

GOVERNMENT OF THE PUNJAB
PUBLIC WORKS DEPARTMENT.

ADMINISTRATION REPORT

OF THE
BUILDINGS AND ROADS BRANCH

FOR THE YEAR

1920-21



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Lahore :

PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRINTING, PUNJAB,
1922.

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**Administration Report of the Buildings and Roads
Branch for the year 1920-21.**

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1922.

Proceedings of the Punjab Government (Ministry of Agriculture) in the Public Works Department, Buildings and Roads Branch, No. 745-B., dated the 26th April 1922.

READ—

The Administration Report of the Punjab, Public Works Department Buildings and Roads Branch, for 1920-21.

REMARKS.—During the year under review the same difficulties prevailed as regards rise in prices of material and labour which were referred to in last year's report. This fact coupled with the serious shortage of railway wagons and the consequent difficulty in obtaining sufficient supply of coal militated against cheapness in the construction of buildings and roads.

2. The expenditure on Provincial Works amounted to Rs. 1,10,40,463 and the Government is satisfied that this figure fully indicates the large amount of work which has been carried out by a department which is by no means overstaffed, and this, in spite of the fact that difficulties almost unknown in pre-war days had to be contended with.

3. Good progress has been made on the construction of the new road bridges over the Chenab and Palkhu Rivers and their completion will form the last link in the chain of through road communication between Delhi and Peshawar.

4. The Government (Ministry of Agriculture) notes with interest the growth in the demands made on the service of the Consulting Architect, and is satisfied that the appointment of the Assistant Consulting Architect has been fully justified. It is hoped that the advantages of having buildings designed by these specialists, both from the æsthetic and utilitarian point of view will be fully recognised by all classes of the community.

5. (a) The preparation of the Sutlej River Hydro-Electric Scheme under the able direction of Lt.-Col. Battye, D.S.O., R.E., assisted by an expert staff, continued, and the Government is convinced that when completed this scheme will greatly add to the prosperity of the Province by the supply, over a large area, of electric power at a moderate cost.

(b) It is noted that two licenses were granted to the General Electrical company for the supply of electricity in Rawalpindi and Lyallpur, and that one for Jullundur was approved and would be granted early in the following year, and it is hoped that it will not be many years before signs of electrical development will be seen all over the Province.

(c) The transfer to the Director of Industries of the administration of the Electricity Act is, it is felt, a move in the right direction.

6. It is observed that the activities of the Communications Board continue unabated, and the Government (Ministry of Agriculture) is satisfied that it has fully justified its formation, and it is hoped that it will be possible to place increasing sums at the disposal of the Board for development of communications throughout the Province.

7. The Government (Ministry of Agriculture) greatly appreciates the efficient and useful work which the Sanitary Engineer, assisted by his staff continues to carry out in all parts of the Province.

8. The formation of the Punjab Engineering Service is welcomed throughout the Department, and it supplies a long-felt want by providing an opening for Indian trained men who wish to make engineering their profession. It is hoped that the 18 officers selected will endeavour to do all in their power to justify their appointment, and maintain the traditions of the Department.

9. The Government desires to record its appreciation of the work done by the officers of the Department during the year, and to mention more particularly the names of Mr. Montgomery, Chief Engineer, Mr. Stainton, Superintending Engineer, Mr. Astbury, Sanitary Engineer, and Major Garforth, Under-Secretary. Excellent work has also been done by Messrs.

Macfarlane and Anderton in connection with the Chenab Bridge and by Colonel Batty and his staff in preparing the Sutlej River, Hydro-Electric Scheme.

By order of the Punjab Government (Ministry of Agriculture).

HARKISHAN LAL,

Minister for Agriculture.

A. S. MONTGOMERY,

*Secretary to Government, Punjab,
P. W. D., Buildings and Roads Branch.*

PUBLIC WORKS DEPARTMENT, PUNJAB.

BUILDINGS AND ROADS BRANCH.

Administration Report, 1920-21.

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ADMINISTRATION REPORT, 1920-21.

PART I.

1.—ADMINISTRATION.

(1)—Direction.

1. The Office of Chief Engineer and Secretary to Government, Punjab, was held throughout the year under review by Mr. A. S. Montgomery.

2. Mr. K. G. Mitchell continued as Under-Secretary till 1st October 1920 when he was relieved by Major W. Garforth, D.S.O., M.C., R.E., on transfer from the Kangra Provincial Division. Mr. C. B. Salt continued as Assistant Secretary.

3. Major A. S. Holme, O.B.E., R.E., held charge of the First Circle of Superintendence throughout the year under report. Mr. V. Stainton, Superintending Engineer, Second Circle, proceeded on long leave with effect from the afternoon of the 1st November 1920, making over charge of the Circle to Lala Sant Ram, Executive Engineer, Ambala Provincial Division, who held the charge in addition to his own duties. On the forenoon of the 3rd January 1921, he was relieved of the charge of the Second Circle by Mr. E. L. Crawford. The charge of the Third Circle of Superintendence was held successively by the following officers :—

Mr. W. S. Dorman from 1st April 1920 to 15th May 1920.

Mr. E. L. Crawford from 16th May 1920 to 26th December 1920.

Mr. E. D. Cockburn from 27th December 1920 to date.

4. During the year under report the office of Sanitary Engineer to Government, Punjab, was held by Mr. A. R. Astbury. Mr. F. Milne was appointed Electrical Engineer to Government, Punjab, *vice* Mr. C. C. T. Eastgate, who proceeded on eight months' combined leave with effect from the forenoon of the 29th March 1921.

(2)—Changes in distribution.

Divisional and Sub-Divisional changes.

5. In the Second Circle of Superintendence Mr. P. C. McCormack, Temporary Engineer, who held charge of the Ambala Provincial Division, retired from Government service on the forenoon of the 12th April 1920, making over his charge to Mr. A. St. G. Lyster. On the afternoon of 11th November 1920 Mr. Lyster was relieved of the charge of the Division by Lala Sant Ram, who in turn handed over charge to Mr. A. K. Cargill, Executive Engineer, on 2nd February 1921.

6. Mr. L. H. M. Heathcote, who had charge of the Simla Provincial Division, proceeded on long leave from the afternoon of the 24th October being relieved temporarily by Mr. H. H. Moss, Assistant Engineer, till Mr. A. St. G. Lyster, Executive Engineer, assumed charge of the Division on the forenoon of the 17th November 1920.

The Mandi-Rupar Cart Road Project Division, which, was formed on the 9th December 1919 with its headquarters, first at Lahore and then at Bilaspur in charge of Mr. E. L. Crawford under the control of the Superintending Engineer, Second Circle, was abolished on 15th May 1920 on the completion of the survey of the Mandi-Rupar Section of the Mandi-Rupar Cart Road.

8. The construction of the Class Room and Hostel for the European Training College at the Lawrence Asylum, Sanawar, and the additions and alterations required to the Central Research Institute Buildings at Kasauli necessitated the formation of the new Kasauli Sub-Division from the 1st July 1920 and a new sub-Division designated the Rohtak Drainage Sub-Division was formed at Rohtak on the 15th January.

9. In the 1st Circle the charge of the Rawalpindi Provincial Division was held by Major Chesney, D.S.O., R.E., Executive Engineer, throughout the year, with the exception of the brief period between 15th May 1920 and 23rd June 1920, when Mr. J. B. Vesugar, Assistant Executive Engineer, officiated. Lala Gurcharan Das Mehta relieved Mr. W. C. Oram of the charge of the Shahpur Provincial Division, when the latter proceeded on long leave from the afternoon of the 12th April 1920.

10. Mr. A. R. B. Armstrong continued in charge of the Wazirabad Special Works Division till 15th May 1920, when he was relieved by Mr. R. Trevor Jones. Mr. C. C. M. Anderton took over from Mr. R. Trevor Jones on 27th September 1920 and gave over the charge, in turn, to Mr. Macfarlane on 13th November 1920.

11. In the Third Circle of Superintendence Sardar Bahadur Sardar Lehna Singh, Executive Engineer, relieved Mr. A. K. Cargill of the charge of the 1st Lahore Provincial Division on 20th April 1920, when the latter was transferred and Mr. S. G. Stubbs, O.B.E., held charge of the II Lahore Provincial Division throughout the year.

12. The Sheikhpura Provincial Division, with its headquarters at Lahore was in the charge of Lala Harbans Rai, Assistant Engineer, till it was taken over by Mr. G. T. Pound on 9th April 1920 to 2nd October 1920 when on his appointment as Quarry Engineer, Punjab, he made over the Division to Mr. S. Bashi Ram, Executive Engineer, from 3rd October 1920.

13. A new sub-Division was formed at Shahdara on 1st May 1920 to cope with increase of work in the Sheikhpura Provincial Division in consequence of the development of the New Civil District.

14. The Sutlej River Hydro-Electric Project Division continued in the charge of Lieutenant-Colonel B. C. Battye, D.S.O., M.C., R.E.

(3)—Personal.

15. Owing to the reorganization of the Engineering Establishment of the Buildings and Roads branch the sanctioned cadre has been reduced from 43 to 33. The actual strength, however, still stands at 43, which number will in due course be brought down to 33.

16. One newly appointed Assistant Executive Engineer, Mr. H. A. Harris, joined the Buildings and Roads Branch during the official year under report. Lieut.-Colonel B. C. Battye, D.S.O., M.C., R.E., continued to serve on deputation to this Branch as Officer-in-charge, Sutlej River Hydro-Electric Project Division, while the staff of the Division was increased by the appointment of Major R. N. Aylward, D.S.O., M.C., and Lieutenant A. Guthrie, R.E., in April and May 1920, respectively, the latter on deputation from the Military Works Services.

Mr. H. M. Griffiths continued to serve on deputation under the Chief Commissioner, Delhi.

17. Rai Sahib Raja Ram, Executive Engineer, who retired from the service in December 1919, was re-employed as a Temporary Engineer during the period under report, and the services of Mr. P. A. McCormack, who was re-employed as a Temporary Engineer from the forenoon of the 12th April 1919, were dispensed with, with effect from 12th April 1920.

2—DETAILED REVIEW.

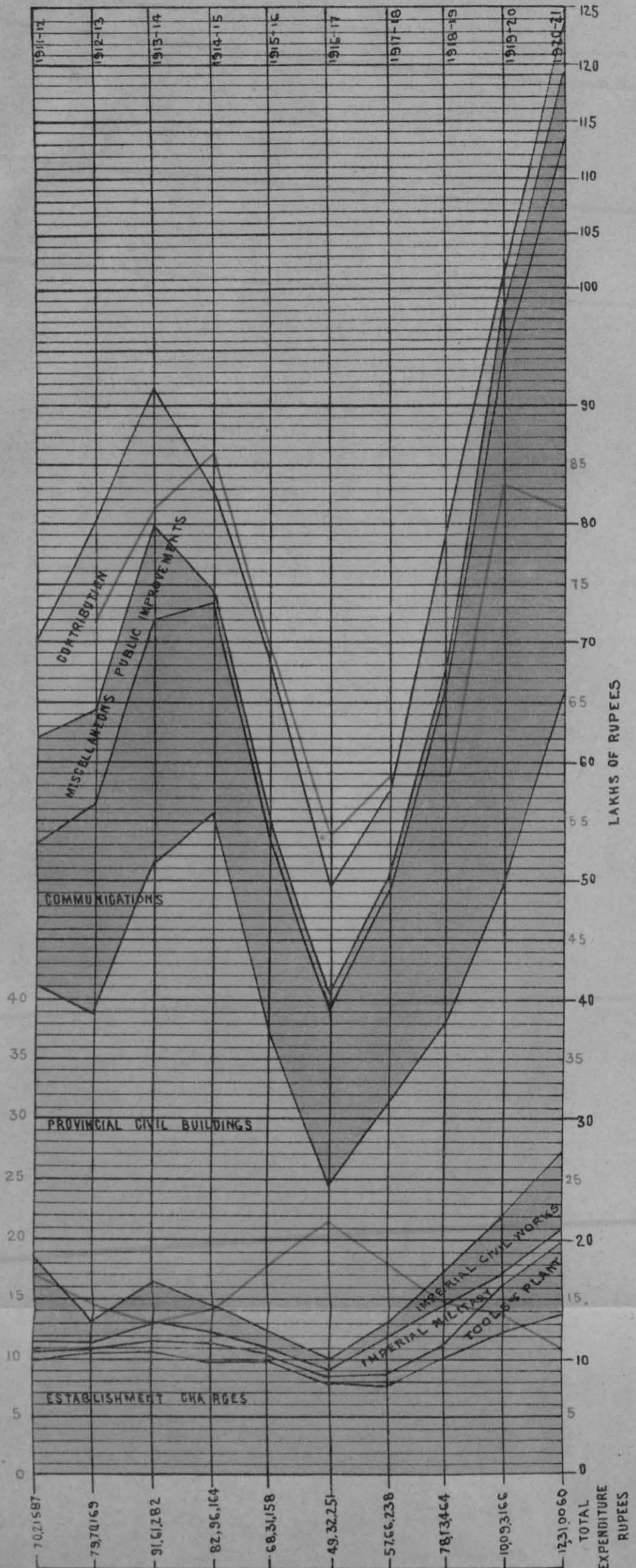
(1) General Expenditure.

18. The total outlay for the year 1920-21 amounted to :—

	1920-21.	1919-20.
	Rs.	Rs.
(1) Imperial Military Works	92,073	81,007
(2) Imperial Civil Works	6,67,875	5,67,786
(3) Provincial Civil Works	1,10,40,463	90,19,120
(4) Contribution (including local loans, etc.)	5,09,649	4,25,253
Total	1,23,10,060	1,00,93,166

DIAGRAM OF EXPENDITURE IN THE PUNJAB P.W.D. B&R. BRANCH FROM 1911-12 TO 1920-21

ANNUAL PERCENTAGE OF ESTABLISHMENT TO TOTAL WORKS.
 PERCENTAGE OF ENGINEER ESTABLISHMENT ON DUTY COMPARED WITH SANCTIONED CADRE OF 43-



THE VERTICAL HEIGHT OF EACH CONVENTIONAL COLOUR SHOWS TO A SCALE OF 1 INCH = 10 LAKHS, THE EXPENDITURE INCURRED DURING THE FINANCIAL YEAR...

19. A diagram showing expenditure incurred under service and departmental heads during the past 10 years is added to face page. The percentage cost of establishment to the total cost of works and repairs executed works out to 11 per cent against 14.0 per cent. for the preceding year.

20. The modified procedure introduced last year for the preparation of the Revised Budget Estimate continued to be followed with success as the following table shows :—

Year.	1918-19.		1919-20.		1920-21.	
	Rs.		Rs.		Rs.	
Modified grant	67.62	lakhs	87.88		105.25	
1st Revised	67.00	„	92.88		104.80	
Expenditure	62.33	„	90.19		110.40	

The expenditure on Provincial Civil Works against the Revised Estimate and the modified (working) grant for the year under review, compared with certain previous years, is satisfactory and the necessity of a greater measure of decentralisation, giving Superintending Engineers a freer hand in the distribution and re-appropriation of funds within their respective Circles is a matter worth consideration; and, with a careful revision of the budget procedure, which is in hand, a solution of the many difficulties still encountered in working to allotments of the budget estimate, approaches nearer.

21. A prominent feature of the year 1920-21 has been a failure of the monsoon and winter rains, coupled with a continued and increasing shortage of railway wagons and a further rise in the cost of both material and labour. The restriction on railway booking and the difficulty in procuring a sufficiency of coal continued to hamper the progress of works, while, on the other hand, the prices of building material have increased and labour refuses to accept lower wages owing to the dearness of foodstuffs. It appears more than evident now that prices of both material and labour will stabilize themselves at a high figure.

22. The difficulties referred to in last year's report regarding the lack, throughout the Province, of responsible contractors continued to be felt. It is not realised outside the Department how much our work could be facilitated by the presence of efficient contractors who by entertaining a competent staff, could relieve the P. W. D. of petty details, which now engage the attention of departmental subordinates and officers. Thus it will be seen that the hopes of the Indian Industrial Commission, which laid stress on the advantages of securing the services of responsible contractors, have yet to be realized. It is feared, moreover, that until prices of labour and material are not subject to the present fluctuations of the market, suitable men with capital will not be forthcoming, and the Department must therefore be content with inexperienced contractors and put up with all the difficulties which these men bring with them.

23. The continued shortage of trucks and the consequent difficulties in meeting the demand of local bodies and the requirements of the Department, necessitated a careful co-ordination of the supply and demand of road metal throughout the Province and the labours of the Quarry Engineer in this direction fully justify his appointment, and his detailed investigations of the possibilities connected with the development of new quarries, schemes for which have been prepared and are receiving the careful attention of the Local Government, will undoubtedly lead to beneficial results.

24. There was no abatement in the rise of prices of materials and labour and consequently the high cost of construction was maintained. This necessitated continuous revision of estimates involving heavy labour for all concerned.

It would be easy for the Chief Engineer to allow his officers to include abnormally high rates in original estimates in order to cover all possible market fluctuations; but for obvious reasons, this procedure is one which could not be tolerated on any account.

25. The lack of sufficient coal to meet the demands for works was seriously felt. This was partly due to the low place which was allotted to Public Works in the classified order of urgency drawn up by the coal controlling authorities, and partly due to frequent strikes of labour in the coal fields with the consequent decrease in output. Complaints poured into Secretariat from all three Circles and it was found necessary to appoint a special officer to go thoroughly into the question and visit Calcutta with the object of ameliorating the existing state of affairs. This lack of coal naturally affected adversely the progress on works.

26. In accordance with Government of India Resolution No. 192-E.A., dated the 1st April 1920, the Punjab Engineering Service came into being with a sanctioned cadre of 24 Assistant Engineers. Eighteen appointments were made and these were partly filled by 16 selected Upper Subordinates already in the Department and 2 Temporary Engineers. Six vacancies in the cadre have been kept open for Engineers trained at the Thomason Civil Engineering College, Roorkee.

The object of the introduction of this Service is to provide well qualified Engineers, trained in India to hold charge of Sub-Divisions in the Department. The pay of the Service is Rs. 250-20-750 with an efficiency bar at Rs. 550. Selected men in this Service may be promoted to the Indian Service of Engineers, though such appointments will be rare.

27. The year under review will be memorable for the introduction of the Reforms Scheme of Government which made itself felt throughout all sections of the administration. The new procedure brought with it many changes—amongst others the scrutiny of Budget Items by the Standing Finance Committee and control of public expenditure by the Legislative Council. Whereas in former days the Heads of Departments could with comparative ease obtain the necessary funds for works which they considered desirable—all demands for works are now carefully scrutinized in the Finance Department before the Minister concerned is asked to approve them. Financial control has thus been centralized in the Finance Department, with the consequent decrease of powers of Heads of Departments. This has naturally caused an increase of work in all Government offices, but the procedure must be pronounced to be beneficial to the interests of the Province as a whole as it encourages economy in expenditure and entails even greater care in preparation of estimates for works.

(2)—Imperial Military Works.

28. Except for the closing down of the accounts for the expenditure of slightly over three lakhs of rupee incurred on the construction of the Temporary Lines together with a Hospital and a Water Supply for the Indian Infantry Depôt at Ludhiana, all of which important works were actually completed during 1918-19, no military work of importance was carried out during the year under review.

29. Among the less important military works completed are a number of Standings and Sheds constructed at a cost of Rs. 20,000 for the Bullock Corps at the Indian Infantry Lines at Ludhiana and a set of Stallion Stables with quarters for Jamadars and Syces constructed at Jarrah and Kakawal.

(3)—Imperial Civil Works.

30. The construction of the New Telegraph and Telephone Office Buildings at Simla continues. An expenditure of over $6\frac{3}{4}$ lakhs has been incurred against the estimate of Rs. 7.83 lakhs. The whole of this new structure may be described as a masonry shell—the lower storey in stone, the upper in brick—held together by continuous reinforced concrete lintels. Considerable savings have been effected in the thickness of the reinforced concrete floors by making many of the partition walls self-support.

Expenditure—		Rs.
Original Works	...	48,618
Repairs	...	29,998
Total	...	78,616

Expenditure—		Rs.
Original Works	...	5,34,178
Repairs	...	36,327
Total	...	5,70,505

ing and this design has enabled parts of the building being brought into use as Telephone Exchange, workshops, offices and living quarters, before any part of the roof had been completed.

The building comprises three distinct portions East, West and Central. Rapid progress was made with the East and West portions of the new building, and these are now being roofed in as rapidly as possible. The Central portion of the old building had to be left standing so as not to interrupt the work of the Telephone Exchange which was gradually transferred to its new quarters in the East Building between December and March. Before the end of March 1920, however, the last remains of the old building (were) finally demolished and the work on the Central portion was put in hand.

31. A five years' programme of special repairs to Viceregal Lodge at Simla has been satisfactorily completed. The renewal of the decayed stone (drip courses) on the outer walls of the building has been successfully carried out and Chajjas have been installed throughout. The building lately occupied by the reserve steam plant has been converted into an office and stores for the Superintendent, Viceregal Estates, and the improvements to the old quarters of the Viceregal staff as well as the construction of quarters for the press workers was put in hand.

3. In the way of the more important works of the Post and Telegraph Department a motor garage, office and servants' quarters were completed in July at the Rawalpindi Post Office. The project for the new buildings for the New Wireless School awaits sanction meanwhile a plot of land just outside Rawalpindi itself on the Rawalpindi-Peshawar Road has been acquired and demarcated with boundary pillars.

(4)—Provincial Civil Works.

Buildings—Miscellaneous.

33. The most notable work carried out under this head is the Temporary Council Chamber at Lahore. Orders for the preparation of the design were given in February 1920, and by the end of the following December the New Legislative Council held its inaugural meeting in the complete and finished building.

<i>Expenditure—</i>	Rs.
Original Works ...	60,61,655
Repairs ...	30,54,531
Total ...	91,16,189

34. Owing to the financial stringency which still prevails building operations have been practically suspended during the year under review in connection with the Lahore and Simla Housing Schemes. Similarly the new Secretariat Scheme at Charing Cross is still in abeyance.

35. The additions and alterations to Government House Lahore included the conversion of the Council Chamber into a suite of rooms for distinguished visitors.

36. The activity in the provision of buildings for all branches of the administration in connection with the formation of the new Civil district of Sheikhpura continues unabated. The District Courts are well on their way to completion. The Treasury Buildings as well as a residence for the Deputy Commissioner and a Dâk Bungalow have been completed. Work on the Police Lines, Police Offices and the Sub-Jail are well in hand. Good progress has also been made on the roads in the new Civil Station.

37. New Tahsil Buildings were completed at Okara and Karnal. A Court House for the Assistant Sub-Divisional Officer at Pindi Gheb, a combined Tahsil and Thana at Kot Adu and Civil residences for the Sub-Divisional Officers at Alipur and Leiah in the Muzaffargarh District are among the less important Revenue buildings which were taken in hand and completed during the year. New Record Rooms were attached to the District Court building at Dharmasala and considerable additions and alterations were effected to the District Court building at Muzaffargarh.

38. Various works have been carried out at the Punjab Agricultural College at Lyallpur. A workshop has been constructed for the Agricultural Engineer and a residence provided for the Entomologist. Wire fencing has been put up round the Botanical Area on which material has also been collected for extending the existing Chemistry Block. The various farm buildings have also been remodelled and extended.

39. At Hissar, the re-roofing of the cattle shed in the Stable Farm and the construction of a new Veterinary Hospital and quarters for the Assistants and menials in the Cattle Farm have been completed. A new cattle shed has also been erected at Kherwan and the Makadam and Beldars' quarters at the experimental farm were practically completed.

40. The Agricultural Station at Gurdaspur has now been provided with a large Sarai for accommodating visitors and students interested in the operations of the farm, while the amenities of the Veterinary College at Lahore have been improved by the addition of a large play-ground for the use of its staff and students.

Educational.

41. The erection of Educational Buildings continues and the construction of several large buildings for the various Government Schools, Colleges and Hostels mark the rapid progress made.

<i>Expenditure—</i>	Rs.
Original Works	... 9,56,802
Repairs	... 1,00,292
Total	... 10,57,094

42. A particularly fine hostel for the Government College at Lahore is under construction at a cost, which it is anticipated, will approximate to 6½ lakhs of rupees. This capacious building designed by the Consulting Architect will accommodate at present 172 students. It will be equipped with electric lights and fans and with an up-to-date sanitary installation. The scheme of construction allows for future extension to the building to accommodate a total of 192 students.

43. The scheme for the institution of a Government College at Multan has been started with the acquisition of a site covering some 45 acres of land in the neighbourhood of the Multan City. Acquisition proceedings are also in progress for the playing fields for the Government Central Training College at Lahore and land has been acquired for the building required for the proposed Government College at Ludhiana.

44. The construction of class rooms and a hostel for the European Training College at the Lawrence Asylum, Sanawar, has been sanctioned at an estimated cost of over 2½ lakhs, but the rise in rates for labour and material necessitated the revision of the entire estimate with the result that beyond the cleaning and levelling off of the site and the making of the approach road, retaining walls and storage tanks, work on the main project still awaits sanction of the revised estimate. The foundation stone of the Training College was laid by His Excellency the Viceroy on the 28th October 1920.

45. The other works of importance in connection with Government Colleges are the construction of dining rooms in the boarding house of the Central Training College and two single-storied blocks for the menial staff of the Government College at Lahore.

46. Land for the proposed Carpentry School at Jullundur was acquired and taken possession of and the project itself is under preparation. New School buildings for the Government High and Normal Schools at Multan were completed. A new building for the Government High School at Jhang was commenced in close proximity to the old school buildings which have become too small for the growing requirements of the school. Similarly buildings for a Normal School at Lala Musa and one at Gakhar are under construction, and rapid progress has been made on the boarding house and Normal School buildings under erection at Campbellpur.

47. Various works were commenced at the Government School of Engineering at Rasul. A new wing added to the boarding house has increased the somewhat limited accommodation. A set of rooms was added to the Principal's quarters to serve as a rest-house for visitors. An additional block of staff quarters has been erected and the workshop of the school has been considerably extended.

48. Some minor additions and alterations have been effected in the European Junior Boys' School at Ghora Gali. The Lawrence School itself is in a state of transition, the girl's school is to be removed to Murree, while, with the closing down of the Cathedral Boys' School at Lahore, the Boys School Ghora Gali, has received a large number of pupils, who, for want of accommodation, have been housed for the time being in temporary buildings. Extension to the old building along with new additional accommodation is under contemplation.

Ecclesiastical.

<i>Expenditure—</i>	Rs.
Original Works	... 1,05,212
Repairs	... 3,786
Total	... <u>1,13,998</u>

49. The work as originally planned for the proposed cemetery at Sanjauli in the Simla Hills was almost completed in terracing the hill an unexpected quantity of rock was encountered and further work entailing a revised estimate was necessary before the top platform could be used for burial purposes.

Jails.

<i>Expenditure—</i>	Rs.
Original Works	... 1,00,766
Repairs	... 30,485
Total	... <u>1,31,251</u>

50. Various works were undertaken in connection with the Lahore Jails. A school building as well as residential quarters for Assistant Jailors and the Sub-Assistant Surgeon have been constructed in the Lahore Central Jail. A large barrack has been added to the Borstal Jail. Considerable extensions have been made to the water-courses in the jail garden and a barrack to house conditionally-released youth is under construction.

51. In the Central Jail at Multan five of the sleeping barracks, all of which had been provided with thatched roofs and gratings have now been remodelled and made secure and additional accommodation is being provided for the jail warders.

Police.

<i>Expenditure—</i>	Rs.
Original Works	... 1,67,139
Repairs	... 32,332
Total	... <u>1,99,471</u>

52. Land has been acquired but little work was done on the construction of the New Police Station in the Ambala City owing to the receipt of orders to stop work for the time being — work has since been resumed.

On the other hand, the Police Hospitals at Lower Dharmsala in the Kangra District and at Dera Ghazi Khan have been completed. An extension has been made to the Sowars' Barracks and also certain additions and alterations to the Indian Police Officers' quarters in the Police Lines at Rawalpindi, while a set of married quarters for constables were added to the Multan Police Lines.

53. New Police Stations with married quarters have been erected at Tandlianwala and Syadwala in the Lyallpur District and a large pacca brick police barrack has been completed at Rajanpur.

A Circle Inspector's quarters are being added to the Police lines at Hoshiarpur, a new Police post has been built on Race Course Road, Lahore, and the Police posts at Umerneot and Madhopur have been reconstructed.

Medical.

54. The scheme for the separation of the Medical College from the school at Lahore which has resulted in the removal of the latter to Amritsar, necessitated the expeditious construction of temporary buildings for the students, all of whom could not be housed in the Old Police Lines and the old

Civil Hospital. A site on which the school will be located permanently has been acquired and projects for the various school buildings are under preparation.

A new Tuberculosis hospital and enclosure have been added to the Lunatic Asylum building at Lahore and the new capacious laboratory for the Chemical Examiner to Government, Punjab, has been completed.

Communications.

55. Good and steady progress in the improvement of our Provincial Communications has been the order of the day during the period under report.

56. The largest works in this direction have been the construction of road bridges which were begun last year over the Chenab and Palkhu rivers at Wazirabad. The damages and difficulties usually attendant on this class of work through sudden floods were fortunately entirely absent. The bridge, of seventeen spans of 142 feet each, over the Chenab, consists of girders supported on 18 wells (including two abutment), the progress on the sinking of which during the period under report has been entirely satisfactory. The remodelling of the girders dismantled from the railway bridge for the purpose proved a more arduous task than had been anticipated. The work, however proceeding briskly and arrangements are well in hand for booming out the girders over the water spans. The smaller bridge of 3 spans over the Palkhu rapidly nears completion.

→ 57. A masonry arch bridge of a single 65 feet span has been constructed over the Giri River at Chela in the Simla District. The much needed widening of the Leh Bridge on the Rawalpindi-Murree Road has been completed and cost nearly seventy-five thousand rupees.

Considerable attention has been given to the Kangra Valley Cart Road. Important special repair works have been executed at various necessary points, while a number of masonry bridges have been built.

58. The policy of improving and bridging gaps on the various sections of the Grand Trunk Road has materialised in various directions; on the Beas section two important gaps have been completed and another is well under way. Between Gujar Khan and Sahawar girder bridges have been built over the Bhai Khan and Bishan Dore Nullas. A reinforced concrete floor has replaced the wooden platform of the Chablat bridge between Hassan Abdal and Burhan.

Near Lala Musa the old bridge near Jandanwala was reconstructed and a new submersible bridge was substituted for the old causeway at Ali Chak. An estimate of Rs. 37,000 was sanctioned for protective works round the road bridges over the Sutlej and Beas rivers in the Jullundur District.

59. The first instalment of a comprehensive scheme for the improvement of the Kalka-Simla Cart Road to fit it for motor traffic, consisted in the widening and straightening of the sharper and dangerous corners. Similarly the cutting of dangerous corners and the improving of the bridges and culverts on the Kasauli Road are also receiving attention.

Two road bridges, one over the Tangri and another over the Omla rivers, on the Grand Trunk Road near Ambala, have been completed and opened to traffic.

Work of the 2nd section of the Larji-Mandi Road, which traverses an extremely difficult section of hill country abounding in precipitous cliffs is making progress.

60. A comprehensive scheme of work has effected great improvements on the Multan-Loralai Road, and it is now possible to motor from Multan to Ghazi Ghat and thereon to Fort Munro.

The completion of the new cart road from Fatehjang to the oil fields at Khau: presented considerable difficulty owing to the dry and sandy nature of the country through which it passes and to the want of water due to a scanty rainfall; but the work is now nearing completion.

A metalled branch road, a portion of which lies in the North-West Frontier Province, has been constructed from Taxila to the ruined monastery at Jaulian.

The road connecting Lahore with Sheikhpura the headquarters of the new Civil District which was allowed to sink into a state of disrepair has been greatly improved and made fit for wheeled traffic.

(5)—**Contribution Works.**

61. The only contribution work of note was the additions and alterations to the King Edward Sanatorium at Dharmapore at a cost of Rs. 70,600 which were completed in April 1921. The Sanatorium provides accommodation for six European and six Indian consumptive patients with a dispensary and quarters for staff.

(6)—**Famine Relief Works.**

62. No famine relief works were carried out during the period under review.

(7)—**Damage by floods, fire, earthquake, etc.**

63. Among minor damages effected by flood was the washing away of a section for a length of 100 feet and to a depth of 10 feet of the wooden pile and fascine bund protecting the metalled road over the Ghaggar Nullah in mile 22 of the Ambala Kalka Road. At the Bunar Khud in mile 55 of the Kalka Valley Cart Road the conglomerate on which the left abutment is built was seriously cracked due to undermining. The abutment is not considered to be dangerous at present; an estimate for the lengthening of the girders of the bridge is, however, under preparation so that the bridge will be free from danger even if the erosion on the left bank continues.

64. The Raisin Cantilever bridge over the Beas in mile 8 between Kulu and Kolrain was accidentally destroyed by fire and estimates for the construction of a new bridge are under preparation.

(8)—**Sanitary Engineer.**

(In this report mention is limited to Sanitary works executed by the Buildings and Roads Branch. A general account of Sanitary works in the Punjab is given in the Sanitary Engineer's report contained in the annual report of the Sanitary Administration of the Punjab.)

(a)—**Water Works.**

65. *Dera Ghazi Khan.*—This water supply continues under the management of the Public Works Department on account of the special difficulties encountered in maintaining the supply. The supply is now equivalent to an average of about 5·8 gallons per head per day. The 4 tube wells from which the supply is drawn tend to diminish in yield through the blocking of the strainer tube with a deposit of calcium carbonate; so far, no permanent remedy has been discovered by which this can be prevented, and recourse has to be had to the troublesome and expensive process of drawing up and resinking the strainer-tube after scraping.

66. The Robey Semi-Diesel engine is working very well; the original Gardner high speed oil engines have been thoroughly overhauled and serve as a stand by plant during the hot weather.

67. *Ambala.*—In 1917 the level of the sub-soil water rose so high that the engine-room floor was submerged to a depth of one foot, the pumps had to be stopped as the vibration would have loosened the wet foundations. The supply to the town was maintained by the hasty erection of a pulsometer pump and thanks to the great exertions of the Superintendent and his staff who remained on duty continuously for about 72 hours, the interruption involved in the change from one system of pumping to another lasted for one day only. To avoid a recurrence the floor of the engine house has been made water-tight at a cost of Rs. 11,724. The Sanitary Board made a grant-in-aid for this work of Rs. 10,190.

(b)—*Drainage.*

68. *Rupar*.—This scheme was sanctioned for Rs. 2,43,100, and work was started in September 1919 under the Executive Engineer, Gurgaon Provincial Division. The expenditure to the end of the financial year 1920-21 is Rs. 19,259. The difficulty in obtaining coal is hindering progress, and great difficulty is also being experienced in obtaining sufficient water for constructional works owing to the prevailing drought, the small number of wells, and the great depth of sub-soil water below the ground surface.

69. *Shujabad (Multan District)*.—This drainage scheme was started in June 1920 under the Executive Engineer, Multan Provincial Division. The estimated cost is Rs. 20,667 and the expenditure to date Rs. 11,374. The progress and quality of the work are good.

70. *Jullundur*.—The experimental tube-well in the Empress Gardens which was being sunk by the Executive Engineer, Jullundur Provincial Division, has been abandoned and the work handed over to the Sanitary Engineer to make a fresh start.

(9)—*Architectural Section.*

71. The increase in the value of work, designed during the year, over that of last year is approximately 40 lakhs.

→ 72. It has been necessary to postpone the design of three or four schemes sent to the office owing to lack of the necessary staff to deal with them. The most important of the deferred schemes are :—

- (a) The Civil Hospital at Multan,
- (b) The Civil Hospital at Rawalpindi, and
- (c) The Junior Training College at Jullundur.

Government, however, is considering an expansion of establishment made necessary by—

- (a) the increase of work, and
- (b) additional staff required for Mr. G. E. Francis, Assistant Consulting Architect.

73. Mr. Sullivan, the Consulting Architect, was on six months' leave from May last and Mr. Francis officiated for him during that time.

74. Some of the schemes dealt with in the Consulting Architect's office are shortly dealt with below :—

- (a) *Temporary Legislative Council Chamber and Offices, Lahore*.—This building was completed and in occupation early last January—its design and erection being completed in ten months from the time instructions were given to prepare the preliminary sketches. It cost 3½ lakhs.
- (b) *Brockhurst Estate, Simla*.—Detailed designs for two detached and eight semi-detached cottages for ministerial officers and a block of flats for clerks have been prepared, and it is expected that these buildings will be erected next year. The work is estimated to cost about 2 lakhs. An Electric Sub-Station has also been designed and built on this estate.
- (c) *Government House, Lahore*.—The design prepared last year for converting the Council Chamber at Government House into a suite of rooms for distinguished visitors has been carried out at a cost of Rs. 32,000.
- (d) *Head-quarters, New District of Sheikhpura*.—Many designs and sketches have been delivered to the engineers for this scheme which is now being rapidly pushed ahead. The most important are as follows :—
 - (a) District Court Buildings.

- (b) Dâk Bungalow.
- (c) Deputy Commissioner's Residence.
- (d) Tahsil and Thana.
- (e) Police Office.
- (f) Sub-Divisional Officer's Bungalow.
- (g) Irrigation Inspection Bungalow.
- (h) Irrigation and Buildings and Roads Departments Offices.
- (i) Executive Engineer's Bungalow.
- (j) Revenue and Telegraph Offices.

The estimated cost of these buildings amounts to about six lakhs.

- (e) *Government College Hostel, Lahore.*—This building is in progress. It is a large and up-to-date hostel in which the great proportion of students are provided with separate rooms and in some cases with two. The small site (about two acres) and other considerations have necessitated the provision of a water carriage system instead of the sweeper system. Among other requirements for this building laid down by the Education Department are, besides the rooms described above, hospital wards, doctor's room, games room, recreation room, reading room, clerks' office, Superintendent's quarters and warden's office, dining rooms and kitchens for the members of various denominations and quarters for about 80 servants. It is estimated to cost Rs. 4,38,950.
- (f) *New Law College, Lahore.*—A design for this building has been prepared for the Punjab University Syndicate. It is estimated to cost Rs. 1,10,000.
- (g) *Chemical Laboratory, Lahore.*—This is another building now being designed for the Punjab University. It has been roughly estimated to cost three lakhs. Both this and the Law College have been designed in the Indo-Saracenic style to be in harmony with the other University buildings.
- (h) *Currency Office, Lahore.*—Preliminary sketch plans and a plinth area estimate have been prepared and forwarded to the Government of India. This is a building which will be erected in the compound of the Accountant-General's Office on Nabha Road, Lahore. It is estimated to cost Rs. 5,53,000.
- (i) *Medical School, Amritsar.*—This scheme consists of a main college building, anatomical and examination hall blocks, two hostels for 160 students each, Principal's and Superintendent's bungalows and quarters for lecturers and demonstrators. Designs have been prepared for the hostels and the Superintendent's bungalow. The hostels are estimated to cost Rs. 1,02,000 each.
- (j) *Extensions to High Court, Lahore.*—Complete small scale working drawings of this scheme have been delivered to the engineers. It consists of two additional wings added to the existing main block containing new courts and chambers. Additional accommodation for the Bar Association and Pleaders is also being provided. The plinth area estimated cost amounts to 5 lakhs.
- (k) *Charing Cross Scheme, Lahore.*—Revised preliminary drawings of the centre block of this scheme consisting of a Legislative Council Chamber and Offices have been prepared and submitted to Government. The estimated cost of this portion of the scheme amounts to twenty-eight lakhs. The remainder

of the scheme will consist of three blocks of Secretariat Offices and subsidiary buildings.

- (l) *Additional storey to Ellerslie, Simla East.*—Designs have been prepared for the above extensions to accommodate the additional staff of the Punjab Secretariats which are housed in the above building. The work is estimated to cost Rs. 1,70,000 and is to be ready for occupation in May 1922.

75. Among other buildings dealt with during the year which do not, at this stage, call for further comment are the following :—

New Telegraph Office, Lahore.

King Edward Memorial Hostel, Lahore.

Veterinary College Hostel, Lahore.

Hostel for the Punjab Agricultural College, Lyallpur.

Boarding House for the School of Engineering, Rasul.

Boarding House, Karnal.

School of Carpentry, Jullundur.

Government High School, Hissar.

Chemical Laboratory, Lyallpur.

Hospital, Murree.

Officers' Bungalows, Alexandra Park, Amritsar.

Four houses for Gazetted Officers' Residences, Lahore.

Residence for Sub-Divisional Officer, Sultanpur, Kulu.

Shelter for motor cars at the Lahore Railway Station.

(10)—Electrical Engineer.

76. *Electrical Projects.*—The survey of the Sutlej River Hydro-Electric Project was proceeded with under Lieutenant-Colonel B. C. Batty, D.S.O., M.C., R.E., throughout the year during which year detailed designs were finished and a very complete set of estimates worked out after information on rates and prices had been collected from a large number of sources.

The designs provide for a plant of 80,000-K. W. capacity feeding into a 132,000 Volt transmission system capable of supplying Delhi and Lyallpur together with intermediate stations such as Lahore, Amritsar, Jullundur, Ambala and many others. The scheme, it is anticipated, will take about five years to complete, and will cost eventually about 9 crores. At the end of March 1921 the report on the project was in the process of dictation, and it was hoped to submit this to Government by the end of June.

77. *Licenses.*—Licenses were granted to the General Electrical Compay, Limited, for the supply of electricity in Rawalpindi and Lyallpur. A license was approved of by Government for a public electric supply in Jullundur and will be granted early in the new year. Applications for licenses were received for Multan, Sialkot, Ferozepore and Gujranwala, but none were granted during the year under review. Projects, prepared by private agency for electric supply installations in Fazilka and Abohar, were submitted to the Electric Inspector. The Municipal Committee of Hissar have asked the Electric Inspector to prepare a preliminary report on an Electric Supply Scheme for the town. A concession for developing power from four canals falls was granted to the Punjab Hydro-Electric and Industry Development Association.

78. *Supply of energy.*—The cost of electricity supplied to Government Provincial Buildings in Lahore, Ferozepore and Amritsar during the year was met by each Department from its own funds. This Division paid for the energy consumed in Public Works Department Buildings and Government House amounting to 31,139 units valued at Rs. 5,848.

79. The amount of electricity supplied to Government Buildings in Lahore for the year was as follows :—

Imperial	...	...	...	...	79,946 units
Provincial	...	...	...	...	383,973 ,,

At Amritsar as follows :—

Imperial	...	...	...	...	Nil.
Provincial	...	...	...	...	7,130 units.

The following were maintained at the close of this year ending 31st March 1921 :—

	Lahore.	Amritsar.	Ferozepore.
Fans	2,490	116	71
Lamps	5,923	183	37
Motors	49	...	...
Radiators	9	...	...

80. The capital cost of all electric installations in Lahore, Ferozepore and Amritsar amounted to Rs. 7,14,260 at the end of 31st March 1921.

81. The total expenditure incurred by the Division on original works was as follows :—

	Rs.
Major Works	36,556
Minor Works	27,130
Contribution Works, including Military...	19,114
Total	82,800

82. *Maintenance.*—The expenditure on maintenance for the year in question was as follows :—

	Rs.
Imperial	1,583
Provincial	23,491
Contribution and Military	1,294
Total	36,368

(11)—Electrical Inspector.

83. During the year under review the administration of Electricity Act was transferred from the Public Works Department to the Director of Industries.

Inspections were carried out from time to time in Lahore, Amritsar, Simla and Ferozepore and occasional meters were tested in the Laboratory.

Two fatal accidents occurred in Simla from electric shock during the year.

(12)—Boiler Inspector.

84. The Governor-General in Council, having decided that, in accordance with paragraph 30 of the preliminary report on the Development of Industries in the Punjab, the administration of the Punjab Steam Boiler and Prime Movers Act, 1902, should be transferred to the Director of Industries, the Sanitary Engineer to Government was accordingly relieved by that officer of the control of the Boiler Inspector in February.

The report on the work done by the Boiler Inspector during the year, which has hitherto found a place in this report, will appear in the annual report of the Director of Industries.

(13)—Works of Public Utility.

85. Works costing over Rs. 5,000 each carried out by private individuals during the year under report were :—

- (i) A dispensary building was constructed at Mashobra by Mrs. F. E. Hotz, at a cost of Rs. 43,606.
- (ii) Lala Tello Mal, son of Lala Ghalla Mall, Khatri, of Anandpur Tahsil, built a pucca Sarai at Anandpur at a cost of Rs. 5,277.
- (iii) Sardar Gurmukh Singh, son of Sardar Jawahar Singh, Lambardar, of Bhagsar, Tahsil Muktsar, sunk a well at Bhagsar at a cost of Rs. 6,000.
- (iv) A female hospital building was erected in the Sadar Bazar, Ferozepore, by Lala Behari Lal Syal, of Ferozepore Cantonment, at a cost of Rs. 30,000.
- (v) Sèth Bhoj Raj of Sirsa geneously paid for the conversion of the Sirsa Middle School building into one for a High School at a cost of Rs. 17,000.
- (vi) Lala Biswedat and Babo Harnam Das of Karoora Manakpur Tahsil Rewari contributed Rs. 8,000 for the construction of a pucca chaupal at Karoora Manakpur.

(14)—Assistance rendered to Local Bodies.

86. Projects aggregating Rs. 25,49,169 were scrutinized for Local Bodies and others totalling Rs. 8,66,537 were prepared for them for works, which will in most cases be carried out by the Public Works Department—

Year.	Projects scruti- nized.	Projects prepared, and in most cases works to be carried out by the Public Works Department.	Total.
	(Lakhs of Rs.)	(Lakhs of Rs.)	(Lakhs of Rs.)
1916-17	12.50	18.12	30.62
1917-18	15.31	6.38	21.69
1918-19	10.99	6.73	17.72
1919-20	19.03	28.24	47.27
1920-21	25.49	8.67	34.16

PART A.

Statement A.

Statement of expenditure on Public Works during 1920-21.

SERVICE HEAD.	ORIGINAL WORKS.		REPAIRS.		TOTAL.	
	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.
1	2	3	4	5	6	7
IMPERIAL.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
FAMINE RELIEF.						
<i>Civil Works.</i>						
Communication ... ..	...	...	...	...	...	...
Miscellaneous Public Improvements ...	...	...	...	...	...	...
Establishment ... ..	...	...	...	...	...	...
Tools and Plant ... ..	...	...	...	...	...	...
Total Famine Relief	...	...	...	...	...	...
47—MILITARY WORKS.						
<i>Special Demands.</i>						
Works	30,890	31,999	...	...	30,890	31,999
Establishment ... ..	...	...	...	...	...	...
Tools and Plant ... ..	...	...	...	...	...	...
Suspense ... ..	...	...	...	...	...	...
Barrack Department ... ..	...	...	...	...	...	...
Expenditure in England ... ..	...	...	...	...	...	...
Total Special Demands	30,890	31,999	...	...	30,890	31,999
<i>Ordinary Demands.</i>						
Works	16,353	16,619	51,450	29,998	67,803	46,617
Establishment ... ..	...	...	...	...	12,670	11,661
Tools and Plant ... ..	...	...	...	...	1,011	1,793
Suspense ... ..	...	...	...	...	...	...
Barrack Department ... ..	...	...	...	...	...	...
Expenditure in England ... ..	...	...	...	...	...	...
Total Ordinary Demands	16,353	16,619	51,450	29,998	80,884	60,074
Total Military Works	47,243	48,618	51,450	29,998	1,11,774	92,072
CIVIL WORKS.						
Civil Buildings	5,35,545	5,34,178	52,420	36,327	5,87,965	5,70,505
Communication ... ..	...	...	...	...	...	...
Miscellaneous Public Improvements ...	...	...	...	...	...	...
Establishment ... ..	...	...	...	...	1,12,836	84,525
Tools and Plant ... ..	...	...	...	...	8,888	12,084
Suspense ... ..	...	...	...	...	...	...
<i>Deduct expenditure in England</i>	...	...	...	...	280	289
Total Civil Works	5,35,545	5,34,178	52,420	36,327	7,09,859	6,67,875
TOTAL IMPERIAL CARRIED OVER	5,82,788	5,82,796	1,03,870	66,325	8,21,133	7,59,943

Statement A—concluded.

Statement of expenditure on Public Works during 1920-21—concluded.

SERVICE HEAD.	ORIGINAL WORKS.		REPAIRS.		TOTAL.	
	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.
	2	3	4	5	6	7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
TOTAL IMPERIAL BROUGHT FORWARD ...	5,82,788	5,82,796	1,03,870	66,325	8,21,133	7,59,948
PROVINCIAL.						
45—CIVIL WORKS.						
Civil Buildings ...	37,58,319	32,51,214	6,00,339	7,01,532	44,18,658	39,52,746
Communication ...	22,49,050	24,62,711	22,64,180	22,69,431	45,13,180	47,32,142
Miscellaneous Public Improvements ...	1,17,844	3,47,730	85,200	83,571	2,03,044	4,31,301
Establishment ...	...	...	...	...	10,79,900	13,52,234
Tools and Plant ...	...	...	...	...	2,44,140	2,08,277
Suspense ...	...	...	...	...	50,000	3,53,763
TOTAL PROVINCIAL ...	61,25,213	60,61,655	30,09,669	30,54,534	1,05,08,922	1,10,40,463
LOCAL FUNDS.						
<i>Incorporated Local Funds. Excluded Local Funds. Contributions including Local Funds.</i>						
Municipal and Local Loans ...	...	1,53,506	...	10,688	...	1,64,194
Establishment ...	...	...	...	...	...	29,849
Tools and Plant ...	...	...	...	...	...	2,552
Private and other funds ...	...	1,98,126	...	11,255	...	2,04,381
Establishment ...	...	...	...	...	...	40,106
Tools and Plant ...	...	...	...	...	...	3,333
Military and other Departments ...	...	23,490	...	37,128	...	60,618
Establishment ...	...	...	...	...	...	3,739
Tools and Plant ...	...	...	...	...	...	877
TOTAL LOCAL FUNDS ...	...	3,70,122	...	59,071	...	5,09,649
GRAND TOTAL ...	67,08,001	70,14,573	31,13,539	31,79,930	1,13,30,055	1,23,10,060

Local Loan.

Statement B.

I.—Statement of Imperial Roads in the Punjab not within Municipal Boundaries maintained by P. W. D. and Local authorities, respectively, during 1920-21.

Name of Division.	Name of District.	Length of metalled roads maintained by the Public Works Department.	Length of unmetalled roads maintained by the Public Works Department.	Length of metalled roads maintained by the Local Authorities.	Length of unmetalled roads maintained by the Local Authorities.	Total metalled roads.	Total unmetalled roads.
1	2	3	4	5	6	7	8
3RD CIRCLE.							
Multan	Dera Ghazi Khan ...	...	...	...	94.75	...	94.75
Total 3rd Circle ...	...	...	...	...	94.75	...	94.75
Total Imperial roads ...	...	...	...	...	94.75	...	94.75

Statement B—continued.

II.—Statement of Provincial Roads not within Municipal Boundaries maintained by P. W. D. and Local Authorities, respectively, during 1920-21.

Name of Division.	Name of District.	Length of metalled roads maintained by the Public Works Department.	Length of unmetalled roads maintained by the Public Works Department.	Length of metalled roads maintained by the Local Authorities.	Length of unmetalled roads maintained by the Local Authorities.	Total metalled roads.	Total unmetalled roads.
1	2	3	4	5	6	7	8
1ST CIRCLE.							
Rawalpindi	Rawalpindi ...	111.86	5.00	8.00	73.00	119.86	78.00
	Jhelum ...	31.25	...	...	42.03	31.25	42.03
	Attock ...	63.62	...	22.50	138.00	86.12	138.00
	Total ...	206.73	5.00	30.50	253.03	237.23	258.03
Shahpur	Shahpur ...	...	...	75.26	27.17	75.26	27.17
	Mianwali ...	...	...	...	119.00	...	119.00
	Jhang ...	...	...	3.26	11.89	3.26	11.89
	Total ...	...	...	78.52	158.06	78.52	158.06
Lyalpur	Lyalpur ...	...	...	87.00	...	87.00	...
	Sialkot ...	22.44	...	0.25	29.00	22.69	29.00
	Gujranwala ...	25.74	...	...	...	25.74	...
	Gujrat ...	37.23	...	11.34	...	48.57	...
	Total ...	85.41	...	98.59	29.00	181.00	29.00
TOTAL 1ST CIRCLE ...		292.14	5.00	207.61	440.09	499.75	445.09
2ND CIRCLE.							
Ambala	Ambala ...	88.45	9.00	3.66	28.25	92.11	37.25
	Karnal ...	79.65	...	8.37	...	88.02	...
	Simla ...	5.93	15.80	...	...	5.93	15.80
	Total ...	174.03	24.80	12.03	28.25	186.06	53.05
Gurgaon	Gurgaon ...	47.53	...	...	...	47.53	...
	Rohtak ...	35.25	...	25.57	12.81	60.82	12.81
	Hissar ...	...	...	7.34	89.50	7.34	89.50
	Total ...	82.78	...	33.41	102.31	116.19	102.31
Carried over ...	...	256.81	24.80	45.44	130.55	302.25	155.36
	...	292.14	5.00	207.61	440.09	499.75	445.09

Statement B—continued.

II.—Statement of Provincial Roads not within Municipal Boundaries maintained by P. W. D. and Local Authorities, respectively, during 1920-21—concluded.

Name of Division.	Name of District.	Length of metalled roads maintained by the Public Works Department.	Length of unmetalled roads maintained by the Public Works Department.	Length of metalled roads maintained by the Local Authorities.	Length of unmetalled roads maintained by the Local Authorities.	Total metalled roads.	Total unmetalled roads.
1	2	3	4	5	6	7	8
Brought forward ...	...	292.14	5.00	207.61	440.09	499.75	445.09
2ND CIRCLE—concl'd.	...	256.81	24.80	45.4	130.56	302.25	155.36
Jullundur ...	Jullundur ...	67.50	...	...	...	67.50	...
	Hoshiarpur ...	9.00	...	3.15	28.00	12.15	28.00
	Ferozepore ...	55.43	...	...	...	55.43	...
	Ludhiana ...	66.02	...	10.00	...	76.02	...
	Total ...	197.95	...	13.15	28.00	211.10	28.00
Simla ...	Simla ...	55.23	294.50	2.73	...	57.96	294.50
	Total ...	55.23	294.50	2.73	...	57.96	294.50
3RD CIRCLE.	TOTAL 2ND CIRCLE ...	509.99	319.30	61.32	158.56	571.31	477.86
Lahore I ...	Lahore ...	49.59	...	0.20	18.00	49.79	18.00
	Montgomery ...	...	...	...	15.50	...	15.50
	Total ...	49.59	...	0.20	33.50	49.79	33.50
Lahore II ...	Lahore ...	16.43	...	...	...	16.43	...
	Amritsar ...	44.00	...	11.50	6.50	55.50	6.50
	Gurdaspur ...	45.73	24.62	51.55	23.62	97.28	48.24
	Total ...	106.16	24.62	63.05	30.12	169.21	54.74
Multan ...	Multan ...	11.83	...	...	...	11.83	...
	Dera Ghazi Khan ...	13.40	55.40	3.00	32.00	16.40	375.49
	Muzaffargarh ...	23.25	1.5	...	...	23.25	1.25
	Total ...	48.48	56.65	3.00	32.00	51.48	376.65
Kangra ...	Kangra ...	91.65	319.11	...	...	91.65	319.11
	Total ...	91.65	319.11	...	...	91.65	319.11
Sheikhpura ...	Sheikhpura ...	39.58	...	...	...	39.58	...
	Gujranwala ...	20.02	...	...	...	20.02	...
	Total ...	59.60	...	...	...	59.60	...
	TOTAL 3RD CIRCLE ...	355.48	400.38	66.25	383.62	421.73	784.00
TOTAL ...	PROVINCIAL ROADS...	1,157.61	724.68	335.18	982.27	1,492.79	1706.95

III.—Statement of District Board roads in the Punjab not within Municipal Boundaries maintained by the P. W. D. and the Local Authorities during 1920-21.

Name of Division.	Name of District.	Length of metalled roads maintained by the Public Works Department.	Length of unmetalled roads maintained by the Public Works Department.	Length of metalled roads maintained by the Local Authorities.	Length of unmetalled roads maintained by the Local Authorities.	Total metalled roads.	Total unmetalled roads.
1	2	3	4	5	6	7	8
1ST CIRCLE.							
Rawalpindi ...	Rawalpindi ...	...	...	27.50	734.50	27.50	734.50
	Jhelum ...	...	...	7.37	981.12	7.37	981.12
	Attock ...	...	...	26.00	686.00	26.00	686.00
	Total ...	...	...	60.87	2,401.62	60.87	2,401.62
Sheikhpura ...	Sheikhpura ...	...	...	6.84	1,109.50	6.84	1,109.50
	Minwali ...	...	...	22.00	502.77	22.00	502.77
	Jhang ...	...	...	17.05	751.07	17.05	751.07
	Total ...	...	...	45.89	2,363.34	45.89	2,363.34
Carried over ...	...	...	...	106.76	4,764.96	106.76	4,764.96

Statement B—concluded.

III—Statement of District Board roads in the Punjab not within Municipal Boundaries maintained by the P. W. D. and the Local Authorities during 1920-21—concluded.

Name of Division.	Name of District.	Length of metalled roads maintained by the Public Works Department.	Length of unmetalled roads maintained by the Public Works Department.	Length of metalled roads maintained by the Local Authorities.	Length of unmetalled roads maintained by the Local Authorities.	Total metalled roads.	Total unmetalled roads.
1	2	3	4	5	6	7	8
Brought forward ...	...	...	...	106.76	4,764.96	106.76	4,764.96
1ST CIRCLE—concl'd.							
Lyallpur ...	Lyallpur ...	...	...	29.00	1,078.50	29.00	1,078.50
	Sialkot ...	...	...	55.50	712.25	55.50	712.25
	Gujrat ...	...	...	13.49	662.56	13.49	662.56
	Total ...	...	...	97.99	2,453.31	97.99	2,453.31
TOTAL 1ST CIRCLE ...		...	...	204.75	7,218.27	204.75	7,218.27
2ND CIRCLE.							
Ambala ...	Ambala ...	...	...	100.87	276.69	100.87	276.69
	Karnal ...	...	...	87.56	684.00	87.56	684.00
	Total ...	...	...	188.43	960.69	188.43	960.69
Gurgaon ...	Gurgaon ...	...	...	122.00	539.68	122.00	539.68
	Rohatak ...	...	...	164.00	597.84	164.00	597.84
	Hissar ...	...	...	23.00	856.00	23.00	856.00
	Total ...	...	...	309.00	1,993.52	309.00	1,993.52
Jullundur ...	Jullundur ...	...	...	123.43	309.32	123.43	309.32
	Hoshiarpur ...	...	...	74.67	664.25	74.67	664.25
	Ferozepore ...	...	...	85.19	663.16	85.19	663.16
	Ludhiana ...	...	...	117.58	193.78	117.58	193.78
	Total ...	...	...	400.87	1,835.51	400.87	1,835.51
Simla ...	Simla ...	...	...	...	17.00	...	17.00
	Total ...	...	...	...	17.00	...	17.00
TOTAL 2ND CIRCLE ...		...	...	598.30	4,806.72	598.30	4,806.72
3RD CIRCLE.							
Lahore I ...	Lahore ...	...	...	30.41	606.91	30.41	606.91
	Montgomery ...	...	...	44.50	2,266.00	44.50	2,266.00
	Total ...	...	...	74.91	2,872.91	74.91	2,872.91
Lahore II ...	Amritsar ...	...	...	88.27	274.15	88.27	274.15
	Gurdaspur ...	...	...	38.99	520.54	38.99	520.54
	Total ...	...	...	127.26	794.69	127.26	794.69
Multan ...	Multan ...	...	...	52.37	1,208.09	52.37	1,208.09
	Dera Ghazi Khan ...	...	...	2.25	210.00	2.25	210.00
	Muzaffargarh ...	...	...	25.81	749.88	25.31	749.85
	Total ...	...	...	80.43	2,167.95	80.43	2,167.95
Kangra ...	Kangra ...	...	...	...	987.00	...	987.00
	Total ...	...	...	...	987.00	...	987.00
Sheikhupura ...	Sheikhupura ...	...	...	53.93	622.91	53.93	622.91
	Gujranwala ...	...	...	71.00	869.54	71.00	869.54
	Total ...	...	...	124.93	1,492.45	124.93	1,492.45
	TOTAL 3RD CIRCLE	407.53	8,315.00	407.53	8,315.00
TOTAL DISTRICT ...	BOARD ROADS ...	...	...	1,510.58	20,339.49	1,510.58	20,339.99

