

GOVERNMENT OF THE PUNJAB
MINISTRY OF AGRICULTURE

PUBLIC WORKS DEPARTMENT
BUILDINGS AND ROADS BRANCH

ADMINISTRATION REPORT

INCORPORATING THE REPORTS OF
THE COMMUNICATIONS BOARD,

FOR THE YEAR

1930-31

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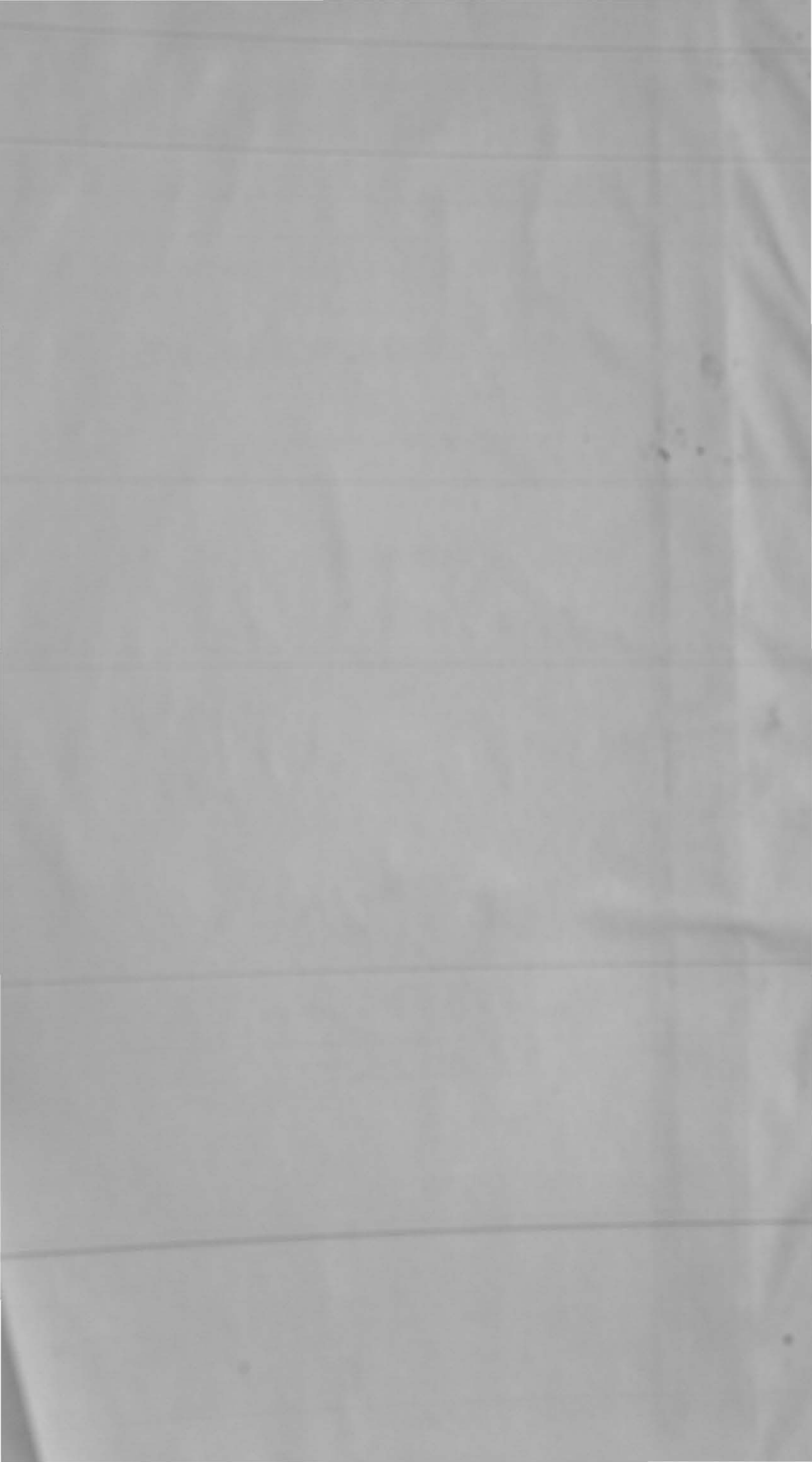


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Lahore :

GOVERNMENT OF THE PUNJAB, DEPARTMENT OF PUBLIC WORKS,
1931



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MINISTRY OF AGRICULTURE

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1931

ADMINISTRATION REPORT, 1936-37.

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**Proceedings of the Punjab Government (Ministry of Agriculture) in the
Public Works Department, Buildings and Roads Branch, No.
1078-G., dated the 17th December 1931.**

READ—

The Administration Report of the Public Works Department, Buildings and Roads Branch, for the year 1930-31.

The total expenditure for the year was Rs. 1,56,62,407 against Rs. 1,34,84,839 for the preceding year.

The incidence of overhead charges on works outlay received special scrutiny during the year under review and revealed the interesting fact that the average percentage of these charges over a five years' period was below ten per cent. This figure takes into account the extraneous works done by the Department apart from the execution of original works and maintenance and repairs of existing roads, bridges and buildings. The expenditure on establishment is not actually allocated between the various activities of the Department, as the accounting system is framed primarily for purposes of audit on non-commercial lines. It is, therefore, all the more necessary to go into further details in working out the charges, as attempted this year, and properly assess the true incidence of overhead charges on the actual execution of works and repairs.

Communications.—Two thousand six-hundred and sixty-seven miles of metalled road and 1,952 miles of unmetalled road were in charge of this Branch at the end of the year—an increase of 54 and 102 miles, respectively, over the previous year. There remain now under the second instalment of the Road Reclassification Scheme only 47.34 miles of metalled and 304.82 miles of unmetalled road to be taken over from District Boards, when funds permit.

The opening paragraphs of Chapter II of this Administration Report review in some detail the present situation in the Province as regards communications generally. Stress is rightly laid on the great economic, social and administrative value of roads to all sections of the community, and particularly to the rural section, to whom it provides cheaper transport and better marketing facilities. The simple illustration mentioned in Chapter II that if the saving in transport due to a metalled road is one pice per maund per mile, and only ten bullock carts use it each day, the savings would pay for construction and maintenance, is not only instructive but valuable evidence of the benefits which roads bring to the community. It is a matter of regret to the Ministry that the programme of expansion of communications has had to be curtailed owing to acute financial stringency.

To conserve the work so far achieved and to reap the maximum benefit from the large expenditure already incurred on roads it is essential to maintain them, and this costs money which is now, it is hoped, temporarily scarce. There are times in the history of a road which are marked by critical phases when the methods of construction and upkeep require to be radically changed to cope with new forms of traffic. Until recently ordinary water bound macadam could withstand the slow moving traffic which it was called on to carry; with the advent of high speed motor traffic in ever increasing quantity, it was found that unsurfaced water bound macadam would not last three years and surfacing with bit or other waterproofing material became an economic necessity as it increased, under modern conditions of traffic, the life of the metalling by two or three times. The Ministry of Agriculture notes with approval the earnest efforts being made to make the available resources go as far as possible, and is pleased to see that in spite of limited funds it has been found possible to surface treat out of ordinary maintenance grants, 200 miles in the year under review.

Bridges.—No less than 12 major bridges were either under progress, or completed, during the year. The construction of the road-cum-railway bridges over the River Jhelum at Khushab and over the river Chenab at Chiniot made good progress, while the combined rail and road bridge over the river Ravi near Dera Baba Nanak was practically completed and opened to traffic. Work was put in hand to replace by a new bridge of modern construction, the old timber bridge over the Shikhar Nullah in mile 74 of the Grand Trunk Road, near Gujrat, which was found to be in a very advanced stage of decay.

A start was made on the construction of the proposed new bridge over the Jhelum River at Kohala at the site of the old suspension bridge; but work had to be abandoned owing to the Kashmir Durbar's preference for the route *via* Abbottabad to the one through Rawalpindi and Maroo. The matter is still the subject of correspondence and it is hoped that it will still be possible to retain this half a century old route along which large interests have grown up.

Quarries.—The output from the quarries owned by the Buildings and Roads Branch was comparatively small this year, owing to a very large fall in demand for material, due partly to change in methods of road maintenance and partly to other causes.

Buildings.—The total cost of buildings erected during the year was Rs. 37,45,740. Jail buildings were again the largest item, closely followed however, by those for the Education Department, Civil Works and General Administration (Transferred). The expenditure under major heads on buildings (Original Works and Repairs) was—

Departments.	Major Heads.		
	A—Civil Works.	B—Civil Works—Capital Expenditure.	C—Capital Expenditure—Industrial.
	Rs.	Rs.	Rs.
General Administration (Reserved)	96,330	—	—
General Administration (Transferred)	4,96,302	1,00,000	—
Administration of Justice	1,04,060	—	—
Jails and Conriet Settlements	4,21,000	—	—
Police	1,30,000	—	—
Education	2,04,000	—	—
Medical	4,30,000	1,00,000	—
Public Health	21,000	—	—
Agriculture	1,00,000	4,000	—
Industries	90,000	—	4,000
Civil Works	4,00,000	1,00,000	—
Stationery and Printing	90,000	—	—
Miscellaneous Departments	10,000	—	—

The scheme for housing the Indian Clerks in the "Chambers Gardens Estate" was divided into four parts. The work on the final installation is now complete with the exception of the road and compound wall which will be built during 1931-32 provided funds are available. The quarters are in much demand and have all been occupied.

The New Central Jail, Multan, was completed at a total cost of Rs. 19,03,418 and brought into use in October 1930. The new Civil Hospital at Multan was also completed at a cost of Rs. 3,40,000, and

and over to the Hospital authorities on the 1st November 1930. Good progress was made on (1) the Maternity Hospital Buildings, Lahore, which is still in progress, the completed portions having already been brought into use, (2) the Normal and Middle School and Boarding House for Girls, Hoshiarpur, estimated to cost Rs. 1,76,517.

Public Health.—In spite of the prevailing financial stringency which was more acute this year than in the preceding one, the Public Health Clerk has lived up to its traditions of rendering valuable services to the Province both in the matter of maintenance of sanitary installations and construction of contribution works for municipalities and other local bodies. Projects estimated at Rs. 74,87,841 were prepared during the year against Rs. 74,60,000 and Rs. 41 lakhs prepared during the previous two years, respectively.

Electrical Engineering.—The activities of this branch are steadily on the increase, and the Electrical Engineer and his staff have been very fully occupied owing to the expansion of electrical undertakings in the Province.

Engineering Education.—(a) *The Maclagan Engineering College.*—For the period under review the numerical strengths of the various classes in the College were "A" class 63 and "B" class 217.

The Associate Membership Examination of the Institution of Mechanical Engineers was held for the second time in Lahore in October, 1930. Five students sat for one or more parts of the examination and did exceptionally well.

The examination for the Associate Membership and Graduateship of the Institution of Electrical Engineers was held during the months of May and November 1930, respectively. Twenty-five students sat and passed in every part for which they entered.

Seven students passed different examinations of the City and Guilds, London.

Competition for admission to the "B" class is still very keen, 435 candidates competing for 40 vacancies.

The health of the students in the College has been very satisfactory. This is largely due to the strict inspection and supervision by Dr. Rodgers of the North-Western Railway and the staff of the domestic arrangements and the encouragement given to the students to take part in all games.

The students show great keenness in games, tennis, football, hockey and cricket being most popular.

The net cost to Government on the year's working amounted to Rs. 1,41,306 as compared with Rs. 2,66,264 the year previous which worked out to Rs. 862 per student as compared with Rs. 1,065 in the previous year.

(b) *Government School of Engineering.*—In the final examination for completion at the end of the two year course, 44 students obtained the higher certificate (16 "Honours" and 22 "Credit") and 25 obtained the lower or "Ordinary" certificate. Three students, all State candidates, failed completely.

Of those completing their first year in the 2 year overseer course, 87 out of 91 qualified for admission to the 2nd year, two students having dropped out owing to illness.

In the draftsmen class examination at the end of the 2nd year, 8 out of 9 students appearing qualified, one obtaining "Honours", four "Credit" and three "Ordinary" passes, one failed.

Fourteen students in the 1st year class qualified for the 2nd year, and one failed.

Nine out of the ten subordinates who took the annual course in Reinforced concrete qualified.

The annual competitive examination for admission to the overseer and draftsmen classes was held as usual in Lahore in November 1930.

The numbers of Muslims and Agriculturists admitted to the school were higher than in the preceding year, but still low in comparison with the percentages of vacancies open to these categories.

Muslim and Sikh candidates for the draftsmen class were again very few and mostly failed to qualify. It is not possible as yet to apply communal percentages to the admissions to this class.

Special attention was paid to physical and military drill, which proved popular among the students.

It is gratifying to note that in spite of the acute financial stringency 14 out of the 56 British Punjab students overseers who qualified at the end of the session obtained employment.

Outside Examiners undertook the examination in the second year final examination for Surveying and Applied Mechanics. Their reports were favourable.

The net cost to Government on the year's working amounted to Rs. 1,02,705 compared with last year's figure of Rs. 94,169, giving a total cost to Government per student of Rs. 580 against Rs. 561 last year.

Administration.—During the year under review Mr. W. S. Dorman officiated as Chief Engineer and Secretary to Government till the afternoon of 4th February 1931, when he retired on relief by Mr. E. L. Crawford. The Punjab Government (Ministry of Agriculture) wishes to record its appreciation of the year's working under the able administration of Mr. Dorman whose retirement is a loss to the Department with which he was connected for thirty years. The Punjab Engineering Congress, in the founding of which he took so prominent a part, is a standing monument to his untiring zeal in the advancement of Engineering in general in the Province.

JOGENDRA SINGH,
Minister for Agriculture.

By order of the Punjab Government,
E. L. CRAWFORD,
Secretary to Government, Punjab,
P. W. D., Buildings and Roads Branch.

ADMINISTRATION REPORT OF 1930-31.

CHAPTER I.—Administration.

Secretariat.—Mr. W. S. Dorman, officiated as Chief Engineer and Secretary to Government, Punjab, Public Works Department, till the afternoon of 4th February, 1931, when he retired on relief by Mr. E. L. Crawford, who remained in charge of the office till the close of the year under review.

Mr. D. Macfarlane continued as Deputy Chief Engineer and Deputy Secretary to Government up to the forenoon of 3rd November, 1930, when on abolition of the post he relinquished charge and proceeded to Multan in charge of the amalgamated office of the Superintending Engineer, IV Circle, and Secretary, Communications Board, Punjab.

The post of Under-Secretary was held by Mr. R. Trevor Jones throughout the year.

Mr. G. E. J. Haegert held the post of Assistant Secretary.

Circles.—The charge of the 1st Circle of Superintendence was held by Rai Bahadur Lala Sant Ram, Superintending Engineer, throughout the year under review.

Mr. A. K. Cargill, Officiating Superintending Engineer, held charge of the II Circle of Superintendence throughout the year.

Mr. E. L. Crawford, Superintending Engineer, held charge of the III Circle up to the afternoon of 4th February 1931, when, on his appointment as Officiating Chief Engineer and Secretary to Government, Punjab, he handed over to Dewa Dutt Singh who remained in charge for the remaining period.

The charge of the IV Circle of Superintendence was held by Mr. L. H. M. Heathcote up to 3rd November, 1930 (afternoon) when he was relieved by Mr. D. Macfarlane who took charge of the Circle till the close of the year.

The post of Superintending Engineer, Public Health Circle, Punjab, was held by Rai Bahadur Lala Amar Nath, Nanda, B.A., M.I.E., (Ind.) throughout the year.

Electrical.—The charge of Electrical Circle was held by Mr. F. L. Milne throughout the year.

Architectural Circle.—Mr. B. T. Russell was in charge of office of Superintending Architect, Architectural Circle, up to 15th October, 1930 (afternoon). Mr. W. S. Dorman held charge of this office in addition to his own duties as Chief Engineer from 15th October, 1930 (afternoon) to 20th October, 1930 (forenoon), till the return from leave of Mr. B. M. Sullivan who resumed charge of the Architectural Circle from 30th October, 1930 (forenoon).

Communications Board.—Mr. L. A. Freak, Executive Engineer, acted as Secretary to the Board till the 29th October, 1930, when on account of financial stringency, the post of a whole-time Secretary was abolished and the charge of the office was held for the remaining period of the year by Mr. D. Macfarlane, in addition to his own duties as Superintending Engineer, IV Circle, with Headquarters at Multan.

The strength of the Engineering Staff and the office establishment of the Communications Board was also reduced, and the services of only two Assistant Engineers, one Head Clerk, one Record Keeper, one Auditor and one Mechanical Assistant only, were retained. The Engineering Staff and the office establishment were accommodated at the Circle Office buildings at Multan.

Engineering Education.—Mr. C. E. Blaker continued as Principal of the Government School of Engineering, Punjab, Rasul, and Captain H. Whittaker as Principal of the Muzhapur Engineering College, Moghalpura, throughout the year.

Divisional Changes.—In the First Circle of Superintendence the Jhelum Provincial Division was abolished on 30th April, 1930, when the Gujrat, Jhelum and the Quarry Sub-Divisions were added to the Shahpur Division. The last Sub-Division was later transferred to the Rawalpindi Division on 22nd July 1930 (forenoon) and finally abolished on 25th September 1930 (afternoon).

In the Second Circle No. 1 Simla Sub-Division was closed down temporarily for the period from 9th January, 1931, to 15th March 1931, as all work on the Hindustan-Tibet Road was suspended.

In the Third Circle, the III Lahore Provincial Division was abolished on 15th May 1930 and amalgamated with the 1st Lahore Provincial Division.

In the Fourth Circle, owing to paucity of funds, the II Multan Provincial Division was closed down on the afternoon of 11th October 1930 and the Burewala Sub-Division transferred to the Montgomery Provincial Division, and "B" Multan Sub-Division to the Multan Provincial Division.

Prior to 10th October, 1930, there were two Sub-Divisions attached to the Montgomery Provincial Division, namely, the Arifwala and the Montgomery Sub-Divisions. The former was abolished on the 10th October 1930 and replaced by the Burewala Sub-Division, transferred on the 11th October 1930, from the defunct II Multan Provincial Division.

In the Public Health Circle, a new Sub-Division known as the Estate Public Health Sub-Division, Lahore, was opened on the 16th June, 1930, for the management of the Indian Clerks' Quarters Estate at Chamberj Garden and other residential Estates at Lahore in charge of the department.

Expenditure and Establishment.—The following statement shows the expenditure incurred in the Buildings and Roads Branch during the past five years and the percentage of establishment to total expenditure:—

Year.	Total expenditure, lakhs of Rs.	Cost of establishment, lakhs of Rs.	Percentage.
1926-27	176.24	23.73	13.4
1927-28	236.98	26.23	11.08
1928-29	247.29	25.45	10.3
1929-30	194.64	27.94	14.3
1930-31	156.62	27.96	17.8

The percentages worked out in this table are based on the total expenditure in the department including that on engineering education. These figures do not in consequence correctly represent the percentage of establishment charges based on the expenditure on works for which the Buildings and Roads Branch is responsible. As a step in this direction it has been decided that in future expenditure on engineering education should be omitted from these calculations; worked out on this principle, the expenditure on establishment for 1930-31 comes to 17.8 per cent. of the total. This again, however, does not correctly represent the true percentage of establishment charges for execution of works. The expenditure on establishment (exclusive of expenditure on engineering education) still includes cost of all extraneous work done by the department for which there is no corresponding works outlay. For instance, only about 50 per cent. of the expenditure on Electrical Engineer's establishment is normally incurred in execution of works while the other 50 per cent. is due to the establishment needed for execution of duties imposed on the Electrical Engineer as Electrical Adviser to Government under the Electricity Act. Only a portion of the expenditure on Secretarial establishment is "directional" expenditure or expenditure connected with direction of works and the balance is due to other administrative duties unconnected with works, such as—

- (i) acquisition of land for railways and other work necessitated by the Provincial Government being in the position of a Local Government for the purposes of the Indian Railways Act;
- (ii) scrutiny and approval of works of local bodies;
- (iii) preparation of projects which never fructify;
- (iv) meetings on various subjects;
- (v) duties in the capacity of being Technical Adviser to Government;

(vi) recruitment of engineer establishment for other than Public Works Department works;

(vii) arrangements in connection with supply of cement to all Government Departments including the North-Western Railway, North-West Frontier Province and Military Engineering Service. The turnover exclusive of railway freight amounts to over 15 lakhs of rupees.

The local Public Works Department officers have also to divert some of their time to (vi), (vii) and (c) above. These percentage figures are further vitiated by the fact that recoveries by Government for establishment charges on account of works executed by this department, in previous years, for other departments and local bodies are not set-off against expenditure on establishment but are credited to provincial revenues. Such receipts should legitimately go towards reduction of establishment expenditure in the year in which the amount is recovered.

The large amount of work involved in collection of rents aggregating to over 5½ lakhs of rupees per annum is not reflected in the percentage charges based on expenditure on works.

It has been computed that expenditure on these extraneous items is about 21 per cent. of the total expenditure on establishment. Worked on this basis the figures for the year 1930-31 will become :—

Year.	Total Expenditure on works.	EXPENDITURE ON ESTABLISHMENT.			Percentage of figures in column 5 to those in column 2.	Net percentage after deduction of 25 per cent. on account of extraneous work.
		Total Expenditure.	Full cost of engineering education.	Net Expenditure.		
1	2	3	4	5	6	7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1930-31	1,25,18,217	27,36,208	5,46,113	21,90,095	17.8	13.3

CHAPTER II.—Roads.

Provincialization of Roads.—During the year 0·66 mile of metalled and 138·44 miles of unmetalled roads were taken over for maintenance from Provincial funds, making the total mileage maintained at the end of the year, 2,667·084 miles of metalled and 1,952·255 miles of unmetalled roads.

Out of these, only 0·66 mile metalled and 2·18 miles unmetalled roads were taken over under the second instalment of the Road Reclassification Scheme, leaving 47·34 miles of metalled and 304·82 miles of unmetalled roads still to be transferred to the Public Works Department under the scheme. With the unfortunate advent of financial stringency, further progress in the matter of provincialization of roads must necessarily be slow, and this perhaps is the time to review achievements in establishing through road communications since the inception of the reclassification scheme.

Reclassification of the Punjab roads was taken in hand in 1923-24, and roads were divided into three classes :—

- (i) Arterial roads, i.e., roads of provincial importance, connecting district headquarters and towns with population of 20,000 and above, and other places of importance. The maintenance and improvement of these roads henceforward became the sole responsibility of the Public Works Department.
- (ii) Main roads, i.e., roads of secondary importance, passing usually through more than one district and connecting municipalities and notified areas, of a population of 5,000 and over, with each other, with the Railway, with important bridges or ferries, and with the arterial system, or connecting important trading centres and places of pilgrimage with the Railway, or with the arterial road system and connecting all taluk headquarters with district headquarters. These roads are maintained and improved by the District Boards, at the joint cost of Provincial and District revenues, provincial share varying from annas four to annas eight in the rupee, to be determined in each case.
- (iii) Other roads, i.e., those not included in classes I and II above.

Forty-two lines of communication have been arterIALIZED to date. These comprise the following :—

Arterial No.	Name of Road.	Arterial No.	Name of Road.
1	Grand Trunk Road.	21	Sahaspur-Karakohates.
2	Lahore-Sargodha-Mianwali.	22	Rohtak-Bhawal.
3	Lahore-Lyallpur-Bhakkar.	23	Sohna-Bawal.
4	Lahore-Multan-Quetta.	24	Muzaffargarh-Alipur.
5	Lahore-Ferozapore-Ludhiana.	25	Dera Ghazi Khan-Mithankot.
6	Delhi-Multan.	26	Montgomery-Asiwal-Katalah.
7	Delhi-Alwar.	27	Montgomery-Pakistan.
8	Hatti-Campbellpore-Dhok Pathan.	28	Lyallpur-Sargodha.
9	Rawalpindi (Tarnaul)-Khushalgarh.	29	Sambhal-Gujranwala-Pindi Bhittian-Jhang.
10	Fatehjang-Talagang-Mianwali.	31	Lahore-Moga.
11	Rawalpindi-Murree-Kashmir.	32	Jaranwala-Chana.
12	Jhelum (Sohawa)-Talagang.	34	Amritsar-Sialkot.
13	Wazirabad-Sialkot-Kashmir.	35	Gujra-Bhokot.
14	Amritsar-Pathankot-Kala.	36	Sompat-Rohtak.
15	Pathankot (Chakki)-Dalhousie.	37	Karnal-Kathal.
17	Ferozapore-Fazilka.	39	Tota Tak Singh-Chudhewani Bawal.
18	Jullundur-Hoshiarpur-Dharmala.	41	Kahirwala-Jhang.
19	Delhi-Muttra.	42	Muzaf Sompat.
20	Ambala-Simla-Tibet.		

It is now possible to motor, although in some cases in fair weather only, between places such as—

- (1) Lahore and Mianwali.
- (2) Lahore and Bhakkar.
- (3) Lahore, Multan, Dera Ghazi Khan and Bahawal.
- (4) Delhi, Hissar and Malaut.

- (7) Pakpattan and Multan.
- (8) Rawalpindi, Khushalgarh and Kohat.
- (9) Bahawalpur, Chakwal, Talagang, Pindigheb and Campbellpur.
- (10) Jallandar and Dharmasala.
- (11) Lyallpur and Sargodha.
- (12) Sialkot, Gujranwala, Pindi Bhattian and Chiniot.
- (13) Toba Tek Singh, Kamalia and Burewala.
- (14) Jhang and Kabirwala.

Apart from the development of the area through which arterial and main roads run, direct benefit has accrued to local bodies who have been relieved of maintaining great lengths of roads running through their jurisdiction ; entirely in the case of arterial, and partly in the case of those classified as main roads.

Cost of maintenance and tarring.—As adequate funds are not now forthcoming for maintenance owing to financial stringency, this department must strain every nerve to explore all possible avenues with a view to reduce to the bare minimum, compatible with reasonable efficiency, these charges which now average Rs. 1,700 per metalled mile.

Past experience has shown that ordinary water-bound roads cannot withstand the onslaughts of modern high speed traffic, and it has become essential in the interest of the very existence of this service in the Punjab that road surfaces should be preserved with coatings of tar, or similar material, which will not only give increased life to the surface, but will also do away with the dust nuisance. The policy has been adopted of tarring roads as funds permit. Notwithstanding the adverse financial position it has been found possible to tar about 320 miles during the year.

It was not possible to resurface all worn out miles with the usual thickness of new metal. A large programme of scarifying old surface and reconsolidating it in some cases without any additional metal, and in others with only a moiety of it was satisfactorily carried out.

During the year under review the provincial sources of grants for roads were augmented for the first time by an allotment of Rs. 11.80 lakhs from the Central Road Fund. A comprehensive programme of works to be carried out against the grant was prepared, but owing to the long time taken in completing preliminaries, the actual expenditure during the year was relatively small. The balance of the grant had, therefore, to be carried forward to the ensuing year. In view of the acute financial stringency still continuing, all fresh schemes of new development have practically been stopped and, at the risk of going beyond the period under review, it may be added that the Legislative Assembly has adopted a resolution authorizing the local governments to utilize the grants from the Central Road Fund on maintenance of roads provided the amount so used on maintenance is re-allotted for development works approved by the Governor-General in Council, when the financial position improves. This, it may be hoped, will prevent to some extent the further reduction in maintenance grants of roads, and will thus, in the long run, be a real source of economy to Government as using a road without properly maintaining it is like living on one's capital. A road once allowed to fall in disrepair has often to be reconstructed from its very foundation.

It is unfortunate that all new development which promised well at the inauguration of the Central Road Fund is now at a standstill, and there is small hope of reviving activities in this direction for some years to come. This seriously affects the prosperity of all sections of the community and particularly its rural section, as the consumer's need to-day is facility for taking his produce to the markets at cheap rates. That metalled communications pay for themselves can perhaps best be shown by the simple illustration that if the difference in transport owing to the metalling is only one pice per maund and an average of 25 carts ply on a road the saving is equal to maintenance and interest charges on the capital expenditure. This further brings out the fact that, what appears *prima facie* to be unproductive expenditure of the department, is really of immense monetary benefit to the community and therefore ultimately to the coffers of Government.

Arterial No. 1.—The Grand Trunk Road.

The old timber superstructure of Bridge No. 182, in mile 185 of this road, was dismantled and replaced at a cost of Rs. 14,000 by reinforced concrete decking on R. S. joists and the bridge was opened to traffic on 1st April 1931.

The new bridge, started last year, over the Chai Nullah in mile 218, consisting of R. S. joists supported on R. C. columns and R. C. pile foundations, and decked with R. C. slabs was completed during the year, and opened to traffic on 10th October, 1930.

The construction of the Attock abutment of the road bridge over the river Haro, in mile 208 of this road, in reinforced concrete on well foundations which was started last year was completed during the year, and the new steel girders and decking of the 155 feet span, which collapsed during the heavy floods of August 1929, was erected by the bridge Department of the North-Western Railway. After the reinforced concrete decking slab was laid and the roadway completed, the bridge was opened to traffic on 20th February 1931.

The new bridge over the Dhamrah Nullah in mile 196, near Wah, consisting of R. C. decking, supported on R. S. joists spanning R. C. piers founded on Vibro Piles, which was taken in hand in March 1930, was completed during the year and opened to traffic.

The old timber bridge over the Bhimber Nullah in mile 74, near Gujrat, was found to be in a very advanced stage of decay. It was therefore decided to replace it by a new bridge of modern construction.

A project was, therefore, sanctioned for a bridge of R. C. design, founded on Vibro Pile foundations, on an alignment upstream of and close to the Railway bridge and the work was put in hand in the month of March 1931. Tarring of certain newly consolidated miles on this road in the Gujratwala district, in progress from the last year, was completed at an expenditure of Rs. 14,738.

Owing to heavy traffic on the Lahore-Amritsar Section of this road it was decided to widen the metalled surface. The work on the portion from Attari to Amritsar, in progress from last year, was practically completed. The widening of the portion from Lahore to Attari is held in abeyance for want of funds.

Expenditure amounting to Rs. 22,634 and Rs. 21,228 was incurred on special repairs to the protection works round the piers of the bridges over the Sutlej and Beas rivers.

Arterial No. 2.—Lahore-Sargodha-Mianwali.

In the section between Chuharkana and Pindi Bhattian, the work of increasing the existing road land width to 120 feet was undertaken and practically completed during 1928-29, with the exception of adjustment of cost of land to be acquired near Khangah Dogran town which will be done during 1931-32.

The metalling of section Pindi Bhattian to Chenab (4) miles in progress from last year, was completed at a total expenditure of Rs. 1,36,553.

Some more culverts between Bhagtanwala and Sargodha on the section Chenab river to Sargodha of this road were widened to the full formation width during the year.

In the section, Sargodha to Khushab, the work of improving six and a half miles of this road from Shahpur to Khushab has been nearly completed and will be brought in use after the roadways on the new bridge over the River Jhelum is completed. The earth-work, damaged by floods of 1929, was replaced, and gaps, bridges and culverts provided, to deal with the highest floods.

The construction of the road-over-Railway bridge over the Station at Khushab which is in hand by the Railway Department, made great progress during the year. The Railway track was completed and opened to traffic in April 1931, and the roadways on either side are expected to be ready by August 1931.

In the Khushab-Mianwali section good progress was made, and some improvements chargeable to Central Road Funds and costing in all about Rs. 50,000 were sanctioned during the year. These consist of—

- (1) realigning the old road to meet modern requirements;
- (2) providing culverts for passing storm drainage water across the road and raising the formation in certain lengths;

(3) providing a proper level crossing on the Railway line near Wanbhakran.

Arterial No. 3.—Lahore-Lyallpur-Bhakkar.

The metalling of section, Mangtanwala to Bucheki (12 miles), in progress from last year, was completed at a total expenditure of Rs. 3,99,480. The Public Works Department Rest House at Bucheki was also completed. The work left unfinished last year on the Bucheki Jaranwala portion was completed this year, except surface tarring, of which only eight and-a-half miles could be done with the funds available during the year. The road was realigned in mile 62 by constructing a new bridge over the Dulchi Minor. The alignment of the unfinished portion of this arterial road between Lyallpur and Jhang has now been taken *via* Sarhamir and Mochiwala, instead of *via* Gojra; the distance between the two District Headquarters has thus been reduced by about nine miles.

Arterial No. 4.—Lahore-Multan-Quetta.

Before the transfer, about five years ago, of this road to the charge of this Department, the Lahore-Multan Road was a *katcha* road maintained by the District Boards of the respective districts through which it passed. Metalling of this road was gradually put in hand and now extends to milestone 35 from Lahore. Further progress depends upon the availability of funds.

With the exception of 2 furlongs in mile 17 which could not be completed till a new bridge was built by the Irrigation Branch, the portion near Chung, miles 14-15, was completed during 1928-29 at a cost of Rs. 73,174. As this bridge was not built on the skew, a fresh alignment of the road became necessary, and this will be completed during 1931-32, and the additional cost involved will be met by the Irrigation Branch.

At Bhai Pheru the road is about 10 miles from the Railway line and about the same distance from Halla. The alignment here presented two alternatives: (i) to continue the metalling, already completed up to Bhai Pheru to Halla, and then to make for Pattoki, or (ii) to cut out Halla and go direct from Bhai Pheru to Pattoki. The latter course, estimated to cost Rs. 4,37,616, was sanctioned during the year and the work started. Earthwork in miles 36-41 has been completed and the construction of 2 feet span culverts is in hand.

At one time this road ran from Bhai Pheru to Halla and then to Multan *via* Gogera, Hazrupa, Tulamba and Kabirwala towns, keeping about ten miles or so to north of the Lahore-Multan Railway line. A new alignment has now for some time been followed from Kabirwala from which a road runs to Khanewal. The alignment follows the Railway line from Khanewal to Montgomery and from there up to Wan Radha Ram.

The metalling of the Pattoki-Wan Radha Ram Section was sanctioned at an estimated cost of Rs. 2,16,000. A service road was made and maintained in this section. The work on road formation and collection of bricks and stone material was done to the extent of Rs. 31,287.

The tarring of the road surface in the Sections, Wan Radha Ram to Renala and Montgomery to Hazrupa, was done, and drainage culverts between Montgomery to Sahiwal were constructed. The work on the extending and metalling of the section Kabirwala to Multan, most of which has been done last year, was completed this year, with an expenditure of Rs. 7,01,626 against the sanctioned estimate of Rs. 7,14,000.

Arterial No. 5.—Lahore-Ferozepore-Ludhiana.

The widening of miles 22-24, 33-35 and 38 and the tarring of 10½ newly consolidated miles of this road in the Lahore district, being in progress from last year, have been completed during this year.

The new road bridge over the river Sutlej near Ferozepore with its approaches was opened to traffic last year, having been completed at an expenditure of Rs. 11,09,331 against the estimated cost of Rs. 12,85,131. The accounts have not yet been closed as the cost of land has yet to be adjusted with the North-Western Railway.

Arterial No. 6.—Delhi-Multan.

Section Hissar to Badopal.—The metalling of this section of the road was completed in 1928-29, but the accounts were re-opened to adjust an outstanding item. An expenditure of Rs. 1,78,096 was incurred on the work against the estimated cost of Rs. 1,72,577.

Section Badopal to Sirsa.—An expenditure of Rs. 4,36,314 has so far been incurred in connection with the metalling of this section against the sanctioned estimate of Rs. 6,33,406. The soling coat in several miles has been collected but not yet laid down, as the work is held up for want of funds.

Section Sirsa to Dabwali.—The work on demarcating road boundaries of miles 158 to 195 and widening the same between village Bahawal and Dabwali which is being financed from the Central Road Funds is in progress. An expenditure of Rs. 2,798 was incurred during the year against the sanctioned estimate of Rs. 69,600. The compensation for land has not yet been paid.

Section Dabwali to Malaut.—The metalling of this section was completed during the year at the total cost of Rs. 3,44,019 against the sanctioned estimate of Rs. 3,93,223.

Section Mandi Malaut to Abohar.—The work of widening this section was commenced and an expenditure of Rs. 678 was incurred against the sanctioned estimate of Rs. 86,197. The land has not yet been paid for; the work is in progress and is being financed from Central Road Grant.

Section Abohar to Fazilka.—The work of metalling this section was completed at a total cost of Rs. 3,96,674 against the sanctioned estimate of Rs. 4,14,262.

Section Fazilka to Sulemanki.—The work of metalling this section is in progress; an expenditure of Rs. 1,71,609 has so far been incurred against the sanctioned estimate of Rs. 2,38,176. Miles 263 and 264 yet remain to be done.

Arterial No. 11.—Rawalpindi-Murree-Kashmir.

Miles 63 and 64 of this road between Kanerka and Kohala on the section Murree to Kohala were realigned, regraded and raised above H. F. L. of 1929 at a cost of Rs. 80,000.

The abnormal floods of 1929 rendered unsafe the bridge over the Jhelum at Kohala and traffic had to be restricted. After a deal of discussion between the Kashmir Darbar and the Punjab Government, on a suitable site for a new bridge, the former communicated their intention of abandoning the Murree-Kohala route to Kashmir in favour of that via Abbottabad and Doodh. The proposal to abandon the former half of a century old route on which depends the prosperity of Rawalpindi and a large tract of country along which have grown up large vested interests has caused great concern to townsmen who are exploring all avenues with a view to retain this historic route.

A scheme was prepared during the year to erect a suspension foot bridge over the river in the event of the existing damaged bridge collapsing, but was happily not required to be carried out.

Arterial No. 14.—Amritsar-Pathankot-Kala.

The reconstruction of the Binwan Khud Bridge near Daspath in the Kangra District was completed by the North-Western Railway on behalf of this Department; a final revised estimate for the work amounting to Rs. 1,37,341 was sanctioned during the year, but accounts have not been closed yet.

Arterial No. 17.—Ferozpur-Fazilka.

The work of widening and metalling the Ferozpur-Jalandhar Section of this road was commenced on 4th July, 1930, against funds from the Central Road Grant. The metalling of 3 miles at Ferozpur was started. Working coat has been collected in two miles and the soling coat laid. An expenditure of Rs. 21,372 has been incurred during the year on this work against the sanctioned estimate of Rs. 5,73,821.

Similarly the work of widening and metalling the Jalandhar-Fazilka Section financed from the Central Road Fund was also started on 1st December, 1930. The metalling of three and-a-half miles at Fazilka where there is deep sand

was commenced and the soling coat in three miles and wearing coat in two miles has been collected. An expenditure of Rs. 26,746 was incurred against the sanctioned estimate of Rs. 4,38,183.

Arterial No. 18.—Jullundur-Hoshiarpur-Dharmasala.

Remotalling of miles 26, 27 and 28 of this road in Hoshiarpur district was commenced on 17th November, 1930. Soling coat of bricks has been laid on the entire length of the road estimated for, and 18,000 c.ft. of stone ballast collected. An expenditure of Rs. 19,899 was incurred against the sanctioned estimate of Rs. 58,371. Further work has been stopped for want of funds owing to financial stringency.

The section of the road from Kangra to Bharwain has some very steeply graded lengths.

The various gradients and curves on this section had to be improved to cope with the wheeled traffic which is steadily and considerably increasing. This road carries a large volume of pilgrim traffic to Juwala Mukhi. The work of improving this portion of the road as an arterial road was decided upon in the order given below:—

- (a) Kangra to Ranital.
- (b) Dera Gopipur to Bharwain.
- (c) Ranital to Dera Gopipur.

(a) and (c) were to be taken up first and (b) on the completion of these sections. During the year an estimate was sanctioned provisionally for Rs. 1,44,736 for the section from Kangra to Ranital. The work on miles 85—87 of this section, being most dangerous, has been put in hand first.

Arterial No. 20.—Ambala-Simla-Tibet.

The Ghaggar ferret.—The rains were heavy this year, and the ferry over the Ghaggar river was frequently used. It took across 1,250 motor cars and horses during the year, the greatest number being 60 on the 5th and 17th July, 1930. There is a proposal to declare this ferry a public ferry.

The wire mattress road and the boats continue to give satisfaction, and are of great help to the travelling public.

The absence of a road bridge across the river Ghaggar continues to be loudly felt by all sections of the community.

Arterial No. 21.—Saharanpur-Kurukshetra.

The construction of a new bridge in mile 21/1 of this road was commenced on 1st October, 1930, and was completed out of funds from the Central Road Fund, at a cost of Rs. 18,772 against the sanctioned estimate of Rs. 20,088.

A diversion is also being made past Ladwa town on this road, and is being financed from the same source. Award for land was announced in March 1931, and Rs. 9,741 on account of land compensation will be debited to the work in accounts for March 1931 supplementary.

Arterial No. 28.—Lyallpur-Sargodha.

Section Lyallpur to Chinot.—Funds for the improvement of this road were allotted by the Central Government from the Central Road Fund. Between Lyallpur and Chinot, land was acquired for diversion for improving the alignment of the road, near Saring Minor in mile 3, and Kamalpur village in mile 9; and the culverts required on the canal minors in the diversions were constructed. Some work culverts near the Chinot end have also been rebuilt.

Section Chinot to Chenab River.—In this section the road has been widened and metalled with stone, full 110 feet of land width has been acquired, and necessary culverts, etc., provided.

The construction of the Road-cum-Railway Bridge over the Chenab at Chinot, which is in hand by the Railway Department, saw good progress on the girders and abutments. Girdler erection has also been started, but the bridge is not expected to be ready till about the middle of 1932.

Section Chenab to Durg-Sargodha District Boundary.—On the Sargodha side of the river, two important diversions of the existing road have been carried out, one to avoid the detour round the hill near the river bank and Ahmadnagar

village, and the other near Lalian where necessary land has been acquired to avoid crossing the Railway line twice and passing through the village. Four sandy miles have been metalled, and all new culverts, required on the section, have been constructed and old ones improved. The road is, thus, now motorable from Chiniot to Jhang-Shahpur Boundary all the year round, except for the crossing of the river, on which a bridge is being constructed by the Railway Department.

Section Jhang-Shahpur District Boundary to Sargodha.—Here some diversions have been made to improve the alignment. Narrow culverts have been widened and improved, and the existing metalled miles have been surfaced with tar. It is proposed next year to widen some important bridges and culverts over canal minors and distributaries.

Arterial No. 31.—Lahore-Moga.

This road is being constructed section by section. The metalling of the section from Lahore to opposite Patti, a distance of 40 miles, was completed last year, but the portion on to Harike was, for want of funds, left with the brick on edge soling covered with earth. The metalling and tarring of miles 38 to 41 with the exception of consolidation of mile 41 as well as the survey of the Patti link, were completed during the year.

Due to the existing financial stringency it was decided that the length of road from 46 to 49½, i.e., 3½ miles, might remain with brick on edge soling covered with earth, till funds were available to metal and tar this portion. The submersible bridge, in mile 41, was extended by 4 spans.

Arterial No. 32.—Jaranwala-Okara.

The Section Okara to Joya Minor (metalled 9·25 miles, unmetalled 5·47 miles) of this road from its junction with Arterial No. 4 Lahore-Multan-Quetta was taken over from the District Board, Montgomery, and the Notified Area Committee, Okara.

Arterial No. 34.—Amritsar-Sialkot.

Arterial Road No. 34 (Amritsar to Sialkot) was taken over during the years 1927-28 and 1928-29 from the District Boards concerned.

Amritsar-Ram Das Section.—This section, about 29 miles in length, is already metalled, and fit for all kinds of traffic.

Ram Das-Basantar-Pasrur Section.—From Ram Das to the River Bari, approximately 3 miles beyond Dera Baba Nanak, the road is merely a track with a few drainage culverts. A combined rail and road bridge over the Bari has since been constructed and opened to traffic. An estimate was sanctioned late during the year for constructing this section between Ram Das and Basantar Nullah at a cost of Rs. 3,70,600.

As some land could not be acquired the work on the earth embankment about half-a-mile long and some three bridges between Dera Baba Nanak and Basantar Nullah only could be completed by the close of the year. The metalling of this portion will provide a continuous metalled road from Amritsar to Basantar Nullah.

The proposals to bridge the Basantar Nullah are also under consideration, but due to the present financial stringency, funds are not likely to be forthcoming in the near future. Basantar Nullah-Pasrur portion of this section is at present a fair weather unmetalled road, fit for wheeled traffic. An estimate for constructing this portion was sanctioned for Rs. 2,38,991, two years back, but is still pending for want of funds.

In the proximity of the Deg (Sialkot district) the old road has been obstructed by the Railway line and bridge, and the North-Western Railway has made no attempt to divert it or to provide crossings to enable traffic to get across. The road, being thus blocked, the traffic has to get along the best way it can through private fields or by Railway land to which objection is taken not only by the land owners concerned but by the Railway itself. The North-Western Railway has been approached to permit traffic on its land, as it was responsible for blocking the highway.

Pasrur-Sialkot Section.—This section is already metalled.

Arterial No. 35.—Gojra-Shorkot.

An improvement on this road has been effected by constructing a bridge over the Dabhanwala Minor in Toba Tek Singh-Shorkot Section.

Arterial No. 37.—Karnal-Kaithal.

This road, taken over from the District Board, Karnal, in June 1928 and mentioned on in the last year's Administration Report, has now been brought into proper order.

Arterial No. 42.—Meerut-Sonepat.

The work of improving and metalling the Bhaghpāt Ferry road portion of this road, was commenced on 20th November, 1930, and so far the following work has been done at a total cost of Rs. 74,798 against the sanctioned estimate of Rs. 1,71,411 :—

- (a) Earthwork in miles 1, 2, 3, 4, 5 and 6 was completed and that in mile 7 is in progress.
- (ss) Collection of soling coat in miles 1 to 4 completed.
- (ss) Collection of metal for wearing coat in miles 1 and 2 completed, and miles 3 and 4 almost completed.
- (ss) Consolidation of soling coat in miles 1 and 2 almost completed.
- (s) All gaps, culverts, mile and furlong posts and boundary pillars completed.
- (ss) Surfacing materials collected for miles 1 to 4.

The work is being financed from the Central Road Grant.

Communications in the Nili Bar.

The following major works—communications mostly relating to the Nili Bar Colony—were completed during the year under the Major Head "60—Civil Works, Capital—Expenditure" :—]

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing a road bridge over the Sutlej River near Ferozpur and approaches thereto	12,85,131	11,88,231
2. Constructing a metalled road from Mailai to Tibba Sulzpur	4,72,968	4,41,593
3. Constructing a metalled road from Danyapur to Lal Sagar	4,33,591	4,21,082
4. Constructing a metalled road from Arafwala to Burewala (portion of Delhi Multan Road Arterial No. 4)	7,50,000	7,47,846
5. Agriculture in the Nili-Bar Colony, Multan district	24,804	23,946
6. Agriculture in the Nili-Bar Colony, Montgomery district	75,200	56,856
7. Constructing a metalled road from Vehari to Kacha Khori in the Nili Bar Colony	2,22,920	2,20,471
8. Constructing a metalled road from Vehari to Luddan in the Nili Bar Colony	3,70,417	4,05,562
9. Constructing a metalled road from Vehari to Burewala in the Nili Bar Colony	4,78,113	4,58,897
10. Constructing a metalled road from Burewala to Joya in the Nili Bar Colony	3,26,140	2,94,909
11. Constructing a metalled road from Burewala to Lohand in the Nili Bar Colony	2,16,504	2,24,854
12. Constructing a large Sarsal at Pakpattan	37,845	36,708

Item 1.—This bridge was completed and opened to traffic on the 24 April 1929, but the accounts have not yet been closed as cost of land has yet to be paid to the North-Western Railway.

Items 5-6.—The works of arboriculture in the Nili Bar Colony in the Multan and Montgomery districts, in progress from last year, were completed during this year.

Item 12.—This work, being in progress from last year, was completed this year.

The following were in progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Preparation of fair project for metalled roads in Multan district	17,000	14,700
2. Acquisition of land for Nili Bar Communications in Multan District	2,70,000	18,100
3. Constructing a metalled road from Vehari to Jahanian	5,27,000	5,04,100
4. Constructing Montgomery-Arafwala Road	6,37,879	6,20,604
5. Constructing Bridge and Culverts in the Nili Bar Colony	1,46,000	1,17,500

Item 2.—This work which was in progress at the close of the last financial year remained in progress during the year under review. Acquisition is being gradually proceeded with.

Item 3.—The work on this road which was in progress at the close of the last financial year was nearly completed during the year, with the exception of the quarters of the Gate Keeper at the level crossing near Jahanian. About 400 feet length of the road at the Jahanian end still remains to be done.

Item 5.—First debit to the extent of Rs. 1,17,342 towards expenditure on this work was received from the Irrigation Branch in January 1931.

Quarries.

The output from the quarries owned or controlled by the Buildings and Roads Branch this year was the lowest for the last nine years, as may be seen from the figures given below—

Government Quarries—		C.R.
From Taraki .. .. .	.. .. .	1,000,000
From Serai Kala .. .. .	.. .. .	50,000
From Warcha .. .. .	.. .. .	200,000
Private Quarries—		
From Wah .. .. .	.. .. .	100,000
From Usman Khattar .. .. .	.. .. .	50,000
Total		1,400,000
Chandigarh .. .. .	.. .. .	1,000,000
Grand Total		2,400,000
The output in 1922-23 was		3,000,000
The output in 1923-24 was		3,000,000
The output in 1924-25 was		3,000,000
The output in 1925-26 was		3,000,000
The output in 1926-27 was		3,000,000
The output in 1927-28 was		3,000,000
The output in 1928-29 was		3,000,000
The output in 1929-30 was		2,000,000
The output in 1930-31 was		1,400,000

(Note.—These figures do not include supplies from the Chandigarh quarry.)

The total demand from the Department was again very small for the same season as mentioned last year, being only about 2,250,000 of c.ft. against 49 lakhs of c.ft. of the last year.

Taraki Quarry.—The output of this quarry, which is the only Government quarry working at present, was about the same as last year and about half of the estimated capacity. The demand on this quarry showed a marked decrease during the year, as compared with that of the previous year, with the result that the quarry continues to be worked at a loss to Government.

The lack of demand has been accentuated by the following causes :—

- (1) Prevailing financial stringency and consequent lack of funds for the construction and maintenance of roads.
- (2) The progress made in surface treatment of roads with tar and similar waterproofing materials which gives not only increased life, but further makes it possible to use local and cheaper stone which without such treatment was unsuitable for road work.
- (3) Competition due to rapid fall in prices and paucity of demands and the further pull which competing contractors possess by offering to supply road metal from privately owned quarries on the roadside, at through rates inclusive of cost of carriage and stacking.
- (4) The absence of stacking platforms and consequent lack of reserve stock is a further handicap since sudden and out of season demands cannot be met.

Supplies from this quarry are at present made at fixed rates against orders received by the Executive Engineer, Shahpur Provincial Division. A proposal is now under consideration whereby the quarry contractor will pay to Government royalty for all supplies made from this quarry and be himself responsible for securing orders at competitive rates.

There has been almost no demand for bajri on this quarry during the year and the manufacture account continues to show loss. To minimise this loss as far as possible the establishment employed for working the plant was discharged early in the year.

Sirona Kala Quarry.—This quarry was finally closed down during the year.

Warcha quarry.—Practically all the drawbacks, mentioned in connection with the Taraki quarry, operate in this case also and consequently work on this quarry has not yet started in earnest. With the opening of the Railway bridge over the river Jhelum at Khushab, Warcha has been brought nearer, by rail, to the various roads in the Shahpur Division, the supply of metal for which will be cheaper from this quarry than from Taraki.

Chandigarh Stone Quarry.

During the year the total output from the Chandigarh quarry was 13·9 lakhs stone ballast and 32,833 c.ft. of bajri. The stone was all taken from land in British territory as the Patiala State authorities still persist in putting every obstacle in our way. The last five years contract having expired, tenders were invited on 15th March, 1931, and contract given to Seth Harparshad and Sons, Ludhiana, for another five years from 1st April 1931. As a result of fresh tenders a reduction of nearly 25 per cent. has been made in the rates.

Tools and Plant.

The tractors and trailers purchased a short time back have not been a success, and are not now economical to work owing to the sudden drop in rates of carriage by rail. Attempts are being made to get these machines disposed of to the best advantage.

There is also a lot of machinery and plant lying idle in the Montgomery Division, the disposal of which has been entrusted to the Executive Engineer, Disposal Division, Ferozpur.

CHAPTER III—Superintending Architect.

A.—BUILDINGS—ARCHITECTURAL CIRCLE.

1. Owing to the financial stringency referred to in the Proceedings of last year's Administration Report the Superintending Architect's staff was reduced in the autumn of 1930 and early spring of 1931 by eleven draughtsmen, one tracer and two clerks. Consequent on this reduction many projects, administratively approved and otherwise, were laid aside temporarily or indefinitely. The most important of these were estimates and drawings in progress for—

- (a) The Lady Aitchison Hospital and Medical School for Women, Lahore.
- (b) Extensions to the Punjab High Court, Lahore.
- (c) Agricultural Clubs, Punjab.
- (d) New Council Chamber and its surroundings, Lahore.
- (e) Additions and alterations to the Katcheri, Rawalpindi.
- (f) Additions and alterations to the Civil Hospital, Rawalpindi.
- (g) Additions to the Irrigation Department's Hydraulic Research Laboratory, Lahore.

2. The staff remaining were engaged upon designs and detailed estimates of projects already administratively approved, and otherwise, as follows:—

- (a) The Septic Block and covered ways of the Maternity Hospital, Lahore.
- (b) The Civil Hospital, Gujranwala.
- (c) A block of four flats on the Gazetted Officer's Residences Estate, Lahore.
- (d) A house for the Commissioner, Lahore.
- (e) A house for the Deputy Commissioner, Lahore.
- (f) A house for the Superintendent of Police, Lahore.
- (g) A house on the Gazetted Officer's Residences Estate, Lahore.
- (h) Surroundings of the terraces of the Lahore Fort.
- (i) General improvements over part 'B' of the Gazetted Officer's Residences Estate, Lahore.
- (j) Scheme for Sir Ganga Ram Statue, Lahore.
- (k) A scheme for quarters for jamadars and chaprasis stationed in Lahore.

In addition, various miscellaneous items were prepared, such as—

- (a) A dark room and garage for the Dental Hospital, Lahore.
- (b) Drawings for the Shanan Power House.
- (c) Additions to Bishop Cotton School, Simla.
- (d) Additions to a cloak room at Government House, Lahore.

3. As it was not considered likely that the finances of the Province would enable many of these projects, even though administratively approved, to be built for some time, and, as Government withdrew almost the whole of the allotments already provided for works, it became clear that the Architectural Division, which was engaged upon building the designs prepared in the Superintending Architect's office for structures in Lahore, would cease to be fully occupied. It was, therefore, temporarily closed, its executive engineer, two clerks and one accountant reverting to their ordinary duties in the general line of the Public Works Department, to fill vacancies caused by reductions in its temporary staff. To continue Government's policy of the architect being responsible for the construction of his designs, a sub-divisional officer and an overseer were placed under his orders to finish the works in progress on the Maternity Hospital, the Fort terraces, the Gazetted Officer's Residences and the Lady Aitchison Hospital.

4. The works under construction in the Architectural Division during the year, consisted of—

- (a) Block 'A,' Maternity Hospital, Lahore.
- (b) Block 'B,' Maternity Hospital, Lahore.
- (c) Block 'C,' Maternity Hospital, Lahore.
- (d) Nurses' House, Maternity Hospital, Lahore.
- (e) Roads and gardens, Maternity Hospital, Lahore.
- (f) Compound wall, gates and gatekeeper's lodges, Maternity Hospital, Lahore.
- (g) A type III-A (Permanent) on site No. 45, Gazetted Officers' Residences Estate, Lahore.
- (h) Levelling site of the Lady Aitchison Hospital and Medical School for Women, Lahore.
- (i) Terraces and fountains at the Fort, Lahore.
- (j) Dental School and Hospital, Lahore.
- (k) General improvements to part 'A' of the Gazetted Officers' Residences Estate, Lahore.

5. As the Architectural Division was a new departure in the Punjab it is impossible here to give a very curtailed account of its activities from its opening in June 1927 to its temporary closing in November 1930. It was run by an executive engineer, assisted by two clerks and one accountant lent from the general line of the Buildings and Roads Branch and temporary overseers were recruited for buildings in progress as necessary. No sub-divisional officers or their staffs were employed. The budget work was performed in the Circle office, where one extra clerk in the grade of Rs. 40-4-100/4-140 was consequently employed. During the $3\frac{1}{2}$ years it was in existence the Division built work administratively approved at a cost of over seventeen lakhs at an actual cost of fifteen and-a-half lakhs. Not only were savings made by reduction in cost from the figures administratively approved, but there was no detailed technical estimate in which savings were not made. The system has proved to be economical and satisfactory in Lahore where large buildings have to be constructed; it has not been tried elsewhere.

6. *Town-planning.*—In addition to the building activities of the Architectural Circle, town-planning schemes were dealt with in connection with a mandi town at Narang and a development scheme at Shahdara. Advice was given in many cases regarding the selection and use of building sites in Sheikhpura.

7. *Lahore Improvement Committee.*—The Superintending Architect continued as secretary and technical officer of this committee. Many cases were technically examined and recommendations made. A survey plan of both sides of the Mall from the Gol Bugh to the Cantonment railway bridge and a schedule was prepared and sent to the Commissioner, Lahore, for the assistance of the Lahore Municipal Committee. A report with proposals for areas of compounds, types of buildings and set-backs, for the Civil Station, was prepared. An examination of the buildings on the Mall frontage shows that, on the whole, the Lahore Improvement Committee has succeeded in preventing encroachments in front of the building line. They cannot, however, deal with elevations, sanitation and structural points, as their own proper duties prevent the undertaking of such work. They have not succeeded in preventing unnecessary and unsightly petrol pumps, and other small structures from springing up in front of the shops. They have also failed to obtain improvement in other respects despite constant efforts. The main items of these are as follows:—

- (a) The general improvement of the Mall itself, including its tan-track.
- (b) The properly considered lay-out of buildings and roads springing up between the Civil Station and Cantonments.
- (c) The proper upkeep of the area outside the King Edward Memorial Hospital.
- (d) The definite laying down of a building frontage along both sides of the Mall.

Any success is due to persuasion and what slight pressure is available. The failures are due to lack of statutory or other power to enforce the required improvements.

8. The total outlay on works and special repairs during the year under review (April 1930 to October 1930) amounted to Rs. 60,768 as detailed below :—

	Rs.
(a) 41—Civil Works—Transferred (voted)	10,643
(b) 60—Civil Works—Capital Expenditure	49,802
(c) Suspense	—743
(d) Tools and Plant	147
(e) Cost of English Stores	22
(f) Deduct Refund of Revenue	—90
Total	60,768

41.—CIVIL WORKS PROVINCIAL.

M.—Medical.

The following major work was completed :—

Name of building.	Estimate.	Expenditure.
	Rs.	Rs.
1. Preparation of a part of the site for the Lady Aitchison Hospital and Medical School for Women, Lahore ..	10,000	10,073

" U & V. U " —MISCELLANEOUS.

In progress :—

Name of building.	Estimate.	Expenditure.
	Rs.	Rs.
1. Terracing along the South Wall of the Fort, Lahore—		
Original Work	84,000	27,000
Repairs	78,308	77,000
Total	1,12,308	1,04,000
2. Providing fountains and seats at the Fort terraces, Lahore	12,315	11,044

" Q. & V. Q. " —CIVIL WORKS.

Completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Metalling and tarring the approaches to the Gannetted Officers' Residences Estate, Lahore—		
Original Work	3,467	3,300
Repairs	1,197	600
Total	4,664	3,900

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
General Improvements over the Gannetted Officers' Residences Estate, Lahore—		
Original Work	1,30,000	27,000
Repairs	31,000	20,000
Total	1,61,000	47,000

60—CIVIL WORKS.—CAPITAL EXPENDITURE.

" M. "—MEDICAL.

In progress —

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Masonry Hospital, Lahore—		
Block " B "	3,43,019	2,94,531
Boys' Block	92,658	2,898
Constructing metalled roads and lawns ..	12,000	8,898

" Q "—Civil Works.

Completed —

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Residence Type III-A (permanent) on site 45 of the Gazetted Officers' Residences Estate, Lahore	28,224	26,024

B.—BUILDINGS—SUPERINTENDING ENGINEERS.

50—MILITARY ENGINEER SERVICES.

No Military Works were carried out during the year under review.

41—CIVIL WORKS—CENTRAL.

No works were carried out during the year under this head. An expenditure of Rs. 1,100 was, however, incurred in settling up the contractor employed on the work of " Construction of quarters for one Sub-Inspector and five linemen at Kasali."

The Punjab State Agency Buildings.—The Government of India having decided to erect these buildings at Lahore, proceedings for the acquisition of land for the Agency, at Jullundur were stopped, and out of Rs. 14,927 spent in 1928-29 on the acquisition of this land Rs. 12,210 were recovered during the year 1929-30. Out of the sum remaining Rs. 2,000 have been recovered during the year under report, and credited in the accounts for March 1931 supplementary.

PROVINCIAL CIVIL WORKS.

41.—CIVIL WORKS.—PROVINCIAL.

- A. Land Revenue.
- B. Excise.
- C. Stamps.
- D. Forests.
- E. Registration.

No works of any importance were carried out under any of these sub-

F.—(a) *General Administration (Transferred).*

The following major works were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Committee and Waiting Rooms at Ellerslie, Simla	29,997	27,200
2. Constructing a combined Tahsil and Thana at Palwal in Gurgaon District	1,00,719	94,000
3. Constructing two additional Court Rooms in the compound of District Court at Hoshiarpur	13,443	13,254
4. Replacement of the wooden racks in the two rooms Nos. II and III of the Revenue Record Rooms in the District Court and Buildings with iron racks and steel shelves, at Gurdaspur	14,977	13,996
5. Constructing a 3rd class Civil Rest House at Hurrand in Dera Ghazi Khan District	14,969	14,777

Item 2.—The work was completed on 10th June 1930 and accounts closed in 1931.

Item 3.—The work was completed on 15th March 1930 but the accounts were closed during the year under report. The building was handed over to the Deputy Commissioner, Hoshiarpur.

Item 4.—The work was in progress from the last year and was completed during the year under review.

Item 5.—The work was completed last year, but the accounts were closed this year.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Constructing roads and surface drains in Fort land area, Lahore	33,523	31,400

F.—(b) *General Administration (Reserved).*

G.—*Administration of Justice.*

No work of any importance was carried out under these sub-heads.

H.—*Jails and Convict Settlements.*

Completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Head Warder's quarters in the District Jail, at Maswali	18,742	18,240
2. Constructing quarters for 27 married Warders in the District Jail, Rawalpindi	24,907	23,500
3. Constructing quarters for 28 unmarried warders in the District Jail, Rawalpindi	11,000	1,200
4. Constructing quarters for 6 Head Warders in the District Jail, Rawalpindi	11,200	1,200
5. Constructing Hindu and Muhammadan kitchens in the new Sub-Jail at Gujrat	3,700	3,300

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing additional quarters for Head Warders and Watchmen in the District Jail, Sialkot ..	25,262	19,515
2. Constructing 40 new condemned cells in the central Jail, Lahore	52,658	47,292
3. Reorganising the present District Institution, Lahore, into District and Female portions—		
(a) Constructing walls and gates in connection with the scheme	72,867	74,569
(b) Constructing double-storied quarantine cells ..	25,988	29,509
(c) Constructing one block of double-storied Hospital Wards	24,927	24,095
(d) Constructing staff quarters, type No. 1 ..	17,454	16,487
(e) Constructing various godowns	39,881	37,845
(f) Constructing Dysentery, venereal and isolation cells	14,742	15,640
(g) Constructing workshops	42,303	40,019
(h) Constructing gateway and office	14,288	14,184
(i) Proposed Sub-Works	38,040	32,758
4. New Sub-Jail at Kasur—		
(a) Constructing sub-walls between cells and barracks	10,170	10,076
(b) Constructing kitchen for Civil debtors ..	293	276
(c) Acquisition of land for Jail laundry	1,400	1,353
10. Constructing New Central Jail, Multan	19,64,868	19,03,418
11. District and Reformatory Farms at Burewala, in the Salt Range Colony (Medical Buildings)	15,758	15,468

Items 1—4.—These works were commenced last year and completed during the year under review.

Item 5.—All the buildings in connection with this jail have now been completed and handed over to the Jail Department for use.

Items 6, 7, 8 (a) to 8 (f), 8 (h), 8 (i) and 9 (a) to 9 (c).—These works were in progress from last year and were completed during the year under review.

Item 8 (g).—This work was completed during 1928-29 but had to be re-opened during the year under review. It was finally completed at a cost of Rs. 40,000.

Item 10.—The work on the construction of this Jail, which was in progress in the last financial year, was completed this year, and the building was occupied by the Jail Department in October 1930. The accounts were closed in March 1931.

Item 11.—All buildings in connection with these Farms at Burewala were completed last year, with exception of the Medical buildings, which were completed this year at a cost of Rs. 15,468 against the sanctioned estimate of Rs. 14,758.

I.—Police.

The following were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing a new combined Police and Fire Station at Chera Sialkot	1,37,885	1,43,603
2. Constructing a new Police Station with married quarters at Charsar in Bahawal District	25,191	24,989
3. Constructing new Police Lines, Ludhiana (Acquisition of land)	38,000	20,330
4. Constructing a new Police Station with married quarters at Wazirpur	26,686	27,636

Item 1.—The work was completed during 1928-29 but the accounts were closed finally this year.

Item 2.—The work was completed on 21st April 1929, but the accounts were closed in October 1930.

Item 3.—Land was taken possession of on 26th May 1930, and accounts closed in March 1931.

Item 4.—The compensation for the acquisition of 8.38 acres of land for the parade ground and approach road for the Police Lines at Muzaffargarh was paid during the year, and the accounts of the work were closed in February 1931.

J.—Scientific.

No work of any importance was carried out under this sub-head.

K.—Education, other than European and Anglo-Indian.

The following were completed.

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing New buildings for a Government High School at Nowshera in Shahpur District ..	77,980	62,809
2. Constructing Government Intermediate College at Ludhiana	4,07,310	3,90,630
3. Constructing an office for the Inspector of Schools at Jullundur City	21,600	13,671
4. Constructing a Hostel for the Government High School at Garh Shanker in Hoshiarpur Districts ..	78,000	64,000
5. Constructing a new Government High School at Palwal in Gurgaon District	1,32,164	81,000
6. Alteration to the Old Normal School Building in the Fort to adapt it for the purpose of Boarding House for Government High School, Sialkot	12,138	10,300
7. Extension to the buildings of the Government High School at Leiah in Muzaffargarh District	20,568	18,878
8. Constructing a new Government High School, Khanewal	1,28,461	1,19,100
9. Additions and alterations to the Government High School at Renala Khurd in the Montgomery District	81,300	50,000

Item 1.—These new buildings which were commenced last year, were completed during the year under report.

Item 2.—The work was started on 6th February 1928, and completed on 5th July 1927. The accounts were closed finally in March 1931.

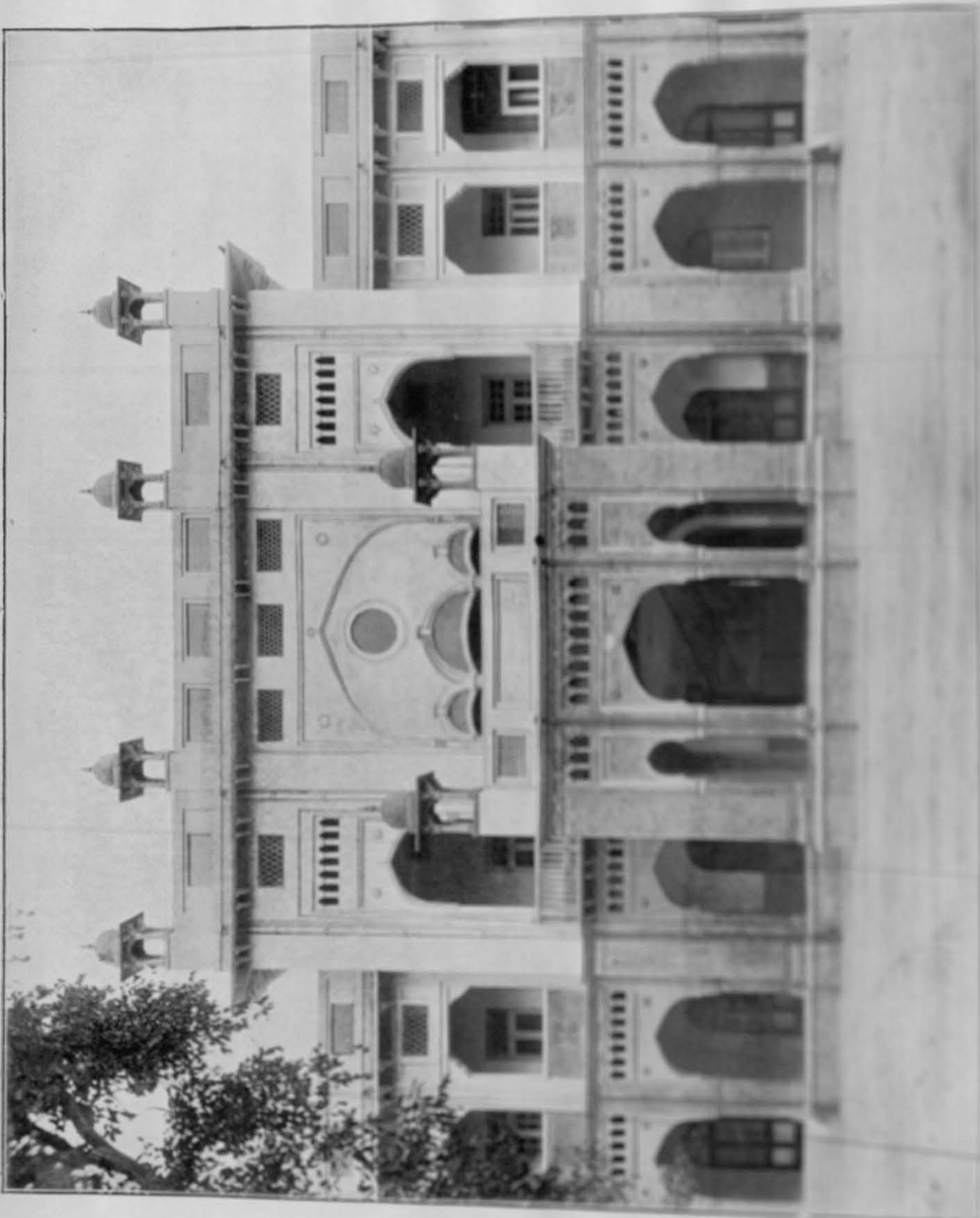
Item 3.—The building was completed on 20th March 1930, and handed over to the Education Department. The accounts of the work will be closed in March 1931 supplementary.

Item 4.—The work was commenced on 7th February 1930, and completed on 25th March 1931, and handed over to the School authorities.

Item 5.—The work was completed on 18th January 1929, but accounts were closed in March 1931.

Item 6.—It was originally proposed to erect a new hostel for the Government High School, Sialkot, but this scheme was rejected by Government as being expensive. It was, however, later on, decided to make additions and alterations to the old Normal School in the fort in order to adapt it as a Boarding House. An estimate for the purpose was sanctioned for Rs. 12,138 and the work was carried to completion during the year under review.

Item 7.—This work which was in progress at the close of the last financial year was completed during the year under review at a cost of Rs. 18,878 against the sanctioned estimate of Rs. 20,568. A supplementary estimate amounting to Rs. 24,098 for certain additional works was under consideration, but has not yet been sanctioned. The accounts of this work cannot be closed until the work is sanctioned and carried out.



Items 3-8.—These works which were in progress last year were completed this year.

In progress—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing a Hostel for training units attached to Government High School at Gurgaon	65,892	14,070
2. Constructing a Normal and Middle School and Boarding House for Girls at Hoshiarpur	1,76,517	1,26,813

Item 1.—Only compensation for land was paid to the land owners during March last. The work on construction of the buildings will be started when the necessary funds are forthcoming.

Item 2.—The work was commenced on 8th February 1930, but owing to the death of the contractor on 28th August 1930 the work was held up, and arrangements to give out the remaining work were concluded in December 1930. The work restarted on 27th December 1930, the School, Hostel and Kitchen blocks were nearly completed.

L.—Education (European and Anglo-Indian).

In progress:—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Constructing a double-storied Dormitory Block in the Lawrence College, Ghoregaali	49,600	2,692

Collection of materials for this was started towards the end of the year.

M.—Medical.

The following were completed:—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Lady Halsey Hospital for Women and Children at Bhovani in Hissar District	91,816	1,13,115
2. Constructing Tahsil Headquarters Hospital at Sohapat in Bahawal District	39,852	40,241
3. Constructing a Tahsil Headquarters Hospital at Beri in Bahawal District	58,053	57,234
4. Additions and alterations to Tahsil Headquarters Hospital Buildings, Ajmala	47,217	36,793
5. Additions and alterations to Hospital Buildings at Targan	50,841	51,484
6. Additions and alterations to Hospital Buildings at Hanuapur	40,818	38,844
7. Constructing a new Civil Hospital at Multan	3,61,592	3,63,405

Item 1.—The work was commenced on 4th December 1928 and completed during this year.

Item 2.—The work was completed last year, but the accounts were finally closed in October 1930.

Items 3 to 6.—These works were in progress from last year, and were completed.

Item 7.—The work was completed and the building occupied by the Hospital authorities on the 1st November 1930. The accounts were closed in April 1931.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Additions and alterations to Tahsil Headquarters Hospital at Rugar in Ambala District	29,905	19,971
2. Additions and alterations to the King-Edward Medical Hospital at Muzaffargarh	13,347	1,017
3. Certain additional works in the Civil Hospital at Muzaffargarh	13,136	3,053

Item 1.—The work of additions and alterations to Assistant Surgeon's quarters, five servants' quarters and re-roofing eyeward has been completed.

Masonry work in superstructure on the Lady Sub-Assistant Surgeon and Dispenser's quarters, the four bed wards and douche room was built to an average height of about 8 feet above plinth. Further work was stopped owing to the refusal of the Municipal Committee, Rugar, to hand over the hospital to Government. The Committee has been informed that Government is prepared to hand back the hospital on the Committee reimbursing to Government to the extent of Rs. 23,635, which has been incurred on improving the hospital buildings. Proposal has also been submitted to Government to complete the Female Dispensary and run it independent of the Committee.

Item 2.—No work was started (except payment of compensation to the extent of Rs. 1,017 made in March 1930), as no funds were available.

N.—Public Health.

No work of any importance was carried out under this sub-head.

O.—Agriculture.

The following were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Agricultural Farm Buildings at Karnal	34,200	30,342
2. Acquisition of land for Agricultural Farm Buildings at Karnal	57,130	65,314
3. Constructing buildings for Experimental Farm at Sirsa	1,08,379	93,740
4. Constructing Agricultural Seed Farm at Vehari, Nih Bar Colony	38,144	34,378

Item 2.—The land was acquired last year, but the accounts were finally closed during 1930-31.

Item 4.—This work was in progress at the close of the last financial year and was completed during the year under report.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Acquisition of land at Attari, Amritsar District, for Agricultural Farm	30,321	25,740



The Punjab Government decided to establish an Agricultural Farm at Amrit in the Amritsar District. Accordingly 101·24 acres of land were acquired for the purpose at a cost of Rs. 56,310. In addition to this Rs. 19,200 had to be adjusted on account of value of 9 rectangles of land to be given in exchange in the Silk Bar to the expropriated owners of land. During the year under review Rs. 71,945 were adjusted and the balance Rs. 3,565 will be accounted for during 1931-32.

P.—Industries.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing a special school for teaching woodwork at Jullunder	73,589	66,173
2. Special Industrial School for teaching metal works at Gialkot	73,570	67,525

Item 1.—This work, commenced on 4th August 1927, was completed on 11th October 1930, and the building handed over to the School authorities. The accounts have not yet been closed. Owing to the insufficient supply of water from the existing well, an estimate to instal a tube-well has been called for.

Item 2.—Administrative approval was given for Rs. 50,000 to be spent in the building and Rs. 21,000 on the land, but on account of financial stringency it was decided only to acquire the site and to defer the construction of the building till 1930-31. Consequently the site was acquired during January 1930.

Q.—Civil Works.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Indian Clerks' quarters, Chouburji Gardens, Lahore—		
(a) Indian Clerks' quarters, third instalment ..	5,75,286	5,40,980
(b) Indian Clerks' quarters, fourth instalment ..	5,01,409	4,09,754
(c) Constructing market in Chouburji Gardens ..	34,754	20,372
(d) Constructing staff quarters for the Sanitary and Electric Services on the Chouburji Gardens, Lahore	16,000	14,787
(e) Widening portions of metalled road (Arterial No. 4) and providing a foot-path in front of the Chouburji Gardens, Estate, Lahore. .	7,133	6,997
(f) Constructing a compound wall on the Northern boundary of Chouburji Gardens ..	2,991	1,509

It was originally proposed to complete this scheme estimated to cost Rs. 20,14,891 by instalments during the four financial years ending 31st March, 1930. The work on the final instalment was practically completed with the exception of the road and compound wall which will be built during 1931-32 provided funds are available. The work on the market was also completed.

The construction of the Dispensary buildings has been deferred till the existing financial stringency ceases. It has, for the present, been decided to accommodate the Dispensary as well as the Establishment in quarters reserved for the purpose on the Estate.

R.—Stationery and Printing.

The following was completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Constructing new Press Buildings in the Central Jail, Lahore (fourth and fifth instalments) ..	97,800	1,07,400

The work on the fourth and fifth instalments, being in progress from the last year, was completed.

*S.—Miscellaneous Departments.**U.—Miscellaneous.*

No work of importance was carried out under these sub-heads.

43.—*Famine Relief.*

The following was completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Purchasing tools and plant for famine relief works in Gurgaon, Rohtak and Hissar Districts	29,500	8,200

The tools have been received and paid for, and the accounts have been closed. The Miscellaneous articles will be ordered when famine is actually declared.

No famine relief works were opened by the Public Works Department during the year but a large number of projects were prepared and technically sanctioned.

60.—*CIVIL WORKS (CAPITAL EXPENDITURE).**A.—Land Revenue.**B.—Excise.**C.—Stamp.**D.—Forests.**E.—Registration.*

No work of any importance was carried out.

F.—(a) General Administration (Transferred).

The following were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing two residences for Extra Assistant Commissioners at Lyallpur		
2. Constructing two "A" class residences for Extra Assistant Commissioners at Campbellpur ..	20,000	20,700
3. Constructing a residence for the Deputy Commissioner at Jullundur	25,000	25,000
	20,700	20,200

Item 3.—The work was commenced on 17th October 1929 and completed on 25th July 1930. The building was occupied by the Deputy Commissioner on 25th April 1931.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Acquisition of land for Sub-Divisional Headquarters at Fudgottan	43,709	37,760

M.—Medical.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Constructing a residence for the Civil Surgeon at Ludhiana ..	27,025	68,446

The building was completed on 30th January 1929, and handed over to Medical authorities. About 2 acres of land were originally acquired for this work, but Government was, however, forced, under orders of the Civil Court, to acquire the additional land (area about 3 acres) also together with an old house standing on it. This accounts for the large excess over the estimate. The appeal from the order of the Collector is still pending in the Court of District Judge, Ludhiana.

O.—Agriculture.

The following were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing a residence for poultry expert to Government, Punjab, at Gurdaspur	11,400	11,394
2. Constructing a bungalow for Extra Assistant Director of Agriculture, Gurdaspur	10,499	10,000
3. Constructing a residence for Extra Assistant Director of Agriculture at Gurdaspur	11,436	11,555

Note 1.—The work was completed in 1928-29, but accounts were re-opened and closed in May 1930.

U.—Miscellaneous.

The following were completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Acquisition of land for a Mandi site at Ludhiana	64,301	70,798
2. Constructing Mandi Roads, Barwala (second instalment)	56,000	48,265
3. Constructing Mandi Roads, Barwala, (third instalment)	22,900	19,535
4. Constructing Mandi Roads, Vehari (second instalment) ..	52,000	38,434
5. Constructing Anglo-Vernacular School at Barwala, .. Nili Bar Colony	32,756	28,335
6. Constructing Anglo-Vernacular School at Vehari, Nili Bar Colony	36,400	33,765
7. Constructing a Dispensary at Vehari, Nili Bar Colony ..	13,000	11,700

Item 1.—Further expenditure to the extent of Rs. 7,658 was incurred on this work shown as completed last year. This brings the total expenditure to Rs. 70,798 against the sanctioned estimate for Rs. 64,301.

Item 2.—This work was started in 1928 and completed during this year with an expenditure of Rs. 48,265.

Item 4.—The work was commenced in 1927 and completed during this year.

In progress :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
Constructing Mandi Roads, Arafwala, (third instalment)..	47,921	30,000

This work was started in August 1930, and is still in progress.

Deposit Works.

Completed :—

Name of work.	Estimate.	Expenditure.
	Rs.	Rs.
1. Constructing Municipal Board High School at Abohar in Ferozepore District	55,164	55,301
2. Constructing three class rooms for Middle classes in the compound of Primary School at Giddarbaha, in Ferozepore District	10,929	10,390
3. Additions and alterations to the Bishop Cotton School at Simla	81,303	71,304

Items 1-2.—The works were completed in 1928-29, but the accounts were closed during this year.

Item 3.—The work was in progress from last year and was completed on 10th September 1930. The accounts will be closed in March 1931 supplementary.

CHAPTER IV—Public Health—Engineering.

1. One hundred and thirteen preliminary and detailed projects estimated in the aggregate to cost Rs. 74,87,841 were prepared during the year. Two hundred and sixty-two visits to towns, notified areas and small towns were made in connection with schemes under design or construction. Eight new schemes were commenced and 12 completed during the year, while the average number of contribution works under execution was 24.

2. *Trial borings.*—Altogether 34 borings were made during the year in connection with water supplies, some of which were executed departmentally with Government Plant.

A. Government Works.—

(1) *New Central Jail Water Supply and Drainage, Multan, Rs. 1,41,762.*—The water supply and drainage works were completed and the jail opened during September 1930. The maintenance of the above works is in the charge of the Public Health Division, Multan. One and a half lakhs gallons of water is supplied daily for domestic and irrigation purposes.

Sullage water from the disposal works is daily pumped and used for irrigating the sullage farms.

(2) *New Central Jail Bathing Platform, Rs. 16,503.*—Bathing platforms with showers were provided in each block of cells, barracks, hospitals, etc.

(3) *New Civil Hospital, Multan, Rs. 50,060.*—Works in the above Hospital consisting of surface drainage, water supply (domestic and irrigation), disinfecting plant and hot water supply in the main block, were satisfactorily completed and the hospital opened on the 1st of December 1930.

Water for domestic supply is kept opened in the hospital for 24 hours.

Sullage water from drains is drained into a field on the north of the hospital and utilized for irrigation purposes.

Hospital sweepings are disposed of in the incinerator built outside the hospital premises.

(4) *A. Provision of water supply and latrines, Government High School, Nanakpura, Rs. 10,348.*—Completed.

(5) *Chauburji Gardens Estate, Lahore, Water Supply, Rs. 1,10,343.*—Completed.

(6) *Sewerage Scheme, Chauburji Gardens Estate, Lahore, Rs. 2,70,731.*—The work including one block of menial's quarters has been completed and is working successfully.

(7) *Equipment necessary for the Maintenance of Sewerage Scheme, Chauburji Gardens Estate, Lahore, Rs. 17,241.*—All the equipment required has been purchased.

(8) *Independent water supply G. O. R. Estate, Lahore, Rs. 30,793.*—Completed.

(9) *Water Supply and Drainage, High Court and adjoining offices, Lahore, Rs. 29,716.*—The work consisting of a new tube-well with electrically operated pumping plant, pipelines and storage tanks to serve the High Court, Accountant-General's Office and Sessions Judges Courts, has been completed satisfactorily and is in operation.

(10) *Providing Water Supply and Drainage for the proposed alteration in Borstal Institution, Lahore, Rs. 26,398.*—The work which comprises the provision of drains and water supply pipes to serve the new extensions to the Borstal Institution has been completed satisfactorily.

(11) *Installation a disinfectant in Central Jail, Lahore, Rs. 11,646.*—The building to house the disinfectant has been completed and a "Georgian" Steam Disinfectant with steam boiler has been installed.

- (12) *Proposed external drainage and Sullage Disposal in Borstal Institution, Central Jail and Female Jail, Lahore, Rs. 83,563.*—The scheme, which is meant for pumping the effluent from the Central Jail and Borstal Institution across the Mianmir Stream Water Channel, has been completed with the exception of the pumping stations which are in hand.
- (13) *Water Supply and Drainage Sub-Jail, Kasur, Rs. 37,569.*—All work, consisting of a complete tube well, water supply installation with oil engine driven pumping station, service reservoir and distribution system and a gravity surface drainage system, has been completed and is functioning satisfactorily.
- (14) *Water Supply and drainage at the New Sub-Jail, Gujrat (Rawalpindi), Rs. 43,597.*—The work is similar to the above and has been completed and is operating satisfactorily.
- (15) *Emergent Water Supply, Attock Fort Jail, Rs. 14,557.*—The scheme for an emergent water supply consisted of the provision of a temporary steam pumping station, rising main, steel storage tanks and temporary distribution system, the source of supply being the river Indus. The works which were completed within the short period of 4 weeks in June 1930, functioned satisfactorily till March 1931 when the temporary Jail was closed.
- (16) *Water Supply and Drainage for proposed Hospital Police Lines, Lahore, Rs. 27,467.*—The work consisting of new tube-well with water supply and sanitary fittings to the hospital has been completed. The scheme is functioning satisfactorily and water is also being supplied for irrigation purposes in the Police Lines.
- (17) *Surface Drainage, Police Lines, Amritsar, Rs. 27,004.*—The scheme consists of small surface drainage system with land disposal works. The internal surface drains have been completed, but the outfall and disposal works have not been proceeded with owing to delay in land acquisition.
- (18) *Sanitary Installation in the Dental Hospital and School, Lahore, Rs. 14,455.*—The work except for a few minor items has been completed and is functioning properly.
- (19) *Additions and alterations to Water Supply, Mayo Hospital and King Edward Medical College, Lahore, Rs. 71,328.*—This scheme consists of a complete independent water supply based on 3 tube-wells for the hospital and college. The second tube-well has been completed, thus finishing off the scheme which is functioning satisfactorily. The hospital and college are now entirely independent of the Lahore Municipal Committee Water Supply.
- (20) *Sewerage of Main College and Anatomical Block, New Medical School, Amritsar, Rs. 10,187.*—The work consists of the provision of a small section of sewers with septic tank and locator pumps for the Anatomical Block. The work was practically finished.
- (21) *Laboratory equipment including water supply internal drainage sinks and basins for the Dental Hospital and School, Lahore, Rs. 10,588.*—Except for a few minor items, the work has been completed and is functioning properly.
- (22) *Sewerage Scheme for Female Section of Mental Hospital, Lahore, Rs. 42,271.*—This is an independent sewerage scheme on water carriage system for the Female Mental Hospital. The work has been completed and is functioning properly.
- (23) *Sewerage Scheme, Madhya Engineering College, Muzaffargarh, Rs. 80,516.*—The internal drains and sewers are complete but the pumping station and disposal work are held up owing to non-acquisition of land. The scheme will be completed when land is acquired.
- (24) *Water Supply to High School, Jhelum, Rs. 10,258.*—The work was completed early in 1930 and is functioning satisfactorily.



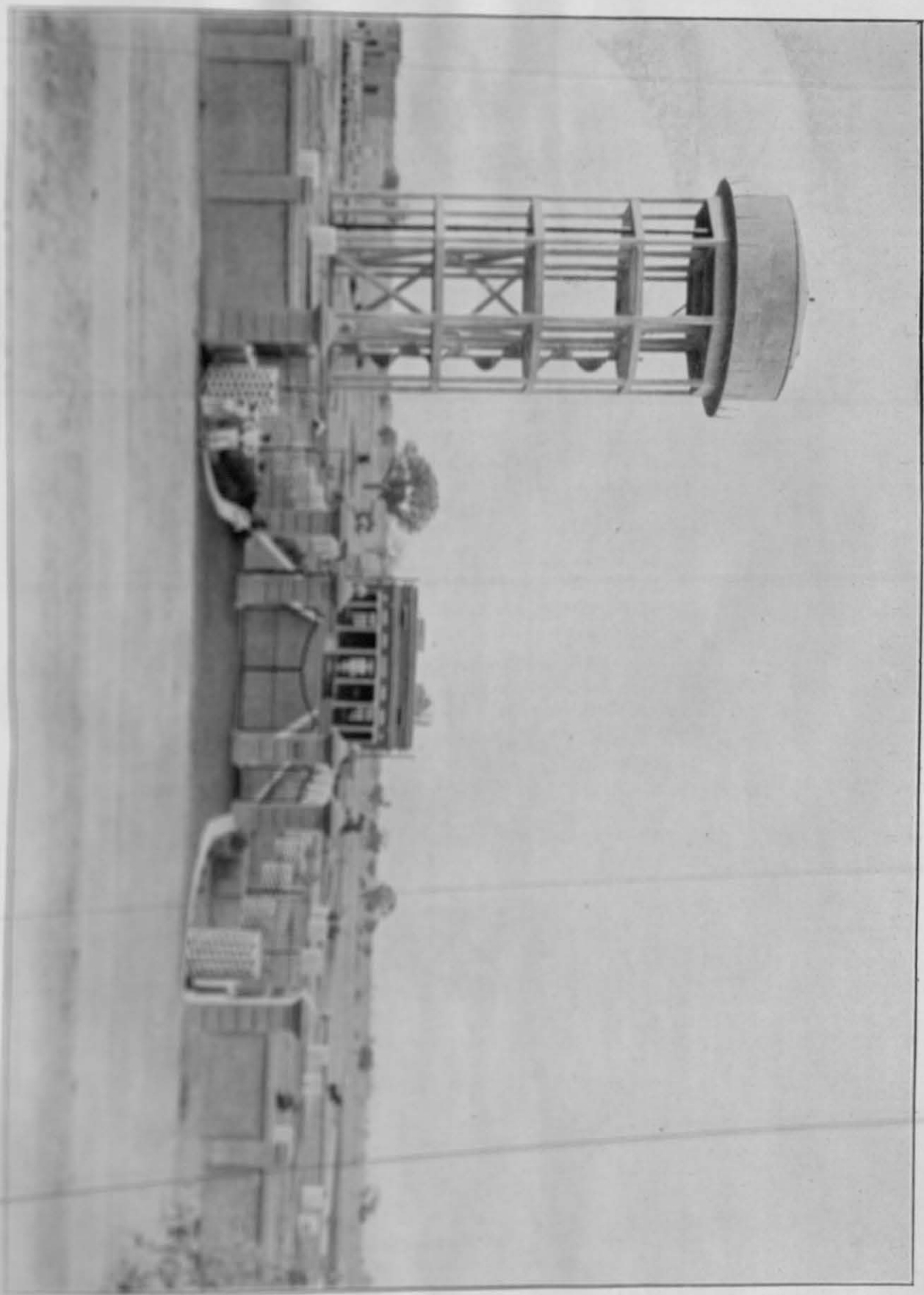
ROHTAK WATER WORKS.

- (25) *Water Supply to Weaving Factory Industrial Building, Shahdara, Rs. 12,698.*—The work which consists of an extension of the pipelines, based on the existing tube-well has been completed and is functioning satisfactorily.
- (26) *Sewerage and Sanitary Fittings in Maternity Hospital, Lahore, Rs. 61,527.*—The work has been practically completed and is functioning satisfactorily in regard to Blocks A and B and Nurses' Home which were occupied in 1930.
- (27) *Water Supply-Maternity Hospital, Lahore, Rs. 27,091.*—All works relating to Blocks A and B and Nurses' Home have been completed and are functioning satisfactorily.
- (28) *Providing Sanitary Services and Air Conditioning in Main Block at Maternity Hospital, Lahore, Rs. 1,06,414.*—The scheme includes the steam plant and the air conditioning installation, which as applied to hospitals is the first of its kind in India. All plant is on order and will be erected when received.
- (29) *Providing Water Supply to lawns and shrubberies at Old Fort, Lahore, Rs. 13,320.*—The work which consists of an extension of distribution pipelines from the existing tube-well supply at the Old Fort has been completed and is functioning successfully.
- (30) *Water Supply to fountains and grass plots Old Fort, Lahore, Rs. 13,790.*—The work has been completed.
- (31) *Pumping Plant, valves, pipes, tanks, etc., in Hydraulic Research Laboratory Lahore, Rs. 36,608.*—The work has been completed.
- (32) *Foot Paths, Intramural Drainage, Lahore, Rs. 22,863.*—The surface drains have been completed in those blocks where houses have so far been constructed.
4. *Contribution Works carried out on behalf of the Local bodies—*
- (1) *Multan Water Supply, Rs. 12,57,637.*—The scheme has been completed and is maintained by this Department. The daily supply fluctuates between 1½ lakhs to 3 lakhs of gallons according to the season. A hundred private house connections have been sanctioned by the Sanitary Board and the work will be started when the Municipal Committee deposits funds.
- (2) *Multan Drainage, 1st instalment, of Drainage, Rs. 1,22,976.*—The pumping plant, consisting of Mirrless Horizontal chokeless pumps and General Electric Co.'s enclosed ventilated squirrel cage motors, has arrived and is being erected.
- (3) *Multan Drainage, 2nd instalment, of Sullage Farm, Rs. 1,37,747.*—Construction of main northern sewer has been completed and 1,000 feet length of outfall sewer 36"×54" has been completed. Further progress was delayed on account of acquisition of land which has now been acquired and works on the remaining part of the channel is in progress.
- (4) *Improvements to Montgomery Market Drainage, Rs. 25,351.*—The work was completed and maintained for six months and has now been handed over to the Municipal Committee, Montgomery.
- (5) *Sinking 3 more percolation wells at Dera Ghazi Khan, Rs. 27,406.*—The above work having been completed in all respects the wells have been put into operation.
- (6) *Providing duplicate set of pumping plant at Dera Ghazi Khan, Rs. 29,790.*—The pumping plant was under order and the plant when received will be set in position.
- (7) *Imihal Water Supply, Rs. 1,36,844.*—A 20 feet diameter percolation well was completed. The curb is of 1:2:4 cement concrete reinforced with "L" iron and the steining is of 1:4 brick in cement and has been sunk 12 feet below spring level which fluctuates with the rise or fall of the river.

The pumping plant was erected, the service reservoir completed and the pipelines laid during the year under report.

The Ghapru Crossing has also been completed.

- (8) *Musakhel Water Supply, Rs. 37,394.*—This water supply consisting of tube-well, deep well type of pump and oil engine, elevated reservoir and 16½" standposts at the headworks was completed.
- (9) *Ghundi Water Supply, Rs. 3,937.*—The water supply of the village well was improved by sinking a 3" Tej Strainer and 3-inch plain 50 feet pipe in the bottom of the old well. A 7 feet diameter iron cylinder was sunk in the well and bottom plugged to keep off the brackish water from the upper strata. A 1:4 cement brick shaft, 9 feet inside diameter, was built to a height 19½ feet over the cylinder to protect the damaged and cracked portion of old steining of the well.
- (10) *Nagni Water Supply, Rs. 4,523.*—The supply of the village well has been improved by sinking a 4-inch strainer 24 feet long and 71 feet of 3-inch G. I. Pipe in the bottom of the well. A 7 feet diameter 12 feet long iron cylinder was sunk in the well and the bottom plugged to keep off the brackish water from the upper strata.
- (11) *Kalri Water Supply, Rs. 9,721.*—Two pits at different places have been dug in a vain search of potable water.
- (12) *Dajal Water Supply Trial Boring, Rs. 2,929.*—A series of 18 shallow borings, each about 40 feet deep, were made to determine the site of headworks for proposed Dajal Water Supply Scheme.
- (13) *Aohar Drainage, Rs. 2,45,209.*—The works were completed and accounts closed. The scheme is working satisfactorily and is very well maintained by the Municipal Committee.
- (14) *Aohar Water Supply, Rs. 3,25,357.*—The accounts of the work were closed and the scheme is working very satisfactorily.
- (15) *Moga Drainage Scheme, Rs. 1,76,904.*—The sillage pumping plant has been handed over to the Local Body. The scheme is functioning satisfactorily.
- (16) *Ferozepore Drainage Scheme, Rs. 82,944.*—The construction of the storm water channel has not been commenced as question of disposal of the storm water has not yet been settled with the Canal authorities.
- (17) *Jagadhari Drainage Scheme, Rs. 1,34,966.*—The work has been completed and the accounts have been closed.
- (18) *Ludhiana Drainage Scheme, Rs. 3,45,009.*—Intramural and extramural drains have all been completed, the outfall is now functioning and storm water channel will be completed shortly.
- (19) *Karnal Drainage Scheme, Rs. 2,92,924.*—The land for the outfall has been acquired and the outfall and sillage disposal works are under construction.
- (20) *Jagraon Mandi Drainage Scheme, Rs. 80,331.*—All the intramural drains have been completed and all pavements and roads constructed in the Mandi. The work of outfall will be taken in hand when the land for same has been acquired.
- (21) *Improvements to Old well at Haskiarper, Rs. 14,372.*—The bore has been completed but the yield is very poor. It has been proposed to sink a bore in the adjoining Choe.
- (22) *Rohlak Water Supply, Rs. 5,56,479.*—The works have been completed and will be opened on 15th April 1911, by His Excellency the Governor of the Punjab.
- (23) *Paruo Land Drainage Rohlak Town, Rs. 12,504.*—Pavements in streets and drains are nearing completion and the roads are about to be commenced.
- (24) *Rohlak Water Supply Extension, Rs. 28,154.*—Most of the cast iron pipes have arrived and laying is about to commence.



Florida State School

(26) *Special Repairs to Rawari Water Works.*—Rs. 18,954.—Part of this work has been done and the remainder is about to be taken in hand.

(27) *Water Supply, Pathankot, Rs. 1,71,145.*—The scheme was completed in 1928 and has been functioning well ever since in charge of the Lahore Public Health Division.

(28) *Jowaharukhi Water Supply, Rs. 40,000.*—This work consists of a skeleton distribution system for Jowaharukhi and its fair area, based on springs in the hill behind the little town.

Except for a few minor items, the work was completed and has functioned successfully in charge of Lahore Public Health Division for the last three years.

(29) *Sialkot Drainage Scheme (Revised), Rs. 4,49,881.*—This is a comprehensive surface drainage scheme for the city of Sialkot. The outfall works, sewage pumping station and disposal works and the extramural drains except for a short length near the Imam Sahib were completed in 1928, and have been working satisfactorily in charge of this Department.

The intramural drainage and paving works were taken in hand this year and all of these are practically complete.

(30) *Thal Bapa Water Supply, Rs. 1,48,043.*—The works were practically completed in 1928, and have been functioning ever since. This year damage was caused by erosion to two of the suspension crossings and a section of the pipelines. These were rectified but it has been observed that the salt laden sub-soil has been attacking the metal of the pipelines. Action is being taken to withstand this by the use of bitumen coating, etc.

(31) *Rasulpindi D. A.-V. College, Mohalla Drainage, Rs. 63,225.*—The work has been completed and is functioning properly.

(32) *Thammas Water Supply, Attock District, Rs. 78,894.*—Work on this scheme lay suspended almost throughout the year due to delay in land acquisition. The pumping plant has arrived as well as all the pipes and fittings. The steel reservoir was erected and all stores kept ready for proceeding with the works as soon as possession of the land is obtained.

(33) *Pind Dadan Khan Temporary Water Supply, Rs. 28,033.*—The old water supply headworks, Pind Dadan Khan, were washed away by the River Jhelum in May 1930 and temporary water supply works had to be put in hand based on a percolation well on the South Bank of the Jhelum about 3 miles upstream of the town consisting of a percolation well, oil engine driven pumping plant and about 2½ miles of 3-inch and 4-inch C. I. rising main.

Work on this was started in the last quarter of the year 1930, and almost the entire rising main was laid. The new percolation well was sunk to full depth, the engine house was almost ready, the pumping plant received and the work was well on its way to completion.

(34) *Warisbal Drainage Scheme, Rs. 31,497.*—This work, comprising new outfall works for the existing drainage scheme is sanctioned, but could not be started owing to difficulties experienced in land acquisition.

(35) *Murree Water-works Extension, Rs. 5,25,236.*—This scheme consists of the construction on concrete foundations at the Knoll Dunga Gali, about half-a-mile below the Murree Water Supply Headworks of a large steel reservoir in 2 compartments, capacity 3,300,000 gallons. The springs forming the source of water supply for Murree do not yield sufficient water required in the hot weather months preceding the monsoon, consequently Murree has always suffered from a chronic shortage of water in that season of the year. The springs which depend largely on melting of the winter snows, however, yield in the early

spring a copious supply. The new reservoir is intended to store the surplus water then obtainable and thus supplement the supply in the dry months. A 10-inch C. I. supply main will be laid from the springs to the reservoir and a 6-inch C. I. outlet main will join the reservoir to the existing trunk supply main leading to Murree. Construction work was started in November 1930, and a considerable amount of excavation work was carried out by the end of December 1930, when the work had to be stopped owing to the snow.

The contract for the reservoir has been let to Messrs. Beethwaite and Company, Limited, Structural Engineers, Bombay, and all pipes and valves and specials have been placed in order. Construction work at Dunga Gali will be restarted in April 1931, and every effort will be made to complete the scheme a time for the requirements of 1932.

CHAPTER V—Electrical Engineering.

1. *Maintenance of Electric Installations.*—During the year the following number of lights, fans, etc., were installed in Government buildings:—

(1) Lights	2,068
(2) Fans	295
(3) Motors	24
(4) Wall socket points other than heater points	200
(5) Heater points	28
(6) Call bells	18
(7) Electrolyser	1
(8) Motor Generator set	1

The capital expenditure incurred during the year on Government Electrical Installations in the Province amounted to Rs. 2,28,235, thus bringing the total capital expenditure to the end of the year to Rs. 21,15,154.

The revenue earned from fees, etc., recovered from local bodies, etc., for work done during the year and from other miscellaneous receipts amounted to Rs. 44,808.

2. *Works.*—Expenditure on Major and Minor Works, Central and Provincial, by units of appropriation was as follows:—

	Rs.
(A) Central Buildings—	
(3) Archaeological	21
Total	21
(B) Provincial Buildings—	
(1) Forests	52
(2) General Administration, Transferred and Reserved	12,198
(3) Administration of Justice	5,842
(4) Jails and Convict Settlements	1,15,742
(5) Police	20,509
(6) Science	349
(7) Education (Other than European and Anglo-Indian)	2,575
(8) Medical	21,104
(9) Public Health	266
(10) Agriculture	4,794
(11) Civil Works	34,894
(12) Industries	1,456
(13) Stationery and Printing	5,003
(14) Communications	80
(15) (U) Miscellaneous	3,350
Total	2,28,214

The total expenditure incurred on original works during the year was—

	Rs.
40—Civil Works—	
Major Works	1,35,088
Minor Works	77,420
Contribution Works	2,270
Total	2,14,778
41—Road and Plant—	
1. Major Works	352
2. Minor Works	1,027
Total	1,379
42—Civil Works—	
1. Major Works	10,293
2. Minor Works	5,434
Total	15,727

3. *Maintenance*.—The expenditure on "maintenance" during the year was as follows:—

	Rs.
41—Central—	
(A) Archaeological	258
Total	258
(B) Provincial Repairs, Transferred Voted and Reserved	
Voted	1,15,963
(C) Contribution Repairs	1,724
Tools and Plant Repairs	6,780
Total	1,24,367

A statement of major works carried out during the year is given below—

Item No.	Name of Installation.	Amount of estimate.	Expenditure during 1995-92.
		Rs.	Rs.
	<i>60—Civil Works—Capital Expenditure.</i>		
1	Providing electric installation in the new Maternity Hospital, Lahore	55,802	10,300
	Total .. .. .	..	10,300
	<i>41—Civil Works—Provincial T. V.</i>		
2	Providing electrical installation in the Dental School and Hospital, Lahore	10,604	81
3	Provision of electric power for Guma Water Works, Simla	2,77,509	—145
4	Providing electrical installation in the Chauburji Gardens, 116 House, Type I, Lahore	29,233	8,000
5	Providing electrical installation in Chauburji Gardens, 48 houses, Type II, Lahore	15,364	3,473
6	Providing electrical installation in Chauburji Gardens, 34 houses, Type II, Lahore	10,745	4,000
7	Providing electrical installation in Chauburji Gardens, 98 houses, Type I, Lahore	21,391	6,400
8	Providing electrical installation in new Civil Hospital, Multan	97,502	4,076
9	Providing lights and fans and motors in the Press Buildings, Central Jail, Lahore	14,143	8,745
10	Providing electrical installation in New Central Jail, Multan	1,21,362	1,00,347
	Total .. .. .	..	1,32,080
	<i>Tools and Plant (New Supply).</i>		
11	Providing an alternating current generating and testing set apparatus for Electrical Engineer's Laboratory, Lahore	14,000	355

Item 1.—Maternity Hospital, Lahore.—The entire wiring of the New Maternity Hospital, including the installation of a lift, was completed during the year. The only work remaining to be done was the installation of fittings in a part of the hospital. Energy for the hospital is purchased in bulk from the

Supply Company and distributed from a switch house, which forms part of the hospital installation, by underground cables, through feeding pillars, to the various buildings. The installation consists of—

- 870 lights.
- 107 fans.
- 53 plugs.
- 8 sterilizer points.
- 1 electrically driven water supply installation.
- 1 electrically driven sewerage installation.
- 1 electric lift.

The estimated cost of the installation is Rs. 55,802.

Item 8.—New Civil Hospital, Multan.—The installation in the new Civil Hospital, Multan, estimated to cost Rs. 37,852, was completed during the year.

The New Civil Hospital receives a medium and low pressure supply direct from the Supply Company's distribution mains in the town. The installation consists of—

- 200 lights.
- 46 fans.
- 32 plug points.
- 1 electrically driven water supply pumping installation.
- 1 electric lift.

Item 10.—New Central Jail, Multan.—The electrical installation of the New Central Jail, Multan, estimated to cost Rs. 1,21,960, was completed during the year.

The New Central Jail is supplied through a high tension line, of about $\frac{1}{4}$ mile in length, from the Multan Electric Supply Company's power station at the Cantonments. At the Jail the supply is transformed to medium and low pressure and distributed throughout the Jail premises for lighting, fans, water supply and sewerage purposes. As the Jail was needed for occupation several months before the permanent plant could be obtained from England, temporary arrangements were made, with borrowed plant, to give an immediate supply for essential requirements. The new plant was brought into service on the 1st January, 1911, and is working satisfactorily. Energy is purchased in bulk from the Multan Electric Supply Company at a flat rate of Re. 0-2-6 per unit. The installation at the Jail comprises of the following:—

In the Sub-station—

- 2 transformers of 50 K. W. each with necessary high and low tension switch gear.
- 2 electrically driven water supply pumping stations.
- 1 electrically driven sewerage pumping installation.

In Jail Buildings—

- 1,100 lights.
- 50 fans.
- 25 plug points.

The aerial distribution in the Jail is about 3 miles long. The cost of the high tension aerial line from the Supply Company's power station to the Jail is included in the estimate as it is a service line specially erected for the Jail.

Supply of Energy.—The cost of electricity supplied to Government Provincial Buildings in Lahore, Ferozeshah, Amritsar, Rawalpindi, Campbellpur, Sahiwal, Aulhambur, Jhelum, Multan, Gujranwala, Lyallpur, Sialkot and Simla was met by each Department from its own funds. The Electrical Division paid for the energy consumed in Public Works Department non-residential buildings in Lahore, an amount of Rs. 7,449 for 34,053 units. The cost of electrical energy for Government House, Lahore, was Rs. 5,697 for 24,854 units.

During the year the Municipal Committee of Sialkot entered into an agreement with the Supply Company for street lighting. The agreement was sanctioned by the Electrical Engineer to Government, Punjab.

The work of examining the Hoshiarpur Electric Scheme was done by the Electrical Engineer on payment of the prescribed fees.

The scheme for the electrification of Montgomery was also scrutinised by the Electrical Engineer on payment of the required fee.

At the request of the Irrigation Branch the Electrical Engineer to Government, Punjab, investigated the question of staff organization, etc., for the Renala Hydro-Electric Scheme and submitted a report.

Lightning conductors.—Ninety-nine lightning conductors installed on buildings in the Province were inspected and tested by this Department; of these 82 conductors were found to be defective. Necessary inspection and test reports were forwarded to the Executive Engineers and others concerned for removing the defects pointed out.

ELECTRIC INSPECTOR.

5. Supply of Electricity—

- (1) *Lahore.*—The supply of energy from the Shahdara Power Station to Amritsar was stopped by the Lahore Electric Supply Company, Limited, on 11th June 1930 on account of alleged faults in the hydro-electric system. The matter was investigated and reported on by the Electric Inspector to Government, Punjab.

A dispute arose between the Hydro-Electric Branch and the Lahore Electric Supply Company, and the Electric Inspector was instructed by the Governor in Council to give his decision in the matter under sub-clause (3) of Clause VI of the Schedule to the Act. The supply was not resumed by the Lahore Electric Supply Company till late in December 1930.

Government accorded sanction to the change from D. C. to A. C. of the area of supply between the canal and the Lahore-Ferozepore Railway line. Some new sub-stations and both H. T. and L. T. aerial lines were put into service by the licensee during the year under review.

- (2) *Shahdara.*—During the period under report a license was granted to the Lahore Electric Supply Company, Limited, for the electrification of the town of Shahdara. The licensee also entered into an agreement with the North-Western Railway for the supply of electric energy to the railway premises at Shahdara.

- (3) *Rawalpindi.*—Sanction under section 27 of the Indian Electricity Act was granted to the Rawalpindi Electric Power Company, Limited, to supply electrical energy to certain persons outside the licensed area. Several cases of breaches of Rule 62 (3) were reported during the year and action was taken on them.

- (4) *Jullundur.*—A meeting was held at Jullundur on 2nd April 1930 for the compilation of a list of compulsory works in the proposed extended area of supply to be executed by the Jullundur Electric Supply Company, Limited.

The Supply Company submitted a list of earths tested by them, several of which were retested by this Department.

- (5) *Amritsar.*—During the period under report, the Municipal Committee of Amritsar continued giving as good a supply as possible in the adverse circumstances in which they were placed. The licensee brought into operation two new converting sub-stations. One in the city and the other in the civil lines. Owing to the stoppage of the bulk supply from Lahore the licensee recommenced using their steam power station and met their demands as best they could.

Sanction was granted under Section 27 of the Indian Electricity Act to the Municipal Committee to supply electrical energy to Amar Singh's bungalow outside the licensed area.

- (6) *Sialkot.*—The Supply Company having satisfied Government as regard to their ability to carry out the obligations imposed by their license, the balance of the security deposited by them was refunded.

On an application made by the Company their area of supply was extended (*vide* Gazette Notification No. 45-W. (E) S., dated 2nd June 1930). During the year Government approved the assignment of the Sialkot Electric License, 1928, from the Lahore Electric Supply Company to the Sialkot Electric Supply Company and the transfer of the undertakings.

(7) *Hoshiarpur*.—The "compulsory works" required to be executed by the Hoshiarpur Electric Supply Company, Limited, under clause IV of the schedule to the Act, were specified by Government.

During the year orders for the plant and the distribution material were placed by the licensee and up to the close of the period under report the progress of the work was satisfactory.

(8) *Montgomery*.—In the first instance a license for the supply of electric energy was granted to the Municipal Committee of Montgomery, but later it was revoked and sanction under Section 28 of the Indian Electricity Act was provisionally granted to the Punjab Electric Power Company.

Specifications for the plant and the distribution material were issued by the Company and some tenders were received during the year under review.

(9) *Sargodha*.—A license for the electrification of Sargodha town was granted to the Sargodha Electric Supply Company, Limited, on the 19th March 1931.

(10) *Hissar, Hansi and Dhiwani*.—The draft license submitted by the Lahore Electric Supply Company for the above-mentioned three towns and a draft agreement for street lighting for the town of Hissar to be entered into between the Municipal Committee of Hissar and the Lahore Electric Supply Company, Limited, were under consideration.

(11) *Kasauli*.—During the period under report, a meeting was held at Kasauli with regard to the compilation of the list of compulsory works which were subsequently specified by Government.

The Cantonment authority of Kasauli referred for opinion of the Electrical Engineer certain proposals in connection with a draft agreement for street lighting. The period provided in the license under clause 1 (a) of the schedule to the Act was extended by Government for a period of 6 months and the licensee again applied for a further extension of 6 months.

(12) *Badomali*.—In the beginning of the period under report the installation of Messrs. Atma Singh, Dalip Singh of Badomali was inspected by the Electric Inspector when numerous defects were pointed out to the proprietor. Later the defects were removed and permission to energise the aerial lines was granted. The proprietor was also informed that no additions or alterations were to be made to his installation without the previous approval of the Electric Inspector.

(13) *Campbellpur*.—During the year the Municipal Committee of Campbellpur advertised a draft application for a distributing license in the press, and they were referred by the Director of Industries to section 3 of the Act, read with Rule 9 of the Indian Electricity Rules, and asked to submit a proper application for the grant of a license. Later a proper application for the grant of a distributing license was received and commented upon by the Electric Inspector. The Committee propose to take a bulk supply from the M. E. S. and distribute it within the Municipal area. The license was not granted during the year under review.

(14) *Abohar*.—The Municipal Committee of Abohar asked the Electrical Engineer for particulars of the technical and financial aspect of an electrification scheme for the town.

After reference to the Hydro-Electric Branch they were informed that Abohar was included in the second stage of the Mandi Scheme, and they were briefly informed of the financial aspect of an electrification scheme for the town.

- (15) *Moga*.—The installation of Lala Sant Ram of Moga was inspected by the Electric Inspector during the year when permission was granted to him to restart the supply.

The Director of Industries asked the Electric Inspector to suggest further conditions to be imposed on Lala Sant Ram operating under Section 28 of the Act. The draft conditions were submitted to Government for consideration.

- (16) *Ambala*.—An application for the grant of a licence for the electrification of the town of Ambala was received by Government from Messrs. The Punjab Traders and scrutinised by the Electric Inspector.

A second application for this town was received from the Lahore Electric Supply Company.

- (17) *Gujrat*.—An application for the grant of a licence for the electrification of the town of Gujrat was submitted to Government and was scrutinised by the Electric Inspector. The question of the grant of a licence was under consideration by Government at the close of the year.

- (18) The question of augmenting the supply for Simla was under consideration by Government and the Municipal Committee, Simla.

During the year the draft rules for the supply of electric energy to the public were examined by the Electric Inspector. A conference was held in Lahore to discuss the question of Government financial control over the Electricity Department of the Simla Municipal Committee and other relevant matters relating to the supply.

- (19) *Gujranwala*.—Government specified compulsory works to be executed by the Gujranwala Electric Supply Company, Limited, in their extended area of supply.

- (20) *Multan*.—During the year a H. T. bulk supply was given to the New Central Jail at Multan. The Multan Electric Supply Company was also in correspondence with the Railway Administration for the supply of energy in bulk to the North-Western Railway at Multan.

6. *List of Electrical Undertakings in India*.—During the period a list of electrical undertakings in India was printed and put on sale with the Government Press at a cost of Rs. 6 per copy.

Necessary data for the compilation of the first supplement for the years 1928-29 and 1929-30 was called for from all Electric Inspectors in India.

7. *Accidents*.—Eleven accidents from electric shock occurred during the year, of which 4 proved fatal to human beings.

8. *Fees*.—During the year fees aggregating to Rs. 510 were realised under the Cinema and the Indian Electricity Rules.

9.—*Certificates of competency for wiremen*.—During the period Government invited objections to the draft rules for granting licences to wiring contractors and certificates of competency to wiremen. Only one objection was received which was forwarded to Government for consideration.

10. *Inspections*.—During the period 300 inspections were carried out under the Cinema and the Indian Electricity Acts.

11. *Earths*.—Numerous earth tests were carried out on installations belonging to licensees and others.

CHAPTER VI—The Maclagan Engineering College, Moghalpura, Lahore.

Number of students.—There were 283 students at the commencement of the 5th college year in October 1930 :—

	" A " Class.	" B " Class.
1st Year	8	42
2nd Year	15	46
3rd Year	14	45
4th Year	14	44
5th Year	15	40
Total	66	217

External Examinations.—The examination for the Associate Membership of the Institution of Mechanical Engineers was held for the 2nd time in Lahore in October at this college, and five of the students sat for one or more parts of the examinations. Each student passed in every part for which he entered.

A. M. I. E. E. Examination.—The examination for the Associate Membership and Graduateship of the Institution of Electrical Engineers was held during May and November 1930, respectively.

Twenty-five students passed in every part for which they entered.

City and Guilds Examination.—Seven students passed different examinations of the City and Guilds, London Institute.

Training Overseas.—One " A " class student left for training overseas with Messrs. Marshall & Sons, England.

Recruitment.—Recruitment is limited to 10 " A " class and 40 " B " class students annually. The competition for admission to " B " class continues to be very keen, 435 candidates competing for 40 vacancies.

Health.—There were no cases of infectious disease, and general health of the students was satisfactory.

The students and hostels have been regularly inspected by Dr. Rodgers of the Railway dispensary, Moghalpura, whose services deserve special mention.

Distribution of Diplomas and Prizes.—The first distribution of Diplomas, prizes and certificates was held on the 28th February 1931. Sir George Rainey, Railway Member, Government of India, distributed the prizes. The function was a great success and was attended by a large number of officials and local gentry.

Recreation.—Tennis, hockey, football and cricket are the principal recreations popular with the students.

The college sports were held on the 16th, 17th and 19th March 1931 and were a brilliant success. Lady Jogendra Singh very kindly distributed the prizes. The college received from Sir George Rainey a challenge cup for the athletic team.

Finance.—A summary of the details of expenditure incurred and revenue realized for the period under review is given below :—

<i>Finance.</i>	Income, 1930-31.
	Rs.
Hostel and Tuition Fees	18,235
Fees	1,312
Rent of shops	115
Balance of Entrance Examination	1,659
Miscellaneous	71
Recovery of expenditure	128
Rent and Electric Rent	6,544
Less Refund	Nil
Total	28,064

					<i>Expenditure.</i>
					Rs.
<i>Pay of Officers.—</i>					
					25,247 <i>Non-voted.</i>
Pay	..	..	..	..	57,888 <i>Voted.</i>
Leave Salary	..	..	..	..	242
Total Pay of Officers					25,247 <i>Non-voted.</i>
					57,888 <i>Voted.</i>
<i>Pay of Establishment.—</i>					
					Rs.
Pay	..	..	..	..	46,418
Leave Salary	..	..	..	..	2,902
Total pay of Establishment					49,345
<i>Travelling Allowance.—</i>					
					Rs.
Other Travelling Allowance	..	..	..	..	400 <i>Non-voted.</i>
					885 <i>Voted.</i>
<i>Other Allowances and Honoraria.—</i>					
					Rs.
Payment to "B" Class students	..	..	..	..	89,888 <i>Voted.</i>
Compensation allowance to clerks and peons	..	..	..	..	908 <i>Voted.</i>
Cost of passages granted under the Superior Civil Service Rules, 1924	..	..	..	..	473 <i>Non-voted.</i>
Grain compensation allowance	..	..	..	..	..
Total other Allowances and Honoraria					473 <i>Non-voted.</i>
					89,891 <i>Voted.</i>
<i>Supplies and Services.—</i>					
					Rs.
Other Supplies and Services	..	..	..	..	16,845
<i>Contingencies.—</i>					
					Rs.
Other Contingencies	..	..	..	..	20,561
<i>Stipends and Scholarships.—</i>					
					Rs.
Scholarships to "A" Class students	..	..	..	..	3,800
GRAND TOTAL					26,220 <i>Non-voted.</i>
					2,10,130 <i>Voted.</i>
Net cost to Government	..	..	..	..	2,41,306
Average number of students on roll	..	..	..	..	280
Net cost per student	..	..	..	..	862
Average tuition fee paid by "A" Class student per annum	..	..	..	..	130
Average tuition fee paid by "B" Class student per annum	..	..	..	..	242

CHAPTER VII—Government School of Engineering, Rasul.

1. *Administration.*—The following officials served on the Advisory Committee at various times during the year:—

Mr. W. S. Dorman, B.A., B.E., M.I.C.E., Officiating Chief Engineer and Secretary to Government, Punjab, P. W. D., Buildings and Roads Branch.

Mr. J. B. G. Smith, C.I.E., M.L.C., Chief Engineer and Secretary to Government, Punjab, Irrigation Branch.

Mr. R. P. Hadow, C.I.E., A.M.I.C.E., Chief Engineer and Secretary to Government, Punjab, Irrigation Branch.

Mr. H. P. Ashton, M.L.C., Chief Engineer and Secretary to Government, Punjab, Irrigation Branch.

Mr. A. Murphy, O.B.E., Officiating Chief Engineer and Secretary to Government, Punjab, Irrigation Branch.

Mr. F. C. Pavry, F.C.H., Chief Engineer, North-Western Railway.

Sir George Anderson, Kt., C.I.E., Director of Public Instruction, Punjab.

Mr. Ram Lall, M.B.E., P.C.S., Director of Industries, Punjab.

Mr. S. Leggett, M.I.C.E., Superintendent, Central Workshops, Amritsar.

There was no meeting of the committee during the year.

2. *Changes in the Staff.*—The new post of Instructor in Fieldworks Engineering was filled by Sergeant H. A. Flood, R. E. (retired) who joined on 1st December 1930.

3. *Overseers and Draftsmen Training.*—Number of students attending the classes:—

			Beginning of the session.	End of the session.
1st Year Overseer Class	..	..	64	62
2nd Year Overseer Class	..	..	77	74
1st Year Draftsman Class	..	..	15	15
2nd Year Draftsman Class	..	..	10	9
3rd Year Draftsman Class	..	..	7	7
Total	..	..	173	167

From the 1st year overseer's class 2 students dropped out owing to sickness.

From the 2nd year overseer's class one student dropped out owing to sickness, one died at home and one was turned out as his conduct and work was not found satisfactory. The last came from the Bahawalpur State.

From the 2nd year Draftsman class one student was withdrawn as he was unable to pull in the class.

4. *Results of Examinations.*—

(a) *Overseer Classes.*—In the first year 59 students out of 61 completing the course qualified for admission to the 2nd year.

In the final examination at the end of the 2nd year, 44 students obtained the higher certificate (16 "Honours" and 28 "Credit") and 25 obtained the lower or ordinary pass certificate. Two, one of whom was a State student, failed in the Mathematics group, but passed in the aggregate and will be allowed to appear in the next to be held in June 1931 and January 1932. Three students—all from States—failed altogether.

(b) *Draftsman Classes.*—In the 1st year class fourteen qualified for admission to the 2nd year and one failed.

In the 2nd year class one student obtained Honours and four obtained the Credit Certificate and thus qualified for admission to the 3rd year course in the following session. Three obtained ordinary passes and one failed.

Of the 7 students in the 3rd year draftsman class all qualified. This was the sixth batch to complete this course.

Remarks.—The work done by all the classes during the year was satisfactory and the standard of work was well maintained.

Thanks to the creation of the post of lecturer in Surveying and Drawing and the division of the teaching work between Messrs. Jagan Nath and M.A. Ghani, an improved standard of teaching has resulted which is expected to be still more marked in future.

In last year's report reference was made to the poor educational standard of the students nominated by the Indian States. This was again noticeable this year; four out of the five failures in the 2nd year being State's students. Three of them and one in the first year were from Bahawalpur. Proposals have been sent to the Bahawalpur Government for improving the standard of their nominees.

5. *Outside Examiners.*—In the final examinations two papers, viz., Surveying and Applied Mechanics, were set and corrected by outside examiners. The marks and reports received were satisfactory.

6. *Recruitment of Classes.*—The annual competitive examination for admission to the Overseer and Draftsman classes in February 1931 was held as usual in the University Hall, Lahore, in November 1930.

The numbers to be admitted, provided they could qualify, were as follows:—

Overseer Class—

From the British Punjab	50
From Bahawalpur State	10
From other Indian States and Delhi Province	10
From the North-West Frontier Province	5
Total	75

In accordance with the Chief Engineer's letter No. 754-E., dated the 31st March 1929, the admissions of British Punjab candidates were to be 40 per cent. Muslims, 40 per cent. Hindus and 20 per cent. Sikhs and out of them 50 were to be agriculturists and not less than 5 were to be the sons of Executive Engineers; provided sufficient in each category qualified.

Draftsman Class.—Fifteen vacancies for British Punjab candidates.

The total number of candidates who entered for the examination was 584 compared with 534 in the previous year and of them 561 actually competed.

Of the latter there were:—

463 from the British Punjab.
37 from the Bahawalpur State.
37 from the other Indian States and Delhi.
24 from the North-West Frontier Province.

Of the British Punjab Candidates—

359 entered for the Overseer class only.
3 entered for the Draftsman class only.
101 entered either for the Overseer or Draftsman class, the balance being preferred by all of them.

Of the British Punjab candidates—

283 (or 50 per cent.) were Hindus.
125 (or 27 per cent.) were Muslims.
105 (or 23 per cent.) were Sikhs.
136 (or 29·4 per cent.) were agriculturists.

The numbers admitted to the Overseer class from the British Punjab were:—

Muslims	20 or 40 per cent.
Hindus	20 or 40 per cent.
Sikhs	10 or 20 per cent.
Total	50
Agriculturists	25 or 50 per cent.
Sons of Executive Engineers	5

Those were admitted to the Draftsman class :—

Muslims	..	..	..	..	..	2
Hindus	..	..	..	..	..	9
Sikhs	..	..	..	..	..	4
Total						15

The percentages of Muslims and agriculturists were higher than in the preceding year, but were still very low in comparison with the percentage of vacancies open to these categories.

Muslim and Sikh candidates for the Draftsman Class were again very low and mostly failed to qualify. It is not possible as yet to apply communal percentages to the admission to this class.

Two students who had failed to qualify at the end of the preceding 2nd year's course were permitted by the Principal to take this course again, provided they paid the usual fees. Also one student who did not appear in the 1st year final examination due to illness was allowed to proceed with the 2nd year's course.

7. *Health*.—The health of the staff and students was good. During the small-pox epidemic in May last one student was infected while on leave and developed the disease after his return.

He was at once isolated and all students were revaccinated. Fortunately there were no further cases.

Proper attention was given to cleanliness and sanitary conditions in the Hostel, school buildings and grounds. The Assistant Surgeon at Rasul inspected the Hostel frequently.

8. *Games and Drill*.—Every student attended physical drill every other morning and games every evening and played hockey and football at least twice a week.

The training in Military drill was continued and was found of great use when the fieldworks course was started on Sergeant Flood's arrival. The military discipline so inculcated is now being extended to all out-of-door practices and to the School routine generally.

Annual Sports.—It is proposed in future to hold these in the autumn instead of on prize-giving day. The afternoon of the latter day is to be made the occasion for the finals of team competitions, and a beginning was made this year, when team competition took place in bridging a gap, relay race, tug-of-war, etc.

9. *Field visits*.—Last year's visit was repeated. The 2nd year Overseer and Draftsman students visited the Mandi Hydro-Electric Works at Jogindrapur and Bent in October 1930, under the charge of the Principal and Assistant Principal. The authorities there gave every facility for seeing the works, and a very instructive four days were spent in seeing them and the Kangra valley Railway. The Madhopur Headworks of the Upper Bari Doab Canal were visited on the return journey.

10. *Mechanical Workshop*.—As usual, all first year students attended the carpentry classes and all 2nd year students attended practices in the tinsmithy, smithy, machine and fitting shops.

On the productive side the mechanical workshop again turned out less work than usual owing to the financial stringency, but the concrete workshop was kept going at nearly full capacity making concrete units for new buildings.

11. *Employment of qualified students*.—Of the 69 Overseer students who qualified in January 1931, fifty-six were from the British Punjab. Up to the limit of reporting 13 have been requisitioned for the Subordinate Engineering Service on probation as shown below. On account of the prevailing financial stringency and the recent retrenchments arising therefrom, no temporary posts in any department are now available for this batch. The chances of the 43 qualified men, remaining over after the requirements of the Subordinate Engineering Service have been met getting employment soon, are therefore small. It is hoped that Government will absorb some of them as soon as

Twenty-two old students of former batches have also reported themselves as out of employment.

<i>Overseers—</i>			
(1) Punjab Irrigation	..	12	requisition for probation in the S. E. S.
		1	Temporary.
(2) Buildings and Roads	..	1	requisition for probation in the S. E. S.
(3) Indian States	..	10	
(4) North-West Frontier Province	..	3	
Unemployed	..	42	
<i>Draftsmen—3rd Year—</i>			
Punjab Irrigation	..	2	permanent on probation.
Buildings and Roads Branch	..	2	Ditto. (1 in 60—2—100 grade).
Unemployed	..	3	
<i>Draftsmen—2nd Year—</i>			
Punjab Irrigation	..	2	permanent on probation.
Military Engineering Service	..	1	Temporary.

Five have been admitted to the 3rd year Draftsmen course of which two have been guaranteed appointments in the Irrigation Branch.

With regard to the recruitment of draftsmen attention is invited to the concluding sub-paragraph of paragraph on employment of qualified students in last year's annual report. Those remarks still apply.

12. *Special Class in reinforced concrete.*—This course was held from 16th September 1930 until 31st January 1931.

The Overseers and Sub-overseers who attended it were from the following departments:—

Buildings and Roads Branch	..	..	..	3
Irrigation Works	..	..	..	4
North-West Frontier Province	..	..	..	1
North-Western Railway	..	..	..	1
Military Engineering Service	..	..	..	2
				10

The 3rd year draftsmen also took the whole of this course in the 2nd term and did well.

All but the one, from the North-Western Railway, qualified. The marks gained in the test papers set at the end of the course and for applied work during the course are shown in the table IV. Qualifying marks are 40 per cent. in each subject and 50 the aggregate.

All the above students were taken to and shown the cement work at Wah.

The ground covered was substantially that laid down in the syllabus.

13. *Testing Laboratory.*—This continued to function for both routine testing and research work.

The fees realized for testing work during the year were Rs. 447.

14. *Concrete Workshop.*—This again functioned satisfactorily for both demonstrational and productive work. Production was well maintained in spite of the financial stringency, thanks to certain buildings being in progress for which concrete products were required.

The value of the work turned out during the year was Rs. 4,317.

15. *Equipment.*—During the year the laboratory was equipped with research apparatus worth Rs. 1,439; the drawing office with drawing materials and furniture worth Rs. 1,315, and the workshop with carpentry tools and bridging apparatus worth Rs. 1,836.

Twenty five beds for the Hostel, one Kapax Hand-break press, one model compressor all—worth Rs. 1,600—were also added to the equipment.

16. *Buildings and Grounds.—Major Works.*—No major works were built during the year.

17. *Minor Works.*—Details are given in table VI appended.

The bungalow for the Instructor in Fieldworks Engineering was nearly finished by the end of the financial year. It has been made of concrete and brick throughout in accordance with a design worked out at Rasul in recent year to give maximum coolness and permanency for minimum cost and is of an experimental nature.

Foot.—The maintenance of the bathfield monument at Chillianwala continued in the charge of the *Chillianwala*.
The cost of its maintenance for the year was Rs. 627.

18. *Special Repairs.*—Details of estimates are given in Table VI. Total cost Rs. 293.

19. *Maintenance of Buildings.*—These were maintained in good order throughout:—

	Rs.
School building	6,755
Residential building	1,217

20. *Grounds.*—These have been kept in good order. An additional area of 7.5 acres was acquired for playing grounds which have been levelled, and one new football field and two new hockey grounds have been laid out thereon.

21. *Financial Working.*—The financial working of the School during the session 1930-31 is given in Table V appended to the report. The table has been drawn up in the same manner as in the last year report.

Under the head "Education" the new expenditure has been Rs. 95,018 against Rs. 89,891 last year. The excess is chiefly due to annual increments, inclusion of the Gazetted Staff appointed last year whose salaries have been paid and accounted for 12 months, whereas in the last year it related to a few months only. The salary of Gazetted Staff (voted) amounts to Rs. 27,050 against Rs. 19,360 last year. Salary of non-Gazetted establishment aggregates to Rs. 39,896 against Rs. 35,246 last year. There is also a decrease in the number of students as they total to 177 against 188 last year.

Receipts on account of fees, etc., were Rs. 37,681 against Rs. 37,608 last year.

Under the head "Manufacture" less work was done in the Mechanical and Concrete Workshops during the year. Most of the work was done for the school, therefore the percentage charges levied were small. The Mechanical Workshop showed a net profit of Rs. 163 and the Concrete Workshop Rs. 33.

The total cost to Government for the whole institution was Rs. 1,02,705, the net cost per student comes to Rs. 580 against Rs. 501 last year.

Table I.

RESULTS OF FINAL EXAMINATIONS OF THE OVERSEER AND DRAFTSMEN CLASSES, HELD DURING THE FIVE YEARS 1926-1931.

Year.	Number appointed.	Number qualified.	Highest marks percentages.	Average marks percentages.	REMARKS.
OVERSEER CLASS.					
1926-27	44	24	81	61	24 qualified by the higher standard of whom 8 obtained "Honours", 20 qualified by the lower standard.
1927-28	52	21	83	63	21 qualified by the higher standard of whom 8 obtained "Honours," 16 qualified by the lower standard.
1928-29	48	26	85	70	21 qualified by the higher standard of whom 19 obtained "Honours," 15 qualified by the the lower standard.
1929-30	66	40	84	67	27 qualified by the higher standard of whom 15 obtained "Honours," 23 qualified by the lower standard.
1930-31	74	40	84	68	44 qualified by the higher standard of whom 18 obtained "Honours," 25 qualified by the lower standard.
DRAFTSMEN CLASS.					
1926-27	77	7	70	60	3 qualified by the higher standard.
1927-28	11	10	68	61	2 qualified by the higher standard.
1928-29	11	11	78	68	7 qualified by the higher standard.
1929-30	11	11	73	63	7 qualified by the higher standard.
1930-31	8	8	73	66	3 qualified by the higher standard.

Table III

NUMBER IN WHAT PROVINCE, DEPARTMENTS, ETC., QUALIFIED STUDENTS FROM RASUL HAVE RECEIVED THEIR FIRST APPOINTMENTS DURING THE FIVE YEARS 1927-1931.

Year of graduation.	Number of students who gained appointments.	EMPLOYED IN GOVERNMENT SERVICE.			Employed in Indian States.	Employed in M. E. S., Hydro-Electric Branch District and Municipal Boards or other offices in the Punjab.	REMARKS.
		Punjab.		S. W. P.			
		Irrigation.	R. & R.	Irrigation.			
OVERSEAS CLASS.							
1927	34	20	0	2	7	..	
1928	31	43	2	..	0	..	
1929	98	61	2	5	14	..	
1930	90	21	2	..	13	6	17 unemployed to date of reporting.
1931	69	15	1	3	10	..	42 unemployed to date of reporting.
DRAFTSMEN CLASS.							
1927	7	3	1	..	..	1	
1928	16	6	2	..	1	..	1 in North-Western Railway.
1929	13	4	1	..	..	8	
1930	13	1	5	..	..	2	3 unemployed up to date of reporting.
1931	8	2	..	..	..	1	5 undergoing 3rd year's course in reinforced concrete.

Table IV.

COURSE IN REINFORCED CONCRETE CONSTRUCTION AND DESIGN. SESSION 1930-31.

Name.	Applied work during the course and upkeep of note books.	TEST PAPERS.			Total.
		Materials.	Practical.	Calculations.	
OVERSEAS AND DRAFTSMEN.					
First marks	100	100	100	100	400
Qualifying marks	40	40	40	40	200
OVERSEAS FROM THE BUILDINGS AND ROADS BRANCH.					
1. S. Wadia Esq.	70	77	85	71	303
2. S. Mahabhar Singh, Esq.	77	63	63	61	264
OVERSEAS FROM THE IRRIGATION BRANCH.					
1. M. Ahmad Ali Esq.	73	77	74	73	297
2. L. Govind Chandra.	75	67	75	79	296
3. S. Govind Singh.	74	62	65	63	264
4. M. Ahmad Sultan.	72	61	68	63	264
NORTH-WESTERN RAILWAY.					
1. S. Govind Chandra.	70	69	45	20	175 Failed.
SUPER-OVERSEAS FROM MILITARY ENGINEERING SERVICES.					
1. S. Govind Chandra.	68	51	66	75	260
2. S. M. Mahabhar Singh.	75	54	53	55	237
NORTH-WEST FRONTIER PROVINCE.					
1. S. Mahabhar Singh	65	65	65	71	281
DRAFTSMEN.					
1. Govind Singh	74	72	82	68	301
2. Govind Singh	70	71	68	75	284
3. Govind Singh	70	76	69	62	277
4. Govind Singh	75	65	69	67	267
5. Govind Singh	65	52	56	70	243
6. Govind Singh	70	58	59	53	240
7. Govind Singh	65	46	48	72	226

Table V.

FINANCIAL STATEMENT SHOWING RECEIPTS AND EXPENDITURE AT THE GOVERNMENT SCHOOL OF ENGINEERING, PUNJAB, RASUL, FOR THE FINANCIAL YEAR 1930-31.

Serial No.	Description of expenditure or receipts.	Amount.	Total Amount.	Grand Total.	Revenue
		Rs.	Rs.	Rs.	Rs.
EDUCATION.					
<i>Receipts.</i>					
1	Admission examination fees	5,840			
2	Tuition and Hostel fees	17,338			
3	Capitation fees	11,700			
4	Rents	2,653			
5	Miscellaneous receipts	150			
			27,681	27,681	
EXPENDITURE.					
<i>Salaries.</i>					
1	Gazetted Officers (Non-voted)	23,060			
2	Ditto (Voted) Permanent	21,190			
3	Ditto (Voted) Temporary	5,860			
4	Instructors Establishment, Permanent	16,462			
5	Ditto ditto Temporary	1,050			
6	Clerical Establishment, Permanent	6,718			
7	Workshop Establishment	2,539			
8	Workshop Establishment, Temporary	5,614			
9	Concrete Section Establishment, Permanent	5,719			
10	Boarding House Establishment	360			
11	Menial Establishment	11,505			
			1,00,086		
12	Pensionary charges $\frac{1}{4}$ th item 1, plus $\frac{1}{4}$ th items 2, 4, 6, 7, 9, 10 and 32.	10,530	10,530		
<i>Allowances.</i>					
13	Travelling Allowance (Non-voted)	586			
14	Travelling Allowance (Voted)	1,401			
15	Other Allowances and Honoraria— Examiners fees	264			
	Allowances to Draftsmen, etc.	330			
			2,581		
<i>Supplies and Services.</i>					
16	Books and periodicals	447			
17	Prizes and medals,	313			
18	Railway freight on Stores and Stationery	153			
19	Materials for Workshop Classes	2,567			
20	Running charges of workshop plant	575			
21	Convocation charges	74			
22	Research work charges	963			
23	Miscellaneous	214			
			5,306		
<i>Contingencies.</i>					
24	Stationery and Printing	154			
25	Postage and Telegraph charges	610			
26	Miscellaneous expenses	1,191			
27	Hot weather establishment	435			
			2,490		
<i>Equipment—New Supplies.</i>					
28	Machinery and Tools and Plant	1,836			
29	Mathematical Instruments	2,754			
30	Furniture	1,690			
			6,280		
<i>Repairs and Carriage of Tools and Plant.</i>					
31	Repairs to Machinery, furniture and motor vans, etc.	4,324			
			4,324		
<i>Medical.</i>					
32	Salaries (Permanent)	495			
33	Salaries (Contingent)	136			
34	Allowances	431			
35	Stores	140			
			1,202		
	Less Receipts			1,20,000	
	Net expenditure			27,681	
<i>Maintenance.</i>					
1	Buildings, Grounds, Establishment, Water Supply, approach road and water-course	4,302	4,302	4,302	

Table V—CONCLUDED.

MANUFACTURE.

REVENUE.			EXPENDITURE.		
Item No.	Description of items.	Amount.	Item No.	Description of items.	Amount.
		Rs.			Rs.
	Mechanical Workshop.			Mechanical Workshop.	
1	Value of stores sold during the year	1,324	1	Wages of special establishment ..	4,665
2	Credits for work done during the year.	22,759	2	Value of stores in hand on 1st April, 1930.	13,594
3	Value of stocks in hand on 1st April 1930.	18,423	3	Stores purchased during the year ..	21,408
4	Work done for which credits could not be adjusted during 1929-30, owing to non-receipt of accepted bills.	16	4	Freight charges on stores ..	692
	Total ..	43,522		Total ..	40,359
	Less Expenditures ..	43,359			
	Profits ..	163			
	Cement Workshop.			Cement Workshop.	
1	Value of stores sold during the year	465	1	Wages of special establishment ..	983
2	Credits for work done ..	4,317	2	Value of stores on 1st April 1930 ..	1,780
3	Value of stocks in hand on 1st April 1930.	891	3	Stores purchased during the year ..	3,110
	Total ..	5,673	4	Freight charges on stores ..	370
	Less Expenditures ..	5,343		Total ..	6,243
	Net profits ..	330			
	Concrete Laboratory.			Concrete Laboratory.	
1	Amounts received for tests made in the Training Laboratory.	447	1	Stores and energy charges incurred on tests.	80
	Less expenditures ..	90			
	Net profits ..	357			

		Rs.	Rs.
Net expenditures—			
Education	95,916		
Manufacture	8,332		
			1,03,268
Less net profits from Manufacture—			
Mechanical Workshop	163		
Cement Workshop	33		
Laboratory	357		
			553
			1,02,705
Number of students who completed the year's training—			
Cement class	126		
Trainers class	31		
Mechanical Concrete class	10		
Total ..	177		
Net cost to Government per student for the year	1,02,705		
			177
			—580 per student.

Table VI.

STATEMENT SHOWING EXPENDITURE ON MINOR WORKS AND REPAIRS EXECUTED
AT THE GOVERNMENT SCHOOL OF ENGINEERING, PUNJAB, RASUL,
DURING THE FINANCIAL YEAR 1930-31.

Serial No.	Name of Estimate.	Expenditure during 1930-31.	
		Rs.	P.
<i>Minor Works.</i>			
1	Racks for placing Building Construction models in the museum	418	
2	Fencing and levelling land acquired in 1930 for the Government School of Engineering, Rasul	532	
3	Residence for the Instructor in Fieldworks Engineering at Rasul School of Engineering	8,453	
4	Additional land required for the Government School of Engineering, Punjab, Rasul	3,401	
5	Making and fixing ornamental wooden frames for the "Honours" Tablets in the North Hall at Government School of Engineering, Rasul	80	
			14,884
<i>Special Repairs.</i>			
6	Special repairs to School Dispensary at Government School of Engineering, Rasul	39	
7	Special repairs to the Photographic dark room at Government School of Engineering, Rasul	145	
8	Special repairs to the Process Work dark room	13	
9	Special repairs in the Surveying Instrument room at Government School of Engineering, Rasul	83	
			380
<i>Annual Maintenance and Repairs.</i>			
10	Annual repairs to Government School of Engineering, Punjab, Rasul	6,735	
11	Annual repairs to Government School of Engineering, Punjab, Rasul (Residential Buildings)	1,317	
12	Annual repairs to battlefield monument at Chillianwala	827	
			1,373
			827

CHAPTER VIII—Miscellaneous.

L.—The following papers by officers of this Branch were read at the meetings of the Punjab Engineering Congress, held in 1930 and 1931 :—

- (a) Earth Roads, by Mr. S. G. Stubbs, Secretary, Communications Board, Punjab ;
- (b) Materials and Construction of Trunk and Distribution Pipe-lines for Water-supply, using Metal Pipes, by Mr. D. A. Howell.

II.—Assistance rendered to local bodies during 1930-31.—During the year under review, projects aggregating Rs. 3,18,573 were scrutinised for local bodies, and others totalling Rs. 21,13,271 were prepared for works, which in some cases were carried out by the Public Works Department, Buildings and Roads Branch :—

Year.	Projects scrutinised by Public Works Department (lakhs of rupees).	Projects prepared by Public Works Department (lakhs of rupees).	Work done by Public Works Department (lakhs of rupees).	Fees charged.
				Rs.
1930-31	30.04	50.40	5.48	79,927
1931-32	14.30	33.82	14.47	2,57,464
1932-33	11.48	22.67	6.19	1,76,298
1933-34	7.11	38.16	9.87	1,98,464
1934-35	3.19	21.13	7.50	1,37,092

III. Works of Public Utility.—Works costing over Rs. 10,000 each were constructed by private individuals during the years 1931 as under :—

	Rs.
1. Dharamsala with a well, at Hansi, Hissar District, by Lala Thandi Ram, Mahajan	25,000
2. A house for the location of a Maternity and Child Welfare Sub-Centre at Wazirabad, Gujranwala District, by Lala Latha Ram, Banker, at a cost of Rs. 5,000, with contribution of Rs. 8,000	13,000

APPENDIX.

The Communications Board, Punjab.

Constitution.—The Honourable Minister for Agriculture continued to be the President and the Board comprised the following members:—

(a) Official (9 members).

1. The Financial Commissioner (Development) Punjab.
2. The Chief Engineer, Punjab, Public Works Department, Buildings and Road Branch.
3. The Chief Engineer, Punjab, Public Works Department, Irrigation Branch.
4. The Secretary to Government, Punjab, Finance Department.
5. The Secretary to Government, Punjab, Transferred Departments.
6. The Director of Agriculture, Punjab.
7. The Chief Conservator of Forests, Punjab.
8. The Agent, North-Western Railway, Lahore.
9. The Senior Government Inspector of Railways, North-Western Railway.

(b) Non-official (9 members).

1. Sardar Nau Nihal Singh, Manawala, District Sheikhpura.
2. Pir Sayad Muhammad Hussain, Sher Garh, District Montgomery.
3. Rai Bahadur Lala Sowak Ram, M. L. C., Bar-at-Law, Lahore.
4. Rai Bahadur Raja Pandit Hari Kishan Kaul, C.S.I., C.I.E., Lahore.
5. Sardar Randhir Singh, Sialkot.
6. Major Nawab Talib Mehdi Khan of Darapur, District Jhelum.
7. Chaudhri Zafrullah Khan, M. L. C., Bar-at-Law, Lahore, up to 28th February 1931.
8. D. W. Teasdale, Esquire, Representative of the Punjab and North India Chamber of Commerce, Lahore, from 23rd October 1930.
9. P. H. Guest, Esquire, representative of the Automobile Association of Northern India, Lahore. From 5th June 1930.

Mr. L. A. Freak, I.S.E., acted as Secretary to the Board till the 29th October, 1930, when, on account of financial stringency, the post of a whole-time Secretary was abolished and the charge of the office was held for the remaining period by Mr. D. Mastarhans, I.S.E., in addition to his own duties as Superintending Engineer, Fourth Circle, with head-quarters at Multan.

Business.—During the year the Board held four regular meetings and one sub-committee meeting. It accorded administrative approval and, through its Secretary, technical sanction to 33 new road projects to the value of Rs. 1,33,293 and advised on four irrigation projects. The Board distributed Rs. 4,90,567 as grants-in-aid to all District Boards in the Punjab except Lyallpur and Simla.

Railways.—No new railway lines were opened to public traffic during the year under review.

Class I Roads.

Roads.—During the year 0.66 mile metalled under 2nd instalment and 131.44 mile unmetalled (i.e. 27.00 miles under I instalment, 2.18 miles under 2nd instalment and 102.26 miles under Nili Bar roads) were transferred to the Public Works Department, leaving 47.31 miles of metalled and 304.82 miles of unmetalled roads still to be transferred under the reclassification scheme of 1926. In the meantime the latter are treated as class II Roads for which the usual maintenance grant-in-aid is given by the Communications Board.

Class II Roads.

Development.—There are about 1207 miles of metalled and 4,922 miles of unmetalled class II Roads under the charge of the District Boards, and the Communications Board allows for their Development grants-in-aid varying from 25 per cent. to 100 per cent. according to the financial condition and the state of communications of the district. This financial help is usually limited to the ability of district boards to maintain their roads efficiently when constructed. In view of the fact that the District Boards are finding it very difficult to maintain their existing metalled roads, the Communications Board was compelled to discourage new metalling, except where it was very necessary, with the result that the District Boards mainly concentrated their activities towards opening up more unmetalled roads to motor traffic. Out of 4,946 miles of Class II unmetalled roads remaining to be improved, 124 miles were improved during the current year having 4,822 miles yet to be improved.

The expenditure during the year under this head for salaries, travelling allowances of staff and members of the Communications Board and contingencies amounts to Rs. 21,306. If this amount is computed against the total amount of grants-in-aid distributed, the overhead charges work out to 9 per cent. Last year this figure was 7.4. The increase is entirely due to the reduced allotment and further withdrawal of funds at the disposal of the Communications Board on account of financial stringency. If the overhead charges are computed against the total expenditure of Rs. 12,20,084 as shown in Appendix VI on all class II roads, it comes to a nominal figure of 3.6 per cent., and in fact this figure should be taken as correct, as the staff of the Communications Board has not only to deal with the grants-in-aid actually distributed by the Communications Board, but control the total expenditure incurred on Class II roads. The overhead charges will be considerably reduced during the coming year on account of the drastic reduction in the staff.

Statements are appended giving the following details:—

Appendix I	..	..	Abstract of expenditure by the Communications Board.
Appendix II	..	..	Grants given to District Boards for development of class II roads.
Appendix III	..	..	Grants given to District Boards for maintenance of class II roads.
Appendix IV	..	..	Grants given to District Boards for special repairs to roads.
Appendix V	..	..	Grants given by the Communications Board for traffic census expenses on class II roads.
Appendix VI	..	..	Expenditure by each District Board on development, maintenance, special repairs, and traffic census together with the total Communications Board grant to each District Board.

APPENDIX I

STATEMENT OF EXPENDITURE BY COMMUNICATIONS BOARD AGAINST TOTAL ALLOTMENT DURING THE FINANCIAL YEAR 1930-31.

Head of Account.	Budget provision.	Modified Grant.	Expenditure during 1930-31.	REMARKS.
	Rs.	Rs.	Rs. A. P.	
61—CIVIL WORKS.				
MINOR HEAD Y—GRANTS-IN-AID.				
I.—(a) Bridge and Roads ..	2,00,000	65,587	61,764 0 0	
(a) Maintenance of class II roads and special repairs ..	4,00,000	4,28,882	4,28,803 0 0	
II.—Tools and Plant ..	1,139	2,139	2,001 15 9	
III.—Supplies—				
Working of Steam Road Rollers ..	5,000	6,236	5,799 10 3	
IV.—Establishment ..	58,190	44,990	43,896 8 0	

APPENDIX II

GRANTS GIVEN BY THE COMMUNICATIONS BOARD TO DISTRICT BOARDS FOR DEVELOPMENT OF ROADS.

District.	Name of Estimate.	Amount of estimate.	Percentage.	C. B. share.	Grant paid in previous year.	Grant paid 1920-21.	Total.	Remarks.
		Rs.		Rs.	Rs.	Rs.	Rs.	
Hissar ..	1. Fatehabad-Ratia Tohana.	19,000	50	14,500	9,273	2,000	11,273	
	2. Hissar-Barwala ..	10,000						
	Total ..	29,000						
Rohtak ..	1. Meham-Beri ..	22,221	50	33,260	32,000	1,943	33,943	
	2. Jhajjar-Sampla ..	2,800						
	3. Jhajjar-Rewari ..	4,200						
	4. Sonapat-Mimarpar ..	6,796						
	5. Gohana-Meham ..	19,891						
	6. Sonapat-Gohana ..	10,630						
	Total ..	66,538						
Gurgaon ..	1. Nuh-Bahora-Taoru Road.	15,800	100	15,800	10,000	2,137	13,137	
Karnal ..	1. Kaithal-Jind and Kaithal-Asand Roads.	29,564	50	41,360	20,000	10,303	30,303	
	2. Kaithal-Gulla Road.	10,228						
	3. Bhagal-Pehowa Road.	7,554						
	4. Asand-Raj a u n d Pundri Road.	10,713						
	5. Bhagal-Gulla Road	3,324						
	6. Remodelling of cer- tain bridges on Thane- sar-Pehowa Road.	21,329						
	Total ..	82,722						
Ambala ..	Providing Bujri surface to approach road to Rupar Railway Station	2,370	100	2,370	1,907	00	3,000	
Kangra ..	1. Construction of Drun Khud bridge on Yol-Nagrota Road.	10,228	50	5,114	..	2,000	2,000	
	2. Construction of a 12 feet reinforced ce- ment concrete slab bridge over Karari-ki Khui on Nurpur-Gopi- pur Road.	2,324	50	1,162	1,000	102	1,162	
Hoshiarpur ..	Improvements of—							
	1. Una-Anandpur Road.	14,721	50	23,000	21,750	*1,971	23,721	*2,750
	2. Hoshiarpur-Tanda	8,790						
	3. Tanda-Sirigobind- pur.	4,305						
	4. Tanda-Dasuya ..	11,613						
	5. Dasuya-Gardhi- wala.	6,198						
	6. Hariana-Gardhi- wala.	4,373						
	Total ..	50,000						
Ludhiana ..	Improvements of—							
	1. Ludhiana-Raikot	11,200	50	11,800	3,000	4,371	9,000	
	2. Ludhiana-Rahon	7,680						
	3. Samrala-Haldon	4,432						
		Total ..	23,312					
4. Constructing 2 canseways in miles 3 and 4 of Ludhiana- Rahon Road.	5,125	100	4,125	..	4,000	4,000		

*2,750 represents the amount balance of grant with District Board.

APPENDIX II—CONCLUDED.

Division	Name of Estimate.	Amount of Estimate.	Percentage.	C. B. share.	Grant paid in previous year.	Grant paid 1930-31.	Total.	REMARKS.
		Rs.		Rs.	Rs.	Rs.	Rs.	
Barracks	Improvements of—							
	1. Barracks-Malabar	8,358	50	36,871	23,022	8,653	31,675	
	2. Talwarah Chaurah	13,044						
	3. Malabar Barracks	4,302						
	4. Malabar Barracks	8,829						
	5. Malabar Barracks	7,009						
	6. Malabar Barracks	13,315						
	7. Malabar Barracks	10,251						
8. Malabar Barracks	3,200							
	Total	73,743						
Barracks	Improvements of—							
	1. Cherman Barracks	6,706	50	20,368	13,016	2,254	15,270	
	2. Barracks-Malabar	7,342						
	3. Barracks-Malabar	4,428						
	4. Barracks-Malabar	2,500						
	5. Barracks-Malabar	1,893						
	6. Barracks-Malabar	4,720						
	7. Barracks-Malabar	4,300						
8. Barracks-Malabar	2,001							
	Total	41,274						
Barracks	Improvements of—							
	Barracks-Malabar	1,942	50	1,941	..	1,941	1,941	
Barracks	1. Construction of 10th Barracks Malabar Barracks	42,810						
	2. Improvement of Barracks in Malabar Barracks	4,725		24,679	14,694	7,406	22,100	
	3. Construction of Barracks in Malabar Barracks	1,824						
	Total	49,359						
Barracks	Renovating and widening walls 1 and 2 of the Barracks-Malabar Barracks	14,602	100	14,602	..	7,673	7,673	
Barracks	Improvements with the Barracks-Malabar Barracks	300	100	300	..	247	247	
Barracks	Improvements in Barracks-Malabar Barracks	327	100	327	..	361	361	
	Total	..	..	3,10,444	1,03,008	61,764	2,20,852	

APPENDIX III.

STATEMENT SHOWING THE EXPENDITURE INCURRED BY THE DISTRICT BOARD DURING THE FINANCIAL YEAR 1929-30 ON THE MAINTENANCE OF CLASS II ROADS AND GRANT PAID BY THE COMMUNICATIONS BOARD DURING THE FINANCIAL YEAR 1929-30.

No.	District.	Total expenditure accepted after audit.	C. B. share.	District Board share.	Remarks.
		Rs.	Rs.	Rs.	
1	Hissar	15,985	8,952	7,033	
2	Rohtak	75,046	41,275	33,771	
3	Gurgaon	25,015	10,256	14,759	
4	Karnal	21,557	7,545	14,012	
5	Ambala	1,01,850	50,925	50,925	
6	Kangra	32,923	8,231	24,692	
7	Hoshiarpur	38,576	10,370	27,946	
8	Jullundur	92,084	34,992	57,092	
9	Ludhiana	68,894	31,510	37,384	
10	Ferozepore	1,29,565	49,235	80,330	
11	Lahore	16,315	5,384	10,931	
12	Amritsar	56,239	15,747	40,492	
13	Gurdaspur	50,772	15,739	35,033	
14	Sialkot	21,581	5,395	16,186	
15	Gujranwala	13,480	3,370	10,110	
16	Sheikhupura	26,787	6,697	20,090	
17	Rawalpindi	30,532	7,760	22,772	
18	Jhelum	21,038	6,943	14,095	
19	Gujrat	41,744	13,776	27,968	
20	Shahpur	62,922	23,163	39,759	
21	Attock	5,291	1,367	3,924	
22	Mianwali	2,865	714	2,151	
23	Multan	49,136	14,443	34,693	
24	Muzaffargarh	5,921	1,509	4,412	
25	Jhang	14,037	3,539	10,498	
26	Dera Ghazi Khan	8,978	2,200	6,778	
27	Montgomery	35,877	11,132	24,745	
	Total	10,65,009	3,94,333	6,70,676	

APPENDIX IV.

STATEMENT SHOWING PAYMENTS MADE TO DISTRICT BOARDS FOR SPECIAL REPAIRS DURING THE FINANCIAL YEAR 1930-31.

District	Name of estimate	Amount of Estimate.	Percentage.	C. B. share.	Grant paid upto 1929-30.	Grant paid 1930-31.	Total.	REMARKS.	
		Rs.		Rs.	Rs.	Rs.	Rs.		
Coimbatore	Special Repairs to—								
	1. Staff Quarters Road ..	2,450							
	2. Marwar Mahajaganam ..	1,037	100	7,412	..	6,235	6,235		
	3. Coimbatore Jambhavanthra Road.	3,026							
	Total ..	7,413							
Madhav	1. Providing down-stones patching to gaps on Kasul-Chandigarh Road.	1,040	100	1,040					
	2. Constructing a roof in Datta's Hall, Sills 14, Kasul-Chandigarh Road.	880	100	880					
	3. Extension of one span to culvert No. 14 in Sills 5, Kasul-Chandigarh Road.	370	100	370					
	4. Extension of one span to culvert No. 2, in Sills 5, Kasul-Chandigarh Road.	670	100	670					
	5. Extension of one span to bridge in Sills 29 of Kasul-Chandigarh Road.	1,580	100	1,580					
	6. Special Repairs to Sills 17 of the Aravali-Narasiguda Road.	3,480	100	3,480					
	7. Special Repairs to bridges and culverts on the Madhav and Aravali-Jagadpur Road.	4,737	100	4,737					
	Total ..	13,007	100	13,007	..	11,470	11,470		
	Madhav	Special Repairs to Madhav-Gundal Road.	3,145	80					
		2. Special Repairs to Madhav-Phulim Road.	329	80					
Total ..		3,474	80	2,084	..	2,038	2,038		
Mangalore	1. Special Repairs to Kuthir-Dudhpet Road.	1,872							
	2. Special Repairs to Chalk District-Kuljar Road.	3,373							
	3. Reconstructing Coimbatore-Kasul Road, Kasul-Datta Jagadpur and Kasul-Chandigarh Road.	3,296							
	4. Reconstructing retaining wall over bridge on Kasul-Datta Jagadpur Road.	1,306							
	Total ..	9,827	50	4,848	..	..	..	Amount adjusted against unspent balance of grant with the District Board.
Mangalore	Special Repairs to the following roads—								
	1. Chalk District No. 4 & 4 A Road.	2,000							
	2. Chalk District Chalk Road.	2,000							
	3. Chalk District Kuthir-Kuljar Road.	2,000							
	4. Chalk District Datta Jagadpur Road.	24,000							
	5. Chalk District Kuthir-Kuljar Road.	11,000							
Total ..	41,000	..	26,530	..	28,000	5,880	26,530		

APPENDIX IV—CONCLUDED.

District.	Name of Estimate.	Amount of estimate.	Percentage.	C. B. share.	Grant paid upto 1929-30.	Grant paid 1930-31.	Total.	Remarks.
		Rs.		Rs.	Rs.	Rs.	Rs.	
Attock ..	1. Special Repairs to Nara-Thatta Road.	1,800						
	2. Gondal-Hazro Road	500						
	3. Hasan Abdal-Fatehjang.	3,200						
	Total ..	5,500	100.	5,500	..	2,344	2,344	
Kangra ..	1. Special Repairs to certain bridges on Dharamsala-Palampur Road.							
	2. Special Repairs to Bodh-Jowali Road.	2,365	100	2,365	..	2,335	2,335	
	3. Reconstructing retaining wall on Hamirpur-Nadaun Road.							
	Total ..	..	..	41,797	20,650	20,300	20,300	

APPENDIX V.

STATEMENT SHOWING PAYMENTS MADE TO DISTRICT BOARDS DURING THE FINANCIAL YEAR 1930-31 ON ACCOUNT OF CENSUS TRAFFIC GRANT.

Serial No.	District.	Percentage.	Amount of grant paid.	Remarks.
			Rs.	
1	Hissar	100	45	
2	Rohtak	100	106	
3	Gurgaon	100	115	
4	Karnal	100	119	
5	Ambala	100	131	
6	Simla	100	..	
7	Kangra	100	..	
8	Hoshiarpur	100	100	
9	Jullundur	100	105	
10	Ludhiana	100	..	
11	Ferozepore	100	204	
12	Lahore	100	..	
13	Amritsar	100	90	
14	Gurdaspur	100	126	
15	Sialkot	100	133	
16	Gujranwala	100	114	
17	Sheikhupura	100	63	
18	Rawalpindi	100	163	
19	Jhelum	100	300	
20	Gujrat	100	207	
21	Shahpur	100	287	
22	Attock	100	190	
23	Mianwali	100	133	
24	Multan	100	203	
25	Muzaffargarh	100	143	
26	Jhang	100	..	
27	Dera Ghazi Khan	100	..	
28	Montgomery	100	..	
29	Lyallpur	100	..	
	Total .. .. .	..	2,504	

APPENDIX VI

STATEMENT SHOWING THE TOTAL EXPENDITURE ON CLASS II ROADS WITH COMMUNICATIONS BOARD AND DISTRICT BOARD SHARE SEPARATELY INCURRED DURING THE FINANCIAL YEAR 1930-31.

No.	District.	TOTAL EXPENDITURE.				Grand Total.	Communications Board share.	District Board share.
		Develop-ment.	Mainte-nance.	Special Repairs.	Traffic census.			
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1	Bihar ..	5,178	15,985	..	45	21,208	11,586	9,622
2	Bihar ..	3,886	75,046	..	106	79,038	43,324	35,714
3	Bihar ..	5,137	25,015	6,235	115	36,522	21,763	14,759
4	Bihar ..	20,602	21,537	..	119	42,278	17,965	24,313
5	Bihar ..	93	1,01,850	11,470	131	1,13,544	62,619	50,925
6	Bihar ..	4,324	32,923	2,335	..	39,482	12,728	26,754
7	Bihar ..	3,942	38,576	..	160	42,678	10,890+1,971*	29,817
8	Bihar ..	..	92,084	..	105	92,189	35,097	57,092
9	Bihar ..	17,965	68,894	..	..	86,849	42,494	44,355
10	Bihar ..	17,306	1,29,565	..	284	1,47,155	58,172	88,983
11	Bihar ..	4,355	16,315	..	..	21,070	7,885	13,185
12	Bihar ..	361	56,238	..	90	56,680	16,198	40,491
13	Bihar ..	3,892	50,772	..	136	54,790	17,816	36,974
14	Bihar ..	14,812	21,581	3,400	135	39,928	14,974	24,954
15	Bihar ..	..	13,480	..	115	13,595	3,485	10,110
16	Bihar ..	..	28,787	..	69	28,856	6,766	20,090
17	Bihar ..	..	30,522	9,697	165	40,394	7,925+4,848*	27,621
18	Bihar ..	..	21,028	5,880	360	27,278	13,183	14,095
19	Bihar ..	..	41,744	..	307	42,051	14,083	27,968
20	Bihar ..	..	62,922	..	287	63,209	25,456	37,753
21	Bihar ..	1,873	5,291	2,344	180	15,488	11,784	3,704
22	Bihar ..	..	2,865	..	121	2,986	837	2,149
23	Bihar ..	..	49,136	..	337	49,473	14,686	34,887
24	Bihar ..	..	5,921	..	203	6,124	1,802	4,322
25	Bihar ..	..	14,037	..	243	14,280	3,752	10,528
26	Bihar ..	..	8,978	..	..	8,978	2,200	6,778
27	Bihar ..	..	35,877	..	75	35,952	11,197	24,755
	Total ..	1,08,828	10,85,009	41,361	3,888	*12,20,084	4,90,567+6,819*	7,22,698

* Unspent grant already with the District Boards.

STATEMENT A-1.

LENGTH OF AND EXPENDITURE (BY CIRCLES AND DIVISIONS) ON MAINTENANCE OF ROADS UNDER
OF THE PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, FOR THE YEAR ENDING
31st MARCH 1931.

CIRCLE AND DIVISION.	LENGTH.				EXPENDITURE.				REMARKS.
	Arterial.		Other.		Arterial.		Other.		
	Metalled.	Un- metalled.	Metalled.	Un- metalled.	Metalled.	Un- metalled.	Metalled.	Un- metalled.	
1	2	3	4	5	6	7	8	9	10
	Miles.	Miles.	Miles.	Miles.	Rs.	Rs.	Rs.	Rs.	
Rawalpindi ..	256.49	91.48	8.94	5.00	4,52,908	13,426	14,290	2,692	The lengths are as on 1st March 1931.
Lyalpur ..	59.01	243.35	..	..	90,000	47,113	..	..
Shahpur ..	150.09	199.975	..	..	2,49,121	28,754	..	..
Total 1st Circle ..	465.59	534.805	8.94	5.00	7,92,029	89,293	14,290	2,692	
Ambala ..	232.08	..	6.82	35.27	4,91,451	..	14,845	11,000	
Gurgaon ..	271.014	24.52	..	..	4,10,202	79,229	..	..
Ferozepore ..	197.34	138.56	2.31	..	3,57,732	30,697	2,627	..	
Jullundur ..	146.64	25.41	..	..	2,75,143	13,297	..	..
Simla ..	55.25	186.45	1.07	139.03	78,349	61,847	892	30,876	
Total 2nd Circle ..	902.324	374.94	10.20	174.30	13,23,968	1,87,623	17,664	32,786	
I Lahore ..	341.69	56.23	5.78	..	7,96,452	9,960	9,140	..	
II Lahore ..	308.58	29.61	16.54	23.61	3,65,514	2,243	33,291	3,536	
Kangra ..	94.57	85.56	2.88	267.24	1,35,383	43,441	4,119	35,548	
Total 3rd Circle ..	744.84	171.40	25.20	290.85	13,41,349	53,644	46,550	47,784	
Multan ..	162.13	227.75	42.51	69.12	1,98,277	33,966	15,013	14,466	
Montgomery ..	220.69	92.45	84.66	13.64	2,17,660	18,277	36,203	3,794	
Total 4th Circle ..	382.82	320.20	127.17	82.76	3,78,937	49,177	42,666	18,260	
GRAND TOTAL ..	2,495.574	1,401.345	171.51	339.91	45,26,542	3,96,736	1,20,430	1,25,266	

NOTE.—In this statement figures under "Other Roads" in 4th circle includes figures for N.W. The Railway road also.

STATEMENT A-2.

LENGHS OF AND EXPENDITURE (BY ROAD) ON MAINTENANCE OF ROADS INCHARGE OF THE PUBLIC WORKS DEPARTMENT, BUILDINGS AND HOALS BRANCH, FOR THE YEAR ENDED 31st MARCH 1931.

Name of Road.	LENGTH.			EXPENDITURE.			RATE PER MILE.		REMARKS.
	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	
1	2	3	4	5	6	7	8	9	10
Actual Road.	Miles.	Miles.	Miles.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Grand Trunk Road.	333-21	4-39	338-60	11,21,712	874	11,22,586	2,019	176	The lengths are as on 31st March 1931.
2. Lahore-Bangalla Road.	133-21	39-613	173-133	1,63,778	9,044	1,72,822	1,305	152	The lengths include links connecting the parent road with in railway station.
3. Lahore-Ludhiana Road.	94-24	139-29	233-53	1,53,046	23,503	1,76,549	1,818	169	
4. Lahore-Warrior Road.	132-33	144-62	277-95	2,15,249	22,147	2,47,396	1,118	222	
5. Lahore-Faridkot Road.	138-28	..	138-28	2,90,769	..	2,90,769	2,128	..	
6. Delhi-Warrior ..	288-24	123-29	411-53	3,97,467	24,518	4,21,985	1,392	201	
7. Delhi-Karnal ..	67-67	..	67-67	63,689	..	63,689	1,278	..	
8. Delhi-Gurgaon ..	31-67	39-61	71-28	32,733	6,620	39,353	1,027	172	
9. Sonapatna (Tahsil) ..	32-32	24-69	57-01	28,821	4,280	33,101	887	122	
10. Faridkot-Ludhiana ..	62-40	18-60	81-00	43,989	2,540	46,529	1,011	142	
11. Sonapatna-Mirzapur ..	60-94	..	60-94	1,74,533	..	1,74,533	2,619	..	
12. Station (Delhi) ..	..	69-50	69-50	..	9,748	9,748	..	140	
13. Wazirpur Station ..	38-20	..	38-20	67,092	..	67,092	1,853	..	
14. Ludhiana-Patank ..	182-12	62-69	244-81	2,42,957	24,622	2,67,579	1,495	586	
15. Patank ..	39-24	..	39-24	47,583	..	47,583	1,203	..	
16. Road ..	..	..	..	..	..	..	..	..
17. Sonapatna ..	2-61	69-79	72-40	1,009	12,590	13,599	306	253	
18. Ludhiana ..	41-41	69-69	111-10	62,614	30,576	93,190	1,512	449	
19. Delhi ..	67-67	..	67-67	63,889	..	63,889	1,308	..	
20. Ludhiana ..	90-24	189-62	279-86	1,23,665	63,847	1,87,512	1,483	342	
21. Sonapatna ..	32-67	..	32-67	31,907	..	31,907	1,614	..	
22. Sonapatna ..	37-94	..	37-94	37,694	..	37,694	1,378	..	
23. Sonapatna ..	12-12	17-12	29-24	20,923	3,296	24,219	976	194	
24. Sonapatna ..	27-60	24-62	52-22	23,606	4,442	28,048	867	180	
25. Sonapatna ..	12-26	69-69	81-95	4,892	11,991	16,883	395	174	
26. Sonapatna ..	24-24	..	24-24	26,322	..	26,322	1,030	..	
Total ..	3,186-57	1,080-40	4,266-97	24,21,112	1,64,714	25,85,826			

STATEMENT A-2—CONTINUED.

LENGTH OF AND EXPENDITURE (BY ROADS) ON MAINTENANCE OF ROADS INCHARGE OF THE PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, FOR THE YEAR ENDED 31st MARCH 1932—continued.

Name of Road.	LENGTH.			EXPENDITURE.			RATE PER MILE.		Remarks.
	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	
1	2	3	4	5	6	7	8	9	10
	Miles.	Miles.	Miles.	Rs.	Rs.	Rs.	Rs.	Rs.	
Brought forward ..	2,185.13	1,090.465	3,275.595	34,71,112	2,64,715	27,35,827			The lengths are as on 31st March 1932.
<i>Arterial Roads—</i> <i>conold.</i>									
27. Montgo m e ry- Pakpattan.	26.59	..	26.59	21,844	..	21,844	822	..	
28. Lyallpur-Sargo- dha.	13.33	39.60	52.93	6,447	8,108	14,555	484	208	
29. Sambrial-G u j- ranwala-Pindi- B h a t t i a n- Jhang.	59.15	51.93	111.08	1,26,367	8,370	1,34,737	2,136	161	
30. <i>Blank</i> ..	..	..	..	..	..	..	..	..
31. Lahore-Moga ..	50.40	22.56	72.96	33,563	3,237	36,800	680	143	
32. Jaranwala-Okara	10.13	19.92	30.05	30,250	6,697	45,947	3,473	219	
33. <i>Blank</i> ..	..	..	..	..	..	..	..	..
34. Amritsar-Sial- kot.	45.00	32.00	77.00	88,324	4,697	93,021	1,963	147	
35. Gojra-Shorkot..	11.14	34.72	45.86	19,204	4,679	23,884	1,734	135	
36. Sonapat-Rohtak	33.524	..	33.524	64,395	..	64,395	1,921	..	
37. Karnal-Kaithal	38.45	..	38.45	1,21,178	..	1,21,178	3,152	..	
38. <i>Blank</i> ..	..	..	..	..	..	..	..	..
39. Toba Tek Singh- Chichawatm- Burewala.	18.03	41.65	59.68	26,093	8,243	44,336	2,992	138	
40. <i>Blank</i> ..	..	..	..	..	..	..	..	..
41. K a b i r w a l a- Jhang.	..	61.5	61.5	..	14,134	14,134	..	230	
42. Meerut-Sonapat	4.70	7.00	11.70	8,465	75,302*	84,308	131	12,842	*Includes expenditure for surveying and planning.
Total Arterial Roads	2,495.574	1,401.345	3,896.919	40,36,242	3,94,736	44,34,978	1,822	298	
<i>Other Roads.</i>									
1. Taxila-Jaulian ..	6.00	..	6.00	2,398	..	2,398	399	..	
2. Murroe-Burian ..	1.42	5.00	6.42	2,445	2,480	4,925	1,730	467	
3. Civil Station Roads (Rawal- pindi).	1.52	..	1.52	8,304	..	8,304	5,783	..	
4. Dharmpur-Kaan- li.	6.82	..	6.82	14,846	..	14,846	2,168	..	
5. Kalka-Kaasuli ..	..	8.67	8.67	..	8,307	8,307	..	378	
Carried over ..	15.76	12.67	28.43	28,332	7,643	34,975			

STATEMENT A-2—CONTINUED.

STATEMENT OF THE EXPENDITURE (BY ROADS) ON MAINTENANCE OF ROADS IN CHARGE OF THE PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, FOR THE YEAR ENDED 31st MARCH 1931—CONTINUED.

Name of Road.	LENGTH.			EXPENDITURE.			RATE PER MILE.		REMARKS.
	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	
1	2	3	4	5	6	7	8	9	10
	Miles.	Miles.	Miles.	Rs.	Rs.	Rs.	Rs.	Rs.	
Length carried over.	14.74	13.47	28.21	28,935	7,442	36,377			
Other Roads—									
1. Alluvial Road (Karnali)		0.27							
2. Alluvial Road (Karnali)		1.12							
3. Alluvial Road (Karnali)		1.80							
4. Alluvial Road (Karnali)		4.32	26.60		*6,933	6,933		261	*Expenditure for individual roads not available.
5. Alluvial Road (Karnali)		1.00							
6. Alluvial Road (Karnali)		1.00							
7. Alluvial Road (Karnali)		21.31			7,504				
8. Alluvial Road (Karnali)		13.40			1,900				
9. Alluvial Road (Karnali)		1.25			800				
10. Alluvial Road (Karnali)		64.00			7,000				
11. Alluvial Road (Karnali)		1.20			800				
12. Alluvial Road (Karnali)		1.25	130.00		100	20,870		150	
13. Alluvial Road (Karnali)		1.00			199				
14. Alluvial Road (Karnali)		1.00			199				
15. Alluvial Road (Karnali)		1.00			368				
16. Alluvial Road (Karnali)		14.24			2,000				
17. Alluvial Road (Karnali)		1.00			300				
18. Alluvial Road (Karnali)	1.05		1.05	583		583	545		
19. Alluvial Road (Karnali)	1.11		1.11	2,437		2,437	1,055		
20. Alluvial Road (Karnali)	1.44		1.44	1,172		1,172	814		
21. Alluvial Road (Karnali)	4.24		4.24	7,968		7,968	1,836		
22. Alluvial Road (Karnali)		23.41	23.41		5,233	5,233		222	
23. Alluvial Road (Karnali)	1.41								
24. Alluvial Road (Karnali)	1.22								
25. Alluvial Road (Karnali)	1.25								
26. Alluvial Road (Karnali)	1.40		14.54	33,291		33,291	2,013		†Expenditure for individual roads not available.
27. Alluvial Road (Karnali)	1.22								
28. Alluvial Road (Karnali)	1.00								
29. Alluvial Road (Karnali)	1.27								
Total	61.45	202.41	263.86	74,396	40,478	1,14,874		77.211	

STATEMENT A-2—CONCLUDED.

LENGTH OF AND EXPENDITURE (BY ROADS) ON MAINTENANCE OF ROADS IN CHARGE OF THE PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, FOR THE YEAR ENDED 31st MARCH, 1951.

Name of Road.	Length.			Expenditure.			Rate per mile.		Remarks.
	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	Total.	Metalled.	Un-metalled.	
1	2	3	4	5	6	7	8	9	10
	Miles.	Miles.	Miles.	Rs.	Rs.	Rs.	Rs.	Rs.	
Brought forward ..	41.46	202.91	244.37	74,396	46,478	1,14,874			
<i>Other Roads— concl.</i>									
35. Luri-Oat Behal ..	..	50.50	50.50	..	30,542	30,542	..	607	
36. Kulu-Lingti ..	..	129.50	129.50	..	18,564	18,564*	..	143	* Includes amount of Rs. 2,000 under of Budget Paper (1951).
37. Kulu-Manali ..	..	23.87	23.87	..	2,296	2,296	..	96	
38. Kandi-Bajaura ..	..	9.75	9.75	..	772	772	..	79	
39. Kulu-Silbadwani ..	..	19.50	19.50	..	3,874	3,874	..	199	
40. Dharmala Civil Station.	2.88	1.37	4.25	4,158	309	4,506	1,444	200	
41. Banjar-Rampur ..	..	32.75	32.75	..	6,003	6,003	..	182	
42. Harrapa Railway Station to Pro- tected Area Harrapa.	..	4.25	4.25	..	1,302	1,302	..	304	
Total Other Roads ..	44.34	474.40	518.74	78,544	1,04,229	1,82,773	1,771	200	
<i>Nili Bar Colony Roads.</i>									
1. Fitna-Jamlara ..	12.30	..	12.30	7,741	..	7,741	623	..	
2. Mana-Jamlara ..	10.30	..	10.30	4,930	..	4,930	384	..	
3. Arafwala-Mill- site.	7.57	..	7.57	3,010	..	3,010	398	..	
4. Burewala-Joya ..	14.58	..	14.58	4,814	..	4,814	331	..	
5. Burewala-Ka- mand.	10.78	..	10.78	4,296	..	4,296	400	..	
6. Vehari-Kacha Kuh.	12.33	..	12.33	1,180	..	1,180	96	..	
7. Vehari-Loddan ..	16.80	..	16.80	3,207	..	3,207	204	..	
8. Kasamsar-Pakhi Mian.	..	7.39	7.39	..	2,582	2,582	..	349	
9. Dunyapur-Lal Sagu.	21.46	..	21.46	8,856	..	8,856	412	..	
10. Malli-Tibba ..	21.06	..	21.06	12,737	..	12,737	608	..	
11. Dunyapur-Basti Maluk.	..	11.98	11.98	..	1,899	1,899	..	158	
12. Dunyapur-Kab- rot.	..	15.15	15.15	..	3,303	3,303	..	218	
13. Lodhran-Dunya- pur.	..	10.25	10.25	..	3,302	3,302	..	326	
14. Lodhran-Jalalpur Pirwala.	..	26.04	26.04	..	3,264	3,264	..	125	
15. Lodhran-Sutlej River.	..	5.70	5.70	..	1,092	1,092	..	190	
Total Nili Bar Colony Roads.	127.17	76.51	203.68	31,808	17,687	49,495	408	200	

STATEMENT B.

STATEMENT OF PROVINCIAL EXPENDITURE ON PROVINCIAL WORKS DURING 1930-31.

Heads.	Original Works.	Repairs.	Total.	
	Rs.	Rs.	Rs.	
PART I.—PROVINCIAL WORKS.				
42—Civil Works, Provincial non-voted Revenue—Communications.				
Controlled Roads	1,418	9,971	11,384	
Accommodation for Travellers	Nil	641	641	
General Administration—District and Commissioners' offices.	229	457	686	
Total	1,642	11,069	12,711	
43—Civil Works, Provincial, Civil Buildings (Revenue)—(Voted).				
General Administration	7,378	88,982	96,360	
Civil Buildings (Transferred) (voted).				
Land Revenue	3,018	1,995	5,008	
Excise	Nil	733	733	
Forests	2,684	3,646	6,330	
B.—Legislative Division	431	6,966	7,387	
General Administration	24,888	20,496	45,384	
{ Secretariat and Headquarters.				
{ Commissioners and District Officers.	1,54,718	1,93,469	3,48,187	
{ Secretaries for Ministers.	321	5,074	5,395	
Administration of Justice	51,974	52,074	1,04,048	
Jail and Convict Settlements	4,91,127	1,40,741	6,31,868	
Police	1,53,473	76,060	2,29,533	
Sanitation	Nil	Nil	Nil	
Sanitary Departments	1,981	2,431	4,412	
Education, other than European and Anglo-Indian.	3,55,542	1,87,198	5,42,740	
European and Anglo-Indian Education	25,892	37,429	63,321	
Medical	1,29,799	2,02,871	3,32,670	
Public Health	3,792	18,746	22,538	
Agriculture	1,77,309	75,146	2,52,454	
Industries	70,976	26,859	97,835	
Civil Works	2,84,189	1,72,662	4,56,851	
Surveying and Printing	76,617	11,974	88,591	
Miscellaneous Departments	Nil	16,275	16,275	
Total Civil Buildings (Transferred)	20,18,665	12,52,345	32,71,010	
Communications.				
Controlled Roads	A.—Bridged and drained throughout.	10,44,717	45,82,849	56,27,566
Controlled Roads	A.—Bridged and drained throughout.	64,315	4,25,777	4,90,092
	B.—Partially bridged and drained throughout.			
Control Road Development Fund	2,98,883	Nil	2,98,883	
Road Bridges and Ferries	5,30,707	1,83,631	7,14,338	
Accommodation	Nil	400	400	
Accommodation for Travellers	19,084	43,182	62,266	
Miscellaneous	1,687	10,814	11,981	
Total Communications	19,59,873	52,45,553	72,05,426	
Carried over	39,78,538	64,97,998	1,04,76,536	

STATEMENT B.—CONCLUDED.

STATEMENT OF PROVINCIAL EXPENDITURE ON PROVINCIAL WORKS DURING 1906-7.—
CONCLUDED.

Heads.	Original Works.	Repairs.	Total.
	Rs.	Rs.	Rs.
Brought forward ..	39,78,000	64,97,900	1,04,75,900
Miscellaneous	22,007	82,000	54,000
Grant-in-aid	4,66,072	Nil	4,66,072
Total Original Works and Repairs	44,66,167	65,80,907	1,10,47,074
Establishment (<i>Pro-Rata</i> Distribution)..	..	..	25,32,000
Tools and Plant (— Ditto ) ..	..	..	1,81,000
Suspense .. .. .	..	..	— 1,74,250
Grand Total Transferred ..	..	..	1,34,87,000
Deduct—Expenditure in England. { Par value ..	..	..	1,00,000
{ Loss or Gain ..	..	..	2,417
{ by Exchange.	..	..	..
Add—Loss by Exchange .. .. .	..	..	+ 4,807
GRAND TOTAL 41—CIVIL WORKS RESERVED AND TRANSFERRED.	..	..	1,34,97,205
60— <i>Civil Works—Capital Expenditure.</i>			
*Buildings	3,78,887	Nil	3,78,887
Communications	6,47,900	Nil	6,47,900
Miscellaneous	1,55,523	Nil	1,55,523
Total Original Works and Repairs ..	11,77,310	Nil	11,77,310
Establishment (<i>Pro-Rata</i> Distribution)	..	..	3,11,000
Tools and Plant (— Ditto ) ..	..	..	21,000
Suspense .. .. .	..	..	Nil
Total .. .. .	..	..	14,09,310
Deduct—Recoveries on Capital Account ..	..	..	Nil
Deduct—Expenditure in England. { Par value ..	..	..	..
{ Loss or Gain ..	..	..	..
{ by Exchange.	..	..	..
Add—Loss by Exchange .. .. .	..	..	Nil
GRAND TOTAL 60—CIVIL WORKS	Nil	Nil	14,09,310
56— <i>Capital on Industrial Development.</i>			
Works	4,300	Nil	4,300
Total Original Works and Repairs ..	4,300	Nil	4,300
Establishment (<i>Pro-Rata</i> Distribution)..	..	..	Nil
Tools and Plant (— Ditto ) ..	..	..	Nil
Suspense .. .. .	..	..	Nil
Total .. .. .	..	..	4,300
Deduct—Recoveries on Capital Account	..	..	Nil
Deduct—Expenditure in England ..	..	..	Nil
Add—Net loss by Exchange .. .. .	..	..	Nil
GRAND TOTAL 56-C.	..	..	4,300
GRAND TOTAL	56,57,000	65,20,000	1,21,77,000
*Civil Works .. .. .	..	..	..
Industries .. .. .	..	..	..
General Administration (Commissioners and Deputy Commissioners)	..	..	1,00,000
Medical .. .. .	..	..	1,00,000
Forests .. .. .	..	..	1,00,000
Agriculture .. .. .	..	..	..
Total .. .. .	..	..	3,00,000

STATEMENT C.

STATEMENT OF EXPENDITURE ON PUBLIC WORKS OTHER THAN PROVINCIAL DURING 1930-31.

Head.	Original Works.	Repairs.	Total.
WORKS DONE FOR CENTRAL GOVT. AND LOCAL BODIES.			
CENTRAL MILITARY WORKS.			
Works	Rs. 22,779	Rs. 4,697	Rs. 27,476
Surplus .. .. .	..	..	Nil
Expenditure .. .. .	..	..	Nil
Total Military Works ..	22,779	4,697	27,476
41—CENTRAL CIVIL WORKS.			
Civil Buildings { Voted	—4,080	652	—3,428
{ Non-voted	Nil	Nil	Nil
Communications	Nil	Nil	Nil
Total Original Works and Repairs ..	—4,080	652	—3,428
Surplus .. .. .	..	..	Nil
Expenditure in England .. .. .	..	..	Nil
GRAND TOTAL ..	—4,080	652	—3,428
POST AND TELEGRAPH WORKS.			
56 (1) (a)	56 (i) (b)	Deduct Working Ex- penses.	..
Civil Buildings—Post Offices .. 4,637	381	Nil	5,038
Ditto Telegraphs .. 1,180	Nil	391	1,571
Total Posts and Telegraphs ..(a)5,817	(b) 381	(b) 391	6,609
ARCHAEOLOGICAL WORKS.			
Monuments and Antiquities	Nil	Nil	Nil
Miscellaneous	Nil	Nil	Nil
Total Archaeological ..	Nil	Nil	Nil
WORKS FOR LOCAL BODIES AND DEPOSIT WORKS.			
Municipal and Local Loans	5,60,217	69,214	6,30,131
Funds and other funds	60,027	1,396	61,423
Civil and other departments	75,305	3,558	78,863
Total Deposits ..	6,96,249	74,168	7,70,417
DEPARTMENTAL CHARGES.			
Military Works (Pro-Rate Dis- tribution) .. .. .	..	..	878
Civil Works { Voted Ditto .. .. .	..	..	— 655
{ Non-voted Ditto .. .. .	..	..	..
Posts and Telegraphs .. .. .	..	..	1,292
Archaeological Works .. .. .	..	..	Nil
Deposit Works and Works for Local Bodies (Percentage charges) .. .. .	..	..	45,110
Total Departmental charges ..	..	..	46,625
Total ..	7,30,785	80,289	8,47,699
GRAND TOTAL ..	63,77,818	67,10,347	1,56,62,407

STATEMENT D.

STATEMENT OF EXPENDITURE ON PUBLIC WORKS BY PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, DURING 1920-21.

Heads.	ORIGINAL WORKS.			Deposits.	Repairs.	Total.
	Revenue.	Capital.	Extraordinary Receipts.			
1	2	3	4	5	6	7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>(i) Works done by Regular B. and R. Divisions.</i>						
1. Provincial (Reserved) {						
Civil Buildings ..	6,731	..	..	..	74,379	81,110
Communications	1,413	..	..	..	16,813	18,226
Total ..	8,144	..	..	..	91,192	99,336
Civil Buildings (Transferred) ..	17,76,726	2,52,675	..	..	9,36,497	29,65,898
{ Metalled ..	10,44,777	6,00,936	..	..	41,71,790	58,17,503
{ Unmetalled	5,95,022	2,903	..	..	4,64,707	12,07,285
{ Central Road Development Fund.	2,98,883	..	..	..	..	2,98,883
{ Other sub-heads.	19,032	44,124	..	..	16,609	1,14,759
Miscellaneous ..	21,736	1,44,977	..	..	24,130	1,91,643
Industrial Development ..	..	4,533	..	..	..	4,533
Total ..	37,56,116	11,50,138	..	..	62,07,376	1,11,13,630
2. Central Works ..	1,757	..	..	..	4,321	6,078
3. Other works—						
(i) Municipal and local Loans.	..	..	..	11,132	2,613	13,745
(ii) Private and other funds.	..	..	..	19,409	1,398	20,807
(iii) Civil and other Departments.	..	..	..	2,409	742	3,151
Total Buildings and Roads Branch	37,68,873	11,50,138	..	33,133	68,15,496	1,12,52,636
<i>(iii) Works done by Public Health Circle.</i>						
1. Provincial Civil Works—						
(a) Reserved—Civil Buildings.	876	..	..	..	11,166	12,042
(b) Transferred ..	2,43,979	31,708	..	..	2,75,754	3,19,482
2. Central Works ..	22,779	..	..	..	798	23,577
3. Deposits and other works ..	..	..	..	2,39,134	98,211	4,37,345
4. Industrial Departments ..	Nil	..	..	..	..	..
Total ..	2,67,634	31,708	..	2,39,134	1,00,865	5,39,241
GRAND TOTAL ..	40,36,507	11,81,846	..	4,38,267	77,16,361	1,28,42,920

STATEMENT D—CONCLUDED.

STATEMENT OF EXPENDITURE ON ESTABLISHMENT BY PUBLIC WORKS DEPARTMENT,
BUILDINGS AND ROADS BRANCH, DURING 1930-31—CONCLUDED.

Roads.	OUTLAY.		Deduct charges on which percentages are not permissible.	Balance on which percentage is charged.	Amount establishment : expenditure.	Rate per cent.
	Works.	Repairs.				
1	2	3	4	5	6	7
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.

I.—Expenditure on Establishment employed on Works and Repairs of Regular Buildings and Roads Divisions.

22—Civil Works—Domestic—						
(a) Renewed ..	8,144	84,891	Nil	93,035	16,703	17.95
(b) Transferred ..	27,27,109	62,27,273	21,800	99,92,582	18,94,643	18.06
23—Civil Works—Capital Expenditure.	11,45,605	Nil	Nil	11,45,605	2,05,692	17.95
24—Civil Subsidies ..	4,533	Nil	Nil	4,533	814	17.95
25—Civil Works—Current ..	-4,080	632	Nil	-3,428	-616	17.97
26—Military Engineer Services ..	Nil	4,673	Nil	4,673	817	17.48
Amount between Civil and Engineering Divisions, Capital Expenditure (Archaeological Works).	Nil	Nil	Nil	Nil	Nil	Nil
Amount between Civil and Posts and Telegraphs.	5,837	Nil	Nil	5,837	1,047	17.94
Contributions Works	27,130	4,907	55,698	{ 46,400 } { -1 }	6,699	14.44
Total ..	36,14,278	63,52,446	77,488	1,12,50,236	21,25,799	..

II.—Expenditure on Establishment employed on Works and Repairs of Public Health Circle.

Urban Sanitary Establishment ..	4,38,461	2,28,079	22,803	12,35,728	1,59,440	10.29
Total ..	4,38,461	4,41,492	22,803	12,35,538	1,59,440	..
Grand Total ..	36,12,119	67,10,516	1,00,291	1,25,22,964	22,85,239	..

STATEMENT E.

STATEMENT SHOWING EXPENDITURE INCURRED ON ENGINEERING EDUCATION AND COMMUNICATIONS BOARD, DURING 1936-37.

Heads.	OUTLAY ON		Total.	Establishment.	Total.
	Works.	Repairs.			
1	2	3	4	5	6
	Rs.	Rs.	Rs.	Rs.	Rs.
The Maclagan Engineering College.	8,601	8,877	17,478	2,65,217	2,82,695
The Government School of Engineering, Rasul.	24,712	8,252	32,964	1,19,556	1,52,520
Share of cost of Training Punjab students at the Roorkee College.	..	..	..	1,61,540	1,61,540
Total Engineering Education	33,313	17,129	50,442	5,46,313	6,96,305
The Communications Board ..	47	Nil	47	63,621	63,668
GRAND TOTAL ..	33,360	17,129	50,489	6,11,734	8,01,221

STATEMENT F.

STATEMENT SHOWING ESTABLISHMENT CHARGES EARNED BY THE PUNJAB PUBLIC WORKS DEPARTMENT, BUILDINGS AND ROADS BRANCH, BY ESTABLISHMENT EMPLOYED ON ORIGINAL WORKS AND REPAIRS DURING 1936-37.

Heads.	Total fee charged.	Revenue.
1	2	3
<i>I.—Establishment charges on works done by regular Buildings and Roads Divisions.</i>		
1. 50—Military Engineering Services	817	
2. 41—Civil Works Central (Voted)	—616	
3. 41—Civil Works—Central (Non-voted) .. .	..
4. Contribution works (executed by B. & R. Divisions) ..	14,774	
5. Contribution works executed by Public Health Divisions.	27,644	
6. 58-D—Hydro-Electric Scheme	28,700	
7. 56-C—Capital Expenditure on Industrial Works ..	814	
8. Posts and Telegraph Departments	1,216	
9. Amount of Direction and Supervision charges on Irrigation Branch works by Rural Sanitary Board.	..	
10. Accounts between Civil and Civil Accountant-General, Central Revenues.	1,233	
11. Other works for Central Government (Research Institute, Kasauli, and Malaria Institute, Karnal).	1,838	
12. Adjustment between Central India Salt Department	..	
13. Account between Buildings and Roads and Irrigation Branches.	2,378	
14. Other adjustments	—2,300	
Total	74,300	
<i>II.—Establishment charges earned by the Public Health Circle.</i>		
Work done for Local Bodies	73,807	
GRAND TOTAL	1,48,107	

