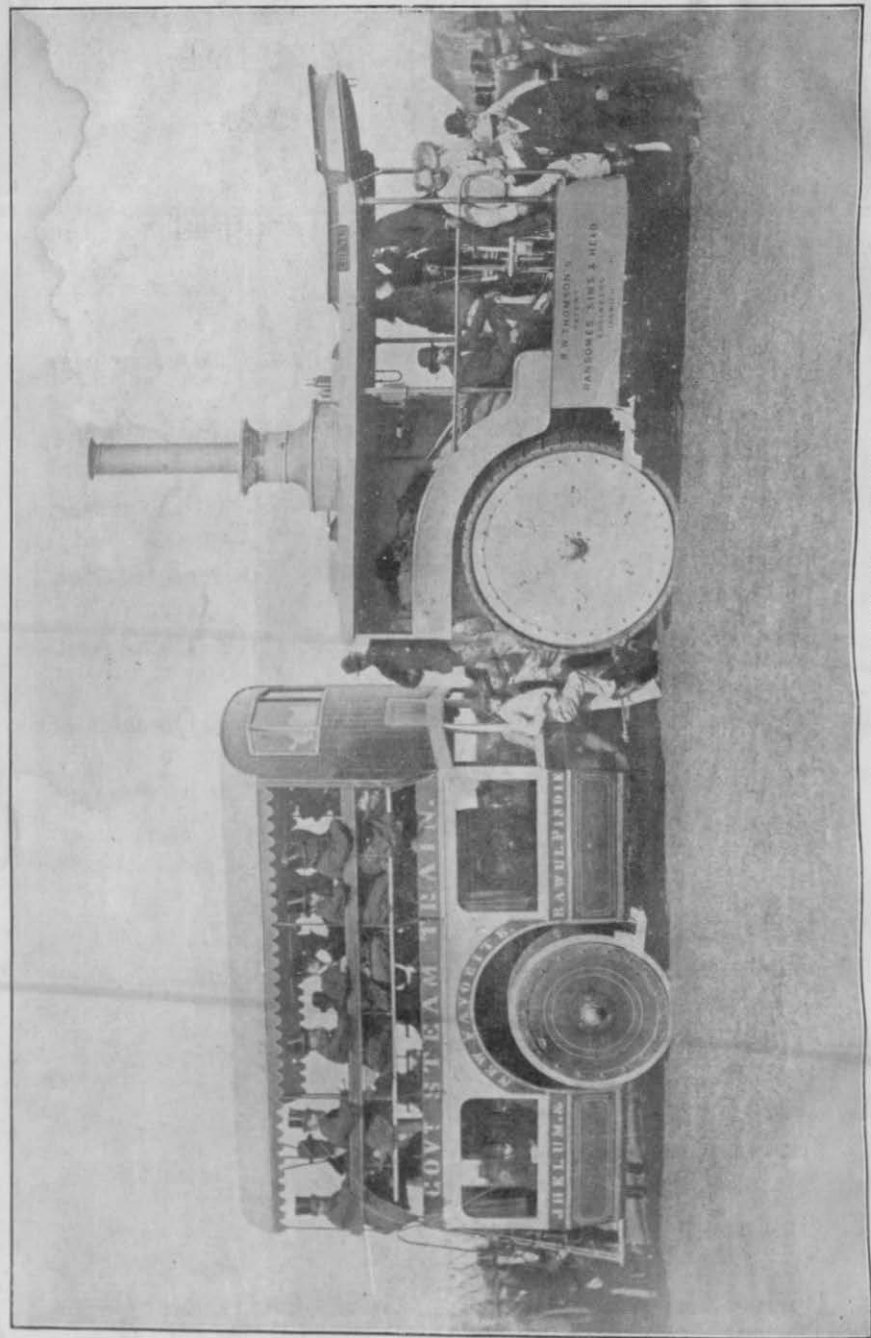


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1922-23

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STEAM TRACTORS WHICH RAN ON THE PUNJAB ROADS FOR SOME TIME IN 1873.

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COMMUNICATIONS BOARD, PUNJAB.

Annual Report for the year 1922-23.

CHAPTER 1.—ORGANISATION.

1. At the commencement of the year the constitution of the Board was as follows :—

Official Members :

1. The Hon'ble Lala HARKISHAN LAL, *Minister for Agriculture,—President.*
2. Mr. A. S. MONTGOMERY, C.I.E., *Chief Engineer, Public Works Department, Buildings and Roads Branch.*
3. Mr. W. P. SANGSTER, C.I.E., M.L.C., *Chief Engineer, Public Works Department, Irrigation Branch.*
4. Mr. E. R. FOY, *Chief Engineer, Sutlej Valley Irrigation Works.*
5. Mr. F. A. HADOW, C.V.O., *Agent, North-Western Railway.*
6. Mr. C. A. H. TOWNSEND, I.C.S., M.L.C., *Director of Agriculture.*
7. Mr. A. J. GIBSON, M.L.C., *Chief Conservator of Forests.*
8. Mr. E. A. SCOTT, O.B.E., M.L.C., *Director of Industries.*

Non-official Members :

9. Rai Bahadur Sir GANGA RAM, C.I.E., M.V.O.
10. Rao Bahadur Lieutenant Chaudhri LAL CHAND, O.B.E., M.C.S.
11. Khan Bahadur Sayad MEHDI SHAH, C.I.E., O.B.E., M.L.C.
12. Lala RATTAN CHAND, O.B.E.
13. Sayad MUHAMMAD HUSSAIN, M.L.C.
14. Nawabzada KHAN ABDULLA KHAN, M.L.C.
15. Rai Sahib HARNAM SINGH, M.L.C.

Mr. K. G. MITCHELL,—*Secretary.*

2. During the year Rai Bahadur Sir Ganga Ram, Rao Bahadur Chaudhri Lal Chand, Khan Bahadur Sayad Mehdi

Shah, and Lala Rattan Chand retired on the expiry of their term of membership. Rai Bahadur Sir Ganga Ram was re-appointed; and to fill the vacancies the following gentlemen were appointed :—

Rai Bahadur Lala BENARSI DAS of Ambala.

Mian BELI RAM, M.L.C.

Khan MUHAMMAD SAIFULLAH KHAN, M.L.C.

3. During the year also Mr. E. R. Abbott, C.I.E., I.C.S., Financial Commissioner, Development, and Mr. Miles Irving, O.B.E., I.C.S., Secretary, Finance Department, were co-opted as members of the Board. Just at the close of the year Mr. A. S. Montgomery proceeded on long leave, and his place on the Board was taken by Mr. V. Stainton, his successor as Chief Engineer.

4. In October Mr. G. T. Pound, Executive Engineer, took over charge of the Road Project and Experimental Division under the Board, partially relieving Mr. Mitchell, who, while remaining as Secretary of the Board, took up the preparation of a scheme for communications in the Nili Bar, to be provided in advance of colonisation. Mr. G. Gilbert, Assistant Road Engineer, continued in that capacity during the year, taking over charge also from Mr. Pound, transferred, on March 15th.

5. During the year the Board held eight meetings, and four sub-committee meetings.

CHAPTER 2.—RAILWAY MATTERS.

1. It was not expected that any new railway would be started during the year. Indeed early in the year the prospects of new railways were very remote. But matters have improved, prices of materials, with the exception of wooden sleepers, are falling; added to which it now appears possible that the Government of India may before long be able to finance railway construction, provided of course a reasonable return may be expected. There is, however, broadly speaking no ripe railway project in the Punjab which can at present satisfy this latter requirement. Materials may fall further in price, and working costs may be reduced, but even so the gap may not be bridged, and the Board considers that the possibility of further railway development depends very largely on the adoption of a lower specification and cheaper Standard of Construction for new branches in country that has yet to be opened up; the Agent of the North-Western Railway himself expressed this view sometime ago, and it is understood that he has been making careful enquiry into the whole matter. To the Board it appears that railways in India are modelled too much on the British Standard and that American methods might well be taken into consideration with a view to the more rapid development of communications. All accessories such as fencing and level crossing gates, which are not immediately necessary for the movement of a small traffic, should be eliminated at the time of first construction as in America and cheap rolling stock provided. In India too much attention is perhaps paid to safeguarding human life which is of course very desirable; but even if allowance is made for the fact that the Indian citizen lacks the mechanical sense, which characterises the American, and enables him to look after himself when on or near a railway, the standard and equipment of Indian railways is possibly excessively costly. A railway or railways in general add to the general prosperity of a country, and in doing so prolong and possibly even save life, and from this point of view a cheap railway which may even kill one or two people per year, is possibly preferable to no railway at all, which is the result when the expensive fool proof standard is adopted. It may be urged further that the fact that a cheaply equipped railway would be dangerous has not been proved in the Punjab because it has never been tried.

2. The present high cost of railways is of course not only due to high class equipment for the protection of passengers, but also—or so it appears

Position as regards new railways.
High cost of railways.

to the Board—to unnecessarily high standards of loading and speed: granted that for heavy traffic large capacity and heavy rolling stock is economical, a cheap line having cheap and light stock with speed restricted to 10 miles an hour is again, when a tract of country is handicapped by lack of communications, preferable to no line at all. And it appears to the Communications Board that future railway extension depends more upon the striking out of a new line in the specifications for what may be called development railways, in which everything possibly

Development railways. is sacrificed to cheapness, than upon any other factor. If a line will pay there are many methods of financing it; if it will not pay no manipulation of terms and guarantee can in the long run succeed in developing it and other new lines. The country to be traversed in the Punjab is on the whole as easy as it is possible to find, and, as a rule, the cost of providing such curves and gradients as will allow of subsequent raising of the standard will be negligible. It was largely with the intention of providing something really cheap that the Communications Board on the suggestion of the Agent, North-Western Railway, originally took up the possibility of Agricultural Tramways, which will be dealt with later.

3. The old "Branch line terms" which were upset by the lack of stability in prices and rates of interest in recent years, are unlikely to be revived. They were at the best a device for raising money for railway construction which was a poor bargain for the State; which in effect subsidised the shareholders of the unsuccessful ventures, and shared only partly in the success of the successful. As, within limits, the State can borrow money now at no higher a rate than it would have to guarantee to a branch line company, and can construct therewith lines of its own, with no greater conditional liability but greater conditional profit, the Branch line terms are likely to be definitely abandoned.

4. The functions of railways and the proposed agricultural tramways are in theory complementary. Tramways should penetrate those areas which cannot, for the time being, provide traffic to support a broad gauge railway, and will feed the railways and such areas. But in practice for various reasons these tramways are apt to be regarded as rivals to railways. Although the Punjab is poorly provided with railways, see table I, the difficulties under which the existing railways are labouring, rather tend to show that it cannot support many more.

TABLE I.—*Railway mileages and intensities in various parts of the world.*

Country.	Area in square miles.	Area per mile of railways in square miles.	Population.	Railway mileage.	Population per mile of rail ways.
United Kingdom ...	121,000	5	45,000,000	24,000	1,875
United States ...	3,026,000	11.4	92,000,000	265,000	347
India ...	1,802,000	50	312,000,000	36,000	8,667
Punjab ...	99,866	31	20,685,000	3,200	6,475

N. B.—*The figures, excepting those for the Punjab calculated locally, have been copied from Mr. Royal Dawson's recent paper before the Institution of Civil Engineers.*

It is noteworthy that according to Table I the Punjab is better provided with railways, both on an area and population basis, than is India in general; but it is of course far behind the other two countries.

5. It would appear from these figures that India in general, and the Punjab in particular, may still offer a field for railway construction; although conditions in the other countries mentioned are so different, nevertheless it is held by some that even that difference, great as it is, cannot discount the difference in railway development. But the fact remains that it is at present difficult to find a single attractive railway project in the Punjab. If rates cannot be raised, and they are now supposed to be as high as the traffic will bear, wherein lies the reason for the present position? Of course rates are to some extent a matter of custom, once established they are difficult to raise substantially; and it is possible that they could have been fixed at the outset at a higher level than they were without stifling trade in any way. The position must be accepted, however, that no *radical* change can be made in the present position by an extensive enhancement of rates. The question of running expenses is also receiving full attention, and these are presumably being reduced to their lowest possibility. It may be assumed that the rates which railways can charge are directly proportional to the economic wealth and level of prices in the country; to which also in industrial countries the cost of constructing a railway may be held to be proportional. But this is not true in the Punjab, the only cost of railway construction

which is proportional to the general economic prosperity of the country is labour. The majority of the materials have to be imported, and apparently protection will for the time being make matters worse. So we come round to the point that the Punjab cannot economically create railways to the same intensity as can some other countries or even in proportion to its wealth, and, as a corollary, that it can only afford railways built to a cheaper standard than is usual elsewhere; the more so as the money spent on railways does not itself tend to stimulate industry in the Province, as it is practically all spent elsewhere. It is this which is partly responsible for the fact that the cost of railway construction and equipment has advanced more rapidly than have general prices in the Province, with which railway rates can move in tune, so that the Province appears to be temporarily overbuilt with railways.

6. In these circumstances attention has been drawn to agricultural tramways, which appear *prima facie* to afford really cheap means of providing rail facilities in backward tracts, and incidentally need not necessarily be bound down to customary railway rates, provided the traffic is prepared if necessary to pay a higher figure for feeder services. But in the nature of things tramway schemes are likely to be mooted in those places where there is the greatest demand for facilities, and where therefore it is possible that a railway might be able, in the early future, to pay. In such cases the Railway Board, recognising the undoubted disadvantages of a break in gauge, and of dual control, and in view of falling prices and the improving economic conditions, is naturally averse to shutting out for twenty years the possibility of a railway, in favour of what it appears to think is merely a temporary expedient of doubtful prospects. The Communications Board, on the other hand, believes the possibility of railway extension, *on the present standard*, to be very remote, and feels that in many cases the evil of a break of gauge, and the limited facilities which a tramway would offer as compared with a railway, would be outweighed by the immediate benefit to the area concerned, and for an indefinite period during which the various factors concerned adjust themselves to a position at which a railway becomes possible. It also believes that experience with a public railway or tramway, built and equipped on the cheapest lines possible, would be informative, and it is anxious to have such experience.

7. After somewhat lengthy negotiations an arrangement has been come to between the Punjab Government, and the Railway Board, whereby the Railway Board agrees to investigate railways on alignments proposed for tramways, and if the railway is estimated to pay 6 per cent., to build it. Should the estimated returns be lower, the Punjab Government will be offered the opportunity of guaranteeing the interest on the capital, which will, subject to the guarantee, be provided by the Government of India. If this fails the Railway Board will stand aside, and allow the construction of a tramway. Actually one or two railway projects are now being investigated in areas where tramways have been proposed, as the first step in this procedure; these will be mentioned later.

8. The Communications Board is now constantly in touch with the Punjab Government, and through it with the Railway Board, regarding railway projects, and there is at present no tendency for the list of projects waiting to be taken up to be rapidly exhausted; the previous annual return of railway projects recommended is, therefore, meaningless, and has been discontinued. But one or two projects, which have been under discussion during the year, may be mentioned.

- (i) The first of these is an extension of the Sialkot-Narowal Railway. It was the original intention to extend this to Shahdara, but the project had been on the shelf for some years, owing to the poor return it showed, till during the year under review the Railway Board desired to be informed of the local view with regard to an alternative, then suggested, of extending to Amritsar or Varika. The Communications Board advised the Punjab Government that though in the long run an extension to both Shahdara and Amritsar might pay, various factors—the connection between Amritsar and the Jammu and Kashmir trade in particular appeared to favour the Amritsar connection, which should be taken up first, junction at Amritsar or Varika being immaterial. More recently and actually since the close of year under review, the Railway Board has put forward Narowal-Batala as a further alternative, in favour of which, as compared with the Amritsar connection, this Board is unable to see any valid arguments.

Sialkot-Narowal Extension.

- (ii) The Sirhind-Rupar-Nalagarh Project is still apparently being discussed between the Railway Administration and the Patiala Durbar and this Board has not been called upon to contribute its opinion. The project is believed to be ripe. In the meantime the Irrigation Department, being in need of large quantities of stone from the Nalagarh quarries for the Sutlej Valley Project, has built its own line from Doraha to Rupar, and on to Nalagarh, and is operating it. A proposal to carry passengers on this line was put forward by the Chief Engineer of the Project, and was strongly supported by this Board. The proposal is now being considered by the Railway authorities.
- (iii) The relaying of the Sutlej Valley (Kasur-Lodhran) line made progress during the year, the part between Kasur and Pakpattan being opened for traffic in May 1923. A diversion in the interests of the Nili Bar Colony has been proposed between Pakpattan and Mailsi, and this, as will be mentioned later, is being investigated; during the delay relaying has been commenced between Lodhran and Mailsi.
- (iv) A cross line running roughly in a north-westerly direction and terminating at Khushab, once referred to as the Raewind-Khushab Chord project, has been under consideration for some years. Some such chord line will make its appearance in time, but the alignment and terminals are as yet uncertain. Parts of the alignment of this chord would, it appeared possible, be infringed by parts of the Lyallpur and Jhang District tramway project proposed by this Board, and the alignment and prospects of the parts of this chord affected are therefore being examined afresh by the Railway authorities.
- (v) It is understood that the conversion from metre to broad gauge of the B. B. and C. I. line from Kotkapura to Muktsar has been examined, but that the conversion is not likely to take effect in the early future.

There appear to be no other railway developments of importance pending in the Punjab at present.

9. To turn to other matters in connection with railways.

There appears to have been a marked improvement in the matter of delays at level crossings for which thanks are due to the efforts made by the Agent of the North-Western Railway. The railway panchayats which this Board desired to see started at various places have not developed, and the new machinery set up in the Railway Advisory Committees, which will form a link between the administration and the public, has superseded the local panchayats.

Delays at level crossings.

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CHAPTER III--ROADS.

1. The outstanding feature of the year was the depressing effect of financial stringency on all road authorities. The Local Government could not find money for any programme of road development, and District Boards were faced with an apparently impossible task in maintaining the roads in their charge. In these circumstances the Board did not attempt to launch any programme of new construction, but contented itself with applying the sums available as grants-in-aid to rounding off as far as possible the works in progress by District Boards. It also initiated a series of experiments with improved methods and materials of road construction; it is unfortunate that for the present year the budget demand for these experiments had to be retrenched in the interests of economy. The Board is fully alive to the needs for retrenchment but feels that any small expenditure which may lead to a reduction of the present crippling bill for road maintenance, and also to an improvement of the road system of the Province, upon which a financial revival depends to no small extent, is a worthy object. The beginning which has been made is small, but it is a beginning, and the Board would like to recommend that the experiments be more extensively and systematically carried out.

2. But to turn to details. During the year the Board distributed roughly four and a half lakhs of rupees as grants-in-aid to District Boards for the construction of "Bridges and Metalled Roads," and three lakhs for "Colony Roads." The major share of the latter grant went of course to the Lower Bari Doab Colony, and Multan having a previously unspent balance of one and a half lakhs, no further grant went to this District, the whole of the Lower Bari Doab Colony share going to Montgomery. The progress in Multan is not very satisfactory, but the difficulties of stone supply in this District—to remedy which it is hoped eventually to develop a new quarry—are largely responsible for this. The programme in the colonies was confined to metalling feeder roads to mandi towns, on a star system, where traffic approaching the mandis from all sides concentrates.

3. The actual works for which "Colony Road" grants and for which grants for "Bridges and Metalled Roads" were given are detailed in Appendix I. In the former case the grant is cent. per cent. of the cost; and in the latter case the share voted by this Board depends on the importance of the road and on the financial position of the district concerned. As regards

the progress made,—

- (i) The metalling of the gap between Jaintipur and Kathunangal on the Amritsar-Pathankot Road. Amritsar-Pathankot Road. Pathankot Road was completed and it is now possible to travel by metalled road from Lahore to Pathankot, Dalhousie, and the Kangra Valley. Unfortunately one or two miles of the Amritsar-Pathankot Road were badly in need of renewals, which the District Board declares itself to be unable to carry out. It argues moreover that the Communications Board has admitted this road to be of provincial importance, by making practically a cent. per cent. grant for the restoration of the gap, and that it should therefore arrange for the maintenance of the road to be taken over by Government. This matter is being considered in the general reclassification scheme, but as the Communications Board has no funds for repairs, and as it cannot shut its eyes to the difficult financial position of all District Boards, it can at the moment do nothing to get these two miles restored to standard. Nevertheless, through communication does at present exist, and the work remaining to be done on this road is, compared with what has been done, trivial. All these matters will, it is hoped, settle themselves when the reclassification scheme has been considered by Government and a definite policy can be framed.
- (ii) The Lyallpur-Jaranwala Road was practically completed during the year, this will form a link in the proposed arterial road passing from Lahore through Lyallpur. Lyallpur-Jaranwala Road.
- (iii) Progress on the Ambala-Naraingarh Road was not satisfactory, there appears to have been a lack of system in attacking the work, and this and the ill fated Sohna-Rewari Road are examples of the unwisdom of attempting to carry out large public works through District Board agencies. Ambala-Naraingarh Road.
- (iv) The Rohtak-Kharkauda Road in the Rohtak District and the Hansi-Meham Road in the Hissar District were practically completed. The latter now opens up through communication by metalled road from Delhi through

Rohtak to Hansi, the full value of this cannot be developed till the portion from Hansi to Hissar is completed, and this will, it is hoped, be taken up soon.

- (v) The Sohna-Rewari Road was taken up somewhat hurriedly on an imperfect estimate which amounted to Rs. 2½ lakhs.

Sohna-Rewari Road.
The work as started, and the estimates, were overhauled shortly afterwards by the Superintending Engineer, who had occasion to point out certain defects in both. The estimate, he said, would be heavily exceeded, and he believed that the work would probably cost Rs. 4 lakhs. A revised estimate has since been framed by the District Engineer and is now being examined by the Superintending Engineer. In the meantime this Board has ceased to contribute towards the cost of this work until a proper estimate is approved, and a programme of work drawn up.

4. This Board has now distributed these grants for three years up to and including the year under review. For the first year it continued the previous policy of making lumpsum grants to Commissioners of Divisions, indicating generally the districts and works upon which the money should be expended. For the second year it made definite assignments for particular projects, and for the third year, in view of the difficulties of District Boards as regards maintenance, the grants were confined as far as possible to completing works in progress.

5. This sketch of the history of the Board with respect to these grants is necessary as the Board has come in for its share of the criticism levelled against the distributors of grants-in-aid generally, that they have tempted District Boards to their fall with offers of money to construct works which they cannot subsequently maintain. Actually the evil is of earlier date, and could not have been brought about in three years, indeed this Board claims some credit in having helped to bring the position prominently to notice, by representations to Government on the one hand, and on the other by putting a stop to the misapplication to maintenance of grants supposed to be for new construction, which practice had tended in recent years to disguise the real position.

6. The position has now been faced, but the remedy is still to seek. The reclassification scheme which this Board has under

DRAGGING AN EARTH ROAD.



1. Before operations.



2. The Drag at work.

DRAGGING AN EARTH ROAD.



3. The Drag at work.



4. The finished road.

preparation is designed to smooth out the existing inequalities of treatment of District Boards by Government. In Communications Board paper No. 9, recently issued, the unequal distribution of Government maintained roads, and the effect of this on the finances of District Boards has been shown. This inequality the reclassification scheme aims at removing; it can also be made the instrument for distributing fairly such further assistance, if any, as Government may be in a position to afford. But it cannot obviate the essential need for a much larger allotment for road maintenance. The remedy for bankruptcy is usually retrenchment on the one hand coupled with an increase of revenue on the other. As far as roads are concerned retrenchment is not possible; the roads are the largest creditors. The position is apparently that District Boards are not literally bankrupt, but that they cannot find the money to maintain their roads at all, if other services receive the necessary allotments. Three causes have combined to bring about this result. Firstly, District Boards have been tempted by offers of grants for all sorts of purposes to provide themselves with more works and services than they can keep up; and roads, being easy to starve for a year or two without much visible harm, have suffered. Secondly, the cost of maintaining roads—and particularly metalled roads—has increased with the rise of prices. Thirdly, the general development of the province has led to an increase in the number and size of carts of all sorts, and destruction to roads has been more rapid, side by side with which the general development of the country has led to a demand for better roads than were suffered in silence ten years ago.

7. The figures in paper No. 9 which give the cost of maintenance of roads metalled and unmetalled in each District have been criticised in some quarters. Little can be said about metalled roads, the cost cannot be avoided, though attempts are being made to reduce it. The new motor vehicle rules will give road authorities wide powers to protect their roads from unnecessary damage, that is to say, from the damage caused by heavy motor vehicles which are not an economic necessity to the District. But there is a great deal of avoidable damage done to metalled roads by other vehicles—especially bullock carts—due to badly made or small steel tyres, bad wheels, and so forth; and the present bill for the maintenance of metalled roads includes the price which the Punjabi has to pay for the privilege, enjoyed in no other country which studies its road problem, of absolutely free and unrestricted use of its roads.

8. But the road problem, all the world over is to provide the greatest mileage of reasonably good roads for the smallest expenditure of money. As many roads as possible should be passable at all seasons of the year without difficulty; if the traffic is so heavy that it is not possible to keep up an unmetalled road, it should be metalled; if the traffic is so heavy that the maintenance of an ordinary macadam road is very expensive, probably some better form of crust, more expensive in first cost, will be cheaper in the long run. But to provide the greatest mileage of passable roads for the least expenditure of money, attention must be given to the unmetalled or earth road. At present something like twelve per cent. of the roads of the Punjab are metalled, and even if this proportion could be doubled within any period of time which is worth considering now, there would still be three quarters of the road mileage of the Province un surfaced; and the earth road would still be of great importance, and be the more usual means of transport and travel for the farmer.

Need for proper treatment of earth roads. It appears, therefore, that the adequate maintenance of the earth road is a matter at least equal in importance to the provision of more metalled roads. Earth road maintenance has been very much neglected in recent years and there is little experience to act as a guide in estimating the cost. A figure of Rs. 100 per mile per year has been assumed in most Districts; roads of very small importance with little traffic will not of course cost much, but many roads of considerable importance must remain unmetalled for a long time yet, and the maintenance of these will cost more, and at present, on the information available, Rs. 100 per mile per year is the best approximation that can be made. At this figure ten miles of earth road, and more, can be maintained at the same annual cost as one mile of metalled road; roughly one-tenth of our road mileage is metalled, and nine-tenths earth. To maintain the nine-tenths up to a decent standard will cost no more than to maintain another mile of metalled road for each mile existing apart from the original cost of the new metalling. Is it not better, before increasing the burden of maintenance on metalled roads, to make provision adequately to maintain the earth roads? The figure of Rs. 100 per mile or less, which has been proposed in paper No. 9 has been criticised. It is not suggested that, at a stroke of the pen, the standard which that expenditure would allow can suddenly be produced, but an improved standard requiring some such expenditure is to be aimed at as an essential part of the scheme of improvement of the roads of the Province.



5. Transport old and new.



6. Modern methods of Earth road improvement.

9. There is another aspect of this question. In other parts of the world also the question of road maintenance has reached serious proportions, and for a time at least the general revenues have had to be supplemented by special taxation of road users, *i.e.*, by a vehicle tax. It is believed that the Punjab Government is considering the question of the taxation of motor vehicles, but these cannot be expected to yield much in view of the smallness of their numbers, about five thousand in a population of twenty millions, and of the substantial taxation they already yield to the central revenues. Taxation of other vehicles—chiefly bullock carts—may yet have to be resorted to, but it is not to be expected that the taxee will be ready to pay cheerfully unless he is shown that some improvement in roads is possible; and the improvement which will most appeal to the agricultural population, if it is substantial, is that of the unmetalled road.

10. As regards the experiments which the Board has instituted, those with improved surfacing materials designed to last cannot be commented on yet. It is too early, within a few months of laying down an experimental length, to be able to adduce results. But the indications are that the rigid pavement is at a disadvantage with narrow and irregular steel tyres on vehicles carrying heavy loads, and that the plastic pavement is preferable. The experiments made with earth roads, of which some illustrations are given, show that great improvements can be made by attending to the camber and drainage of ordinary earth roads, and that while during long periods of drought, when nothing can be done, such a road will naturally be cut up by heavy traffic, yet it is quickly restored after a shower of rain, and the general condition, year in year out, is greatly improved. The extent to which the Road Engineer can personally supervise experiments is limited, and what is required is extensive trials by District Boards in various parts of the province. As regards ponded roads, this system is being tried on a large scale at Lyallpur and on a smaller scale near Montgomery. These roads take longer to prepare and to establish a regime, and results cannot yet be gauged.

11. During the year the road programme was, for financial reasons, in abeyance, but towards the end of the year the question was reopened, and the reclassification scheme was started which is now under consideration.

CHAPTER IV.—AGRICULTURAL TRAMWAYS.

1. At the close of the year under review the Board had to dispense with the services of Mr. W. Maclachlan, Agricultural Tramway Engineer, as, owing to the delay which the negotiations with the Railway Board appeared to be likely to cause, there appeared to be little prospect of making any headway with the various schemes he had prepared.

2. The various schemes, with their cost, and the estimated return on capital outlay are detailed below in Table II.

TABLE II.—*Length, and estimated cost and return on capital of various tramway schemes prepared.*

	Length miles.	Cost Rs. lakhs.	Estimated return per cent.
1. Lyallpur and Jhang Districts Scheme.	201	55	7·6
2. Lahore and Amritsar Districts scheme.	129	35	11·8
3. Rohtak District Scheme.	156	43	16·4
4. Shahdara-Baddomalli tramway.	31	10	10·7

3. Other investigations were made in various places, and short lengths from Gojra to Jhang, one of the elements of scheme No. 1 above, and from Rohtak to Gohana, one of the elements of No. 3, were investigated as independent projects. The schemes are of course preliminary only, detailed projects remain to be taken out, and the Board is not prepared to move further in the matter till the Railway Board agrees to the construction of any particular project. As already mentioned under railways, possible railway projects which may affect the prospects of project Nos. 1 and 4 are at present being investigated, and while the Board regrets that it has been unable so far to make a start on one of these schemes some of which, it believes, will be both paying and extremely useful in the development of the country, it trusts that under the arrangements now made the obstacles in certain cases will shortly disappear.

4. Eventually if these tramways are to appear in the Punjab, it will be desirable for the Legislative Council to pass a Provincial Tramways Act. Tramways can actually be constructed under the Indian Tramways Act, 1886, but only under an order which has in each case to be approved by the Governor-General in Council. The drafting of a local Act was delayed during the year by the negotiations with the Railway Board.

CHAPTER V.—DEVELOPMENT OF COMMUNICATIONS IN NEW COLONIES.

1. During the year the Secretary to the Board was deputed to prepare a scheme for communications in the Nili Bar. The chief need of the cultivator being to market his goods, the first point to be attended to was the provision of market towns situated on a railway, so that railway alignment was considered first. During the investigation it soon became apparent that there would be no room for the central broad gauge railway originally proposed, nor did the alternative tramway system for the whole area appear to be suitable; the popularity of tramways, and the loss due to break of gauge, are both doubtful factors affecting the possibility of establishing satisfactory markets on a tramway. If therefore the railway were economically impossible, and the tramway system too speculative, the prospects of colonists in the centre of the Bar, half-way between the Raewind-Khanewal and Kasur-Lodhran lines, with a lead to markets of over twenty miles, appeared to be poor indeed. In these circumstances it was proposed to divert the Sutlej Valley (Kasur-Lodhran) line then being relaid, between the stations of Mailsi and Pakpattan, and to carry it in this length along an alignment roughly twelve miles from the Sutlej and twenty-four miles from the Raewind-Khanewal line, thus giving an even distribution of the railway lines, and leaving no one an unusual and unreasonable distance from the railway and the markets. This scheme was estimated to cost Rs. 23 lakhs; Rs. 18 lakhs being due to actual new works, Rs. 3 lakhs being for interest due to delay in re-opening the line, and Rs. 2 lakhs for possible claims by the Southern Punjab Railway Company. The proposal was made just in time, before the relaying reached Pakpattan, was accepted by the Board, recommended to and accepted by Government and finally approved by the Council. The proposal was then laid before the Railway Board and will probably eventually be accepted.

2. The diverted line will accommodate three new *mandi* towns, which will not only provide easy marketing facilities for the colonists, but prove a source of profit to Government. The people around Luddan, where the river takes a bend to the south, and the people of Karpur and Kabullah, who will to some extent be adversely affected by the diversion, will, it is proposed, be offered such compensation as is possible by way of easy communication with the railway; but anyway they will not suffer much. They will gain immensely from the irrigation

project, but for which it is doubtful whether the Sutlej Valley line would ever have been relaid at all.

3. The alternative railway would have cost Rs. 75 lakhs or more. The rough tramway scheme to serve the area was estimated to cost 85 lakhs. The Board feels that it can take some credit for having by its timely action laid the foundation for a good system of communications at a fraction of the cost of other less desirable alternatives.

4. Arising out of the Sutlej Valley irrigation works, ^{Bridge over Sulemanke weir.} though not actually in the colony area, the Board has taken advantage of the construction of the Sutlej weirs to arrange for the eventual provision of bridges over certain of them at a comparatively low cost. These opportunities were somehow neglected in the past and the Balloke weir over the Ravi, at the head of the Lower Bari Doab Canal, has only a ten foot bridge. Now, for a total expenditure of Rs. 4 lakhs approximately, the Board has been able to arrange for a combined road and railway bridge over the Sulemanke weir near Fazilka, to be followed later when traffic requires this, by the provision of separate bridges for road and rail traffic at no additional cost to the Province. Some idea of the saving which this timely action will effect can be gathered from the fact that the new road bridge over the Chenab at Wazirabad cost Rs. 20 lakhs. The question of the bridges to be provided over the other weirs of the Sutlej Valley Irrigation Project is still under consideration.

5. The completion of a scheme of roads and possibly certain tramways for the Nili Bar will be proceeded with as soon as the diversion of the railway is definitely settled.

CHAPTER VI.—MISCELLANEOUS.

1. The re-casting of the motor vehicle rules was completed during the year and approved by the Board, the new draft rules being sent to the Local Government. The most interesting new provision made in the revised rules is one prohibiting the use on any road of any motor vehicle or class of motor vehicles when the authority responsible for the maintenance of that road has declared it to be unfit for any such motor vehicle or class of motor vehicles. This provision will materially assist District Boards, especially those who have to rely on kankar for road metal.
2. No specific request was made by the Board during the year for the extension of the trunk telephone system, but some extensions were made and the following places are now served with trunklines :

Motor Vehicle Rules.

Trunk Telephones.

Lahore.
Rawalpindi.
Murree.
Lyallpur.
Amritsar.
Kasur.

Ferozepore.
Jullundur.
Ambala.
Simla.
Delhi.
Kalka.

Kasauli.

A connection between Karachi and Lahore and the linking up of other large wheat markets, such as Sargodha and Montgomery, with Lahore, appear to be the next requirements. The connection to Karachi is now, it is understood, technically feasible.

3. The prospects of developing Inland Water Transport, which were discussed in last year's report have not improved. On one occasion the Board discussed the advisability of appointing an officer to investigate prospects on the Indus more particularly with regard to improved timber rafting to Karachi. It was not felt, however, that any early development could be looked for, apart from such improvement in the Indus crossings at Dera Ghazi Khan and Dera Ismail Khan, as may result from improved forms of river craft; in this latter connection the Board proposed to try Flight Lieutenant Lywood's Hydro Glissier on the Dera Ghazi Khan crossing during the flood season. As regards inland water transport in general however the Board does not at present see that it can usefully move in the matter, and while it notes that the supply of timber to Iraq, which is a very large trade, could

Inland Water Transport.

be provided by the Punjab if cheap transport could be arranged to the sea, it feels that this specific requirement is a matter for investigation by the Forest Department or by private enterprise.

4. The two rollers kept for the use, on hire, of District Boards, have been more popular. The general shortage of money has, however, affected the activities of District Boards, and the demand for the rollers has therefore not been as keen as would be expected in more normal times.

5. There has been no development in civil aviation during the year.

CONCLUSION.

In a year of marked financial stringency and arrested development, the Board feels that it can point with some satisfaction to two definite achievements, for which it can claim some credit, namely, the timely provision for cheap bridges over the Sutlej weirs, and the scheme to divert the Sutlej valley railway, both of which will eventually have saved considerable sums of money. It also feels that it has contributed in some degree to the development of the present attempt to put the finances of District Boards on a firm footing. It believes that there is a fruitful field of experiments with improved methods and materials of road construction, at present practically unexplored, and it would like to see more enterprise among District Boards in the matter, especially in the domain of earth roads where personal attention and enthusiasm is more needed than actual expenditure of money. It fears that the period of financial stringency is not yet over, but believes that with respect to roads a good deal of valuable spade work, in connection with re-classification and experiments, can very usefully be done during this period, so that when the cloud lifts the best value may be attained from the money available. The scheme for the development of the new colony must of course continue, and will have to be carried through. Finally the Board believes that its labours in the domain of railways and tramways may shortly bear some fruit, and that these schemes will in certain cases be independent of any guarantee from the Punjab Government, and need not be obstructed by the state of the Provincial finances.

The Board confidently looks forward to a useful future.

K. G. MITCHELL,

SECRETARY,

Communications Board, Punjab.

APPENDIX I.

*Statement showing the distribution of grants-in-aid (of 3 lakhs) for
Colony Roads during 1922-23.*

District.	Name of work.	Grant allotted by Communications Board during 1922-23.
		Rs.
Montgomery ...	Metalling Okara-Satghara Road...	13,696
Do. ...	Metalling Renala-Shergarh Road	3,173
Do. ...	Metalling first five miles out of the Mandi of each of the following roads in the order named—	
	(1) Montgomery-Kabir	} 2,00,000
	(2) Okara-Gugera ...	
	(3) Montgomery-Katorwala ...	
	(4) Chichawatni-Sheikh Fazal	
	Total Montgomery ...	2,16,869
Gujrat ...	Metalling road from Baba-ud-din to Phalia.	83,131
	GRAND TOTAL ...	3,00,000

*Statement showing the distribution of grants-in-aid (of 4½ lakhs) for
Bridges and Metalled Roads during 1922-23.*

District.	Name of work.	Estimate.	Previous grant.	Grant allotted by Communications Board during 1922-23.
		Rs.	Rs.	Rs.
Rawalpindi ...	Metalling road from Golra Station to Golra.	15,823	Nil	15,800
Jhelum ...	Metalling Jhelum-Gatalian Road.	41,809	10,000	22,000
Hissar ...	Metalling Hansi-Meham Road.	1,25,000	75,000	15,000
Rohtak ...	Metalling Rohtak-Kharkhanda Road.	95,803	50,000	40,150

District.	Name of work.	Estimate.	Grant allotted by Communications Board during 1922-23.	
			Previous grant.	
		Rs.	Rs.	Rs.
Ambala ...	Metalling Ambala-Naraingarh Road.	2,61,295	60,000	50,000
Gurgaon ...	Metalling Sohna-Rewari Road.	4,00,000	50,000	1,00,000
Sheikhupura ...	Unmetalled Roads	14,000
Gujranwala ...	Metalling four miles, Gujranwala-Nowshera Road.	45,000	...	10,000
Gurdaspur ...	Metalling Gurdaspur-Shakargarh Road.	50,769	<i>Nil</i>	25,000
Multan ...	Reconstructing 1.28 miles of the Khanewal-Kabirwala Road.	16,526	30,000	16,500
Lyallpur ...	Metalling Lyallpur-Jaranwala Road.	2,41,812	60,000	70,000
Dera Ghazi Khan.	Metalling Dera Ghazi Khan-Kot Chutta Road.	1,52,647	...	50,000
Shahpur ...	Completing Sargodha-Sahiwal Road.	92,500	50,000	21,250
	Total	4,50,000

APPENDIX II.

Statement showing detail of expenditure incurred and grants-in-aid allotted to District Boards by the Communications Board during 1922-23.

1	2	3	4	5
No.	Service Head	Amount allotted during 1922-23.	Modified grant.	Amount expended during 1922-23.
		Rs.	Rs.	Rs. A. P.
1	Road Engineer and Establishment, including contingencies, travelling allowance as well as travelling allowance, non-official members of the Board.	40,000	53,000	46,161 11 0
2	Agricultural Tramway Engineer and his investigations (including the additional sum for contingencies and his passage home).	32,500	34,920	34,920 0 0
3	Development of Quarries...	1,50,000	79,580	19,913 0 0
4	Tools and Plant ...	10,000	10,000	6,398 0 0
5	Experiments (Rs. 50,000 re-appropriated from Quarry Development).	...	50,000	46,375 0 0
6	Survey of Trunk Roads	5,000	1,847 6 11
7	Colony Roads ...	3,00,000	3,00,000	3,00,000 0 0
8	Bridges and Metalled Roads.	4,50,000	4,50,000	4,50,000 0 0
		9,82,500	9,82,500	9,05,620 1 11

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