

N^o 3032 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

6th Decr 81.

Read the following

From the Supr: Engr:
5th Circle

N. E. No. 238.

Dated 29th Novr 1881.

The unmentioned
Apprentice Overseers
having completed their
year's practical train-
ing in the Public Works
Department in a satis-
factory manner are
now brought on the per-
manent strength of the
Establishment as Over-
seers 1st grade with effect
from October last.

Sergeant J. H. Wyllett -
Gunner L. Donaghue -
Lance Corporal H. Slaney -

RS

S. Engr: 5th Circle

Examiner

Educational Deptn Decr 6-12-81

7/12/81

Att

From

The Superintending Engineer,

5th Circle,

To

The

Chief Engineer

Dated

29th November 1881.

Recd.

ENCLOSURES.

With C. No. 6787

No. 238.

Apprentice Overseers
Sergeant J. H. Wyllett,
Gunner L. Donaghue
Corporal H. Slaney -
Report on the
qualifications of

No. 238.

SUPERINTENDING ENGINEER'S OFFICE,
MADRAS,
5th Circle,
Chepauk, 29th Novemb 1881.

From

Col. H. L. Pendergast, B.E.
SUPERINTENDING ENGINEER,

5th CIRCLE,

To

THE Chief Engineer
S. W. Deptt.

SIR,

Enclosures.

I have the honor in reply to your Memorandum No. 2616 dated 9th November 1881, to report that the Executive Engineer at the Presidency states that Sergeant J. H. Ulyett has acquired a good practical knowledge of work, and by his steadiness temper intelligence and industry is qualified for the appointment of Overseer.

2. The Executive Engineer of the Shingleput Division, writes that Corporal H. Slaney is a steady industrious and intelligent man. He can survey accurately and draw neatly. He has a very fair knowledge

Knowledge of elementary mathematics
and of Tamil, and is qualified for
permanent employment in the De-
partment.

The same Officer says that Gun-
ner L. P. Donaghue is also steady
industrious and intelligent; that he is
an accurate Leveller, and a fair
draughtsman, that he has a good
knowledge of Tamil, and may be
confirmed in his appointment.

3. I am therefore of opinion
that the three apprentice Overseers
may be appointed to the permanent
Staff.

I have the honor to be
Sir

Yours Most Obedt Servt

Wm Sandercock Coll. S. E.

Superintending Engineer
S. P. S. E.

MEMORANDUM.

No. 78

P. W. SECRETARIAT, ASSAM.

To

The Secy. to the Govt. of
Madras.

Dated, SHILLONG, the 25th November 1881.
Recd. 6 Dec 1881

SUBJECT.

Cy 4th Dec^r/81.

Sir,

I am directed to
forward herewith one Copy
of the Public Works Departt.
Administration Report
of this Province for the
year 1880-81.

I have the honor to be,
Sir,

Yours most obedt. servant
Graham Smith, C.E.
Asst. Secy. to the Chief Comr.
Assam, 1881

By 10/30/81
Recorded
Encl. in Receipt Book

Logia

ASSAM.

PUBLIC WORKS DEPARTMENT

ADMINISTRATION REPORT

FOR

1880-81.



SHILLONG:
PRINTED AT THE ASSAM SECRETARIAT PRESS.

1881.

ASSAM.

PUBLIC WORKS DEPARTMENT
ADMINISTRATION REPORT

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1880-81.



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PRINTED AT THE ASSAM SECRETARIAT PRESS.

1881.

ASSAM.

PUBLIC WORKS DEPARTMENT

ADMINISTRATION REPORT

FOR

1880-81.

General.—There were no violent storms or extraordinary floods during the past year, but a somewhat severe earthquake occurred on the night of the 30th June, followed by a slighter one the following night. The course was from east to west, and its extent very considerable, being felt all along the line of the Khási and Jaintia Hills, and in the valleys north and south. Some damage was done to one or two buildings in Cachar, and also in Golághát. On the whole, the year was a favourable one for out-door work, and no severe epidemic of cholera occurred (as was the case in 1879-80) to cause panic among the coolies, or put a stop to any important work.

Establishment.—There have been several changes in establishment and in its distribution during the year. Mr. D. E. H. Noyes, Executive-Engineer, fourth grade, who was in charge of the special works in the Nága Hills, resigned his appointment, and was relieved of his duties on 5th August by Mr. J. Rollo, who was transferred to Assam from Rajputana. The works in connection with the Nága Hills, including the road from Golághát to Kohima, buildings and lines for Commissariat and Transport Departments, had been definitely formed into a separate division, called the Nága Hills Division, from 1st April, and have since August been under Mr. Rollo's charge. The Sylhet Division had been, since Colonel Forbes left, under charge of Assistant-Engineer B. Borah, there being no other officer available. He was relieved on 1st October 1880 by Executive-Engineer Bhola Nath Dass, whose former appointment in the Lower Assam Division was taken up on 13th September by Mr. Jewett, who again was relieved by Mr. Winckler on 18th February. These two officers were transferred from Bengal and Mysore, respectively, to Assam.

There were no other changes of divisional charge during the year; but, besides those noted above, the following changes in the engineer establishment took place:—

Increase of establishment—

Mr. A. B. Todd, Assistant-Engineer,	second grade	...	22nd May	1880.
" A. R. Lilley, "	first "	...	3rd October	"
" H. Kench, "	second "	...	17th November	"
" W. McM. Sweet, "	" "	...	8th December	"

Decrease—

Mr. P. P. Rogers,	Assistant-Engineer, third grade	...	22nd May	1880.
Lieutenant E. Raban, R.E.,	" " first grade (left for	...	...	...
England)	...	...	...	14th March 1881.

Mr. F. Hutchinson, Deputy-Examiner, was granted furlough out of India for one year from 23rd October 1880. He was relieved on the above date by Mr. A. Wilson, who has since been in charge of the office.

Accounts.—The following abstract shows the outlay under the main heads of services as compared with the budget grants:—

	Original grant.	Final grant.	Outlay.	Saving or excess.
	Rs.	Rs.	Rs.	Rs.
IMPERIAL—				
Military	86,962	79,562	72,448	7,114
Other services	13,000	18,000	15,511	2,489
Establishment	24,990	25,545	21,990	3,555
Tools and plant	1,500	1,500	1,320	180
Barrack Department works	1,023	1,023	853	170
„ establishment ..	102	102	85	17
Total.....	1,27,577	1,25,732	1,12,207	13,525
PROVINCIAL—				
Civil Buildings	1,61,800	2,28,479	2,01,068	27,411
Communications	4,75,000	3,90,069	3,28,851	61,218
Miscellaneous Public Improvements ..	200	4,000	— 28	4,028
Establishment.....	2,64,000	2,62,910	2,82,600	— 19,690
Tools and plant	24,000	23,935	19,267	4,668
Suspense balances	13,000	12,392	32,033	— 19,641
Total.....	9,38,000	9,21,785	8,63,791	57,994
PROVINCIAL IRRIGATION AND NAVIGATION—				
Works .....	.....	14,360	2,567	11,793
Repairs .....	.....	700	604	96
Establishment .....	.....	1,090	642	448
Tools and plant .....	.....	65	22,349	— 22,284
Total.....	.....	16,215	26,162	— 9,947
LOCAL INCORPORATED FUNDS—				
Communications .....	.....	.....	7,408	— 7,408
Establishment.....	.....	.....	258	— 258
Total.....	.....	.....	7,666	— 7,666
LOCAL EXCLUDED FUNDS—				
Repairs, civil buildings	600	600	650	— 50
Total.....	600	600	650	— 50
Grand Total.....	10,66,177	10,64,332	10,10,476	53,856

The figures given above for Local Funds are only those which concern work done by Public Works Department, and the accounts for which are audited in Public Works office.

The total charge for establishment is Rs. 3,05,575, and the total expenditure on work, exclusive of “Tools and Plant” and “Suspense Balances,” is Rs. 6,29,932, thus giving for establishment a percentage of 48·5 on the outlay on works and repairs. This is a considerable increase on last year, but in the statement above figures relating to Local Fund expenditure, which were formerly included, have been omitted. The establishment has during the year been increased above the normal scale, and several considerable sums have been paid for salaries and travelling allowance of officers joining the Province from a distance. The percentage has also been somewhat augmented by the lapses under the several budget heads noted later on.

The budget estimate for establishment has been exceeded by Rs. 15,883, but provision had not been made in it for the Naga Hills Division, in which the charge for the year amounts to Rs. 24,392.

The percentages of establishment under its three main heads have been as follows:—

Direction	...	...	...	...	7·4
Construction	...	...	...	...	36·5
Accounts	...	...	...	...	4·6

IMPERIAL SERVICES.

MILITARY.

Naga Hills.—Under this head the expenditure on roads and buildings in the Naga Hills claims the first notice.

The budget allotment was Rs. 20,000, and there has been an excess outlay of Rs. 2,567, the total expenditure up to the end of the year having been Rs. 72,310.

Some of this was incurred by Civil Officers, and on emergencies, when neither estimates could be prepared nor any detailed account be given of the expenditure.

This has all been already explained and accepted by the Government of India. The difficulty of labour along the line of communication with Kohima has been much felt. Local labour is scarce, and can only be induced to come in occasionally, and when there are no agricultural operations going on. Some coolies were collected just after the rains, in October, but a few cases of cholera which occurred frightened most of them away, and they only returned very gradually. 100 Khásias from Jowai were engaged and sent down by Gauhati, and thence by river to Nigriting. These men did useful work, but many of them got sick, and they were allowed, according to agreement, to return in April. An attempt was made later in the year, in December, to get more men from Jowai or Shillong, but they were all engaged in cultivation, or in other places, and not a man could be got except at most exorbitant rates, and even then only a few were willing to go.

None of these men will remain in the plains later than March or April, and so fail as a source of labour-supply just when there is most difficulty in procuring it.

Along the road from Golághát to Dimapur much was done, considering the labour available, in renewing the timber bridges and cutting away the jungle on both sides to allow the entrance of the sun's rays. The effect of this was most beneficial, as many portions thus cleared were soon passable after rain, while those in the shade of the forest were still wet and swampy. No attempt has been made as yet to raise and embank the road throughout, the whole strength of the establishment having been devoted to filling in and draining some of the worst places, and putting into temporary passable order those parts of the road which from time to time got into the worst state, and were most complained of by the Commissariat cartmen.

New gorge road.—A trace through the gorge below the Samaguting Hill, above the bed of the river, which had been begun in the previous year, was opened up, and was passable (till the rains began in 1881-82) for laden coolies, but not for ponies. The Zumba has to be crossed twice, and as the temporary bridges are liable to be carried away by moderate freshets in the river, another line has since been found on the left bank avoiding both these bridges, and it is expected that a path will be made through, on a better alignment than the present one as to gradients, as soon as the weather permits of work being put in hand.

The trace through this gorge, about six miles in length, as well as the road beyond, was much improved by a working party of the 44th Regiment under Lieutenant Boileau, and the line from the Zumba entrenchment below, and south of the Samaguting Hill, has been kept in fair order for pony traffic through out the year, though many of the gradients are too steep, and, if it is to be the permanent road and to be used by carts, much of it will require complete re-alignment.

Proposed New Dyong Route.—It was intended that the proposed Dyong route to Kohima, avoiding most of the dreaded Nambor Forest, should have been examined this year, and a trace marked out sufficiently to ascertain its suitability as a cart-road. The first and easiest portion of the distance from Golághát to the crossing of the Dyong river itself, 44 miles, has been examined sufficiently to ascertain that there are no difficulties, and no heavy work, and the appearance of the Unro Valley, so far as it can be judged by looking up and down it from the two ends, favours the belief that a good trace can be found from that crossing up to Kohima. Mr. Rollo, Executive-Engineer, accompanied by Mr. Hinde, Extra-Assistant-Commissioner, started in April 1881 to explore the Unro Valley, which is quite uninhabited and covered mostly with dense grass jungle; but unfortunately it was too late in the season when they started: heavy rain came on at an unusually early date; and, after an ineffectual attempt to push through, they were obliged to give it up, and the exploration of this route has been unavoidably postponed till next season.

Of the other items in the budget, there has been short outlay in almost every case.

Water-supply to 42nd Regimental Lines.—At Shillong, the water-supply to 42nd A. L. I. lines, was completed with the exception of a few small fittings. The project consists of the construction of a reservoir with filtering beds on a convenient plateau commanding the sites of cantonment, general hospital, &c. From this the water is brought by a four-inch main to an iron tank in the sepoys' lines fitted with brass cocks, the overflow being taken off by a one-inch pipe (as a municipal work) to the village of Maukhar, where another tank has been fixed. It is proposed to extend this pipe still further to the police lines.

It is also contemplated putting another tank in the military lines on the opposite side of a small strip of land for the convenience of another row of sepoys' huts situated there. Small drainage lines remain to be constructed to carry off spill water, but the project, as first designed, has been completed, and has proved most successful and useful.

New Commissariat Godown at Shillong.—Provision had been made for the improvement to the water-supply of the 44th L. I. (old Artillery) lines, but as these lines are not now used the money was diverted to the construction of a new commissariat godown in the 42nd lines, which was much needed, as the old godown being in 44th lines, involved the carting of all stores across the Umshirpi and up the hill on the other side, from whence all had to be brought down again as required. This godown was begun in December and partly completed during the year.

Cachar Frontier Roads.—On the Cachar frontier roads there has been an expenditure of Rs. 7,478 only, against a grant of Rs. 10,500. This work has been carried out by the Deputy-Commissioner in connection with the military authorities.

General Repairs.—The several military buildings, lines, cantonment roads, and out-posts have had the usual repairs executed.

Makum Block-house.—The roof of the block-house at Makum has been for some time in a very unsatisfactory state, and was found in December last, on inspection, to be so bad that it was necessary to completely re-new it. This was begun, but owing to the scarcity of labour, was not completed during the year.

Quarter-guard at Golághát.—It was also necessary to provide for complete re-roofing of the quarter-guard at Golághát chiefly on account of the damage it received in the earthquake mentioned above. It was shaky before, and this brought down a large portion over the centre room, and made the rest quite unsafe. This work was also unfinished at the end of the year.

OTHER SERVICES.

New Post office, Cachar.—A new post-office at Cachar, estimated to cost Rs. 7,100, was finished and handed over to the Postal Department, the total cost of the building having been Rs. 7,463.

New Telegraph-office, Dhubri.—The new telegraph-office at Dhubri was begun and completed at a cost of Rs. 5,881; of this sum Rs. 4,800, the amount sanctioned in the budget, was debited to Imperial Funds, "Provincial" supplying the balance, and taking over the old telegraph-office as sanctioned by Government of India. This building was much wanted as a private residence, and is now occupied by the Civil Surgeon.

Political Officer's Residence, Manipur.—The Residence for Political Officer at Manipur has been completed, the expenditure during the year having been Rs. 3,037, making a total cost of Rs. 7,767 to the end of 1880-81. Further expenditure for office, guard-room, &c., is necessary, as has been already reported to Government.

Minor Works.—The following are the principal works under this head :—

- (1) Addition to post-office, Sylhet, to provide quarters for postmaster.
- (2) Addition and alterations to post office, Tezpur.
- (3) Ditto ditto, Nowgong.

PROVINCIAL SERVICES.

CIVIL BUILDINGS.

New Civil Buildings.—Dhubri.—Owing to the removal of the head-quarters of the Goalpara district from Goalpara to Dhubri, considerable additions were required to the civil buildings there. Designs were sanctioned in October last, for enlarging the cutcherry at an estimated cost of Rs. 9,355, and for a new combined record-room and treasury, estimated at Rs. 16,420: fair progress was made during the year on both.

Barpeta Cutcherry.—A design had been sanctioned in May 1878 for a new roof to the cutcherry at Barpeta, but complaints were made of the lowness of the building subjecting it to flooding when the river rose beyond the ordinary flood-level in the monsoon, and also small additions were required. The place was inspected in the rains by the Superintending Engineer, and subsequently the Chief Commissioner sanctioned a new cutcherry being built at an estimated cost of Rs. 12,707. Some materials have been collected, but, owing partly to change of Executive-Engineers, arrangements were not made sufficiently soon for burning bricks, and no great progress has been made with the work.

Sub-Divisional Cutcherry, Mangaldai.—A new shingle-roof to the sub-divisional cutcherry at Mangaldai has been completed, and advantage taken of the opportunity to introduce some more light and ventilation into the building, which is now very commodious.

New Sub-Divisional Court-House, Hailákáñdi.—A project had been sanctioned in July 1879 for a new sub-divisional court-house at Hailákáñdi, in Cachar, for which a revised estimate was prepared in December last amounting to Rs. 12,778. During the year bricks and other materials were prepared, and the work is now in progress.

New Civil Buildings in Sylhet.—Last year it was decided to erect more permanent buildings for some of the sub-divisional court-houses and lock-ups in Sylhet, where the kutchra buildings formerly in use deteriorated so quickly from damp and the ravages of white-ants.

It was therefore determined to put up the following buildings with corrugated-iron roofs on angle iron framing, avoiding all woodwork as far as possible in the important parts of the building :—

Cutcherry at Sunámganj.
Lock-up at "
" at Habiganj.
" at Karimganj.

The iron-work was got up complete from Calcutta, and good progress has been made with all, except the lock-up at Karimganj, where there was some uncertainty about the best site for the new building. This will shortly be decided, and the work put in hand.

Sylhet Jail.—This work, which has been in hand for some time, and is carried on almost exclusively with prison labour, has been nearly completed so far as the sanctioned works are concerned, including a new iron-roofed hospital designed and commenced within the year. There still remains a portion of the accommodation originally contemplated to be carried out, viz., two new criminal wards for 600 prisoners. An estimate has since been received, and the matter is under consideration.

Cachar Lock-up.—This work was sanctioned for Rs. 14,516, and instructions issued in November 1880 to push on with the enclosure wall. This has made fair progress, the buildings were sanctioned later on, and some materials collected during the year. The work was somewhat delayed by the failure of some brick-making operations undertaken by the Superintendent of the lock-up.

Central Jail, Gauhati.—The progress on the jail wall has not been what was hoped for, but it has been more than usually difficult to get bricklayers, and the supply of lime ran short. The brick-making operations have again this year been carried on by convict labour.

Of the new criminal wards proposed, one only was under construction in the course of the year. These buildings are designed with floors raised seven feet from the ground on masonry pillars, carrying wooden-framed uprights and trusses; the walls will be of bamboo and mats, and the roofs corrugated-iron.

The question of better utilisation of convict labour on public works has engaged the Chief Commissioner's attention, and orders have been issued to retain more convicts in the Jail at Dibrugarh and elsewhere. The construction of two of the wards in Gauhati Jail (out of the four originally designed) is therefore in abeyance for the present.

Sub-Divisional Residences.—A new sub-divisional residence for the Assistant-Commissioner at Golághát was finished during the year, at a total cost of Rs. 6,154, and one was purchased at Jowai for Rs. 6,000, which had been built by the Assistant-Commissioner in the previous year. It was taken over at a valuation on his leaving the station.

Furnishing Circuit-houses.—The question of furnishing the several circuit-houses was taken up, and a scale drawn out of what should be supplied for each room. Detailed estimates were prepared and sanctioned, and most of the furnishing completed within the year. Owing to the delay in getting things from Calcutta, and in making on the spot what would be too bulky and costly to carry, all the buildings were not fully furnished during the year. The supply of furniture has, however, subsequently been completed and the matter disposed of.

Public Works Offices, Shillong.—This work, which had been in abeyance for some time for want of funds, was again taken up on a somewhat modified design as to superstructure, the plinth having been previously completed. The revised estimate, including work already executed, amounts to Rs. 24,057, and the building will provide accommodation for the Offices of Public Works Secretariat and Accounts, and for the Inspector of Public Instruction. Consequent on the difficulty of getting masons, the progress has been slow, but it is hoped that the building will now progress more rapidly. The saving in rent hitherto paid for the offices to be accommodated will well re-pay the outlay.

Of other works in hand during the year, the following may be mentioned :—

Alteration of old jail buildings at Sibságar.
Re-roofing, Zilá School, Sibságar.
Enclosing new cemetery at Gauhati.
Ditto ditto Golághát.

Minor Works.—The expenditure on Minor Works during the year amounted to Rs. 25,820. The principal items were :—

- Addition of iron-roofed verandah to Sub-Divisional Court-House, North Lakhimpur.
- Protective works to the bank of the River Dibru, which runs past the town and cantonments, Dibrugarh.
- Alterations to Treasury at Jorhát.
- Additions and alterations to Treasury at Mangaldai.
- Re-roofing Thána, Gauhati.

COMMUNICATIONS.

ROADS.

Assam Trunk Road.—The work on the portion of this road 160 miles from Kherbari to Gauhati is complete so far as it has been hitherto sanctioned, and the road is driveable throughout. On the remaining portion of the road the sum originally allotted for expenditure during the year was Rs. 40,000, exclusive of the metalled portions, against which the expenditure was Rs. 37,486. In the upper portion of the road east of Gauhati, and more especially in the Sibságar district, the work done has not been up to the estimate, and as this was also the case with "repairs" the road has hardly been in so good a state as before. The chief cause has been want of labour, an attempt having been made to avoid any further importation of coolies, but the local supply has proved inadequate.

The metalled portions of the above road are the first eleven miles out of Gauhati (being part of the Shillong Road) and a small length out of Dibrugarh. The former has hitherto only had brick metal obtained from old Assamese buildings, but arrangements are being made for stone metal, which has been collected for the first seven miles. On the other portion north-east of Dibrugarh, where the road gets very badly cut up during the rains, and is in very bad soil, not much progress has yet been made, but many difficulties have to be contended with. Metal has to be brought in boulders from Sadiya, 45 miles, by boat, and then by cart to site, and the work of stone-breaking is quite new in the district.

Metalling Shillong Cart-road.—The year's allotment was Rs. 47,500, which was expended. Six miles, hitherto unmetalled, were completed and final layers put on other portions. Good metal is only obtainable in certain places, and much of the metalling, which had to be done at first with what metal was available, has been greatly improved. A new bridge was also begun over the Umiam, nine miles below Shillong, to replace the present trussed girder bridge, which is in an unsatisfactory condition.

Cart-road to Cherra.—Fair progress has been made with a portion of this road as far as the "Boga Pani," about 16 miles from Shillong, where a bridge of about 75 feet span will be required. A trace has been cut almost the whole way to Cherra, on very favourable gradients, by which the whole distance from Shillong to Cherra will be only a mile or so longer than by the existing bridle-path. It is intended now to push this work vigorously, and to try the experiment of working on it a gang of convicts from the Sylhet Jail.

Kokilamukh Tramway.—This project, which had been contemplated for some time, was definitely sanctioned and work put in hand during the year. The object was to secure permanent communication between Jorhát and the Kokilamukh landing-place, the present road being submerged in time of ordinary floods, and, except in the driest weather, very bad for carts. It was calculated that the tramway would more than pay its way, and be a great boon to the country and the numerous tea-gardens around and near Jorhát, and plans and estimates amounting to Rs. 1,11,320 were made out for a two-foot gauge tramway, its total length being $6\frac{1}{2}$ miles. The earthwork has been about five-sixth completed, rails got out from England, and a considerable proportion of sleepers cut in the Nambar forest, and sent down to Jorhát. Unfortunately, the early setting in of the rains (since 31st March) stopped the earthwork in the low-lying lands, and the project has received a check. It will not be possible to ascertain until after the rains what damage may have occurred.

This tramway is partly an experimental line, which possibly it may be advisable to continue hereafter to Golághát, or even further along the route to Kohima.

Floating Landing-stages.—These were projected chiefly in connection with the proposed accelerated steamer service, and as that scheme is still under consideration, only one such landing-stage has been put in hand. This was nearly completed, but has not yet been fitted ready for use as a dák-bungalow, as is intended. It is proposed now to build two or three more at once, as they will probably be very useful at the landing-places near Sibságar and Dibrugarh, where the points which steamers can reach vary so much from year to year. But experience is yet wanting as to the best method for mooring them, and for moving them from place to place as required. Sufficient establishment cannot be kept on board on

account of the serious expense that would be entailed; but probably the river steamers will be willing to give the occasional help required.

Bicycle Tramway at Dibrugarh.—To meet the requirements of traffic from the steamer ghat at Dibrumukh to Dibrugarh, it was determined in December last to try, as an experiment, a "bicycle tramway" on a plan worked out by Mr. Ewing, who had been engaged previously by Messrs. Shaw, Finlayson, & Co., in connection with the Dibru and Makum Railway.

The project is to run trucks on two wheels ranged longitudinally under the centre on a single wooden rail, the trucks being kept from falling by cross-bars, held by four men, who also give the motive power. It had been tried in the Gauhati Jail for earthwork, with a lead of 100 to 200 yards, and was so far successful that it was determined to give it a further trial. An estimate was sanctioned for Rs. 11,120, and the work put in Mr. Ewing's hands, who was very sanguine about having it finished in February. He has, however, quite neglected it, and the work is not nearly completed. The expenditure was Rs. 6,393 to end of March, partly covered by work done and materials at site. It is doubtful whether it will not be necessary to take the work out of his hands and to carry it on departmentally.

Travellers' accommodation.—During the year one new dák-bungalow was built at Jorhát at a cost of Rs. 4,570. The dák-bungalows and serais have had the usual repairs executed, and the former have, in accordance with the orders of Government, been handed over to the Deputy-Commissioners of the several districts in which they are situated.

Bullock Train and Tonga Services.—There has been a considerable increase in the receipts of the Tonga service, the total being Rs. 8,300, against an estimate of Rs. 5,280, which the Executive-Engineer attributes chiefly to the improvement in running the tongas up to Shillong in one day since January last. But this arrangement, most convenient to the public as it undoubtedly is, was only in force for three months of the year, and can only account in a small degree for the increase. The alteration in running has been possible in consequence of the improved state of the road. Since January the tongas have carried banghy parcels at no extra cost, and with advantage to the public, the post-office paying a subsidy of Rs. 200 per mensem. The estimated loss on the service for the year was Rs. 6,100, and the actual Rs. 3,666, which would have been less, but for the loss of several ponies in August and September from the so-called "Manipuri disease." The loss on the Bullock Train Service was Rs. 7,300, according to the account, which is Rs. 400 or so in excess of the actual loss, owing to difference of outstanding balances at the beginning and end of the year. This includes Rs. 4,500, paid for the purchase of bullocks, the anticipated loss was Rs. 3,690, and one chief cause of the additional loss was the removal of one regiment from Shillong in November, and the cessation in the despatch of commissariat stores from Calcutta till the following February.

Lime manufacture.—The operations of the year were 1,11,330 maunds stone (part previously quarried) sent from quarries to Chhátak; 60,900 maunds stone burnt at Chhátak. Over Rs. 6,000 were expended in permanent kiln, small tramway for shipping stone, shed and godowns for lime, bungalow for Superintendent at Chhátak, &c., &c. But there were various complaints made about the lime sent to Calcutta, as to difficulty of landing and storing, deterioration of lime kept in stock before use, &c., and the experiment was tried of sending unslaked stone. After some correspondence, however, the Government of Bengal has decided now to take only unburnt stone, and several of the arrangements noted above are in excess of present requirements. The lime, which was sent to Calcutta, was delivered there at a lower rate than in former seasons.

Gauhati Workshops.—There has been much difficulty about getting an efficient foreman, which had not been overcome at the end of last year, though it is hoped that the man, whose services have now been engaged, will prove satisfactory. The estimated value of the work turned out of the shops was Rs. 15,077, but the cost was considerably in excess of this. Among the chief items of work may be mentioned the floating landing-stage noticed above, and a small steel-wire suspension-bridge erected over the Umshirpi at Shillong. A bolt-and-nut machine was added to the plant during the year, and has been working satisfactorily. The yard has been fenced in with a light cheap fencing, and some huts built in the rear for the workmen.

Dibrugarh Workshops.—There has been considerable increase of work here during the year, and the style of work has improved. There is no steam power used, and the tools which are there had been allowed to get into disorder and disrepair. Everything has been got into much better order and system, and the Executive-Engineer deserves credit for the improvements effected. During the year a drilling machine was added, and has been of much use. Some other machines have since been added, and, considering the

distance from Gauhati, the nearest shop with steam power, it may ere long be advisable to introduce some steam machinery, especially as skilled, and indeed all, labour is scarce and dear.

Imported labour.—The question of imported labour is one which affects chiefly the Upper Assam and Naga Hills divisions. Of the coolies imported under the old "imported labour account" there remained at the beginning of the year 246, which number, from abscondings, discharges, &c., was reduced at the end of the year to 150. The year opened with a debit to the account of Rs. 10,727, which, partly by writing off to works on which the men had been employed, and partly by increasing the daily charge to works from 6 annas to 8 annas per head per diem, was reduced at the close of the year to Rs. 3,816. It was hoped that it might be possible to avoid any further importation, but the experience of the year shows that we cannot yet do this. The works suffered in Sadiya and near Sibsagar, and it has been decided to arrange for the importation of 300 men for next season.

Tools and Plant.—The large increase in this head, under Irrigation, is due to the payment of Rs. 10,625 for the steamer *Dove*, now in Sylhet, and Rs. 11,683 for a new steamer expected to be ready shortly in lieu of the *Hawk* for the use of the Inspector-General of Police.

Suspense Balances.—The increase in these is due partly to the lime manufactured at Chhatrak, but chiefly to the stocks of Government coal at Gauhati and Dhubri, which have by order of Government of India been taken over as provincial stock.

Stock Balances.—These have been considerably reduced during the year, but most of the stations in Assam are too far from the Calcutta markets to allow of keeping no stock in hand except that immediately required for use. The stocks in some divisions were no doubt excessive, and have been reduced considerably. Limits have since been laid down, which, however, cannot in all cases be arrived at at once, as excess stock could only be sold off at very considerable loss.

General.—The general progress of work in the Province has not been very rapid, but the labour question must for years to come prevent Assam from comparing favourably with other parts of India in this respect. Some delays were caused by unavoidable changes of establishment, though not at all to the same extent as last year, while some, it must be admitted, were partly due to want of attention as well as want of experience of the country on the part of the officers in immediate charge of the work.

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Secy. to the Chief Commr.

P.W.D.