

SELECTIONS
FROM
THE RECORDS
OF THE
GOVERNMENT OF BENGAL.

N^o. XXXVI. PARTS I. & II.

PAPERS

RELATING TO

IRRIGATION IN BENGAL,

AND

THE MAGHASSANI HILLS,

AS A SANATARIUM.

Published by Authority.

Calcutta:

PRINTED AT THE BENGAL MILITARY ORPHAN PRESS.

1861.

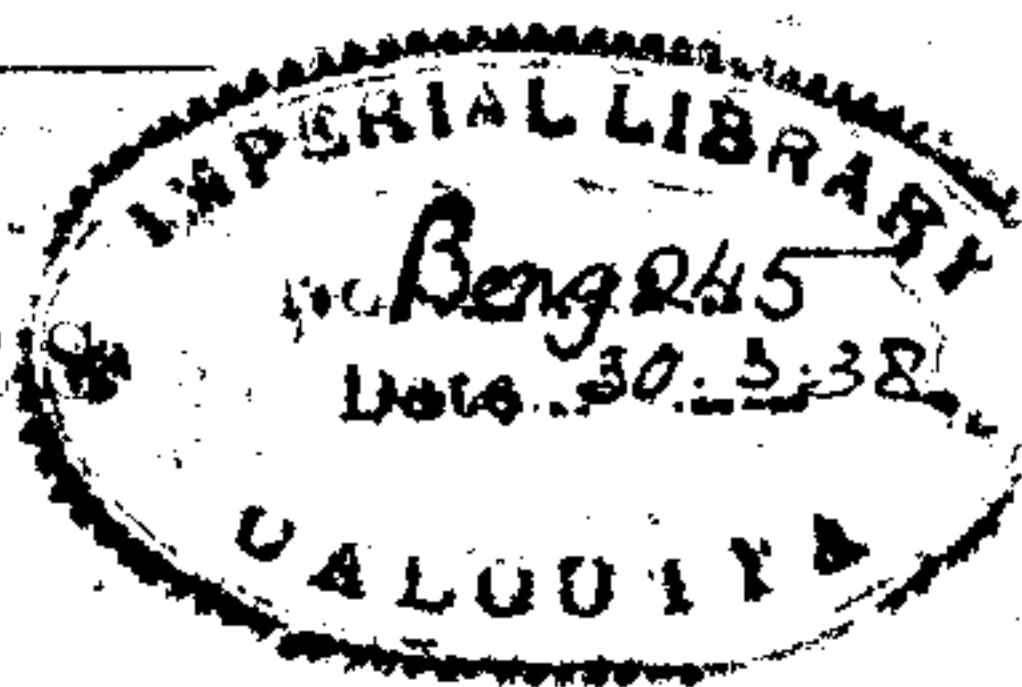


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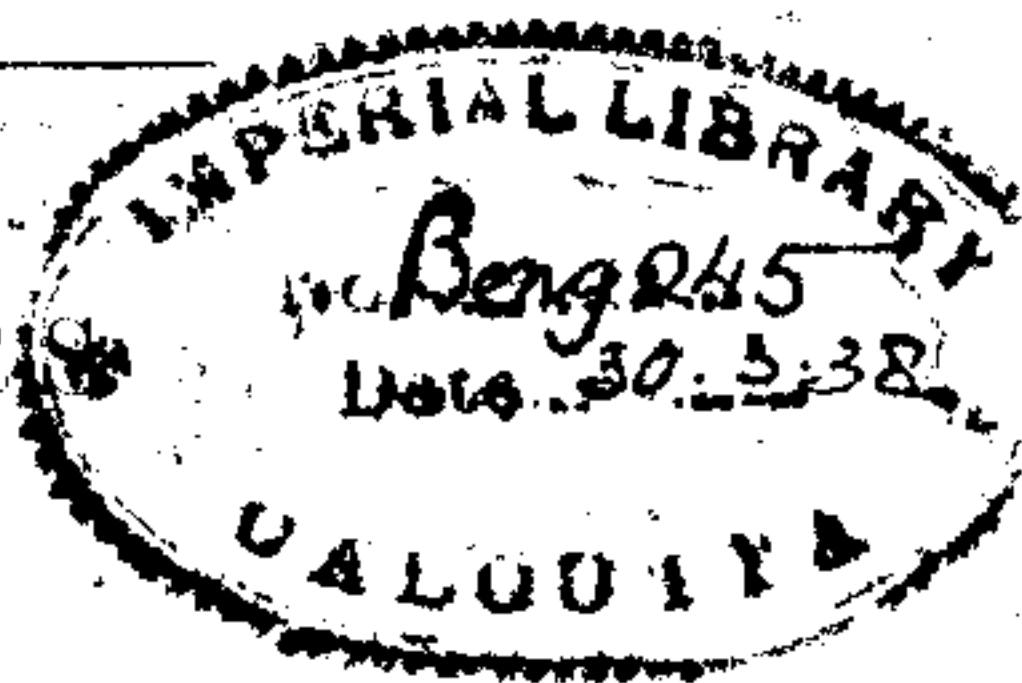


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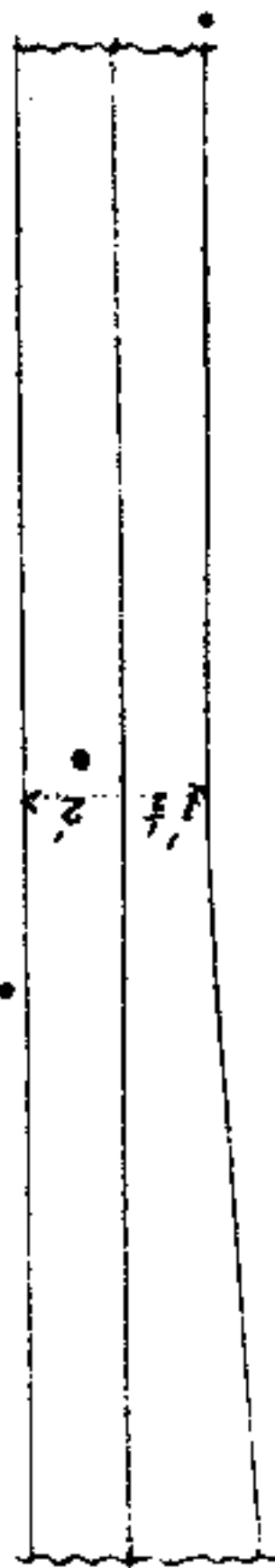
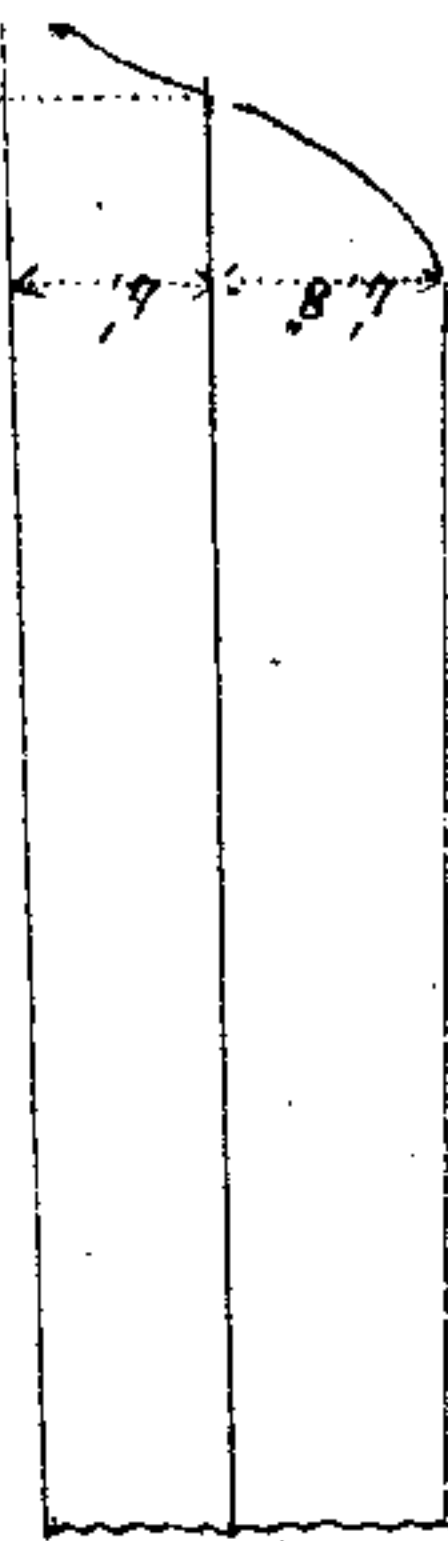
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Left Bank

1210 Feet



Section of Damooda River.

P A P E R S

RELATING TO

IRRIGATION WORKS.

No. I.

From Captain C. B. YOUNG, Officiating Chief Engineer, Lower Provinces, to the Secretary to the Government of Bengal,—(No. 1469, dated the 23rd June 1858.)

SIR,—His Honor the Lieutenant-Governor of Bengal will, I believe, read with much interest the accompanying account of irrigation obtained during the dry season from the Damoodah rivers, which is reported by the Executive Engineer of the Burdwan Division, Mr. W. Smith, Civil Engineer, and the Superintendent of Embankments, in his letter, No. 10, dated 30th April 1858, and which I will endeavour to elucidate in some of its principal points by reference to the accompanying diagram.

2. At Rajbulghat, just below where the Bancoorah and Calcutta road crosses the Damoodah, the section of that river is as shewn in accompanying sketch. Its dry weather discharge, flowing at a rate of about $1\frac{1}{2}$ miles per hour, is about 750 cubic feet per second.

3. Here a bund was thrown across the river from bank to bank 1210 feet in length, and of an average height of about 8 feet, consisting chiefly of sand taken from the river bed, but mixed in some places with alluvial earth and also strengthened in those parts, where strength was most required, by many bundles of straw and by bamboos driven into the ground. The total cost of this was Rs. 2,000.

4. The top of the bund was irregular in both its height and breadth. Under the right bank, where the deepest water of $7\frac{1}{2}$ feet

was, after bunding, it was 12 feet high. Under the left bank, where there was another water channel 4' 8" deep, it was 9' high, and in the centre, where there was a sandbank, dry under ordinary circumstances, it was 4 feet. When the water was at its full height above the dam, on the up stream side, the bund topped the water level by 4 feet at both ends and 2 feet in the middle.

5. At the right bank again, where the chief pressure of water was, the dam was made 15 feet thick, at the left bank 10, and in the middle 8 feet broad.

6. Just above this dam, on the right bank, was the irrigation channel or outlet which it was desired to supply with water. This is a natural channel of the Damoodah, of considerable dimensions, filled during floods. Its bed had been deepened by cutting at the mouth to assist the entrance of the water, and was thus reduced to 5 feet above the bed of the Damoodah itself; and the water in that river, having at the same time been raised by the dam from 2 feet to a height or depth of $7\frac{1}{2}$ feet, it followed, that a stream of water $2\frac{1}{2}$ feet in depth, was thrown into the side channel for irrigation purposes. The surface of this water was $5\frac{1}{2}$ feet below the level of the country, and as before stated, 4 feet below the top of the dam.

7. The width of the irrigation channel was about 200 feet, depth $2\frac{1}{2}$. The velocity of the water in it about 1.5 feet per second. Its discharge therefore 750 feet per second.

8. This amount of water was found to irrigate 17,500 beegahs, or say 6,000 acres, thus giving about 8 acres to the cubic foot of water discharged—a far lower amount than that usually taken by canal authorities, which is as much as 120 to 200 acres to the cubic foot in the North Western Provinces. The water was not however, of course, run on to the lands. Being some distance below the surface, it had to be baled up wherever required by manual labor.

9. There was very little leakage in the dam, and no accidents are reported to have occurred to it. Its cost was Rs. 2,000 as before stated. The revenue return has been calculated at 3 per beegah of rice cultivation, or Rs. 52,500 gain to the Zemindar.

10. According to the data derived from irrigation in the North Western Provinces, such a supply of water might be expected to irrigate, at 120 acres of mixed cultivation to the cubic foot, 90,000 acres, or if rice cultivation, 30,000 acres; the water-rate at 1 Rupee per acre would be equal to Rupees 90,000.

11. Where the land is under the permanent settlement, this is all the benefit I imagine which could accrue to Government, and it is liable to deductions for increased cost of building more substantially, costs of establishment, &c., still the work, there can be little doubt, would be remunerative.

12. As it is almost certain that there must be other places in Bengal where similar operations might be conducted with a like satisfactory result, I propose to print and circulate to the Department, the account of the present case of irrigation, and to call upon Officers to institute enquiries throughout their districts, whether there are any places where the relative state of the country and of the rivers flowing through it, are such as to justify the expectation that success would result from endeavors to bring the dry-weather stream of water to the surface, and employ it in irrigation without detriment to adjoining towns or districts.

13. It might be as well if Collectors of districts were, in like manner, called upon to assist the Executive Engineers. It would then perhaps be possible to try the experiment next season in other places and on other rivers than the Damoodah, to bring into utility waters which now run to waste, and to increase the class of remunerative Public Works in Bengal which is at present very small.

From Captain W. D. SHORT, Officiating Superintendent of Embankments, Lower Provinces, to the Chief Engineer, Lower Provinces,—(No. X. dated, Calcutta, the 30th April 1858.)

SIR,—I HAVE the honor to submit for your information and that of His Honor the Lieutenant Governor, a copy of Mr. Smith's report upon the operations lately carried out with such complete success in

damming the Damoodah river, and irrigating a very extensive tract of country situated between the Damoodah and Roopnarain rivers.

2. Mr. Smith here admits (what I have stated in my letter, No. B, of 20th April 1858, to be the case), that the country on the right bank of the Damoodah (where the protective works have been demolished), is so inundated by the flood season (or during 4 or 5 months), that there are no crops, and that during the remainder of the year they derive, wherever water may be available, a scanty subsistence from spring crops. Mr. Smith refers to the map to show how admirably the tract on the right bank of the Damoodah is adapted by nature for irrigation, and I would invite your attention and that of His Honor the Lieutenant-Governor to the map, to prove how admirably most of the districts within this Superintendency are adapted to enjoy similar benefits, and how readily these might be conceded and at the same time a remunerative water-rate assessed, if the Governor would permit such a system to be developed, as it already partially is, in the Midnapore Division. We should then see the country between February and June a sheet of green, instead of as now, dried up.

3. Having myself in 1854-55, executed a dam of sand, protected with matting, bamboos, straw, &c. across the low water current of the Mohanuḍdy river at Cuttack to divert the current into another channel (through sand,) previously opened to receive it, (a work which enjoyed during progress infinite ridicule,) I gave with much pleasure my approval to Mr. Grose's proposal, and am not therefore surprised that when money was provided, the dam was executed in the Damoodah, (the cause of last year's failure having been explained in my predecessor's letter, No. O, of 6th March 1857,) and it is only another instance of what would be the result if the districts were dotted over with many individuals possessing Mr. Grose's energy, clear-sightedness and means.

4. I deem it very important to point out the great advantage derived by the cultivators in having the intelligent European as land-owner. There Mr. Grose, after paying his expences, and receiving a handsome profit, enabled 13 village lands, containing 15,000 beegahs, to be irrigated *gratis*, whereby an unexpected accession of 45,000 Rupees

was given to those who had suffered much, not to mention the blessing of fresh water in the tanks for the people and cattle, whereas had a Native land-owner even attempted the experiment of damming the Damoodah, he certainly would have considered it most painful and unbusiness-like to benefit his fellow creatures by a free gift of 45,000 Rupees. In viewing these districts in their present state, and knowing full well what might and should be made of them, one cannot fail to compare such to the difference between a wretched Bengalee and a fine English cow, the former a starved object, providing barely sufficient milk for one child in the family, whilst the latter not only amply supports a large family, but gives a large balance to be sold to meet the taxes and buy luxuries with a margin for charity.

From W. SMITH, Esq., C. E., Executive Engineer, Burdwan Division, to the
 Officiating Superintendent of Embankments,—(No. 239, of 1857-58,
 dated Burdwan, the 15th April 1858.)

SIR,—REFERRING to the correspondence marginally noted, relative
 to the irrigation works undertaken this
 season by Mr. C. Grose on the right
 bank of the Damoodah, I have now the
 honor to furnish the following report, ac-
 companied by a traced map of the locality, and a list of the village
 lands benefited by these operations.

2. Mr. C. Grose has lately got possession of the Talook of Joypore, situated between the rivers Damoodah and Roopnarain, due west of Amptah, and part of the estate of the Maharajah of Burdwan. The flooded state of the country between these rivers prevents the cultivation of rice during the rains, and it is only from the spring crops (called by the natives Borodhan) that the inhabitants derive a scanty subsistence. A supply of water is indispensable for the crop, but this cannot easily be obtained at the period of cultivation. The Damoodah, at this time of the year subsides to a comparatively insignificant stream, a few hundred feet wide, and flowing knee deep in a channel several feet below the bed of any of the tributary khals which, during the rains, assist in discharging its flood-waters.

3. One of the most important of these auxiliaries is the Damoodah khal, which leaves the Damoodah opposite Raujbulhaut, and flows parallel to, and at a short distance from the river on the right bank returning to it again at a point above Amptah. Numerous small khals branch from this in every direction, and as the general inclination of the country is westward towards the Roopnarain, a glance at the map will show how admirably this district is adapted by nature for irrigation, provided the surface of the Damoodah can be raised to such a level in the dry season, as will enable its stream to run over the comparatively elevated bed of the mouth of the Damoodah khal.

I have thought it necessary to mention these general features of the district, as it will help any one not personally acquainted with the locality, to obtain a better idea of the irrigation works which form the subject of this report.

4. Mr. Grose commenced operations in the latter end of January last, by forming a dam across the Damoodah, at the spot marked D on map, a short distance below the mouth of the Damoodah khal. The breadth of the river at this point is 1210 feet; its bed shoals in the centre with a channel close to each bank, that near the right bank being 3 feet deeper than the other. The bed of the river is composed of sand, and of this material the dam was made with a small mixture of alluvial earth called pully, in the part near right bank, supported in two places by bamboos and bundles of straw.

This dam took six weeks to construct, and was finished on 7th March, at a cost of Rupees 2,000. When I saw it on 3rd instant, I was greatly surprised at finding such a barrier sufficient to divert the course of the water. The bed of river below the dam was dry, (except some pools of water scattered here and there), scarcely any leakage proceeded from the dam, and this was so trifling that at Amptah, several miles lower down, a streamlet 12 feet wide and 3 inches deep, represented the entire leakage.

The dam ran straight across the river; its crest near left bank was 10 feet wide, diminishing to 8 feet in centre of river, and thence swelling out to a breadth of 15 feet near the right bank. Its height

was not uniform owing to the configuration of the river bed near the left bank, it was 9 feet high decreasing towards centre, where it was not more than 4 feet, and again increasing to a height of 12 feet near the right bank. The crest of dam was generally from 4 to $4\frac{1}{2}$ feet over the water's surface, except at the centre where it was not more than 2 feet, but here the water was only 18 inches deep. There was no attempt made to give a regular slope to the sides of the dam, which stood roughly at an inclination of 2 to 1, and were unprotected except at the rear slope near the right bank where the channel was deepest; and here in two places a row of bamboos had been formed to support a large quantity of straw bundles (about Rupees 3,000 worth,) which formed the base of the dam, and enabled the workmen to close it at a distance of about 4,000 feet from the right bank where a moderate depth of water existed.

5. At the time of inspection the depth of water pressing against the dam was 4-8 near left bank, $1\frac{1}{2}$ feet in centre of river, and 7-6 near right bank. Its surface had however been 2 feet higher some short time before, as could be distinctly seen by the water marks. This rise had been occasioned by a small fresh in the river.

6. When the dam was closed the river rose gradually for 36 hours and commenced flowing into the Damoodah khal, the bed of which had been deepened 5 feet for a short distance at its mouth by a narrow cut. At the period of my inspection the greatest depth of water in the khal was $2\frac{1}{2}$ feet with a sluggish stream about 200 feet wide. The bed of khal was 5 feet higher than that of the river Damoodah.

7. In addition to the large dam just described, a small one marked No. 1 was made near Rogonathpore to prevent the water getting back into the river; another marked No. 2 was made at Duryhanna to prevent its getting into the Dalkissore river; and another marked No. 3 was placed across the mouth of a small khal further south, leading in the same direction. These had the effect of diverting the water to Mr. Grose's lands at Joypore, and after a fortnight's supply to this locality had been obtained, permission was given to the Zemin-

dars to form a dam, marked No. 4, across the khal below the mouth of the Dhalooa khal into which the water was then turned, and passing to the westward afforded irrigation to the lands of thirty villages specified in accompanying list.

After ten days' supply had been given in this direction, No. 4 dam was cut and the water was once more turned in the direction of Joypore.

8. Finding that a sufficient supply had been given in both directions, I ordered the large dam in the Damoodah to be cut on the afternoon of 7th instant, previously sending notice to Amptah to prevent accidents; this was accordingly done, and next morning the pent up water above the dam had fallen two feet. The total cost of these irrigation dams was Rs. 2,300, of which, as already stated Rs. 2,000 had been expended on the large dam across the Damoodah. In an Engineering point of view nothing could be more successful than these operations.

9. The results which followed these operations were equally successful. Mr. Grose secured water for the irrigation of 2,500, beegahs in his own talook, without which cultivation would have been next to impossible; and valuing the rice crop at the moderate rate of Rs. 3 per Beegah, his return is above Rs. 7,500, which will cover all expenses and leave a handsome margin for profit.

10. But in addition to Mr. Grose's land, an area of 15,000 beegahs, in thirty villages, (specified in list) received irrigation for a similar crop by means of these works, and adopting the same valuation as in his case, the value of the crop will amount to Rs. 45,000. It is not over-estimating the advantages afforded by the irrigation to state, that had it not been supplied, the crop would not be worth more than one-eighth its present value.

11. The foregoing information relative to these crops was furnished by Mr. Grose's Gomastha, a very intelligent and experienced man, but deeming the subject of too much importance to rest upon the single testimony of any person, however intelligent, I made the Overseer

of the embankments despatch a trustworthy subordinate into the district to ascertain the truth of these statements and his report, accompanied by list of the several villages irrigated, to which the signatures of the Munduls are attached, fully corroborate the truth of the Gomastha's statement.

12. To sum up briefly, Mr. Grose, at a cost of Rs. 2,300 in six weeks' time, made a dam across the Damoodah nearly quarter of a mile long, by which he successfully turned the whole of its water into another channel, from which, by a few smaller dams, he directed the water to the required purposes, affording irrigation to 17,500 beegahs of rice cultivation, moderately valued at Rs. 52,500, in a locality sadly in need of such assistance, and at a time when a threatened famine impends. To which must be added the inestimable blessing of a month's supply of pure water at the most trying period of the year, nor have the advantages been conferred by exacting any sacrifices from the villagers. Immediately bordering the Damoodah below the dam, owing to inequalities in its bed, large pools of water remained sufficient for their use during the diversion of the river, and no complaint whatever reached me of any injury from this cause; neither in my humble opinion does it lessen the value of the operation to know that a landholder, without any assistance from Government further than the necessary sanction required by law, can be found sufficiently energetic and self-reliant to undertake irrigation works of such magnitude at his own expense.

*Statement of Villages of the several Talookdars that have been watered in
March 1858.*

No. of Villages.	NAME OF VILLAGES.	Area of Land.
		Beegahs.
1	Mausree	500
2	Chund Chuck	400
3	Obheerampore	200
4	Kissore Chuck	300
5	Sona Chuck	200
6	Duckhee Mausree	100
7	Chingra	500
8	Chubbispore	200
9	Par Chubbispore	200
10	Sona Oudah	400
11	Oroondah	1,000
12	Magree	1,000
13	Kuttassa	500
14	Mustabapore	400
15	Pumrashpy	300
16	Dowlut Chuck	500
17	Hurrish Chuck	1,100
18	Mougrah	400
19	Soosan Chuck	1,000
20	Sonapottan	1,000
21	Bhattra	1,000
22	Solebaggah	800
23	Saorah	600
24	Jhamtah	200
25	Roghonathpore	400
26	Bollye Chuck	400
27	Aukha	400
28	Rakhal Chuck	500
29	Ballichuck	300
30	Norendropore	400
Total, ...		
		15,200

BURDWAN, }
The 15th April 1858. }

(Signed) W. M. SMITH, C. E.,
Executive Engineer, Bardwan Division.

No. II.

From A. R. YOUNG, Esq., Secretary to the Government of Bengal, to the
 Officiating Chief Engineer, Lower Provinces,—[No. 2097, dated the 8th
 July 1858.]

SIR,—I AM directed to acknowledge the receipt of your letter No. 1469, dated 23rd instant, giving cover to a sketch and a copy of reports by the Officiating Superintendent of Embankments, and the Executive Engineer of the Burdwan Division respectively, describing the successful results of certain operations undertaken during the past season, at his own expense, by a land-holder, Mr. C. Grose, for the irrigation of a tract of country situated between the Rivers Damoodan and Roopnarain.

2. The Lieutenant-Governor has perused with much interest the account given of those Works and of their effects, and so complete a success as appears to have attended this experiment will, no doubt, encourage others to try it, and Mr. Grose's operations may ultimately prove of much importance in connection with the subject of irrigation in general.

3. His Honor approves of your proposal to print the papers under acknowledgment, and to circulate them to the Officers of your department, with a view to the institution of local enquiries as to the advisability of carrying out similar measures in other places; instructions will be issued to the Revenue authorities to afford their aid and co-operation on receipt from you of the printed papers.

4. The plan which accompanied your letter is returned herewith.

No. III.

Circular from Captain C. B. YOUNG, Officiating Chief Engineer, Lower Provinces, to the Executive Engineers,—[No. 320, dated Fort William, the 24th June 1858.]

SIR,—THE following abstract with diagram of a report made by Mr. W. Smith Civil Engineer, on a case of irrigation which has been successfully carried out by Mr. Grose in the Burdwan District, is published for the information of the Department, and Executive Officers are requested to institute enquiries throughout their Divisions, and to report whether in their opinion, there are any localities where circumstances appear to be equally favorable for obtaining irrigation from the dry weather streams of rivers.

2. These enquiries should be made in communication with the Civil authorities. The discharge in the dry season of the rivers in their districts should, whenever opportunity offers, be carefully calculated, and the occurrence of any circumstances favorable to the construction of permanent dams, such as natural hill or quarries of stone, should also be reported.

3. The present case has been brought to the notice of Government, to whom it has been suggested to obtain similar reports from the resident District Civil authorities, and to whom any reports that may be received from Executive Engineers will be submitted before the next working season.

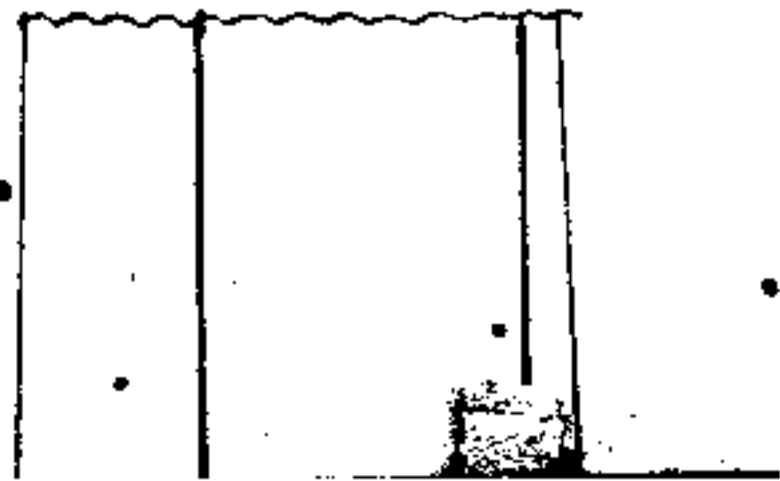
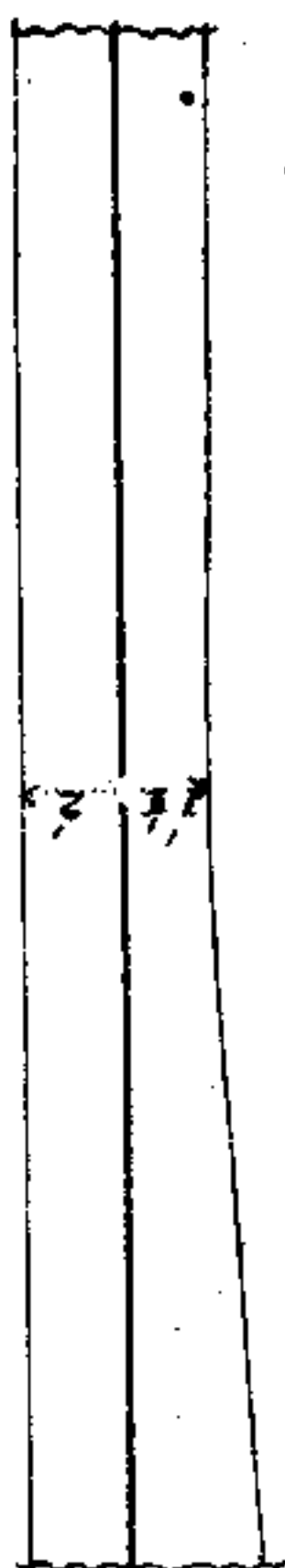
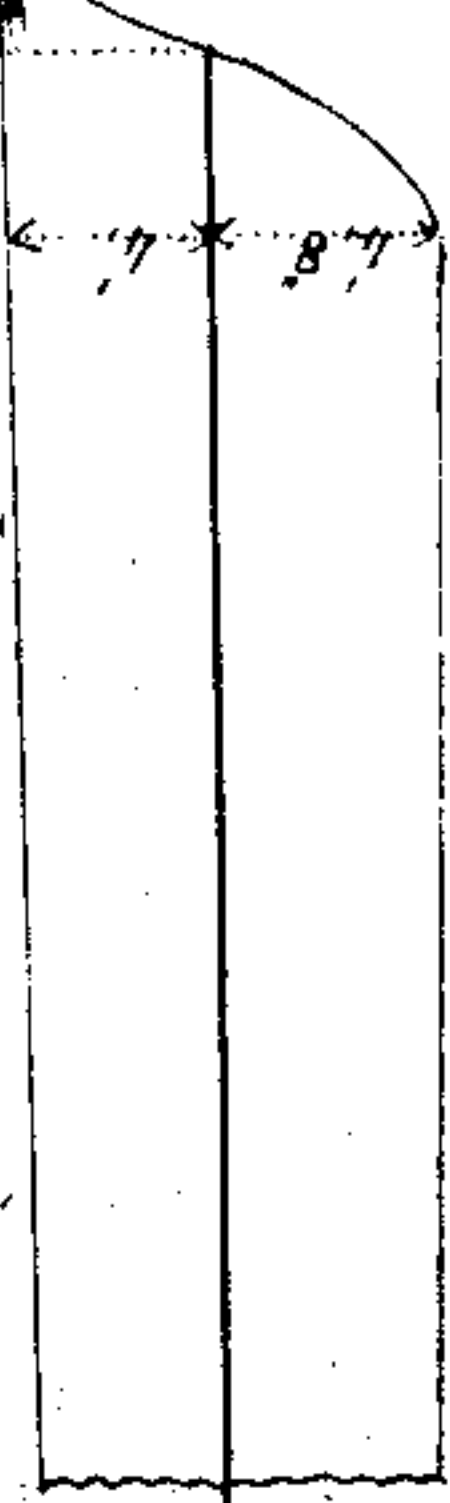
4. At Rajbulhat, just below where the Bancoorah and Calcutta road crosses the Damoodah, the section of that river is as shewn in accompanying sketch. Its dry weather discharge flowing at a rate of about one mile per hour, is about 750 cubic feet per second.

5. Here a bund was thrown across the river from bank to bank, 1210 feet in length, and of an average height of about 8 feet, consisting chiefly of sand taken from the river bed, but mixed

Left Bank

1210 Feet

Top of Dam



Section of Damooda River

in some places with alluvial earth, and also strengthened in those parts where strength was most required, by many bundles of straw and by bamboos driven into the ground. The total cost of this was 2,000 Rupees.

6. The top of the bund was irregular in both its height and breadth. Under the right bank, where the deepest water of $7\frac{1}{2}$ feet was after bunding it, was 12 feet high. Under the left bank, where there was another water channel 4' 8" deep, it was 9 feet high; and in the centre where there was a sand bank dry under ordinary circumstances, it was 4 feet. When the water was at its full height, above the dam on the up stream side, the bund topped the water level by 4 feet at both ends, and 2 feet in the middle.

7. At the right bank again where the chief pressure of water was, the dam was made 15 feet thick, at the left bank 10, and in the middle 8 feet broad.

8. Just above this dam, on the right bank, was the irrigation channel or outlet, which it was desired to supply with water. This is a natural channel of the Damoodah of considerable dimensions, filled during floods. Its bed had been deepened by cutting at the mouth to assist the entrance of the water, and was thus reduced to 5 feet above the bed of the Damoodah itself; and the water in that river having at the same time been raised by the dam, from about 2 feet to a height or depth of $7\frac{1}{2}$ feet, it followed that a stream of water $2\frac{1}{2}$ feet in depth was thrown into the side channel for irrigation purposes. The surface of this water was $5\frac{1}{2}$ feet below the level of the country, and as before stated 4 feet below the top of the dam.

9. The width of the irrigation channel was about 200 feet; depth $2\frac{1}{2}$. The velocity of the water in it about 1.5 feet per second. Its discharge therefore, 750 feet per second.

10. This amount of water was found to irrigate 17,500 beegahs, or say 6,000 acres, thus giving about 8 acres to the cubic foot of water discharge, a far lower amount than that usually taken by canal authorities, which is as much as 120 to 200 acres to the cubic foot in the North Western Provinces.

11. The water was not, however, of course, run on to the lands; being some distance below the surface, it had to be baled up wherever required.

12. There was very little leakage in the dam and no accidents are reported to have occurred to it. Its cost was Rs. 2,000 as before stated. The Revenue return has been calculated at Rs. 3 per beegah of rice cultivation or Rs. 52,500.

13. According to the data derived from irrigation in the North Western Provinces, the calculated effect and pecuniary value of such a supply of water might be expected to be 750 cubic feet of water per second, which would water (at the rate of 120 acres of mixed cultivation to the cubic foot) 90,000 acres, if of rice, 30,000.

14. The Rent return at one Rupee per acre, would be equal to Rupees 90,000, or if rice cultivation, Rupees 30,000.

15. Where the land Revenue was not permanently settled, there would be a still further and considerable gain to Government from increased revenue.

16. Should circumstances not be favorable to irrigation, it would still form a valuable record, if Executive Officers would estimate and report the discharge, during both dry weather and rains of the rivers in their districts.

No. IV.

From A. R. YOUNG, Esq., Secretary to the Government of Bengal, to the Secretary to the Board of Revenue, Lower Provinces,—(No. 2533, dated the 10th August 1858.)

SIR,—I AM directed by the Lieutenant-Governor to forward for the information of the Board, a copy of a Circular,* No. 320, of the 24th June last, which has been issued by the Officiating Chief Engineer, with the approval of His Honor, in order to the institution of local enquiries by the Officers of his Department, with the object of carrying out in other places similar measures to those which, it will be seen, have been undertaken with successful results, by a land-holder, Mr. C. Grose, for the irrigation of a tract of country situated between the rivers Damoodah and Roopnarain.

2. The Lieutenant-Governor requests that the Board will be good enough to forward a copy of the Officiating Chief Engineer's Circular in question to such of their subordinates as are likely to take an interest in the subject, and to call for reports from different parts of the country as to the practicability, in other places, of carrying out similar operations.

 No. 2534.

COPY of the above letter forwarded for the information of the Officiating Chief Engineer, Lower Provinces, with reference to his Circular on the subject, and to para. 3 of the Orders No. 2097, of 8th ultimo.

No. V.

From E. T. TREVOR, Esq., Secretary to the Board of Revenue, to the Secretary to the Government of Bengal,—[No. 330, dated the 29th July 1859.]

SIR,—WITH reference to Government Order No. 2533, dated 10th August last, I am directed by the Board of Revenue to submit the accompanying abstract of the reports received from the Commissioners consulted by the Board as to the practicability of carrying out irrigation operations similar to those of Mr. Grose, in the Districts of their Divisions.

2. It appears to the Board that Mr. Grose's scheme, which he successfully carried out, was very similar to the experiment conducted at Captain Beadle's recommendation in 1857, which, partially failed owing to the delay in making the side cut, causing an accumulation of water which undermined and broke the dam. No doubt, the Board remark, the same system of irrigation might be very successfully adopted by many land-holders; but there are so many jealousies to meet, and so many interests to reconcile, that it is useless to expect any thing on a general scale being done by the native land-holders: indeed, the Board are of opinion that no extensive system of irrigation can be satisfactorily carried out without an irrigation law.

3. There are, doubtless, many places in which operations similar to those of Mr. Grose, might be undertaken with great advantage; but the Board are unable, from want of the necessary information, to recommend any particular localities for experiments of this kind.

Abstract of Returns to the Board's Circular No. 303, dated the 23rd August 1858.

Patna.—The Commissioner of Patna remarks that the *Behar* District suffers very much from want of water, and much good might be effected by a good system of bunds across the Soane, the Poonpoo, and rivers which cross the Trunk Road, and those which descend from the hills in the Sub-division of Nowada. The whole of the rivers to

the South and East of Behar are mountain torrents; stone is to be had in the upper course of all these rivers in abundance, and if dams were thrown across them at intervals of a few miles along their channels, not only would the country secure the benefit of a perennial supply of water, but the violence of the floods, which now devastate the neighbouring lands and destroy our roads and bridges, would be very much diminished. In *Patna* the Poonpoo is almost the only river which could be dammed up with advantage; if dams were constructed on this river in Behar, the current would be so much diminished in point of velocity that there would be no difficulty in curbing the stream in *Patna* with common earthen bunds, which the Zemindars would probably throw across the channel with very little encouragement. In *Tirhoot* irrigation is already frequently effected by damming up the nullahs; and a survey of the rivers by competent Officers, coupled with a series of levels taken in different directions across the country, would doubtless shew that the system might be much extended. In *Champaran* a great deal of good might be effected by irrigation, and there exist numerous streams in that district which might be turned to account. Of the interior of *Sarun*, Commissioner has not sufficient experience to speak with certainty; but he has no doubt that great improvements might be effected there also by means of irrigation. On the whole, Commissioner would be glad to see a careful survey of his Division undertaken with a view to the improvement of the existing means of irrigation.

Rajshahye.—The Commissioner of Rajshahye, after communicating with the Collector of his Division, is of opinion on the whole, that measures similar to those undertaken by Mr. Grose could not be successfully carried out in any of the districts of his division, in fact, he remarks, none of the rivers are of the same character as the Damoodah which, being not more than ankle deep in many parts in the dry season, can have no navigation, whereas the rivers in his Division generally admit of navigation, to some extent, throughout the year, which would be an objection to the adoption of the proposed plan; moreover, the means of irrigation are not wanting to any serious extent anywhere in his Division.

Burdwan.—The Commissioner reports that the Collector of *Beerbhoom* is told by Mr. H. Erskine, an experienced planter on the border

of the Adye, that the success of any attempt to irrigate from that river is very doubtful, and he is unable to speak of the Mor. The *Burdwan* Collector thinks much irrigation from the Damoodah feasible, but mentions that the Executive Engineer is of opinion, that any attempt to benefit that district from that river would injure Mr. Grose's irrigation lower down. The Collector of *Hooghly* thinks that irrigation might be successfully resorted to in many places, but he adds that no Collector has at his disposal, the means of forming a really sound opinion in this subject. For the same reason the Commissioner, though he has no doubt in his own mind that irrigation might be adopted to an enormous extent with advantage, could not venture to offer an opinion whether, in any given place, that advantage would be gained without preventing the possibility of similar benefit to other lands; nor is he able to imagine how any fair judgment on this subject can be formed, without a scientific survey of a large tract of country.

Nuddea.—The Commissioner of Nuddea remarks that Mr. Grose's plan might be practicable in the Nuddea rivers, but to dam those rivers would be to stop the navigation.

No. VI.

From E. H. LUSHINGTON, Esq., Officiating Junior Secretary to the Government of Bengal, to the Secretary to the Board of Revenue, Lower Provinces,—[No. 81, dated on Board the Lieutenant Governor's Yacht *Rhotas*, off Bhaugulpore, the 22nd August 1859.]

SIR,—I AM directed by the Lieutenant Governor to acknowledge the receipt of your letter No. 330, of the 29th ultimo, and to request, with reference to the opinion expressed in the 2nd paragraph thereof, that the Board will have the goodness to favor His Honor with the heads of such an irrigation law for the Lower Provinces as they may consider suitable.

No. VII.

From E. T. TREVOR, Esq., Secretary to the Board of Revenue, to the Officiating Secretary to the Government of Bengal,—[No. 5, dated Fort William, the 6th January 1860.]

SIR,—I AM directed to acknowledge the receipt of your letter No. 81, dated 22nd August last, and in reply to submit the following observations:—

2. The present Law, Act VI. of 1857, will enable the Government to take any land that may be necessary for Canals, but it might further, the Board think, be requisite for the purposes of procuring the supply of water to give the Government the power of using and damming up shallow streams and rivers, the beds of which are now considered the property of individuals and used for their profit.

3. The great object however, would be to regulate the levy of Rents for the supply of water and to protect the works from injury, to which, in the Lower Provinces, they would be very liable from the jealousies and interests of parties.

4. For this purpose a law similar to Act VII. of 1845 would be necessary; but with more stringent enactments than those in Sections V. and VI. of that Act, to provide for the protection of the Works and for the punishment of any persons injuring them.

5. An addition will also be required to the latter part of Section IV., and balances should be recoverable from any property of the defaulter by any process in force for the recovery of Revenue *or rent*.

6. When the canals shall have been completed, rules may be drawn up under Section II. of the Act, similar in their nature to those passed by the Lieutenant Governor of the North-Western Provinces, under date 31st May 1845, and published in P. P. 716 et seq. of the *Government Gazette* of that year.

No. VIII.

From A. R. THOMPSON, Esq., Junior Secretary to the Government of Bengal,
to the Officiating Chief Engineer, Lower Provinces,—[No. 267, dated
the 23rd January 1860.]

SIR,—I AM directed to call attention to the letter from this Office
No. 2097, dated the 8th July 1858, and to state, that the Lieutenant
Governor will be glad to receive the Reports of Executive Engineers
therein referred to, together with any remarks you may have to offer
regarding the practicability of employing the streams of rivers during
the dry season for irrigation purposes.

No. IX.

Office Memorandum, No. 2394, dated Fort William, 28th August 1860.

WITH reference to Mr. Junior Secretary R. Thompson's No. 257, dated 23rd January 1860, the undersigned has the honor to submit, for the information of the Honorable the Lieutenant Governor of Bengal, the accompanying printed copy of the documents, noted in the margin, on the subject of the practicability of turning to advantage the dry-weather streams of rivers in Bengal.

Officiating Superintending Engineer, Presidency Circle's No. 6844, dated 3rd April 1860.

Superintending Engineer, Burdwan Circle's No. 4455, dated 13th April 1860.

Superintending Engineer Burdwan Circle's No. 4480, dated 16th April 1860.

Superintending Engineer, Behar Circle's No. 5682, dated 17th April 1860.

2. The Reports afford all the information available on the subject at present, and although many of them are full of considerable promise, they are yet not of such a definite nature as to allow of any proceedings being adopted; but it would appear that land-owners in many parts of the Lower Provinces, as, for instance, in the Patna, Burdwan, and Balasore districts, are fully alive to the advantages of irrigation, and that they suit their system to the means available.

3. It is beyond doubt that many opportunities would offer of improving the system of irrigation, either where tanks or reservoirs are used as in Behar, or where dry weather streams are used as in the districts of Midnapore and Orissa; but to admit of this being done, it would be necessary, in the first instance, to obtain additional aid in Engineering Staff; and secondly, for the Legislature to decide the rights of the several parties concerned, to enable Government to recover the expenditure incurred.

4. The undersigned regrets much that he is not prepared at present to submit any general scheme for the consideration of Government, nor would the Officers of the Department be able to carry out in its details, or take up with any hope of doing the justice to it which it merits, so important a subject.

5. Could the funds at the disposal of the Civil Commissioners of Divisions be so increased, by any means, as to enable them to maintain permanently a competent Civil Engineer for the scientific works of their Divisions, works of irrigation might, it is considered, form a very important and remunerative branch of the duties of those Officers. For the Divisions of Patna, Burdwan, Bhaugulpore, and Nuddea, District Civil Engineers have already been sanctioned by Government, but it has been found on enquiry that the funds available are not of that extent to justify the payment of such a salary, viz. Rupees five hundred per month, as would secure the services of a really competent Civil Engineer.

Rupees 500.

6. That resources may be increased at a future period there is some hope, and in that case no time should be lost in initiating a trial, which must, in the course of improvement, be established sooner or later, after a few years. It is suggested that over the Divisional or District Engineers should be appointed another or 8th Superintending Engineer, under the Chief Engineer, who would attend to all the local Engineering Works in progress, including of course works of irrigation.

(Signed) C. B. YOUNG, *Lieut. Col.*,
Chief Engineer, Lower Provinces.

From CAPTAIN A. IMPEY, Officiating Superintending Engineer, 1st Circle, Lower Provinces, to the Officiating Chief Engineer, Lower Provinces,—[No. 6844, dated the 3rd April 1860.]

SIR,—IN reply to your No. 7391, dated the 30th March 1860, I have the honor to state, that there are only two Divisions in my Circle to which the Circular* you allude to would now apply, viz., to the Barrackpore Division, and to the Arracan Division.

* No. 320, dated 24th June 1858.

2. The Circular was forwarded, I believe, to all the Divisions lately comprising the late 1st Circle, but no replies were received. If information on the point be still required, it might be applied for through the Superintending Engineers, South-Eastern and Upper Assam Circles.

3. The Barrackpore Executive Engineer replies that he is so little acquainted with the numerous rivers in his Division, excepting at the points where the roads cross them, that he could not give a satisfactory reply to my enquiry. I do not well see how he possibly could give a reply of any value unless he could devote a considerable time to that special object.

4. He mentions, however, that all the streams with which he is acquainted are navigable for small country boats, which would prevent without expensive arrangements being made, their being dammed for irrigation purposes.

5. The Executive Engineer of the Arracan Division, in a letter received this day, writes that all the streams in this Division rise in mountain Districts as torrents; that in their course through the hills there is no land available for irrigation, while immediately after reaching the plains they are tidal, and their waters become brackish and unfit for irrigation purposes.

FROM CAPTAIN J. P. BEADLE, Superintending Engineer, Burdwan Circle, to the
 Officiating Chief Engineer, Lower Provinces,—[No. 4455, dated the 13th
 April 1860.]

SIR—I HAVE the honor, with reference to your No. 6403, dated 9th

Burdwan.
 Tumlook.

February 1860, to state that no particular reports have been received from the Executive Engineers of the late 3rd Circle, in accordance with the 1st paragraph of your Circular No. 320, dated 24th June 1858, on the subject of the practicability of employing the dry-weather streams of rivers for irrigation purposes other than those mentioned in the margin.

2. Mr. Smith, the Executive Engineer of the Burdwan Division, was most anxious to have the utilising of the dry volume waters of the Damoodah made over to his agency, and he submitted a valuable correspondence with Mr. Grose, the Zemindar, who had previously effected the irrigation which originated your Circular, and made certain propositions on the subject. I personally sought to obtain the sanction of

Government to carry out this operation, but failed in my endeavour to obtain the consent of Government to Mr. Smith's undertaking the work. His Honor, however, sanctioned my moving the Revenue Board officially on the subject, and a copy of my letter No. 3323, of the 11th March 1859, to the Revenue Board, is annexed.

3. This letter made Mr. Smith's correspondence a handle to the general question, and mooted the subject of an enactment to enable Government to sell the waters of the rivers to the Zemindars delivered upon their fields.

4. I have received no reply to this letter.

5. In the year before Mr. Grose's successful work of irrigation, this Department had undertaken the construction of dams in the Selye and Sankra rivers (two branches forming the Roopnarain), and also in the Damoodah at Modeepore, according to the written request of certain Zemindars, and with the consent of the Revenue Board and of Government. The two first dams were constructed by Lieutenant Black, the Executive Engineer of the Culmejole Division, and answered the purposes for which made, but the Damoodah dam failed, and this failure prejudiced the whole matter.

6. Mr. Grose, Talookdar of Joypore, was not deterred by it however, and made his dam successfully during the subsequent season at the take-off of the Damoodah Khal many miles below Modeepore.

In the following year (1858-59,) when Mr. Smith had been so desirous of making the dam, "a fresh" occurred at the period when the dam would have been under formation, and I believe it stopped Mr. Grose's proceedings, who had commenced the work, but a little late in the season. No irrigation consequently was carried out from the Damoodah in 1859. This year Mr. Grose has made his dam, and I have written to Mr. Smith for the particulars of the Work, of the irrigation, and of the results.

7. Lieutenant Garnault, the Executive Engineer of the Tumlook Division, reports, with reference to Chief Engineer's Circular letter No. 6403, of the 9th February, that "all the dry-weather streams of the

fresh water rivers of the Tumlook Division have been employed for irrigation. The Zemindars have themselves constructed the dams across the different rivers after having made a deposit, and signed an agreement that they would clear them by a certain time."

Lieutenant Garnault adds, " I saw on my late tour a large quantity of land which had been irrigated by the
 * These rivers form the Roopnarain. J. P. BEADLE. Sankra, Amoodur, and Darkissore* rivers, but cannot at present inform you of the number of beegahs irrigated, nor the profit per beegah.

8. The Zemindars on the Selye, Cossye and Kaleaghye* rivers always construct dams for the irrigation
 * Upper and fresh water portion of the Huldee river. J. P. BEADLE. of the low lands, and I may say that the only river in this Circle (Burdwan) which is not utilised in this way is the Adji river, the dry-weather volume of which is small, and the bed wide and deep with dry sand, besides which it is not subject to a tidal influence.

9. There is always a principle to be observed in such movements, and the principle on which these Zemindary dams are constructed in this Circle is, to separate the fresh water from the salt water, and to heap up the fresh waters just as they reach their lowest point, and where the river has somewhat of a muddy bottom. This secures the irrigation of the lowest lands on which the Burroo dhan or dry-weather rice is cultivated. The river bed has also very little slope in these places, and the bottom being firm, the dams are constructed with some security. They are made during the cold weather, and are removed before the South-west monsoon commences.

10. There have been other dams in this Circle constructed by the Salt Department, for the purpose of arresting the salt tides, and delivering them unmixed upon the salt manufacturing lands. These dams have been made right across the rivers Kaleaghye and Cossye, and standing throughout the salt manufacturing season, they have each year caused the silt to deposit in the beds of the Rivers at their mouths to an extent which has been prejudicial to the discharging powers of the rivers when the first great floods of the South-east monsoon come down,

for these have to sweep out and re-excavate the beds where silted up, and the result of these recurring operations carried on for the last eighty years have tended to raise the beds of the rivers, and to endanger the cultivated lands in time of floods.

11. Last season I obtained the Revenue Board's dictum that the interests of the Salt Department must give way to the agricultural interests of the districts, and as Superintendent of Embankments I have, with their concurrence, put a stop to the practice of the Salt Department damming across the rivers in their tidal reaches.

12. The late Salt Agent of Tumlook considered this a very disadvantageous measure to his Department, and called my attention to the fact of agricultural dams having been constructed by the Zemindars in the Cossye above the site of the salt dam.

13. I have instructed the Executive Engineer of the Midnapore Division, Zemindaree embankments, in the following terms respecting these agricultural dams:—

“Dams must not be constructed in the tidal reaches of a river without the consent of the Executive Engineer acting under the Superintending Engineer's orders. That at Kapastickree was so high up that it was not of much importance with respect to the increased deposits in the mouth of the river, but the dam at Gharoi or Kissore Chuck, was in a position that demanded great vigilance, and if allowed at all for the purpose of rearing the cold weather crops, it should have been permitted in such wise that, directly the required supply of fresh water had been secured, the dam was to be removed entirely and completely, and all expenditure connected with its removal, and such excavation of the bed as might be required to be recovered from the Zemindars concerned. The exact place for such a dam should be fixed by the Executive Engineer, who would place it as high up the river as possible with reference to the plains to be irrigated, and the date of removal must also be carefully ordered by him, and the Executive Engineer must see that the order is perfectly and completely carried out.

“3. A limit should be fixed in each river, below which a dam is on no account to be constructed, and a date should be fixed beyond which the continuance of dams in the upper reaches is on no account to be permitted, and on which an inspection is to be made to see that they have not only been destroyed, but entirely removed, and that the bed at the place has been made uniformly deep for the whole section, and to the full depth required by the river at that point, and a report should be filed in the office to this effect.

“4. It must be borne in mind that these agricultural dams are required to be constructed, and should be removed, before the South-west monsoon sets in, and that the effect they have is a very different one to that which the great salt dams have therefore exercised, placed where the tides serve with violence, and maintained throughout the monsoon, and until the rainy season, with its land floods, removes them, and clears the river of their obstructions.”

14. I have entered at length on this subject of agricultural dams to show both what the practice of the Zemindars in these districts is, and the present stage of matters regarding the construction of dams just above and within the tidal limits. A great deal of benefit is now done by means of irrigating dams, but the Zemindars only think of their own benefit, and there is no system in the supply of and payment for water.

From CAPTAIN J. P. BEADLE, Superintendent of Embankments, to the Secretary to the Board of Revenue, Lower Provinces,—[No. 3323, dated the 11th March 1859.]

SIR,—His Honor the Lieutenant-Governor has sanctioned my moving the Revenue Authorities officially in the matter of the accompanying correspondence between Mr. Smith, the Executive Engineer of the Burdwan Division of embankments, and Mr. Grose, the Talookdar of Joypore.

2. Mr. Grose is the enterprising gentleman who constructed at his own expense, in the early months of 1858, a temporary dam across

the water channel of the Damoodah, where the Damoodah khal takes off, forcing the flow of water down that course, and raising its level till the water spread over the low-lands between the Damoodah and Roop-narain, directed by the embanked channels which intersect that tract, all of which had been closed at the lower ends.

3. His expenditure was under 3,000 Rupees, and the aggregate value of the crop of paddy secured was according to Mr. Grose's estimate, 1,60,000 Rupees, an estimate formed upon the value realized from his own lands and the amount is so large because, the selling prices* were so high at that particular time.

* More than twice the usual prices.

4. The Revenue Board will not have forgotten the attempt made to irrigate this, and other low tracts in the previous year at Modeepore, higher up the Damoodah river, and on the Selye and Darkissore rivers. The plan and places of irrigation were proposed by certain Zemindars, who were to bear eventually the expense of the Works. The Works were to be constructed by the Public Works Department, and the expenditure to be recovered proportionately by an Officer of the Revenue Department, associated for this purpose with the Executive Engineer. The dams on the Selye and Darkissore were accomplished successfully, but that on the Damoodah failed, the Collector having interfered to prevent the bank being cut through, and the work

Since this letter was written I have conversed with Mr. James Young, the Commissioner, on this subject, and he considered that the Collector's proceedings did not contribute to the failure. That we were not ready, and that the Zemindars themselves were not ready.

I confess that in a case of failure I think the fact is sufficient. It sticks to this department, and we did fail in securing the objects of the measure after we were allowed to proceed, but I was only allowed to cut through the bank, and to connect the river with its old take-off channel, on my accepting the responsibility of closing the cut afterwards, effectively so, that it should not be breached during floods, a grave responsibility undertaken in the desire to do good, which good was not done, but the bank was successfully re-formed.

J. P. BEADLE.

having been suspended just at the time it should have been closed without delay.

5. It will be seen from the correspondence herewith forwarded, that Mr. Grose asserts a right as Talookdar of Joypore, to construct a dam across the Damoodah at the Damoodah khal, and that he is willing to forego this right, and to pay for the water if Government should con-

struct this dam, but that he objects to the position of Modeepore, as involving greater difficulty, and therefore a less certain success than the locality of the Damoodah khal lower down the river.

6. Mr. Smith, the Executive Engineer of the Damoodah, was most anxious this year to be allowed to construct the dam at the Damoodah khal. He stated that a grant of Rupees 3,000 would suffice; that he would first measure the areas of land to be irrigated, and draw up a contract Deed for each land proprietor, stating the amount to be paid for the water. If this Deed were signed within ten days from the completion of the dam, the rate to be 4 annas per beegah; if after ten days and before twenty days, 8 annas a beegah; and after this period of twenty days, 12 annas per beegah.

7. Mr. Smith was to have supervised the whole of the operation, and the only assistance the Executive Engineer asked for was, that of a qualified subordinate Officer of the Hooghly Collectorate to be attached to him, for the purpose of drawing up the contract Deeds, and of recovering the water-rate.

8. This Damoodah dam should be constructed in January, but notice of its intended construction should be given in November, as the sowings are made in December. The water should continue to flow inland for about a month, after which the dam is cut, and the obstruction thoroughly removed.

9. I examined the locality in November 1858, and found no trace of the previous dam. The bed of the river was of full depth, and more than usually free from sandbanks.

10. I shared in the Executive Engineer's anxious desire to construct the work this year, and took advantage of my proceeding to inspect a portion of the 24-Pergunnahs embankments, to urge the matter personally, at an interview with His Honor the Lieutenant-Governor of Bengal, the result of which led to my directing the Executive Engineer to inform Mr. Grose, that the Government would not this year move in the matter of constructing this temporary work for irrigation.

11. I may add, that Mr. Grose has not himself constructed the dam, and that unless the extraordinary rain-fall we have experienced this month has sufficed for the cultivation, the people on the lower portion of the right bank tract will not have benefited as they did last year. The Fusi rice crop was, however, a good one, superior to any crop they have had for years.

12. It would seem that a law is required for the sale of water delivered at the fields where works have been constructed for the purpose of artificially raising its level and of distributing it.

Mr. Grose had to make a private arrangement with the parties to whom he supplied and sold water. The conditions he made with the land-holders were, that one-fourth the amount was to be paid on the contract being signed, one-fourth when the water commenced to flow up the lands, and the remaining half when the water had been received in full.

The first-fourth was paid freely; the second-fourth was paid at the convenience of the parties; and to the payment of the last half, every one had some objection to make after a period of four months. Mr. Grose it appears closed his account, but with deductions in many cases, so that the total amount for which he had sold the water was considerably reduced, and in his letter of the 22nd September 1858, Mr. Grose writes, that "to me the land-holders and cultivators were beholden for the benefit they derived from the irrigation of their lands, and yet they felt not the smallest hesitation to deprive me of what I had fairly earned from them."

13. On the Selye, Darkissore and Cossye rivers, it is the custom to make similar dams, but there is always more or less difficulty between the land-holders about the expenditure of money and distribution of water. If the operations were systematised, and the dams were constructed annually by the Officers of Government, the land-holders would in all probability pay, with pleasure, a fair rate for the water delivered upon their fields, and it is with a view to this matter being considered by the Revenue authorities that I have the honor of addressing you.

14. The way in which the Zemindars came forward in 1856-57 shows that they feel the want of some authoritative enactment, by which the benefit of all concerned may be secured, without room being given for quarrels and litigation. They saw the advantage also of the superintendence of Government Officers to prevent the waste of water when raised to the required level, and to secure its distribution equally to all who are conveniently situated to receive it, and are willing to pay for it.

15. There is moreover a risk of failure, which is much increased by any vacillation of purpose; and in a large river like the Damoodah, one land-holder does not like taking the double chance of the dam answering, and of recovering from the other land-holders, who will benefit, a fair price for the water he may secure for them.

16. It therefore becomes a question for Government to consider whether it will aid the cultivators on the low-level flat lands which border the rivers in their delta channels, by the regular construction of works which, during the dry season, will secure to these lands a supply of water for a hot-weather crop, the Fusl crop being always more or less uncertain in such places, and by legal enactment to provide for the levy of a fair water-rate, that will make the working of such a system directly remunerative.

17. This would be the commencement of irrigation on a larger and more profitable scale. When land-holders see how certain the cultivation becomes when water can be purchased at the fields, they will desire to have the same advantage on the lands of higher level; and commencing on the low grounds with temporary dams, works of irrigation will extend up the rivers, till the danger of the floods will be materially lessened by the permanent measures adopted to hold back the waters, and to store for irrigational purposes.

18. The Revenue Board will remark the zeal shewn by the Executive Engineer in his desire to secure the advantage of irrigation to the cultivators, and I have hopes that this zeal will ultimately find its reward in the measure being adopted by Government, and placed on a proper footing.

From CAPTAIN J. P. BEADLE, Superintending Engineer, Burdwan Circle, to the Officiating Chief Engineer, Lower Provinces,—[No. 4480, dated the 16th April 1860.]

SIR,—IN continuation of my letter No. 4455, dated 13th instant, and in further reply to your No. 6403, of the 9th February 1860, which refers to a period when the Cuttack Circle formed a portion of the 3rd Circle, and was under my superintendence, I have the honor to state that I have a distinct memory of Mr. Rayner, the Executive Engineer of the Pooree Division, having written at least two communications on the subject of irrigation by dams, one with reference to your Circular of June 1858, the other with advertence to a proposal made by the Collector of Pooree.

2. As I have not the documents in this office, I have forwarded a transcript of your No. 6403, dated 9th February 1860, together with a copy of this letter to Captain Harris, who will take up the question and supply you with more information about the matter than I can do.

3. I may however state that the cultivation in the Balasore Division is assisted greatly by artificial means during the rainy season. There are many isolated embankments scattered throughout the District, which are dams retaining the rain-fall and keeping it on the higher lands, which, without these aids, would drain off the water too rapidly for the growth of crops. If these dams were supplied with sluices, or each with a sluice, the system would be a very good one, but now the dams have to be cut to prevent the crops being drowned, and then the waters run off and the gaps are not effectively closed, and the cultivation becomes precarious instead of tolerably certain. The Works also are not kept in that order which might be looked for if they were completed with sluices, giving the agriculturists a command over the water. There are other portions of embankments also, placed on the low side of a nullah, to throw the waters upon the other side, which is highly cultivated. In fact, throughout Balasore, there are rude but clever attempts to aid agriculture, and to secure crops against the draw-backs of level and climate. I know no district more capable of being im-

proved than Balasore, or where artificial works of irrigation are more

* The main channel and other branches being open for its escape. called for to assist in rearing the crops. Irrigation is carried on to a limited extent in the lower water-courses of the Byturnee river, but the volume,* although arrested by a dam, does not rise over the bank, and the water has to be raised, which is generally done by spooning it up in a scooped-out trunk worked between uprights.

4. There is a temporary cross dam constructed annually in the bed of the Byturnee (the Styx of the Hindoos,) at the place† where the waters are said to descend into the earth; and the pilgrims who assemble in great numbers at this period bathe in the waters, which, however, I believe do not rise‡ to a height that would admit of irrigation by such means alone.

† Between the road and Jajipore.

‡ There is a great take-off above the place leading into the Kursooa deep channel, which, if left open, would prevent any great rise of the water.

5. The most fertile lands, and the best cultivated portion of the Balasore Division, are on the Byturnee and its branches between the road and the salt marshes, and the whole of this land requires water. I should think that temporary dams constructed simultaneously across every outlet, and just at the points up to which the neap tides

Here we see the necessity for such works being undertaken by Government. A river has several branches; any one of these left open would carry off the dry-weather volume, so that to make one dam serviceable, others must be made and in the estates of other land-holders.

(Signed) J. P. BEADLE.

serve, would, during December, raise the water sufficiently for a general irrigation of the lower lands, and that the same process might be adopted with advantage on the minor rivers in the Bhudruck Sub-division.

6. When last at Pooree, I proposed to the Collector to place similar dams in the narrow channels of the Pooree rivers, so that the flow of the fresh water might be arrested, and the rivers converted, for the time, into reservoirs, advantage being taken of the rise in the waters to irrigate the lands; but the work being done mostly as an experiment to see to what height the waters would rise arrested, in this way, the Collector (Mr. Mactier,) seemed anxious to have the measure carried out, and I mention it now to give myself the opportunity of recording that it is a cheaper, more ready, and more certain way of arriving at the knowledge required to actually make such a dam or series of dams,

than to organize a survey, and to obtain theoretical knowledge from figures and plans. In this particular kind of work, I believe it is best to make the obstruction, and to see what its effects are, and whether the results justify doing the work again next year with all the improvements that experience and observation would enable a careful and practical Engineer to make. The result of such experimental work could not be an entire failure, for every foot that the water is brought nearer the surface of the land would be eagerly taken advantage of by the people, who now laboriously obtain the water by raising,

* See Mr. Rayner's report on the agricultural arrangements in Ungool—a visit undertaken and report written at the request of Mr. Samnells, when Commissioner and Superintendent of the Tributary Mehals.

(Signed) J. P. BEADLE.

wherever it is possible, with simple appliances to do this and where the soil is worthy of the labor. In Ungool* the agriculturists cultivate with the aid of temporary dams for irrigation, and it appears that temporary dams formed like ropes of sand across the beds of rivers, are made for similar purposes on the Madras side called Courumboos. A description of these Works is given in the 80th and 81st pages of Captain (now Colonel) Arthur Cotton's report on the Colleroon Annicuts, as published in the 1st volume of the Madras Engineer Papers; but the experimental Works I advocate, are not ropes of sand, but sound and firm dams of clay and sand, strengthened with fascines as required, so that the work placed in narrow channels may support a considerable body of water.

7. I believe that a great deal of good might be done in this way, but there are difficulties and there might be failures, and a large discretion, and a very liberal support should be given to an Executive Engineer carrying out experimental temporary works like dams, formed with earth and sand, in the beds of rivers, during the dry season to assist irrigation.

From Major W. MAXWELL, Superintending Engineer, Behar Circle, Lower Provinces, to LIEUTENANT COLONEL C. B. YOUNG, Chief Engineer, Lower Provinces,—[No. 5682, dated the 17th April 1860.]

SIR,—WITH reference to your letter No. 6402, of 9th February last, asking me if any enquiries had been made by the Executive Engineers of the late 2nd Circle, regarding the practicability of employ-

ing the dry-weather streams of rivers for irrigation, I have the honor to submit the following letters from Officers :—

Executive Engineer, Berhampore Division, No. 1360, of 5th March 1860.

Executive Engineer, Dinapore Division, No. 1747, of 13th April 1860.

Executive Engineer, Patna Division, No. 239, of 1st March 1860.

Executive Engineer, Ramghur Division, No. 341, of 1st March 1860.

Executive Engineer, 2nd Division, Grand Trunk Road, No. 350, of 10th April 1860.

2. A copy of your letter No. 6402 was submitted to the six Officers who lately belonged to the 2nd Circle, as well as to the Officers of the four Divisions who now compose the Behar Circle, but as only one has replied to it (*vide* Berhampore Executive Engineer's letter), and he informs me he has submitted his report to the Superintending Engineer of the new Circle, I presume others have done so also. I will therefore confine my observations to the Behar Circle.

3. I am not aware of any streams in Behar or Tirhoot that could be conveniently turned to account for irrigation purposes that are not so used. I am of course referring to petty irrigation schemes; projects such as the Soane one are not within the meaning of your Circular No. 320. In Behar the general irrigation arrangements are very extensive; the rivers that hold water during the dry weather are all made use of; reservoirs to retain the rain are scattered over the face of the country, but apparently, every one who owns a "Khuzana" (reservoir) does what he likes with it, creating unwholesome swamps as he likes and where he likes. If some degree of system could be introduced into this chaos, without interfering with vested rights, a very great good would result to the population of the country, for much of the Behar fever is without a doubt attributable to these artificial nests of malaria.

4. In the Ramghur Division, there are positively no running streams except the Dorundah. I need not refer to any scheme for taking off water from that river. The other streams are hill torrents dry during the cold weather. In Tirhoot, the Chota Gunduck as well as the large Gunduck rivers could no doubt be turned to account in any

grand irrigation scheme, provided we could command the heads of the rivers. I know of no others within my Circle worthy of a thought; the Poonpoo and other rivers in the zillahs of Patna and Behar are, as I have before said, dammed up for irrigation in many places; the Mahanuddy river, in Zillah Purneah, I believe, might be irrigated without any difficulty if irrigation would be a real advantage in such a country, but all these are somewhat large projects that require the undivided attention of an Officer.

5. But pending orders on the great Soane project, I would urge on Government the infinite good that must result if the existing Behar irrigation was placed under some competent man to organize and control it, and keep it from poisoning the inhabitants of the country more than is

Vide Saturday Review of January 1860, Nos. 1 and 2.

actually necessary; for, notwithstanding what may be said elsewhere on the "Philosophy of Stinks," no admirer of that theory can gainsay the unwholesomeness of the smells from noxious swamps.

PART II.

THE MAGHASSANI HILLS,
•
AS A SANATARIUM.

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P A P E R S

ON THE

M A G H A S S A N I H I L L S.

No. I.

From G. F. COCKBURN, Esq., Superintendent of Tributary Mehals, Cuttack' to the Secretary to the Government of Bengal,—(No. 118, dated the 26th October 1858.)

SIR,—I have the honor to submit for the information of the Hon'ble the Lieutenant-Governor, a Memorandum of all that is known in this Office on the subject of the Mylagiri and Maghassani Hills, in the Tributary Mehals, and to solicit the issue of orders for an examination of the capabilities of the latter as a Sanatarium, and of the practicability of constructing a road to it from Balasore.

2. I beg to suggest that the Officiating Civil Assistant Surgeon of Balasore be directed to accompany Lieutenant Depree, Assistant Surveyor General, who will proceed during the month of December into Mohurbhunge for the purpose of Surveying that part of the country, and will visit the Hill about the latter end of it; these Officers would probably be of mutual assistance to each other, at least for such time as the Survey party were on the Hill.

3. This visit should be a preliminary one, and probably need not occupy above two or three weeks at the most, though it would be desirable to allow the Officiating Civil Assistant Surgeon to exercise a discretion as to the period of his stay.

of February and in March, for if ever the Hill is to be used as a Sanatorium, its chief benefits will be obtained in the hotter months.

5. During the absence of the Officiating Civil Assistant Surgeon, the services at Balasore of the Sub-Assistant Surgeon of Bhudruck may be authorized, without much inconvenience to the latter Station.

6. For the purposes of reporting on the practicability of a road, the services of Mr. Mayne, C. E., Executive Engineer at Balasore may, I think, be available. A preliminary general examination of the country, and route, would suffice to be followed up hereafter, if necessary, by a more detailed one with attendant surveys.

7. Should this proposal be approved of, I beg that the necessary instructions may be communicated to the Officiating Chief Engineer.

8. The expenses of the expedition should not come to much, and will, I presume, be gladly sanctioned by Government; and it may be desirable to procure the loan of a Thermometer and other instruments from the Deputy Surveyor General.

Memorandum by G. F. COCKBURN, Esq., Superintendent of the Tributary Mehals, Cuttack,—(dated 26th October 1858.)

— IN the Annual Report on the administration of the Tributary Mehals for 1855-56, Mr. Samuells observed as follows:—

“There are in the Tributary Mehals two plateaux of considerable elevation which appear well fitted for Sanatoria. The first is the Maghassani mountain, in Mohurbhunge, about 40 miles from Balasore, and the other Mylagiri in Palleyra. The latter was thoroughly examined during the past season by Captain Saxton, who has submitted a report on its capabilities to the Surveyor General; Maghassani is one of the grand Trigonometrical Stations, and has also been ascended by Captain Saxton, but he was so ill with fever while there, that he was unable to make any very detailed examination of the place. He and the Trigonometrical assistants however, assured me that there was a considerable plain covered with grass about 2 miles in extent, they seemed

to think, on the top of the hill or rather near the top, for the peak rises above the plain, and I have since been told that there is water in abundance on the sides of the hill, the height both of Maghassani and Mylagiri, is about 3,800 feet, and it is much to be desired that the route between Balasore and Maghassani should be carefully surveyed, and its capabilities as a Sanatorium reported upon by a competent officer, for Balasore it must be recollected is only 30 hours run for a Steamer from Calcutta. If the Survey were entrusted to Mr. Armstrong, the Civil Engineer in charge of the Balasore road, and the Medical inspection of the spot to Dr. Mantell, the Civil Surgeon of Balasore, I am confident the Government would receive reports on which they might safely rely."

2. The Mylagiri Hill, in Palleyra, has been reported upon by Mylagiri Hill. Captain Saxton in the following words :—

"The country we have traversed this season is, in its physical condition, far more interesting and less formidable than I had anticipated. The Station of "Kumritar" is on a very extensive range, running north-east for some 14 miles, at the elevation of about 3,600 feet: to the west of this ridge is extensive table land at a little lower elevation, on which are villages, and well watered and cultivated land; one of the hill streams after running along a beautiful little valley, above which is prettily situated the village of "Jombarun Dehi," inhabited by Bahians (a hill tribe) falls over cliffs of red jasper. The waterfall is very beautiful, and I ascertained by observation below, that the abrupt fall is 550 feet. The little stream runs west for a few miles and then falls into the Bramini river. The country bounded by a line, running from "Kumritar" to 2 miles beyond "Gada Mardan," thence by "Goputh Gunga," and on south a little below "Kudu Takara," thence west, keeping a few miles above "Mylagiri," and round again to "Kumritar" is a mass of Hills and valleys, the former ranging about 2,000, and the latter about 1,400 feet. The sloped sides of these Hills are cultivated with rice, and there are many good villages. The roads wind about and seldom have abrupt ascents. The Baiturni River here takes its rise, making a considerable circuit by the north, before taking its south-easterly direction to the sea. The

inhabitants were as usual timid; by careful management and kind treatment we were more than usually successful in gaining their confidence, and on no occasion had we any difficulties arising from their shunning intercourse with us. The station of "Mylagiri" is on a fine Hill, 3,880 feet high, with plenty of good water near the top, and easy access might be made from the Southward. There is ample ground on the top for building and even garden purposes, and this might be made into a Sanatorium."

3. The distance of the Mylagiri Hill from the sea coast at Pooree is so great, about 121 miles N. E. as the crow flies, and the intervening country after leaving Cuttack is so covered with jungle and low hills, that there seems no present prospect of the establishment of a Sanatorium there being made much use of, even if practicable, there are no Civil or Military stations nearer to it than Cuttack, (76 miles direct) and the Residents of Cuttack would always prefer to seek change of climate on the sea coast, which is nearer and more convenient of access, and where the fresh breezes from the sea in the hot weather months must be more beneficial, while there is also the opportunity of getting away altogether in the event of further change being considered desirable or necessary.

4. In regard to the Maghassani Hill, in Mohurbhunge, the case is somewhat different; it is nearer the Coast, and can probably be made accessible.

5. The Lieutenant-Governor of Bengal on receipt of Mr. Samuells report referred to, expressed a desire* for

* No. 855, dated 16th December 1856.

further information regarding the Maghassani Hill, and stated that "enquiry would be made as to the practicability of employing Mr. Armstrong on a Survey of the route between Balasore and Maghassani, but even if his services should not be available for the purpose, the Magistrate of Balasore accompanied by the Medical Officer, might possibly visit the mountain for a few days in March or April next, and furnish an accurate report of its general features and capabilities, and of the temperature obtaining at the time of their visit."

6. Difficulties arose in consequence of the services of the several officers referred to not being available, and nothing was done during the favorable season of 1856-57; while in the following year the mutinies having broken out, it was not thought proper to attempt an exploration of the Mohurbhunge territory.

7. The subject however has not been lost sight of, more especially as the Lieutenant-Governor again expressed his desire that it should be attended to, observing as follows:—

“Although the attempts made to investigate the capabilities of the Maghassani Mountain as a Sanatorium, have not yet been successful, the Lieutenant-Governor would regret to see such an important subject entirely dropped, and he has no doubt that you will lose no opportunity that may arise of carrying out his wishes regarding it.”

8. Sanction will now be requested to the deputation during the ensuing season of the Officiating Civil Assistant Surgeon, and the Executive Engineer of Balasore.

9. The Maghassani Hill was visited by Captain Saxton, Assistant Surveyor General, when he was in such ill health as to be obliged to leave it almost immediately, and had neither time nor opportunity to make or to record any observations respecting the Hill.

10. The only information respecting it in this Office is contained in the following Memorandum furnished by Major Strange, Astronomical Assistant G. T. Survey of India, in charge Coast Series, and is dated the 23rd March 1857, he observes:—

“A Principal Station of the Coast Series Great Trigonometrical Survey of India, is fixed on the summit of the Hill of Maghassani. The position of the Station is as follows:—Latitude, North 21°-38' and Longitude East 86°-24'; its height above the mean Sea level is 3,821-53 feet. It is situated in the Mohurbhunge Estate, and is in a direct line, 38 miles from the Station of Balasore nearly due west.

“The only notice of the Hill existing in the records of the Coast Series Office, consists in a brief description of the Station appended

to the observation taken there. I regret that this having been left at Cuttack is not at present at hand, but from my recollection of its tenor, I do not believe it would throw much light on the question of the suitability of Maghassani for a Sanatarium.

“ I have myself no personal knowledge of the Hill, that portion of the Coast Series having been completed before I received charge of the work. The following particulars have been obtained from men of the native Establishment, who visited the hill in the course of the operations.

“ The two Ooryah villages of Pooradeea and Coomibrook, about half a mile apart, are about fifteen or sixteen miles from the Trigonometrical Station on the top of the Hill. These villages supplied the camp, which may have consisted of about (150) one hundred and fifty men, with provisions during its stay of a week. These are the nearest villages to the hill.

“ The country round the Hill is covered with dense jungle, very thinly inhabited, and frequented by wild Elephants. The tract between Balasore and the hill is said to offer no difficulty to the construction of a road.

“ The top of the Hill is open and generally flat. All agree that there is building space, but there are differences of opinion as to its extent, some men saying that there is room for many bungalows, others that 5 or 6 only could be built there. There is not much stone or wood on the top, but the sides yield an inexhaustible supply of these materials. Lime is procurable from the village of Pooradeea below; my informants are not aware if any is procurable on the Hill itself. There is plenty of grass fit for thatching on the Hill. A spring of excellent water, said to flow plentifully all the year round, exists near the summit of the Hill about one mile from the Trigonometrical Station, towards the north.

“ The ascent was cleared sufficiently to enable the instruments and tents of the party to be carried up by men. It is said to have been

very gradual and easy, and to be susceptible of being rendered fit for laden bullocks without great expense.

“The Hill and surrounding jungles are thinly peopled by two races called Oojia and Bhoomeejee, who have no settled habitation, but roam about and live in caves and holes. They subsist chiefly by the sale of wild honey which is very plentiful, and of black Minahs, esteemed for their talking powers. They live on roots, wild fruits, and such animals as they can kill with their bows and arrows, with which implements all are armed. They are an inoffensive, honest, industrious race, very well disposed towards Europeans. It is estimated by my informants that (500) five hundred of these people could be collected in a few days if required. They eagerly accept employment at 1 anna a day.

“The party of the Coast Series was at Maghassani in the latter end of the month of February. It was then very cold on the Hill; a portion of the party was encamped on the Hill, and a portion below at Pooradeea. During their stay of a week, no sickness whatever occurred either above or below. Detached signal parties occupied the Hill at different times during the season; on one occasion one of these parties was there upwards of a month, but no one in any instance fell ill at Maghassani.

“I have not been able to find any register of the Thermometer taken at this Station.”

11. In forwarding the above, Major Strange stated in a note to myself, “of course I have given no opinion as to the suitability of the Hill for a Sanatorium, but it strikes me that 3,821 feet is somewhat low for that purpose, surrounded as it is by Elephant jungle, there cannot but be malaria there, and I very much doubt whether such an elevation will be out of its influence. Mount Aboo, in Rajpootna, where I resided two or three years, is 4,000 feet in a higher latitude, and I imagine less jangly, yet fever was very prevalent there in the usual fever season of the year. The comparative proximity of the sea may, however, give Maghassani some advantage.”

“I shall, I hope, visit this season one or two Hills immediately on the Coast, which from the accounts I have of them I expect to find higher than Maghassani. They lie south of Ganjam. I will take note of the temperature, &c., and shall be glad to collect any information in my power regarding them, if you can let me know what would be the chief points of interest; such information can do no harm, although there may be no immediate prospect of turning it to account.”

12. It would be interesting to learn the result of Major Strange's observations respecting the two Hills he refers to; for if higher and nearer the sea coast than Maghassani, they will probably be better suited as Sanataria. He has left this part of the country, and the Hills in question are in the Madras Presidency, and so it is out of my power, and it would be out of place in me to prosecute enquiries in regard to them, though the matter may be one not undeserving the attention of Government.

13. I will only add that in November 1856, when there was a prospect of Maghassani being visited by T. N. Armstrong, Esquire, C. E. and Executive Officer, Cuttack road, I received a note from that very zealous and intelligent officer, of which the following is an extract:—

“With regard to the height of the plateaux at Maghassani (3,800 feet) being of sufficient elevation for a Sanatarium, I forgot to mention in my letter to you on this subject that, (as well as I now recollect) the theoretical Thermometer difference due for every 334 feet of vertical ascent is one degree of decrease, now 3,800 feet of vertical ascent ought to give 11 of decreased temperature over that of the sea, or rather of the level of the sea, but often the rate I mention is not obtained, and again *more* is found to be the case under favorable circumstances of location.”

“3,800 feet ought to lift one up above the stratum of air heated by contact with the earth's surface; I have known the actual advantage of elevation much greater than the lowering of the temperature would lead you to suppose, arising from local breezes, aspect, &c.”

14. Though the height of the Maghassani Hill is less than that generally supposed sufficient for a Sanatorium, yet the comparative proximity of the sea coast may favorably affect the climate, more especially during the hot months, when there is always a strong breeze blowing across the Bay of Bengal.

15. A letter has recently been published in the newspaper from the pen of the eminent Doctor Martin, who appears to be of opinion that a lesser height than that of our ordinary hill Stations would be better adapted for the European constitution, and he strongly recommends that search should be made for Hills of a medium height and examination of their capabilities for Sanatoria, the importance of the subject, and his pertinent observations will justify the closing of this Memorandum with a copy of his letter.

THE HEALTH OF THE BRITISH TROOPS IN INDIA.

The following suggestions have been made by Dr. J. R. Martin to the Chairman of the Court of Directors:—

It is stated by Colonel Sir Alexander Tulloch, as the result of investigations in the War Office, made by the desire of Mr. Sidney Herbert, that among British officers and soldiers of the Queen's and Company's armies serving in the East Indies, there occurred, from 1815 to 1855 inclusive, a total mortality, exclusive of casualties, of about 100,000 men, "the greater portion of whose lives might have been saved had better localities been selected for military occupation in that country."

2. Doctor Burke, late Inspector-General of Hospitals in Bengal, has stated that in the Station of Secundrabad alone, during 30 years of its occupancy by British soldiers, the cost to the State on account of loss of life amounted to £150,000, estimating each soldier as worth £100. But estimating the loss of life mentioned by Sir A. Tulloch at the same valuation of £100 each man, we arrive at a loss in money of £10,000,000 sterling.

3. Then there has been enormous waste of the public funds on account of barracks and hospitals placed in Stations so unhealthy that they were subsequently abandoned. The buildings for the European troops at Berhampore, Bengal, abandoned since 1835, on account of its unhealthiness, are stated by the finance authorities of Calcutta to have cost since 1757, nearly £17,000,000 sterling.* Tennant declares that, up to this time, the sums expended by the East India Company for the accommodation of their European troops, "if laid out at the compound interest of the country, would at a determinate period not very remote, have equalled the national debt."

4. Looking to these enormous sums, often absolutely worse than wasted, of what account in the comparison has been the cost of the medical establishments of India? How truly saving of the public revenues must be a well-ordered and well-directed and a well-contented medical corps ! In truth, the importance of an efficient medical establishment is so great that we cannot put a money value on it.

5. As regards the preservation of European health in India, and indeed, in all tropical climates, the due selection of locality is the first consideration ; and next in importance stands the structural arrangements in barracks and hospitals.

6. As to barracks, provided the site be of sufficient elevation well cleared, drained, and levelled, with a good water supply, the material need not, I think, be of a costly character—well-constructed huts for the accommodation of 10 or 12 men forming a good protection against the inclemencies of weather. Such simple and cheap structures will, I believe, prove more conducive to the health of the European soldier in the mountain ranges of India than the most costly barrack ; and the same may be said of hospital-huts for the reception of the same number of men, viz., 10 or 12. In Stations on the arid hot plains of India the same structures would answer well ; but if large brick-built barracks and hospitals be preferred, they should be very spacious, double roofed, and raised on arches.

* " Influence of Tropical Climates," page 424.

7. The considerations involved in the subject of the last paragraph are of the utmost importance, whether viewed in a sanitary or financial light; and the subject has hitherto been altogether neglected in locating troops in most of our foreign possession; although our experiences in all our European campaigns have demonstrated that the soldiers who were hutted fared well, while such as were massed in barracks and general hospitals perished at enormous rates.

8. This experience has been uniformly accordant whether the climate was hot or cold, whether our men were serving in Holland or in the Crimea.

9. The Irish sufferers from typhus during the famine, who were massed in workhouses and hospitals perished in enormous numbers, whereas those who were thrown along the roads and under the hedges recovered in goodly proportions; of so much more avail is pure air towards the restoration of health than a fine building. The thorough ventilation through the openings and crevices of huts supplies the sick with what they don't obtain in our ill-constructed barracks and hospitals—namely, pure air.

10. They were not palaces that were constructed by order of Sir Charles Metcalfe on the mountains of Jamaica; but a substantial form of hut, which, on a pure and elevated soil, was all that was required. Buildings such as those just referred to, constructed of the most ordinary materials, have been found to insure health, while Indian experiences prove that costliness of material and splendour of structure, apart from a good locality, will not prevent disease.

11. The importance of determining the true physical characters, and the exact medical topography of all the mountain ranges throughout India—especially of those situated in provinces in which it is desirable that British troops may reside—has now become imperative. European soldiers cannot maintain health or vigour in the plains, and

12. The experiences of the Himalaya positions, of those of the Neilgherry mountains, and of those of Ceylon, as sanitary Stations, prove that by residence on their respective elevations the European is removed greatly above the range of the malarious fevers in India. But while this great and valuable fact is admitted, it is undoubtedly true that he is, in too many instances, carried into the range of another class of diseases—namely, that of bowel complaints. This circumstance has been found in various of our mountain positions to constitute a serious drawback from the otherwise great benefits derived from a residence in them.

13. Another disadvantage of the Hill Stations hitherto occupied by us in the East Indies was noticed by me when serving in Bengal—namely, that while the hill climates are permanently serviceable against the malarious fevers of the country, their influences in conducing to the cure of these and other diseases is limited in extent; the soldier being troubled with relapses of his disorders on descending into the plains, unless kept in the hills for a long time. The mountain ranges, therefore, which have hitherto been occupied by Europeans, stand forth as possessing climates preservative against fevers, and as such we must improve them, and use them wherever required.

14. When, on the other hand, we find the British soldier lingering under chronic or structural diseases contracted on the plains, a removal to the sea board, or to an insular sanitarium, or, still better, to England, will be found the only effective means of restoration; and this last resource of medicine should never be denied to him, for the climate of the mountains, invaluable in prevention, will not cure disease.

15. Referring to what has been stated in paragraph 12, how are we to escape from the admitted evils hitherto experienced in the very high positions occupied by us? Where and how are we to obtain that amount of elevation which, while it removes the European out of the range of malarious fevers, may not place him in that of an

which may fall short of ascertaining this desired medium elevation can be deemed satisfactory of our sanitary want.

16. In the climates of yellow fever an elevation of 2,500 feet is found sufficient to remove the European from the locality of pestilence, without placing him in that of bowel disorders; and in the mountain stations of Jamaica the mortality among British soldiers is found to exceed but little, if at all, that of the same class of men in the United Kingdom.

17. Let us then, have a series of careful and scientific examinations, by competent persons, of the lower and medium ranges of Hills throughout India, in order that the great Sanitary problem may be solved in a conclusive manner—namely, the providing a place of resort for our European troops ~~which shall~~ be alike free from malarious fevers and from disorders of the bowels. That such procurable localities are to be found in the East, as they have been in the West, is my firm belief; and let them be perseveringly sought for.

18. Let the solitary Hills—those islands on the plains—be sought for, and carefully examined; they give sanitary excellences peculiar to themselves.

Lastly, let there be appointed for the sanitary duties of the army, at each of the Indian presidencies, a medical officer of health—an officer of scientific attainments and of rank, who be attached to the Quarter-Master General's department—we shall thus add to the department of military topography, that of medical topography. The medical officer of health should preserve in his office for the use of the scientific persons concerned, plans and models of the best barracks and hospitals which may be, from time to time, approved by the military powers of Europe, in order that the most recent improvements may be rendered available wherever buildings of the nature indicated may be found necessary.

The duties of the medical officer of health should be, in peace, to

sanatoria, on mountain ranges suitable for troops, and on solitary mountains and their capabilities, on the plains and structure of barracks and hospitals, and on everything relating to the health and comfort of the soldier.

In war he should be attached to the Quarter-Master General in the field, and be always in advance with this officer, so as to master the medical topography of the scene of action ; and, where military reasons of imperative necessity do not overrule sanitary considerations, the advice and opinion of the medical officer of health should be received on the sites of camps, whether temporary or permanent, and on all matters having reference to the sanitary condition of the camp.

In a recent report to her Majesty by a royal commission, of which I was a member, and which was ordered to inquire into the organisation, government, and direction of the medical department of the British army, the appointment of a medical officer of health, as long previously recommended by me for the service of the Indian army, was strongly urged upon her Majesty's attention, with a view to the great benefits to be expected from the services of such an officer.

Grosvenor-street, London, August 12, 1857.—*Home News*,
September 17.

No. II.

From C. T. BUCKLAND, Esq., Junior Secretary to the Government of Bengal, to the Superintendent of Tributary Mehals, in Cuttack,—(No. 3528, dated Fort William, the 18th November 1858.)

SIR,—I am directed to acknowledge the receipt of your letter No. 118, of the 26th ultimo, submitting a Memorandum relative to the Mylagiri and Maghassani Hills in the Tributary Mehals, and offering certain suggestions for the examination of the latter Hill with regard to its capabilities as a Sanatarium, as well as of the country in the direction of Balasore, with a view to the construction of a road to it from that place.

2. In reply I am directed to inform you, that the Lieutenant-Governor is favorably inclined towards your proposals; but, before giving his authority to them, His Honor is desirous, under the present restrictions on public expenditure, that some information should be placed before him as regards the probable cost of carrying them into effect.

No. III.

From G. F. COCKBURN, Esq., Superintendent of Tributary Mehals, Cuttack, to the Secretary to the Government of Bengal,—(No. 139½, dated the 4th December 1858.)

SIR,—In reply to Mr. Junior Secretary Buckland's letter No. 3528, dated the 18th ultimo, I have the honor to state, that on a rough calculation the expences attendant on the proposed examination of the Maghasani Hill are not likely to exceed Rupees 500, viz. personal travelling expenses to Dr. Kendall, at five rupees a day, for six weeks or forty-two days,

...	...	...	...	...	...	210	0	0
Extras on account of miscellaneous charges,	...	...	...	...	...	40	0	0

250 0 0

and a similar sum for the Executive Engineer, or 500 Rupees in all.

2. An account would be rendered to me, and only the actual expenditure charged for: it would probably be less than the sum I have stated, as there might not be occasion for so prolonged a stay on the Hill.

No. IV.

From C. T. BUCKLAND, Esq., Junior Secretary to the Government of Bengal, to the Superintendent of Tributary Mehals, Cuttack,—(No. 28, dated the 5th January 1859.)

SIR,—I am directed to acknowledge the receipt of your letter No. 139½, dated the 4th ultimo, and in reply to inform you, that the Lieutenant-Governor is pleased to sanction an expenditure not exceeding Rs. (500), five hundred, for the travelling and other expenses attendant on the proposed examination of the Maghassani Hill, by Dr. Kendall, and Mr. Mayne, the Executive Engineer, if he can be spared from his proper duties, with a view to ascertain its capabilities as a Sanatarium.

2. The bill may be passed by you, in communication with the Accountant to the Government of Bengal, up to the amount specified as a special case, and adjusted as that Officer may direct.

No. V.

From G. F. COCKBURN, ESQ., Superintendent of Tributary Mehals, Cuttack, to the Secretary to the Government of Bengal,—(No. 196, dated the 14th February 1859.)

SIR,—Referring to Mr. Junior Secretary Buckland's letter No. 28, dated the 5th ultimo, I have the honor to submit, in original, the accompanying Report from Dr. Kendall, Officiating Civil Assistant Surgeon of Balasore, on the Maghassani Hill.

2. The services of Mr. Mayne, Executive Engineer, were not available, but this is the less to be regretted, as Dr. Kendall's Report is sufficiently favorable in respect to the practicability of constructing a road to the top of the Hill.

3. The Report now submitted appears so far to be very satisfactory, but it will be necessary, in my opinion, that the Hill should be revisited in the month of March or April, and I have requested Dr. Kendall to arrange for doing so.

4. I have also requested V. H. Schalch, Esq., the Magistrate of Balasore, and Assistant Superintendent in the Tributary Mehals, who is an excellent Mofussil road-maker, to accompany Dr. Kendall, if his other duties allow of doing so.

5. I venture to suggest for the consideration of the Lieutenant-Governor, that copies of Dr. Kendall's Report be given to some Medical authorities or other persons, now in Calcutta, acquainted with Hill Stations and their requirements, in order that suggestions may be invited in regard to particular points on which information would be valuable, or to which the attention of Dr. Kendall, and Mr. Schalch, may be usefully directed.

6. No time, however, should be lost, as the second expedition will be made about four weeks from this date.

7. I have not retained a copy of the Report, and beg that three may be sent me when printed, one for my own Office, and one for that of the Magistrate of Balasore, and a third in case of being required.

Report by Dr. Bernard Kendall on the "Maghassani" Hill, situated in the Territory of the Rajah of Moharbhunj, in Latitude 21° 38' North and Longitude 86° 24' East. Height above the mean Sea level 3,821 feet as given by Major Strange, and distant from the Port of Balasore about 40 miles in a direct line.

1st. For the first few miles after leaving Balasore there is a good kutchra road, but this ceases at the village of Rewnah (about eight miles from Balasore) and from thence to the foot of the Hills, there is only a tract or path practicable for bullocks or doolies only; this path leads through dense jungle, except at intervals where villages exist, and the ground for some distance around them is cultivated. The country is chiefly level or only slightly undulating, and along the path, I continually saw the ferruginous gravel used in this Station, and at Midnapore, for metalling roads, as well as beds of "Kunker" or lime-stone. There are only one or two small streams to be crossed, and these at this season are nearly dry.

2nd. In ascending, we first crossed a low range and then again ascending, reached a large plateaux of many miles in extent, and crossing this for two or three miles, we came to a stream of running water, and we encamped for the day in an open spot close by. I found afterwards that this stream joins a larger one to the east, a little below the place of our encampment. Early the next morning we again set out, and after traversing the plateaux to the foot of the Maghassani, (a distance of two or three miles) we again commenced ascending and had to wind around the Hill, so as to reach the summit from its north-western aspect, it being precipitous on its south-eastern side.

3rd. The summit of the Maghassani on which the platform is built is of small extent, very rocky and not well suited for building purposes.

4th. To the north-east of the platform, and distant as the crow flies from half a mile to a mile, are several peaks and ridges on which capital building sites are available; one peak especially deserves notice, it being on the same level as the platform, and having an extensive area on its summit quite clear of trees or jungle, and free from rocks; small boulders only being scattered here and there, the slope from this is gradual on every side, and it commands an extensive view.

5th. The soil seems originally to have been a rich but light marl, but as you descend into the valleys, it loses this character from the large quantity of vegetable mould which has accumulated. I should think that all vegetable products would thrive most luxuriantly, the soil being rich and well suited to their culture, and there being great variety of aspect.

6th. I found several small streams of water in the valleys beneath; the nearest stream being rather more than a quarter of a mile distant from the summit of the Hill. The water was clear and limpid, very soft and sweet, but not having the necessary re-agents, I am unable to give a chemical analysis of it.

7th. The climate was cool and bracing, the mornings and evenings together with the nights, being very cold during the time I was on the Hill; there was a constant breeze from the north, and I spent the greater part of each day in examining the topography of the district, and during this time I did not feel oppressed either by the heat or sun's rays, although taking a great deal of exercise to which I was unaccustomed, and this at all hours of the day. After sunset we had always a large fire within a few yards of the tent, which was kept burning during the night, as well as the numerous fires of the camp-followers all around us; our tent also was pitched in a sheltered spot not far from the water, so that I am inclined to think the Thermometer would have been one or two degrees lower at the summit where it would have been out of the range of the influences mentioned. The lowest marked by the Thermometer on the Maghassani was 44 degrees at 7 A. M., on the 22nd January, and the highest during the day was 73 degrees, and at

4 P. M. on the same day it was 58 degrees. During the time I stayed there it only varied one or two degrees from the above.

The extreme range of the Thermometer during the day was 29 degrees.

From my inspection of Maghassani I have arrived at the following conclusions:—

That it is most easy to construct a road to the foot of the Hills, a portion of it being already made.

That the ascent is gradual, and that a road practicable for riding might be made at moderate expense from the base to the summit.

That all along the line, materials exist for metalling the road, if it should be found desirable.

That on the summit occur peaks and ridges with gradual slopes, with great variety of aspect, well calculated for building sites in almost any number.

That there is good and pure water arising from springs near the summit, and which according to native accounts, continue to flow all the year.

That the soil is rich, and calculated to produce all kinds of vegetables and fruits in great abundance.

That a few hundred feet below the summit of the Hill, is a large plateau of several miles in extent, well watered and covered with large forest trees. The soil of this plateau being a rich marl, it is suited to a great variety of products, and could be made to supply the Station above with nearly every requisite.

That all the materials necessary for building purposes are to be found both on the Hill and on the plateau, viz, stone, wood of superior

quality, Kunker or lime-stone, earth for brick-making, and grass for thatching.

That if a road existed, it would only take about three days to reach it from Calcutta, viz. by Steamer to port of Balasore 24 hours, from thence to foot of Hill 12 hours, and from thence to the summit 6 hours.

That the climate is agreeable and very considerably colder than the plains, there being a difference of 19 to 20 degrees between observations taken at the same time on the Maghassani and at the station of Balasore.

That it would be desirable to visit the Hill again in the month of March, for the purpose of making more extended observations of its temperature during the hot weather.

That being only 38 to 40 miles from the sea (as the crow flies) and being also the highest mountain in the range, it is likely to have advantages peculiar to itself; and it is open to every breeze that blows whether from the Bay of Bengal, or from other quarters.

In conclusion, I beg to make the following quotations from Dr. J. R. Martin's letter to the *Times*, in August 1857 :—

“ Where and how are we to obtain that amount of elevation, which while it removes the European out of the range of malarious fevers, may not place him in that of an exhausting and dangerous diarrhoea? This is the great desideratum, one hitherto unascertained, because unsought for; yet no examination which may fall short of ascertaining this desired medium elevation, can be deemed satisfactory of our sanitary wants.

“ In the climates of yellow fever, an elevation of 2,500 feet is found sufficient to remove the European from the locality of pestilence, without placing him in that of bowel disorders; and in the mountain stations of Jamaica, the mortality among British soldiers is found to exceed but little, if at all, that of the same class of men in the United Kingdom.

“ Let us then have a series of careful and scientific examinations by competent persons of the lower and medium ranges of Hills through-

out India, in order that the great sanitary problem may be solved in a conclusive manner, namely, the providing a place of resort for our European troops which shall be alike free from malarious fevers, and from disorders of the bowels. That such procurable localities are to be found in the east as they have been in the west, is my firm belief, and let them be perseveringly sought for.

“ Let the solitary hills—those Islands on the plains—be sought for and carefully examined; they give sanitary excellences peculiar to themselves.”

No. VI.

From C. T. BUCKLAND, Esq., Junior Secretary to the Government of Bengal, to the Superintendent of Tributary Mehals, Cuttack,—(No. 769, dated the 28th February 1859.)

SIR,—I am directed by the Lieutenant-Governor to acknowledge the receipt of your letter No. 196, dated the 14th instant, with its enclosure, and in reply to request that you will convey to Dr. Kendall His Honor's thanks for his interesting account of his expedition to the Maghassani Hill, the description of which appears to the Lieutenant-Governor to be sufficiently promising to render it desirable that another visit should be paid to the Hill as proposed by you.

2. The Lieutenant-Governor approves therefore of your having requested Dr. Kendall to arrange for a second expedition; but His Honor is of opinion that the middle of March will be too early a date for it, and that it will be better to defer it until April or May, in order that the climate, &c. of the Hill may be observed during the driest and hottest season of the year.

3. Enclosed are the three printed copies of Dr. Kendall's Report required by you.

4. A copy of the Report will be forwarded to each of the Calcutta Newspapers for publication.

No. VII.

From G. F. COCKBURN, Esq., Commissioner of Circuit, Cuttack Division, to the Secretary to the Government of Bengal,—(No. 215, dated the 7th March 1859.)

SIR,—the Magistrate of Balasore reports that the instruments noted in the margin, are required by Dr. Kendall, Civil Assistant Surgeon, who is about to revisit, towards the end of this month, or early in April, the Maghassini Hill, and I have the honor to request that the necessary orders for their immediate despatch, direct to the Magistrate of Balasore, may be given at once, in order that they may be received in time to be of use.

A good Thermometer.
A wet bulb Thermometer of corresponding scale.
A self-registering maximum and minimum Thermometer.

2. The Magistrate, V. H. Schalch, Esq., proposes to join Dr. Kendall for 1 week of the 2 or 3, that the latter hopes to remain on the Hill.

3. It is arranged to leave a small party behind to carry on the observations of temperature, &c. to the close of the season.

No. VIII.

From E. H. LUSHINGTON, Esq., Officiating Junior Secretary to the Government of Bengal, to the Superintendent of the Mathematical Instrument Maker's Department,—(No. 833, dated the 14th March 1859.)

SIR,—I am directed by the Lieutenant-Governor to request that you will take measures to forward, with the least possible delay, to the Magistrate of Balasore direct, the Instruments specified in the margin, required for the use of Dr. Kendall, who is about to revisit the Maghassini Hill towards the end of this month or early in April next.

A good Thermometer.	
A wet bulb Thermometer of corresponding scale.	
A self-registering maximum and minimum Thermometer.	

No. 834.

Copy of the above Letter forwarded to the Commissioner of the Cuttack Division, with reference to his Letter, No. 215, dated the 7th Instant.

No. IX.

From MAJOR H. L. THUILLIER, Superintendent Mathematical Instrument Department, to C. T. BUCKLAND, ESQ., Junior Secretary to the Government of Bengal,—(No. 88, dated the 22nd March 1859.)

SIR,—In full compliance with orders contained in your letter No. 833, dated the 14th instant, I have the honor to state, for the information of Government, that the Instruments required for the use of Dr. Kendall, Civil Surgeon, Balasore, have been despatched to the address of that Officer by special Cossid bearer on the 16th idem.

 No. 1157.

Copy of the above Letter forwarded for the information of the Commissioner of the Cuttack Division, in continuation of No. 834 of 14th instant.

By Order of the Lieutenant-Governor of Bengal.

FORT WILLIAM, }
The 26th March 1859. }

(Sd.) E. H. LUSHINGTON,
Offg. Jr. Secy., to the Govt. of Bengal.

No. X.

From G. F. COCKBURN, Esq., Superintendent of Tributary Mehals, Cuttack, to the Secretary to the Government of Bengal,—(No. 37, dated the 18th June 1859.)

SIR,—Referring to Mr. Junior Secretary Buckland's letter No. 769, dated 28th February last, I have the honor to submit, in original, letters as per margin, from the Magistrate of Balasore, V. H. Schalch, Esq., and the Officiating Civil Assistant Surgeon, Dr. Kendall, furnishing further Report on the Maghassani Hill.

Magistrate's No. 86, dated 4th June.
Officiating Civil Assistant Surgeon, without number or date.

2. Mr. Schalch proposes that a small party of Sappers and Miners with a Sub-Assistant Surgeon in medical charge, be sent next cold season to clear one of the higher ranges, construct a log house for themselves, and cultivate the adjoining lands in order that further experience may be obtained in regard to the suitability of the Hills for colonization or as a Dépôt for Troops.

3. I apprehend that by publishing these Reports, and thus giving all the information in the possession of Government to the public, it may be left to private enterprize to engage on any agricultural schemes that may seem to offer advantages, while the accounts already received are not sufficiently encouraging to warrant the establishment of any Dépôt for Troops.

P. S.—I solicit the favor of your sending me three copies of the enclosures should they be printed.

From V. H. SCHALCH, Esq., Magistrate of Balasore, to the Commissioner of the Cuttack Division,—(No. 86, dated the 14th June 1859.)

SIR,—I have the honor to forward a further Report from the Officiating Civil Assistant Surgeon on the Maghassani Hill.

2. I arranged to meet Dr. Kendall on the Hill during the first week in April, and remained there 3 days as my duties at the Station would not admit of a longer absence.

3. The first of the ranges of Hills of which Maghassani is the highest, is situated in the Mohurbhunge territory about forty miles directly west of Balasore, the road passing for half that distance through cultivated lands, and for the remainder through jungles. There would be no peculiar difficulty in constructing a road to the village of Poorhadeha, which lies close to the foot of the range; an average height of two feet would I think be sufficient, whilst a few bridges would be required over some half dozen hill streams, which are dry during the greater part of the year.

4. From Poorhadeha to Maghassani, a distance of about twelve miles, there exists at present only the pathway cut by the Surveyors, who have lately visited these Hills. The path follows nearly a direct course crossing in the first five miles four or five Hills which it boldly surmounts instead of gradually winding round their flanks. The last of these Hills rises nearly 3,000 feet above the level of the sea, and thence the road after descending a gentle declivity, winds over and round a more level series of smaller hills for a distance of another four or five miles, when it again abruptly ascends the Maghassani Hill to an extreme elevation of about 3,700 feet.

5. From the few glances I could obtain of the surrounding country when travelling over these hills, I am of opinion, that a cart road could be constructed without much difficulty by gradually ascending the shoulders of the several hills, increasing the total distance to probably fourteen or sixteen miles.

6. The hills for the first four or five miles consist of rocks uncovered with soil or low vegetation; but abounding in trees of various descriptions, averaging from four to six feet in girth. On ascending the last of these hills, the country changes its aspect, becoming a succession of rounded hills averaging about 100 feet in height, covered with rich vegetable mould free from underwood, but producing small

shrubs and bulbous plants, while the timber is of a finer and larger growth. These hills rise with so gradual a slope as to admit of easy cultivation, while their drainage must be rapid.

7. From this tract of country, which appears at first sight one plateau extending for miles on every side, rises the Maghassani hills as well as two other ranges of almost equal altitude. The Maghassani Hill itself ascends too abruptly to admit of much building ground, but the other ranges would each afford a space about quarter of a mile wide by one long, amply sufficient for the construction of Barracks and for parade ground for troops.

8. At the foot of these hills are springs, though their supply of water at the time of our visit was not very great, yet it increased considerably on their being cleaned, and I doubt not that a sufficient supply could be obtained by the construction of reservoirs, for which the materials would be at hand.

9. I found the climate most pleasant during the morning and evening and though the heat became somewhat oppressive for about two hours or from twelve to two P. M., yet it must be remembered, that we were in a small thin Tent unprotected by shade, and unfavorably situated on the side of the Hill, from whose bleak rocks the heat was refracted and reflected. Neither the Doctor nor myself suffered from any attack of fever, but most of our servants, who were of course more exposed, were attacked on their return. I should mention however, that fever has been most unusually prevalent this year throughout the District, and it is possible that their illness may have been unconnected with their visit to the Hill.

10. However this may be, I doubt not, that were the higher ranges cleared and cultivated, fever would not prove a prevalent disease.

11. The average temperature may be considered, as far as we can judge from our limited data, as certainly at least twelve degrees below that of our plains and of Bengal.

12. This temperature though not sufficiently low to render these hills as useful as a Sanatorium for invalids, would probably render them

13. In the former case, recruits from England would be saved from the numerous dangers which threaten their health when located in Calcutta, and whilst becoming acclimatized, would still be within easy reach of the city whither they could be conveyed within forty eight hours, were a Road constructed and a Steamer waiting for them at the mouth of the Balasore River.

14. For colonization there would be a very considerable extent of ground, judging from the Report of the surveyors who have traversed the whole length of these ranges, there would appear to be a tract of country some forty miles in length, by ten or twelve in breadth, of a similar description to the portion we visited, and which I should think admirably adapted to the production of coffee, wheat, potatoes and other vegetables, all of which would find a ready and accessible market in Calcutta. I believe that besides the above, the tea plant and the vine might be successfully cultivated.

15. Our knowledge of these hills and their climate and capabilities, is too limited to warrant much reliance being placed on any supposition we can now arrive at.

There are however fair grounds for believing, that these hills might be rendered available for the purposes above mentioned, and I would propose that a party of Sappers and Miners attended by an intelligent Sub-Assistant Surgeon, be employed from the commencement of the cold season, to clear one of the higher ranges; construct a log house for themselves, and cultivate the adjoining lands. A year's experience of the result of the season and of their cultivation will furnish ample data on which to form a definite opinion of the suitability of these hills whether for colonization or as depôt for Troops.

From BERNARD KENDALL, ESQ., Officiating Civil Assistant Surgeon, Balasore,
to F. COCKBURN, Esq., Commissioner, Cuttack.

SIR — I HAVE the honor to inform you, that in accordance with

Station on the 2nd April for the Maghassani Hill, in order to make the observations required on its temperature, &c.

I was somewhat delayed at the foot of the hill, finding that the Chaprassies I had sent on some days previously, had not been able to get Coolies, to convey the tents, &c. up the hill; in consequence of Mr. King, Assistant Surveyor, who was at that time on the hill, having engaged all the available Coolie labor.

The climate was very pleasant in the mornings and evenings, but was rather hot during the day, the thermometer on one occasion being as high as 86·5 degrees; but as the observations were taken in a small tent, they are no doubt much higher than they would be, if taken in a proper place, and on that account, scarcely afford a fair comparison with those taken at other Stations.

From the 7th to the 14th April, thunder-storms occurred daily, generally coming on between 4 P. M. and 8 P. M., and during this time 9·9 inches of rain fell, the greatest quantity at one time being on the 12th, when 5 inches fell in about three hours; after the 14th there were very slight showers now and then of an evening, but never of sufficient quantity to guage.

With the exception of the thunder-storms above noticed, the days were fine and free from fog; the air being often remarkably clear after rain.

There was generally a good breeze blowing in the morning from the North and North-West; whilst in the afternoon it generally blew from the South and South-West.

From the annexed Table it will be seen that the mean temperature on the Maghassani, is 13·2 degrees lower than that of Calcutta, and 13·66 degrees hotter than that of Ootacamund in the Neilgherries, during the same month; so that it holds as it were a medium position, with regard to temperature, between these two Stations.

The following Table will show the difference of temperature at Balasore and the Maghassani, taken at the same hours and on the same

days, but the observations at Bâlasore were taken in a pukka building, whilst those on the Maghassani, were taken in a tent.

STATION.	6 A. M.	10 A. M.	4 P. M.	Mean.	Rain guage in inches.	REMARKS.
Balasore ...	79.8	81.6	84.8	82.06	3.7	{ Thermometric observations taken in pukka building. Ditto ditto in tent.
Maghassani ...	69.3	77.3	77.9	74.83	9.9	

The Maghassani range of hills as far as I have been able to judge, correspond very nearly to the Neilgherries as to formation and soil.

The supply of water near the summit of the Maghassani was, during the present visit, limited to a few springs; these however on being cleared out to the depth of from nine to twelve inches, gave a plentiful supply of beautifully clear water.

The Native left on the hill by me to continue the observations was attacked by fever a few days after I left, and obliged to come in; his illness, together with the great sickness that has recently occurred in Balasore, has caused the delay that has occurred in sending you this Report. I should also mention that two or three of my servants have been attacked with fever since their arrival in Balasore, but whether they contracted it on the hill, which is within the generally accepted fever range, or more probably caught it whilst remaining at Poorhadeha at the foot of the hills, I am unable to say.

From the experience gained during my visits, I am inclined to believe that the hill is more suitable as a Station or Dépôt for Troops, than as a Sanatorium for Invalids.

It appears to be admirably suited, both by soil and climate, for coffee plantations.

A Table showing the Mean Temperature of the air during the month of April, at Calcutta, Bombay, Madras and Ootacamund on the Neilgherries, as given in "Smoult's edition of Dr. Baikie's" Work, also the Mean Temperature of the air on the Maghassani from recent observations.

CALCUTTA.				BOMBAY.				MADRAS.				OOTACAMUND 7,416 FEET ABOVE SEA LEVEL.				MAGHASSANI.																				
Mean Maximum.	3 p. m.	95.1	Mean Minimum.	6 a. m.	79.1	Mean Temperature.	87.1	Mean Maximum.	4 p. m.	84.	11 a. m.	83.	Mean Minimum.	83.	Mean Temperature.	83.	Mean Maximum.	92.	84.	89.4	Mean Maximum.	68.66	Mean Minimum.	51.82	Mean daily range.	16.84	Mean Temperature.	60.24	Mean Maximum by self registering Thermometer.	82.8	Mean Minimum by self registering Thermometer.	65.5	Mean daily range.	20.28	Mean Temperature.	73.9
								From observations taken at the Observatory.				Mean average derived from observations taken by Dr. Baikie and Mr. Ross, extending over a period of 7 years.				From observations taken by Assistant Surgeon Kendall, extending over a period of 14 days.																				

Meteorological Register kept in a small Tent on the Maghassani Hill for the month of April 1859.

1st May 1859.

Latitude 21°38' North. Longitude 86°24' East. Height above the Sea 3,820 feet.

Days of the month.	AT SUN RISE.				AT 10 A. M.				AT 4 P. M.				AT 10 P. M.				Thermometer in sun's rays at 4 p. m.	SELF REGISTERING THERMOMETER.		Rain Gauge.	Inches.	Days of the month.
	Barometer.	Of Mercury.	Of the Air.	Of wet bulb.	Direction of the Wind.	Barometer.	Of Mercury.	Of the Air.	Of wet bulb.	Direction of the Wind.	Barometer.	Of Mercury.	Of the Air.	Of wet bulb.	Direction of the Wind.	Maximum.		Minimum.				
1st	25.950	72	74	63	N. W.	26.050	85	85	67	N. W.	25.950	78	78	67	N. W.	80.5	67	90	.2	8th		
2nd	25.950	74	70	63	N. W.	26.050	85	85	67	N. W.	25.950	78	78	67	N. W.	80.5	67	110	.9	9th		
3rd	25.950	70	68	62	N. by W.	26.075	84	84	67	N. by W.	25.950	79.5	79.5	62	N. W.	85	62	106	.1	10th		
4th	25.975	67	67	58	S. E.	26.125	78	78	67	S. E.	25.975	76	76	72	S. W.	79.5	62	109	.5	11th		
5th	25.925	64	64	58.5	N.	26.000	77.5	77.5	70.5	N. by W.	25.975	79.5	79.5	70.5	N. W.	80	60	112	.5	12th		
6th	25.950	64	64	59	N.	26.050	78	78	67	N. by W.	25.950	79.5	79.5	70.5	N. W.	78	59	93	.2	13th		
7th	25.950	67	67	62.5	N. W.	26.075	80.5	80.5	67.5	N. W.	25.975	80	80	72.5	N. W.	81	60	110	.9	14th		
8th	25.975	66	66	61	N. W.	26.125	77	77	66	N. W.	25.975	80	80	71	S. W.	81	59	110	.2	15th		
9th	25.925	73	73	68	N. W.	26.000	82	82	75	N.	26.000	77	77	71	N.	83	67	90	.9	16th		
10th	25.925	65	65	63	N. W.	25.975	69	69	64	N.	25.925	71	71	64	S.	80	65	110	.2	17th		
11th	25.900	71	71	66	W.	25.975	74	74	71	N.	25.900	77	77	71	N.	82	69	90	.9	18th		
12th	25.925	73	73	65	W.	26.000	78	78	71	N.	25.925	77	77	71	S.	84	72	110	.2	19th		
13th	25.900	74	74	66	N.	26.000	74	74	71	N.	25.925	77	77	71	S.	84	71	90	.9	20th		
14th	25.875	71	71	63	S.	26.025	78	78	72	N.	25.825	79	79	70	S.	84	73	90	.2	21st		
15th	25.875	71	71	63	S.	26.025	78	78	72	N.	25.825	79	79	70	S.	85	71	90	.9	22nd		

B. KENDALL,
Officiating Civil Assistant Surgeon, Balasore.

No. XI.

From E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal, to the Superintendent of Tributary Mehals, Cuttack,—(No. 3359, dated Fort William the 21st September 1859.)

SIR,—I AM directed to acknowledge the receipt of your letter No. 37 of the 18th June last, submitting, with reference to the Orders of the 28th February last, a further account of the Maghassani hill by Dr. Kendall, the Officiating Civil Assistant Surgeon of Balasore, and by the Magistrate, Mr. Schalch, who accompanied Dr. Kendall on his second expedition.

2. In reply, I am directed to state that the Reports of both these Gentlemen are very interesting, but that on the whole the Lieutenant-Governor agrees with you in considering that they are not sufficiently encouraging to warrant the establishment of any Military Depôt on the hill.

3. With Parisnauth hill 800 feet higher, much more easily accessible and free from all suspicion of feverishness, which cannot by any means be said of the Maghassani hill from what little experience has been obtained regarding it, the Lieutenant-Governor is of opinion that it would be only waste of money to attempt to do anything further at present on the Maghassani, with a view to the formation upon it of a Depôt for European troops.

4. The hill may, however, His Honor remarks, eventually be found worthy of attention on account of its suitability for the cultivation of Coffee, &c.

5. Three printed copies of both the Reports under acknowledgment are herewith forwarded to you as requested, and I am directed to mention that copies will also be sent to the local newspapers for publication.

SELECTIONS
FROM
THE RECORDS
OF THE
GOVERNMENT OF BENGAL.

N^o. XXXVII.

P A P E R S

RELATING TO

(TEA CULTIVATION IN ASSAM.)

Published by Authority.

Calcutta:
PRINTED AT THE BENGAL MILITARY ORPHAN PRESS.

CORRESPONDENCE

REGARDING THE

CULTIVATION OF TEA

IN

Assam.

From E. H. LUSHINGTON, Esq., Offg. Secretary to the Government of Bengal, with the Lieutenant-Governor on tour, to COLONEL F. JENKINS, Commissioner of the Assam Division,—[No. 23, dated the 15th August 1859, on board the Lieutenant-Governor's Yacht "Rhotas," off Berhampore]

SIR,—WITH advertence to your letter No. 70, dated the 15th August 1856, to the address of the Board of Revenue, Lower Provinces, I am directed by the Lieutenant-Governor to furnish you with
 * No. 3, dated 26th May 1859. the accompanying Extract paragraph 30, from a Despatch* from the Secretary of State for India, and to request that you will have the goodness to submit at your earliest convenience a full and comprehensive report upon the success that has attended the cultivation of the Tea-plant in the Province of Assam.

Extract from a Despatch from the Right Hon'ble the Secretary of State for India, in the Revenue Department, No. 3, dated the 26th May 1859.

PARA. 30. It is very satisfactory to find that there is a demand for Tea seeds for private plantations in the districts of Assam and Northern Cachar, and that Captain Jenkins' application for some for distribution was so promptly complied with. I shall be glad to hear that success has attended the cultivation of this plant, as it seems likely to prove of much use in civilizing and giving security to these wild districts.

1. Tea seeds supplied to Commissioner for distribution, from the Government plantations at Kumaon.

FROM COLONEL F. JENKINS, Agent to the Governor-General, North-East Frontier, to
E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal,—(No.
111, dated the 24th October 1859.)

SIR.—With reference to your letter No. 23, of the 15th August last, accompanied by an Extract from a Despatch from the Secretary of State for India, calling on me to submit a full and comprehensive report on the progress of Tea Cultivation in the Province, I have now the

1. Captain Rowlatt's report of the 6th instant, No. 31, for the Kamroop Division.

2. Captain Bivar's ditto of the 8th instant, accompanied by a Map of the Tea Plantations in the Luckimpore Division.

3. Captain Comber's ditto No. 13, of the 20th instant, for the Durlung Division.

honor to forward the replies of the Assistants in charge of Divisions, as per margin, reporting on the state of Tea Cultivation in their several Districts.

2. I beg to make a few observations on each report. Captain Rowlatt shews that the extent of waste land granted away for the purpose of Tea cultivation in the Division of Kamroop, amounts to 12,207 acres, of which only 297 acres have yet been cultivated, and the produce of Tea for this year, or 1859, is 6,160lbs. It will be observed that of the largest grant, consisting of 9,326 acres, no part of it has yet been brought into cultivation.

3. Captain Rowlatt remarks that the commencement of the cultivation of Tea in Kamroop only began about five years ago, and, I may add, at first with only small experiments, as there was a supposition that Tea would not thrive in Lower Assam; but I am glad to say that the experience the Planters have now had gives every reason to conclude, that though the plant may not grow so luxuriantly as in Upper Assam, it will yield a sufficient produce to make the cultivation fairly remunerative.

A good deal of the Tea grown in Kamroop has hitherto been planted on the low hills round Gowhatty, and the progress of these Factories, though established under apparent disadvantages of site and soil, has given encouragement to all the Planters to go on increasing their cultivation.

4. Captain Rowlatt observes that the great drawback to the cultivation of Tea is the want of labor, and his special remedy for this deficiency, attributable, as he imagines, more to the want of industry

in the Assamese than to want of population, is to raise the Government assessment, and so force the Assamese to have recourse to labor to provide themselves with the necessaries and luxuries they are now accustomed to.

5. A good number of the Planters, I believe, concur with Captain Rowlatt, and think it is the duty of the Government to drive the laborers to their Plantations by taxing them more heavily; and this theme of the want of industry and energy in the Assamese, owing to the lowness of the assessments, and the great profit obtained by very easy labor on the part of the agricultural laborers, is, I think, largely established. It is, perhaps, however, fallacious, and rather owing to other circumstances, this people has so little industry. I should be inclined to impute this defect greatly to a very fertile soil, and for the most part to very auspicious seasons, to the abundance of land, so that every one who wishes it can procure sufficient land to maintain himself and family, to the customs of the country, by which every one who is married seeks to have a farm of his own, and in no small degree to the simple habits of the people, who are satisfied with the plainest food, the slightest habitations, and the least quantity of clothing for ordinary wear.

6. People who are thus easily satisfied are not likely to work hard in a climate, certainly very unfavorable to severe labor, unless driven to do so by other circumstances than those which now prevail; but I very much doubt whether any considerable enhancement of the taxes on the land would have that effect. It might certainly easily discourage them from cultivating more land than just sufficient to pay the Government tax and maintain themselves, probably to the loss of Government by the decrease of cultivation; surrendering that growing desire for foreign luxuries which we now see being gradually established, particularly the substitution of the fine and gay cottons and cloths of English manufacture, for their own dull, coarse, homespun, durable cottons and silks, and the consumption of Government Salt, to the disuse of the home-made impure salts of potash with which they were formerly content.

7. The Government tax on land may be, as it has been, gradually enhanced from time to time as money becomes abundant in the Province, or on other considerations, but I cannot

why the social improvement of the people should be checked, and they be reduced to the unaccustomed misery of hard work, merely to provide the Tea Planters with cheap and abundant labor, when it is sufficiently evident that the profits of the Planters is very great, from the number of speculators continually pouring into the Province.

8. But the want of laborers is greatly owing to the races which compose the population of Assam.

Before we occupied the country, hired labor was almost unknown, or confined to the Cacharees, or other rude tribes unconverted to Hinduism, who were treated as serfs; household labor was performed by slaves, and the agricultural labor of those classes who did not cultivate themselves, was either performed by slaves or by neighbouring ryots, who had the means and who shared the products of the harvest in kind.

It was thus considered disgraceful for the better classes, freemen and Hindoos, to hire themselves for labor, and they have always avoided being employed as coolies as far as practicable, by pleading their right of exemption as *bhula manooses*, or gentlemen.

Of all the tribes, the unconverted Cacharees of Kamroop are still the only persons who will take hired labor, and go to a distance from their homes, but the Assamese proper are gradually consenting to take daily labor, and to execute task work in the vicinity of their villages, for the sake of the luxuries procurable with the extra gains thus earned, but not unfrequently to pay their present taxes, low as they are, under the uncertainties of season, accidents of inundations, and want of prudence and forethought.

9. Such being the long established habits and prejudices of the people, it seems obvious that they could only be driven to seek for hired labor in any much larger numbers, by imposition of such a degree of taxation, as would amount to the infliction of what they would consider a national calamity, and why should they thus be compelled to suffer merely to provide labor for speculators in a very profitable commercial undertaking, in which all seek to increase their plantations at a greater rate of expedition than the natural resources of the Province, under the fixed habits of the people, will admit.

10. Captain Rowlatt expects that the increased rate of assessment will cause to arise a greater variety of trades and occupations; but I do not consider his expectations well founded. We know the circumstances under which, in Bengal and other parts of India, so great a variety of castes, and consequently of occupations, have been created, but we know in these Eastern Frontiers that whole races of men, under the persuasion or the compulsion of their rulers, have become at once Hindoos, and have been admitted within the pale of one equality of caste, equivalent to Rajpoot or Koist, and out of this equality no provision for many trades was made, or can now be established. We have for instance no washermen, curers of leather, makers of shoes, and many other subordinate professions, and never can have out of the genuine Assamese population, as long as they continue Hindoos; such trades and occupations must always be confined to immigrant or imported foreigners; and the Rajahs accordingly did settle down some generations ago a few oil-pressers and weavers, and perhaps other artizans, to meet the growing wants of themselves and gentry.

11. Captain Rowlatt also recommends the prohibition of the indigenous cultivation of Opium, and in this measure all the local Officers and all the Planters have concurred; but the measure has not yet met with the approval of Government.

12. Captain Rowlatt further recommends the redemption of the land tax being permitted to the Planters, on which subject I will have the honor of making some comments, in touching on Captain Bivar's Report.

13. Captain Bivar, after giving, in his 3rd to 7th paragraphs, a summary account of the first cultivation of Tea in his District, annexes to his 8th paragraph a Tabular Statement, which shews that 14,038 acres of land have been taken up for the cultivation of Tea in the Luck-

* The whole of this is situated on the south bank; no land has been yet applied for on the north bank in this Division

impore Division;* that 1,700 acres are under cultivation; and that the produce last year was 282,000 lbs. Although this is a more favorable return than that of Kamroop, it is still less than one-half the Tea so many acres of cultivated land should yield, the deficiency arising from the large proportion of land still unproductive, from the plant being for the most part young, of different growths, and much, of course, as yet being uncropped.

14. In his 10th to 12th paragraphs, Captain Bivar notices the beneficial effects of the Tea cultivation on the trade of the District, and the condition of the laboring classes, and he concludes that the cultivation of Tea is so full of advantages to the Division in every way, that it deserves all the encouragement that can be given to it.

15. In the 14th and subsequent paragraphs, Captain Bivar takes a view of the measures which might be adopted on the part of Government towards that encouragement which he advocates.

The principal of these is, the commutation of the terms on which the Planters now hold their lands; and he proposes, as Captain Rowlatt has done, that they be allowed to redeem the land tax to which they are now liable under the present grants, by the present payment of a certain amount per acre.

From a calculation which he has made of the amount Government would receive under the terms of the grants, Captain Bivar is of opinion, that the sum of 2 Rupees 8 annas an acre would be an equitable equivalent, at which the redemption might be fixed, the whole amount on these easy terms being paid down at once.

16. In a letter of mine to the Board of Revenue on this subject, No. 50 of the 19th July last, I proposed 5 Rupees an acre as the price to be demanded; but after a full consideration of the arguments adduced by Captain Bivar, I am inclined to think now that my standard was too high, and I would beg to solicit the consideration of the Government on this subject as early as practicable, for it seems so important to the best interests of the country, that it is highly desirable it should be settled without delay. In the closing paragraph of his letter, Captain Bivar states that there are still about 228,634 acres of waste still available for Tea plantation in his Division alone; and it seems sufficient to advert to this large extent of waste,—not only lying unprofitable, but most injurious to the neighbouring powerless Native cultivators, from the cover these forests afford to herds of destructive wild animals,—to shew how greatly advantageous to this Province any measure must be which tends to induce the larger introduction of capital, and its employment under European direction in the highly profitable production of Tea: not only by the reclamation of the jungles themselves, but by the consequent beneficial effect on all the country around them.

17. The next measure which Captain Bivar brings forward to promote the progress of Tea cultivation, is the execution of the Government Works, as far as possible, by laborers and artizans imported by the Government Officers for that purpose. If this were practicable to any extent, it would certainly prove of some relief to the Planters; lately, I understand, a good number of handicraft workmen have been introduced from the Jails of Bengal to assist in erecting the Jams of Sibsaugur and Debrooghur, and the measure, I conceive, is altogether most commendable. From the want of skilled workmen in the different useful crafts, Assam labors under much difficulty in this era of its progress in improvement, and I have often advocated the relief of the crowded Jails in Bengal, by drafting off workmen of different castes, to be sent to the Assam Jails; and if some gangs were sent up to each of the Jails in the Province, as they have now been sent to Sibsaugur and Luckimpore, I should consider it as likely to prove of very great benefit. In the same way, as a measure of relief to the Planters, the employment of our own Assamese convicts on the repairs and clearing of the roads and drains of the different stations, would be also, I think, most desirable.

The attempt now making to employ the prisoners on in-door manufactures seems to me attended with no good effect whatever; the whole of them being agricultural laborers, the attempt to teach them trades is, I think, quite futile, for all, with very rare exception, will abandon the trades the moment they quit the Jails; and in the mean time we are in great measure losing their labor, the labor they have been accustomed to, and which, notoriously, they have better and more cheaply performed than hired laborers: whilst at the same time we are largely taking away the coolies, who might much more profitably be engaged on the Tea plantations.

18. The last measure which Captain Bivar adverts to, in his 27th, 28th and 29th paragraphs, is the regular despatch of Government Steamers, as being of the highest importance to all the traders and European settlers in Assam. On this subject I need not dilate, as I believe nothing but the imperative demands of the public service has prevented the Government from abiding by the arrangement of keeping three Steamers employed on this line, for the purposes which Captain Bivar alludes to.

19. Referring to Captain Comber's Report, it appears there are only three Tea plantations in the Durrung Division, the extent of which is not recorded, but only

* 375 acres,

about 300 poorahs* are said to have been brought under cultivation up to this date; the supposed produce of this year will be about 280 maunds, or 22,400 lbs.

Captain Comber states, that the Planters are prevented from extending their plantations from the difficulty of procuring labor, which he imputes to the lethargy of the Assamese from excessive indulgence in opium; and he would propose, as a remedy, that the local growth of poppy should at first be restricted, and eventually be entirely prohibited.

Captain Comber also alludes to the difficulty felt by the Planters in recovering advances made to the coolies, but he does not appear to think that any remedy can be well pointed out, considering the facilities given by our Rules of Procedure of themselves sufficient, if the coolies who abscond can be arrested. In this, however, I imagine is the real difficulty; but in the state of the country it is easy for a laborer to evade the Officers of the Police, and a runaway coolie is so sure of employment wherever he goes, that there is nothing to prevent his leaving his engagements whenever it may seem convenient; and I think most of the Planters are aware of the risk they run in making advances, especially to a Cacharee, to whom it is always irksome to be bound for any particular period; but after all, the Cacharee mostly absconds from some real or fancied injury, which he thus quietly resents.

Captain Comber concludes that he believes the cultivation of Tea has hitherto in no way proved harassing or irritating to the people, and thinks that for years to come the extension of Tea plantations cannot sensibly encroach on the lands which the ryots themselves cultivate, whilst that the vicinity of the Factories is in many ways beneficial to the neighbouring villages.

20. The reports from the remaining Divisions not having been yet received, and there may be some delay in receiving them, I beg to state that I will forward the others in continuation of this letter as early as practicable.

From CAPTAIN E. A. ROWLATT, Collector of Kamroop, to the Commissioner of Assam,—(No. 31, dated the 6th October 1859.)

SIR,— WITH reference to your letter No. 470, of the 11th ultimo, I have the honor to submit a Statement shewing the quantity of land taken up for cultivating Tea, the name of the grantee, and date of grant, the name of the plantation, quantity of land under cultivation, and supposed quantity of Tea manufactured in 1859-60.

2. It will be seen from this Statement that the out-turn of Tea for this year will only amount to 6,160 lbs., but as none of the plantations were commenced more than five years ago, and most only in 1857 and 1858, the result is not, I think, altogether unsatisfactory.

3. The great drawback is the want of labor, but even that I believe is not so severely felt in this district as in Upper Assam; the want of labor is undoubtedly caused by the low rate of assessment levied on the lands generally throughout the Province; but they are higher here than in any other district, and if the rates in the rest of Assam were raised to an equality with those prevailing in Kamroop, there then would be no objection to raising them again in this district, but until this is done, it would be unsafe to enhance them in Kamroop, as a great inequality of rates in adjoining districts would be likely to lead to the shifting of the population from the higher to the lower assessed district.

4. By raising the rates, the profits on ordinary cultivation would, of course, be decreased. This I think, in the present state of affairs, is desirable; for cultivation of the common crops is now so profitable, that all classes take to agriculture alone as a means of subsistence; all other means of obtaining a livelihood are therefore neglected; trade is entirely in the hands of foreigners; handicrafts of any kind are not pursued; and laborers for hire, and even domestic servants, are procurable only with difficulty, and at high rates of wages.

5. By inducing the people to take to a greater variety of employments, the country in general would certainly, I think, be benefitted; for when all alike pursue agriculture as the sole means of subsistence, the people must in a great measure not only be dependent on foreign markets for taking their surplus produce, but also purchase all manufactured goods from without the Province. If a greater variety of occupation was in vogue, the local markets would improve, and facilities be afforded for carrying on many branches of trade, and speculations of various kinds, which now it is quite impossible to conduct.

6. It may also be noted, that if what I state is correct, not only would the country be benefitted by a moderate increase of rate in the land rent, but that a corresponding increase to the Government revenue would be the consequence—a result at the present time of no slight importance.

7. I would also further beg to recommend, that the indigenous growth of Opium be entirely put a stop to. This can now be done without the least danger of any ill consequences arising, as vendors of the Government Opium have now located themselves all over the district, the drug is therefore readily procurable by all who consume it; and if all had to purchase instead of being allowed to grow it, each man in his own garden, this measure would certainly have the effect of restricting the consumption within reasonable bounds, and induce habits of industry, by forcing the people to work and pay for a pernicious luxury, which now they may be said to obtain for almost nothing.

8. It is the low cost and great ease with which every ryot is able to procure a supply of Opium that so thoroughly demoralizes the whole people; if he had to purchase it, he would probably not give it to his wife, and certainly not to his children. Now it is consumed by all alike. This, if it produces no worse consequences, most certainly induces great laziness; and as long as this remains, as it is at present, the peculiar characteristic of the Assamese people, they neither can become good cultivators nor industrious workmen. The Planters complain, and justly so, that even where laborers are procurable they cannot get a fair day's work done for a fair day's wages; if, however, the use of Opium was restricted within reasonable limits, I see no reason why the Assamese in course of time, should not become as industrious as the people in other parts of India, instead of being—what they now most certainly are—the laziest people under the sun.

9. It would also tend further to encourage the investment of capital, if the Tea Planters were allowed to redeem the land rent under a scheme similar to that introduced in the Darjeeling territory.

10. These are the three points to which I think it is necessary to direct attention in reference to the subject under discussion, namely, a gradual increase in the rates of land rent, suppression of the growth of indigenous Opium, and the redemption of the land rent. These measures appear to me to be not only perfectly feasible and unobjectionable, but they would also, I think, tend directly to improve the prospects of speculators in general, be decidedly beneficial to the people of the country, and also add materially to the revenues of Government.

Statement shewing the quantity of Land taken up for the cultivation of Tea, the name of the Grantee and date of Grant, name of Plantation, quantity of Land under Cultivation, and supposed quantity of Tea manufactured in 1858-59.

Name of Grantee, and date of Grant.	Name of Grant.	Quantity of Land contained therein.	Supposed quantity of Land under Cultivation.	Supposed quantity of Tea made in 1858-59.
14th May 1853	Phattaseel, Pergunnah Ramsaha	155 Acres.	35 Acres.	12 Maunds.
1st April 1857	Ditto, Desh Bertulla	460 "	5 "	None.
6th July 1857	Khargoolee Clarence Tea Garden	222 "	30 "	20 Maunds.
1st April 1857	Ramshaha Tea Garden	144 "	27 "	13 Ditto.
22nd November 1858	Chowdryparrah ditto	186 "	10 "	None.
21st October 1857	Phattaseel	253 "	30 "	6 Maunds.
19th April 1858	Ditto	136 "	5 "	None.
26th March 1857	Moirapore	1,204 "	125 "	6 Maunds.
16th Ditto	Khargholee	121 "	30 "	20 Ditto.
1st July 1859	Bordoar	9,326 "	...	None.
	Total	12,207	297	77 maunds, or 6,160 lbs.

KAMROOP COLLECTOR'S OFFICE, }
The 6th October 1859. }

E. A. ROWLATT,
Collector.

FROM CAPTAIN H. S. BIVAR, Principal Assistant Commissioner, Luckimpore, to
COLONEL F. JENKINS, Commissioner of Assam,—(No. 71, dated the 8th
October 1859.)

SIR,—I HAVE the honor to acknowledge the receipt of your letter No. 470 of the 11th ultimo, calling upon me for a report on the cultivation and manufacture of Tea in the district under my charge, and with reference thereto, requesting information on questions connected with the plantation of Tea, its effect on the people of the district, the prospects of the Planters, and calling further for an opinion as to measures which it may appear expedient to adopt for assisting them in extending their operations.

2. In reply I beg to notice that the subject to be reported on is one needing careful consideration, and in dealing with it, I would have desired more leisure for reflection than I can at present command. Being on the eve of proceeding on furlough to Europe, I am unable, as time presses, to do more than offer a few remarks ; but I trust that though brief, they will contain information sufficient to determine what it is sought to elucidate.

3. I beg to observe that Tea, which is indigenous to Assam, was discovered shortly after the occupation of the country by the British Government. In the district of Luckimpore, the cultivation of the plant was first undertaken by the Government. In 1835, a few indigenous plants, taken from the forest at "Ningroo," bordering on the Singphoe country, were put down on a strip of land at the "Koondil Mookh" at Suddujah. The garden there established did not succeed. The soil, which was alluvial, was unadapted for the cultivation, and this led to a removal of material to Jaipore in the Sibsagar Division. Here the cultivation of Tea was persevered in until 1840, when, with a view to promote enterprise and the development of Tea as a resource, the Government transferred two-thirds of its Tea establishment to the Assam Tea Company. After this the Government operations were confined to a plantation in Muttock, on a spot where much indigenous Tea had been discovered, and where the soil was found peculiarly favorable to the growth of the plant.

4. The government garden in the locality alluded to at Chaboah (meaning, literally translated, the Tea plantation, from *cha*, Tea, and *boah*, to sow) was carried on from 1840 to 1848. Over this period, whether from the Assam Tea,

then a produce little known to the commercial world, not being merchantable, or from a want of skill on the part of manufacturers, the Government plantation was an unprofitable affair, insomuch that it was deemed expedient to close it, and the Barri was disposed of (sold) in April 1849, to a Chinaman named "Among," who purchased it with all appurtenances for Rupees 952-14-8.

5. For three years following, there is little to notice in the ~~annals of Tea~~ cultivation. The Chinaman who purchased Chaboah (at present one of the finest plantations in the district) could make little of it. Lack of energy, as much as want of funds, paralyzed his operations, and in 1851, through the instrumentality of Colonel Hannay, an Officer whose exertions have contributed much to the development of Tea cultivation in this part of Assam, Chaboah changed hands, became the property of Messrs Warren, Jenkins and Co., for a consideration of Rupees 475.

6. During the time referred to above, the Chinaman was not the only failure; the period was one of depression as to manufacture of Tea. The Works of the Assam Tea Company, as far as their operations in this district were concerned, were all but suspended. In their Barries little was done, rank vegetation was unchecked, and clearances were stopped. And it was not until the year 1852 that a favorable turn took place in the matter of Tea cultivation, which has since opened a prospect of wealth and prosperity for the district.

7. In the cold season of 1852, Colonel Hannay, who had always taken a lively interest in the products of the country, and who had a small garden close to Dibröo, where he raised cotton, sugarcane and tea, &c. for experimental purposes, having been successful in the plantation of a small patch of China Tea, increased the cultivation. Having obtained land sufficient to admit of extending his operations, in 1852 Colonel Hannay cleared and planted out about 10 acres of land with Tea. At the same period Messrs. Warren and Jenkins, the proprietors of Chaboah, entered upon the formation of the Maeajan Tea Barree, now a most flourishing plantation, the property of Mr. G. R. Barry, of Serajgunge, and following the example first set by Colonel Hannay, an impetus was given to the extension of Tea cultivation, which has led to Tea in Luckimpore having invited the attention of capitalists, and to its promising fair to render the District one of the most important Divisions of Assam.

8. The following figured Statement shows the quantity of land taken up for the cultivation of Tea, the number of factories, the names of proprietors, the progress which has been made in cultivation, the supposed amount of Tea manufactured on each plantation, and the general turn of all factories from the year 1852 upwards to 1859.

YEAR.	1		2		3		4		5		6		7		8		9		10		Total of cultivation.		Total manufacture of Tea from year to year.	
	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.	
1852	350	80,000	120	12,000	10	1,000	80	3,000	5	500	20	2,000	13	1,300	20	2,000	10	1,000	5	500	510	92,000	1,01,160	
1853	...	85,000	...	16,000	5	1,000	20	5,000	5	500	5	500	...	...	...	...	...	...	...	85	1,01,160	1,14,000		
1854	...	90,000	...	20,000	40	3,000	30	5,000	5	500	10	1,000	...	...	...	...	...	...	...	122	1,22,000	1,22,000		
1855	...	90,000	20	24,000	30	3,000	30	5,000	14	400	20	2,000	28	2,800	10	1,000	60	600	5	500	187	1,56,900	1,56,900	
1856	10	1,00,000	10	28,000	50	12,000	30	16,000	6	2,000	42	4,200	10	1,000	60	600	30	3,000	15	1,500	298	1,95,500	1,95,500	
1857	40	1,10,000	20	32,000	35	24,000	10	24,000	75	4,400	43	4,400	10	1,000	30	3,000	30	3,000	25	2,500	263	2,45,000	2,45,000	
1858	...	1,20,000	...	36,000	30	32,000	20	32,000	45	12,000	20	12,000	10	1,000	30	3,000	45	4,500	30	3,000	230	2,82,000	2,82,000	
1859	...	1,20,000	...	36,000	30	32,000	30	32,000	45	12,000	20	12,000	10	1,000	30	3,000	45	4,500	30	3,000	230	2,82,000	2,82,000	
Grand Total of land cultivated and Tea manufactured. ...		400	7,95,000	170	2,04,000	220	1,16,180	170	1,16,000	150	18,800	130	1,85,000	70	95,000	160	12,000	150	10,000	80	8,700	1,700	13,08,660	13,08,660
Assam Company, Tinsai factory, quantity of land taken up, Acres ... 1525.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. Warren and Jenkins, Chaboa and Dikhum factory, quantity of land taken up, Acres ... 252.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Colonel Hannay, Dibroo, Motollah, and Bozani factory, quantity of land taken up, Acres ... 4367.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. G. R. Barry, Majan factory, quantity of land taken up, Acres ... 1890.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. Higgs, Melany and Sevenokas, Maunkotah factory, quantity of land taken up, Acres ... 1540.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Colonel Reid, Sook Doonglah factory, quantity of land taken up, Acres ... 899.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Mr. H. Melany, Bokparah factory, quantity of land taken up, Acres ... 294.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. G. R. Barry, Bor Borooah factory, quantity of land taken up, Acres ... 1058.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. Barry and Wagenteber, Naga Ghool factory, quantity of land taken up, Acres ... 937.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
Messrs. A. C. Campbell and Co., Deohall factory, quantity of land taken up, Acres ... 1286.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.
TOTAL OF LAND TAKEN UP FOR TEA CULTIVATION; 14,038 ACRES.		Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Increase of cultivation from year to year.	lbs.	Total of cultivation.	lbs.	Total manufacture of Tea from year to year.

9. From the Statement given, it is apparent that the total of land taken up for Tea cultivation amounts to 14,038 acres, that the quantity of land planted out, up to 1859, extends to 1700 acres, and that the produce manufactured has this season reached 2,82,000lbs. of Tea ; and as the average value of the Tea may be calculated at 6 annas the lb., the out-turn for 1859 can be put down 2,82,000 lbs., at 6 annas ; Rupees 1,05,750.

10. The effect produced in the district and on the people by the cultivation of Tea is already most marked, although, with reference to the quantity of land taken up for Tea, and the extent brought under cultivation ; the plantations are yet in an early stage of development ; yet, the establishment of ten factories in the vicinity of Dibrroo Ghur has led to material improvement. Within the last few years, the value of labor has increased sensibly. Formerly, previous to the demand for coolies caused by the operations of the Planters, the hire of laborers was from Rupees 2-8 to Rupees 3 per mensem, it has now risen to Rupees 4, and at times it is even requisite to offer as high as Rupees 4-8 to secure services required. The natural consequence of this state of things is, that the ryots are becoming more and more independent. The cultivation of Tea not only affords occupation for men, but women and children also obtain employment as leaf-pickers ; and it follows that factories, wherever established, tend to promote comfort and plenty, and to reduce poverty and want.

11. The advantage resulting to the district from the expenditure of capital in the manufacture of Tea is not only confined to the poor classes ; carpenters, artisans, writers, and tradesmen benefit. The demand for produce of all articles of ordinary consumption has increased, and hence a general impulse is given to commerce. Within the last few years the Bazaars at Dibrroo have doubled in extent, there has been a considerable increase to the trading community, and merchants from down country are continually opening new shops.

12. From what I have stated it may fairly be deduced, that the cultivation and manufacture of Tea is all-important to the well-being of the district, and to encourage its extension would undoubtedly conduce to most beneficial results.

13. The question, as to measures best calculated to promote the object in view, is one of great importance. I have weighed the subject, and on the one side, dwelling on the improvement of the district entrusted to my charge, and duly considering on the other, the interests of the State which are to be upheld, I would beg to propose the following measures for adoption :

14. The points which suggest themselves for consideration, in connection with the extension of Tea cultivation, are threefold.

First, the tenure of land.

Second, the matter of labor.

Third, the means of communication for export.

15. In dealing with the point first proposed, the question as to tenure of land, it may be observed, that under the rules in force promulgated on 23rd October 1854, by the Board of Revenue, grants or waste lands are assigned on leases, for 99 years. The terms of the grants are, that one-fourth of the land set apart for houses, tanks, roads, &c. being free in perpetuity, the remainder is charged with no rent for 15 years, after which time it is to pay a revenue of 3 annas per acre for 10 years, and afterwards to bear a tax of 6 annas for 74 years, and the lease for 99 years being then out, it is ruled that re-settlement will be made on a moderate assessment.

16. In respect to rules adverted to, they contain certain conditions as to the progress of cultivation, it being rendered imperative, on penalty of forfeiture of grant, that one-eighth shall be cleared and rendered fit for cultivation by the expiration of the fifth year, one-fourth by the expiration of the tenth, one-half by the twentieth, and three-fourths by the thirtieth. On the subject of these conditions, although, on the whole, it must be admitted they are liberal, yet I would venture to state it as my opinion, that it would not only promote improvement, but prove beneficial to the interest of Government, if lands were assigned to the Planters under a lasting and more simple title.

17. What I would venture to propose for consideration is, that without interfering with existing rules, which might be maintained for general purposes, the *bond fide* Tea Planter should have the option of taking up fresh holdings, or redeeming land he may have already obtained by ready money purchase in fee simple of land, in plots of not less than 500 acres at a time, at the rate of Rupees 2-8 the acre.

18. Land in quantities I have noticed, being purchased by the Planter at the rate of Rupees 2-8 the acre, would become his property in perpetuity, free of any land tax, and such an advantage, I would beg to urge, could not but encourage extension of Tea cultivation. My reasons for recommending that the land purchased in fee simple should be paid for in ready money, and disposed of in plots of not less than 500 acres, is as much with a view to protect the interest of the Planter as to secure public benefit. For the sale of land in plots of 500 acres and upwards, would effectually prevent the right being abused by persons taking up lands merely for the sake of cutting timber, or for the cultivation of Opium; the former being detrimental to the preservation of an important resource, and the latter being highly injurious to the industry of the country.

19. With respect to the rate, Rupees 2-8 per acre, at which I have proposed waste lands should be sold to Tea Planters, I would beg to notice that although the amount is small, yet taking into consideration the extent of waste lands which exists, and the obvious advantage which would arise if the whole could be converted into Tea cultivation, the sale of land on moderate terms mentioned could not but prove beneficial.

20. Viewed in a financial point, the sale of land at Rupees 2-8 the acre is not unimportant. For example, a Planter taking up 5,000 acres of land under 99 years

Office Memorandum.

Vide letter to Board of Revenue No. 50, dated 19th July 1859, proposing 5 Rupees the acre.

lease rule, would hold 1,250 acres, one quarter rent free for ever, and, after 15 years' grace for the remaining 2-3rd 3,750 acres, he would have to pay 3 annas per acre for 10 years, Rupees 703 per annum, and then for the next 74 years until resettlement, he would be assessed 6 annas the acre, or Rupees 1,406 per annum; on the other hand, if allowed to purchase the land at Rupees 2-8 the acre, for 5,000 acres, the Planter would pay down Rupees 12,500, which sum, at the end of 15 years, bearing compound interest at 5 per cent. would be equal to Rupees 25,986, and as annual interest of this sum at 5 per cent. would be Rupees 1,299, this sum when brought in calculation with the land

Capital derived at the expiration of 15 years from Rupees 12,500, purchase-money for 5,000 acres of land, at Rupees 2-8, with compound interest at 5 per cent.	Rs.	As.	P.
Interest on 25,986 Rupees, at 5 per cent. per annum, Rupees	25,986	0	0
Deduct Government demand on 3,750 acres of land, at 3 annas per acre	703	0	0
Gain per annum, Rupees	596	0	0
Which sum, at compound interest at 5 per cent. for 10 years, will yield	7,541	0	0
Capital derived on the expiration of 25 years, Rs.	33,527	0	0
Interest on Rupees 33,527, at 5 per cent per annum, Rupees	1,676	0	0
Deduct Government demand on 3750 acres, at 6 annas per acre, Rupees	1,406	0	0
Gain per annum, Rupees	270	0	0
Which sum, at compound interest at 5 per cent. for 74 years, will yield	2,04,967	0	0
Capital derived according to the calculation at the expiration of 99 years, will be	2,38,494	0	0

revenue, 3 annas the acre, or Rupees 703 per annum (demandable for 10 years on the 99 years' rules) would give a yearly gain of Rupees 596; and carrying on the calculation in this way, taking into consideration revenue demandable for 74, at 6 annas the acre, at the end of 99 years, as per margin, from the Rupees 2-8 originally paid by the Planter, a capital of Rupees 2,38,494 would be attained, which sum would yield, at 5 per cent. per annum, an income of Rupees 11,924, equal to

assessment (on 3-4ths of grant of 5,000 acres) on 3,750 acres to Rupees 3-2-10 the acre, or treble the rate of revenue now charged for the best lands in the District.

21. From the above it must, I would submit, be admitted that Rupees 2-8 the acre for purchase in fee simple of land for Tea cultivation, is a fair price, and I would further observe, that apart from other calculation, it must not be lost sight of that the export duty on Tea in Calcutta is 3 per cent. *ad valorem*. This season the out-turn of the manufacture amounts to 282,000 lbs., which at the average price of 6 annas the lb. will give Rupees 105,750, yielding a duty at 3 per cent. of Rupees 3,172-8. The manufacture of Tea will go on increasing from year to year; it is calculated that even at the present ratio of operations, the Planters will be able to show in 1863 a return of 1,000,000 lbs. of Tea, which at 6 annas the lb., will give Rupees 375,000, value of which will carry a duty at 3 per cent. of Rupees 11,250.

22. From the above premises it may, I would urge, be justly assumed, that to encourage the cultivation of Tea by sale in fee-simple of land (taken up for Tea) at Rupees 2-8 the acre, cannot be but advantageous as much to the Government as to the Planters.

23. The next question for consideration is, to the matter of labor. Population in Luckimpore, notwithstanding what may be urged to the contrary, is undoubtedly scanty. From the most recent census the population in round numbers does not exceed 100,000 souls, one-half of which calculated as females would leave 50,000, and counting another half as children, there remains a population of 25,000 men; and as the area of the District may be set down in round numbers at 6,000 square miles a population of 25,000 men, admitting that all were cultivators, which they are not would give 4 and decimal $16=4.16$ laborers to the square mile, which is very low.

24. The scarcity of labor which prevails in Luckimpore, is a great check upon the operation of the Planters. They are obliged, at a considerable risk and outlay, to import coolies. To remedy this disadvantage is no easy matter. I have considered the subject, and the result is, that it occurs to me that the best way in which the Government could lend aid to the Planters would be as follows:—

25. I would recommend that all Public Works in the Province should be carried on by Government with imported labour, that for the construction of roads, bridges, buildings, &c. a Public Works Corps should be raised; that the Government having entertained laborers in Bengal, should bind them down to serve three years, and artisans and laborers thus sent into the District, at the expiration of their contracted period of service, might return to their homes or take service with the Planters.

26. The measure I have adverted to, if carried out, would be beneficial in threefold manner. On the one hand, a regular Public Works Corps would insure works of utility being skilfully and speedily accomplished; on the other, it would leave the laboring population of the District entire for Planters to secure; and thirdly, it would throw labor into the country, as workmen, having served out their time with Government, would be eagerly sought for, could settle in the District, and obtain employment from the Planters.

27. The third and last point or argument is, the means of communication for export. The Planters have hitherto, and are still mainly dependent upon Government for forwarding their produce to Calcutta. So long as the Steamer was despatched from Calcutta to Dibröo from month to month, it was sufficient for the requirements of the District; since, however, the mutiny outbreak in 1857, the Steamers have only come up at long intervals, and with such uncertainty as to time of departure, as to render them of little use.

28. Of course the requirements of the State in other quarters led to disability as mentioned, and the Planters, aware that they cannot depend wholly on Government, which has at all times weighty interests to attend to, and cannot place its resources at the disposal of any section of the public, have resolved to aid themselves, and a Steam Company, to be named the "Dacca and Assam Steam Navigation Company," whose boats are to run between Calcutta and Dibröo Ghur, is now in course of organization. When the Company has been fairly established, and the boats start regularly, the Planters at Dibröo will experience no difficulty in exporting their produce; but until then, as the Company is only now in course of formation, and it may take a twelve month or more before it is in operation, I would urge for consideration of Government, that a Steamer should be despatched to Dibröo regularly, from month to month, on a certain fixed date.

29. I would beg to dwell particularly as to the matter of the despatch of the Steamer on a fixed date. The point is important, as unless it is determined calculations are rendered futile, and disappointment in procuring goods from Calcutta or in obtaining freight results.

30. Having offered a few remarks upon what occurs to me to pertain to the attainment of the object proposed in your letter under acknowledgment, I beg, in conclusion, to submit for reference a Map of the tract in Luckimpore in which Tea is found. In the Map the position of the several factories is shown; and I beg to notice, that the whole of the tract lying between the Bramahpooter, the Boori Dehing, and the Nao Dehing, is more or less adapted for the cultivation of Tea. The land

needs no irrigation, the moisture which it attains from the periodical rains being more than sufficient for all purposes. I beg to add, that the quantity of waste land still available for Tea cultivation, may be set down in round numbers at 228,634 acres; and I would beg to express an opinion, that as the cultivation of Tea extends, prosperity to the country will increase, in such wise, as not only to benefit the people themselves, but to secure advantage to the State; as wealth, which will result, will enable the tiller of the soil to contribute more largely than he does at present to the necessities of the Government, will enable him in fact to pay double the revenue which is at present demanded.

From CAPTAIN A. K. COMBER, Principal Assistant Commissioner of Durrung, to
COL. F. JENKINS, Agent, Governor-General,—(No. 13, dated the 20th
October 1859.)

SIR,—I HAVE the honor to reply to your letter No. 470, of 11th ultimo requesting me to furnish a full report on the success that has attended the cultivation of Tea in this Division.

2. The cultivation of the Tea plant has not been undertaken here to the extent that it has in the Districts of Upper Assam, owing, I presume, to the pre-conceived notion that the soil of the part of the Province was more adapted for successful operations than either Central or Lower Assam, though, from what I have seen myself after having visited most of the best plantations in the Seeksagur and Luckimpore Districts, I have no reason to think that the plant will not flourish as luxuriantly here as in Upper Assam.

3. I propose to notice each Plantation. Balleeparah was commenced by Mr. Martin in October 1854, and between that month and February of the following year, 50 poorahs were sown with Tea seed. In season 1855-56, 50 poorahs were added. In season 1856-57, 20 poorahs; and in season 1857-58, 30 poorahs more, making in all 150 poorahs.

Balleeparah.

Area from Sunnud 304 pounds 380 acres.

4. Mr. Martin informed me that they did not extend their clearances further, owing to the extreme difficulty experienced in procuring labor for the purpose of keeping clear during the rains the land they had already sown.

5. The Balleeparah Plantation produced in season 1857, that is to say from March to October, 30 maunds of Tea; in the season of 1858, maunds 110, and during the present season it is expected to yield 200 maunds of Tea.

6. Holleswar, also the property of Messrs. Martin and Son, was commenced in October 1857, and during the cold season of 1857-58, *Holleswar.* 50 poorahs of land were sown with Tea seed, and in 200 poorahs. 1858-59, 30 poorahs more were added. This Plantation has not yet reached the yielding age. I visited the Holleswar Plantation about two months ago, and found the two year old plants looking very well, and the garden (though composed chiefly of China veridis and hybrid plants, with but few real Assam plants) is not inferior to any plantation of the same age I have seen in Upper Assam.

7. Singrai Factory belongs to the Assam Company. It was commenced in 1855 ; there are 70 poorahs of land under Tea cultivation, supposed to yield during the present season 80 maunds of Tea. The extent of *Singrai* land originally taken up by the Assam Company at Singrai was 2557 poorahs.

8. The great drawback to the cultivation of Tea is the difficulty of procuring sufficient labor ; the Planters find that the ryots are all so well off, that they cannot be induced to work, and that this difficulty will exist until a necessity to work arises. This, I imagine, could only be brought about by an increase in the rates of the Government demand for land revenue, and this is a very difficult and important question.

9. It is an undoubted fact that the ryots have the very greatest objection to exert themselves in the least degree, so long as they have sufficient rice and Opium ; and any measure which would raise the Assamese population from the lethargy induced by excessive indulgence in the use of Opium, would unquestionably result in an improved condition of the people both physically and morally, at the same time that an increased rate of taxation would oblige the ryot to work, and thus benefit both himself and the Tea Planters.

10. This necessity to exertion, followed by the gradual restoration and eventual prohibition of the cultivation of the poppy, would, I firmly believe, tend more than anything else to the improvement and prosperity of the people.

11. Another difficulty which the Tea Planters complain of is, the slender protection afforded by our Courts in cases of breach of contract for labor. Nothing is more common than men taking advances to labor, and decamping before half the period of their agreement is expired ; to enforce a completion of which through our Courts is very tedious and expensive ; but I am not aware that anything can be recommended to facilitate the recovery of such advances. Under the rules for the administration of criminal cases in Assam, such cases can be tried *viva voce*, and it is only necessary for the party to point out the delinquent.

12. The cultivation of the Tea hitherto has not in any way proved harassing or irritating to the people, nor do I think that extended operation, in the cultivation of the plant, can prospectively prove otherwise than beneficial to the people at large. There are such vast tracts of waste lands that they are not likely ever to be taken up to a sufficiently large extent as to encroach on the rice-growing and furring hettic lands of the Assamese inhabitants, while the factories would always afford the opportunity of earning an honest and fair livelihood to the ryots, men, women and children.

FROM COLONEL F. JENKINS, Agent to the Governor-General, North-Eastern Frontier,
to E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal,
—(No. 118, dated the 11th November 1859.)

SIR.—In continuation of my letter No. 111 of the 24th ultimo, I have the honor to submit the further reports on Tea, noticed in the margin.

Captain Lloyd's letter No. 165, of the 28th ultimo.

Captain Holroyd's letter No. 172, of the 2nd instant.

2. Captain Lloyd states there are 11,034 of acres taken up in the Nowgong Division for Tea cultivation, but he does not give any detail of the land actually planted, nor of the produce of Tea; but I believe this to be very small, all the factories being of late establishment.

From the Statement annexed, there appear to be fourteen factories now in the course of clearance in the Nowgong Division.

3. Captain Lloyd suggests that the land revenue should be increased, and the local cultivation of Opium be prohibited as measures likely to produce industry amongst the ryots, and hence be the means of providing more available labor for the Planters.

Mr. Martin, in a letter of the 17th ultimo, annexed, with reference to the same result and to afford assistance to the Tea Planters, proposes the suppression of the cultivation of Opium, a gradual increase of the land revenue and the remission of the export duty on Tea.

4. Captain Holroyd's letter contains but a very brief summary of the progress of Tea cultivation in the Sibsagar Division. This Division is the first by far in importance as to Tea culture, and is likely long to remain so, not from being more suitable for the growth of this plant, but from its comprising the principal plantations of the Assam Company,

which had made a great start before Tea was cultivated elsewhere to any extent, also from the comparative large population of the Division, as well as from the large area of waste lands conveniently situated for the conveyance of produce to the Berhampooter for transport to Calcutta.

5. From the information given by Captain Holroyd, the total quantities of land taken up and of land cultivated, are not obtainable, as these items are not given as regards the Assam Company, and I have no late report of that Association at hand to refer to.

The land taken up by private individuals in the Sibsagur Division amounts to about 12,489* acres, the area cultivated by the Assam Company and private individuals is nearly 5,217 acres; the quantity of Tea produced last season by all parties was 846,249lbs., and the probable produce of the next season will, under favourable circumstances, exceed 1,500,000lbs.

* This includes 3,471 acres applied for but not yet granted. By Return in my Office of 1856, the whole quantity of land taken up by the Assam Company appears to be only about 5,000 acres.

6. Captain Holroyd in his 4th paragraph enlarges on the advantages with which the cultivation of Tea has undoubtedly been attended as regards the ryots of his Division, and in his 5th paragraph touching on the means of encouraging Tea cultivation, he advocates an increase of the land rent and the entire prohibition of local Opium cultivation, and he likewise suggests the possibility of organizing, under Government, a sound system of emigration.

7. I have compiled in the Office a general Statement of the whole of the Tea plantations now being worked in the different Zillahs, as correctly as I could make it in the absence of a detail of the Assam Company's factories in the Sibsagur Division. The result shows that 7,599 acres of land is now under cultivation in Assam for Tea and in a more or less forward state of culture, the produce of which for the last season was 1,205,689lbs.

An acre of land well cultivated will give six maunds of Tea and upwards, and if the land now under cultivation was only giving the low average of five maunds per acre, the produce would be upwards of thirty lakhs of lbs.

8. The present out-turn, compared with what it may be when the lands now under cultivation are in full bearing, will shew how backward much of the plant on this land must still be, at the same time that it clearly points out the difficulties to be encountered in the full culture of this extent of land, independent of further clearances; as the present command of labor is found so greatly insufficient that the land already planted cannot be properly cultivated, nor the full crop of leaves cannot be picked.

9. The prospect of any rapid progress for the future, on this ground, is by no means encouraging unless some very effectual remedies can be suggested to overcome this deficiency of labor. Captains Rowlatt, Comber, Lloyd, and Holroyd concurring with the opinions proclaimed by Mr. Barry in his pamphlet on the subject, suggest that the land revenue should be raised as one means of throwing labor into the hands of the Planters by compelling the ryots to seek for employment in order to pay their revenue.

10. I cannot believe that any measure short of such a severe taxation as the Government would certainly not sanction, could have any material effect in increasing the command of labor; and it seems evident to me that any great increase in the assessment would have the effect of decreasing the quantity of land cultivated, to the certain loss to the Government.

It has just been brought to my notice that such has been the alarm amongst the Durrung Mouzadars from the loss of ryots, that they have entered into an agreement not to allow Duffadars (recruiting for coolies) to come into the villages, and one reason given for this resolution of their's was that the Duffadars made the young men drunk and forced advances upon them in that state, and thus seduced them away from their families and fields.

11. It is certain that the Planters have been attempting to push on their cultivation to a greater extent than the means of procuring labor in the Province rendered judicious and prudent. The consequence has been, that at almost every factory, more land has been planted, than can be kept thoroughly weeded and attended to, and during the short

season of picking the leaves, much of the produce is lost for want of hands to gather the leaves although most liberal payments are made to the pickers, who must always be principally the women and young people of the neighbouring villages.

12. I think I shall not exaggerate, when I say that we have now fully one-third more land planted with Tea plants than can be properly farmed, and that the two-thirds fully cultivated would produce more Tea than the whole quantity in its present state of culture.

In other words the little labor we have is wasted in useless extension of plantations.

Of course planters who are, above all things, anxious to lay out the whole of their available capital, are disappointed by the check their speculations have received, and not only misunderstand the causes of the inadequacy of the labor, but impede their mutual operations by a blind competition to obtain a sufficiency for themselves.

13. It was hoped that the commencement of Tea operation in Sylhet and Cachar would have been attended with some relief to Assam, in drawing off the number of speculators, but that does not seem to have been the case as yet, and it is unfortunate that to a considerable extent the planters on that side of the hills have been drawing on Assam for coolies, preferring our Cacharees to the ryots of those districts.

14. The only real remedy for the limited quantity of labor in Assam, is the introduction of laborers from abroad.

Two or three attempts on a small scale to bring in dhangars and others have been made by the Assam Company, and one or two of the planters; but as yet owing to some mismanagement of the planters or misconception on the part of the immigrants, all such undertakings hitherto have been conspicuously failures.

I shall not attempt to state the causes of this failure, but I have no doubt whatever that all difficulties in the way of procuring coolies from abroad can be overcome and must be surmounted before there can be any great extension of our present Tea plantations.

15. A considerable extension may yet take place by judiciously opening plantations near centres of populations which have not yet been engaged in the cultivation of the Tea plant from their distance from any factories, but the planters concerned in the present extensive factories in the Sibsagar and Dibróoghur Divisions, must be greatly retarded in their future operations unless they contrive to import foreign laborers; and now they are greatly dependent on the whim of Kamroop and Durrung Cacharees, a race often difficult to manage, exceedingly jealous of ill-treatment, and who at Nazira, have lately shown a dangerous spirit of combination and mutiny.

From the large extent of wastes still available, and the aptitude of the soil and climate of Assam for the cultivation of Tea, there is no doubt that the growth and manufacture of Tea may become of great national importance in this Province, but only by the large importation of laborers from foreign Provinces.

The ground already taken up for Tea in Assam, would produce, if all was rendered productive, thirty millions of lbs. of Tea, or about half the quantity now imported into England yearly from China.

16. As a further remedy for the scarcity of laborers, all the local Officers have proposed the prohibition of the cultivation of Poppy in Assam, and I concur with them in advocating this measure, not so much that I think Opium has the very ill effects most people attribute to it, but because the cultivation employs a very great number of hands to no purpose, as generally Government Opium can be introduced at a less expense, and because the gathering of the Opium and the storing it in each house in the province leads to its being used by the children and women, and this early habit of using it, induces in mature life an over indulgence in a drug which is as poisonous as Gin when taken in too large quantities; and besides by the introduction of the Government Opium we have greatly lowered the price of the indigenous drug (kanee) and diffused and encouraged its consumption.

17. As further assistance to the planters, Captains Rowlatt and Bivar have advocated the resumption of the land tax, to which I have

adverted in the 12th and 15th paragraphs of my former letter of the 24th ultimo, and on this subject, I have now nothing to add; and I will conclude by observing that the question of an increase of the assessment on the ryots' lands will be shortly submitted for the consideration of the Board of Revenue.

From CAPTAIN E. P. LLOYD, Officiating Collector of Nowgong to the Commissioner of Assam,—(No. 165, dated the 28th October 1859.)

SIR,—IN reply to your letter No. 470, dated the 11th September last, calling upon me for a full and comprehensive report on the success that has attended the Tea cultivation in this district, I have the honor to state that the quantity of land taken up for this purpose is 11,034 acres, and that I addressed a letter, on the 13th instant to the planters, as per accompanying statement, requesting to know what progress had been made on their respective plantation, and the annual amount of Tea manufactured by them. I have only received a reply from one of them, which I have the honor to annex. On receipt of the others, I will forward a supplementary report.

2. I have every reason to believe that the cultivation of Tea in this district has been attended with great success, and that, provided, private capital be forthcoming, there is no limit to its extension. The effect of such undertakings on the people of the country is most favorable; large sums of money are put into circulation, the condition of the people is improved, and they are encouraged and instructed in habits of regular industry and thrift. The great difficulty the planters have to contend with is in procuring labour, and I think the low assessment prevailing in the country much enhances that difficulty. With but slight personal inconvenience or exertion, the peasants are able to grow sufficient to provide for their revenue and private consumption. This is all that they look for, and nothing but the most exorbitant wages will induce them to accept any service involving a higher degree of regular labour. I would suggest the gradual increase of the assessment throughout the province, and the encouragement of the introduction of coolies as the most promising method of meeting the difficulty. The planters are of opinion that the prohibition of Opium is the indispensable condition on which the prospective welfare and progress of the province depends, but this is a moot point on which I do not presume to offer an opinion.

Statement showing the quantity of land taken up for the Cultivation of Tea in the District of Nowgong, Assam.

(28)

Names of parties who applied for Grant of waste lands for the cultivation of Tea.	Name of Mehal in which the Grant is situated.	Quantity of lands applied for.	REMARKS.
1. H. Burkinyoung, Esq.	Nomoligur in Mehal Morung	1020	Sanctioned.
2. G. Williamson, Esq.	Mehal Kuliabur, Mouzah Chillabanda	500	Ditto.
3. J. Herriot, Esq.	Mehal Jumond Mookh, Mouzah Nizduboka	700	Ditto.
4. Mr. Stewart,	Mehal Morung, Kismut Punka	296	Ditto.
5. Paterson Saunders, Elder	Mehal Dantipar, Mouzah Nelly	1135	Ditto.
6. G. R. Barry, Esq.	Bhelleogoree and Rungagorrah	1406	Ditto.
7. J. Herriot, Esq.	Mehal Meekinpar, Mouzah Koteahhtolly	2173	Will be re-submitted for sanction.
8. Ditto,	Koteahhtolly and Bhelleagoree	466	Applied for on the 23rd April 1859.
9. Mr. R. Spears,	Mehal Morung	1333	Applied for.
10. H. Partridge, Esq.	Rungajan in Mouzah Morungee	293	Sanctioned.
11. Mr. Lyall,	Dukhin Kholla	300	Applied for on the 8th April 1859.
12. Mr. G. Williamson,	Mouzah Namdyang	412	Sanctioned.
13. Ditto,	Ditto Rungoligur	400	Applied for on the 27th August 1859.
14. Ditto,	Ditto Kazeerangah	600	Ditto and orders have been received from the Commissioner to commence clearing the land.

COLLECTOR'S OFFICE;
ZILLAH NOWGONG,
The 28th October 1859.

E. P. LLOYD,
Officiating Collector.

From J. N. MARTIN, Esq., Attorney for P. SAUNDERS, Esq., to CAPTAIN P. LLOYD,
 Officiating Collector of Nowgong,—(dated the 17th October 1859.)

SIR,—I HAVE the pleasure to acknowledge the receipt of your letter No. 154, of the 30th instant, annexing a copy of a letter from the Commissioner, No. 470 of the 11th ultimo, soliciting information regarding Tea cultivation on the Nowgong district, and requesting to be informed of the progress made in Mr. Paterson Saunder's Grant at Niller.

2. In reply, I beg to state that owing to the delay in obtaining the pottah, before Mr. Saunders went to England, he was unwilling to incur any great outlay, until he had a proprietary right in the Grant. About 20 acres of forest has been cleared and a house erected.

3. With reference to the concluding paragraph of the Commissioner's letter requesting you to add my remarks on the measures which the Government could adopt to assist the planters in extending their cultivation, I would beg to suggest that the cultivation of Opium be prohibited, which may be considered the curse of the country. Its cultivation and use has of late years been considerably increased with corresponding injury to the people. I would advocate a gradual increase in the land Revenue and the remission of the export duty on Tea levied under the new tariff of March last, which is 3 per cent in favor of China and against the British production. Cotton, Wool, Sugar and Rum, Spirits, Tobacco, and Raw Silk are exempt from export duty to enable India to compete with foreign produces; and as it seems to be the wishes of Her Majesty's Secretary of State, and his Honor the Lieutenant-Governor of Bengal, to assist the Tea planters to extend the cultivation and manufacture of Tea, the removal of the export duty, which adds but little to the general revenue, would be a boon to the planters.

From CAPTAIN C. HOLROYD, Collector of Seebsagur, to COLONEL F. JENKINS, Commissioner of Assam, Gowhatty,—(No 172, dated the 2nd November 1859.)

SIR,—AGREEABLY to the order contained in your letter No. 470, of the 11th of September 1859, I have the honor to submit a report on the success that has attended the cultivation of the Tea plant in this district.

With regard to operations in the Seebsagur district, the Assam Company are the only party who can be said to have as yet done much in the way of exportation ; the plantations of private planters may be said to be as yet only in embryo ; nevertheless success has attended their efforts, though it is difficult to state to what extent, until their plantations have attained maturity. At the close of the last season the Assam Company had 2558 poorahs, 3381 acres of land, under Tea cultivation yielding a crop, the out-turn was 693,249 lbs. of Tea, being an average of 205 lbs. per acre. The number of factories held by the Assam Company in this district is 18, and the total area of land under cultivation by the Company in this district is about 3,000 poorahs, 3,967 acres. The greatest obstacle to the operations of the Company as well as private planters, is the want of labor which is now more serious than ever. The Company every year sustain heavy loss owing to the inadequate supply of labor, and the importance of the subject may be understood, when it is remembered that the collection of the leaf and manufacture entirely depends on the supply of labour available ; that a day's delay in plucking the green leaf when in a fit state, causes immense loss by the leaf becoming too old to manufacture ; and not only is the leaf itself lost, but unless plucked, the trees will not again speedily throw out young leaf, and thus the out-turn is materially diminished. Further, to illustrate the importance of an ample supply of labor, to enable a high state of cultivation being carried on, I may remark that the average out-turn of the Company's factories is a little over three maunds per poorah ; whereas a garden in full bearing and properly cultivated will yield six maunds per poorah, as in fact one of the Assam Company's gardens did, where the supply of labor was better proportioned to the extent of land under cultivation. The anticipated increase in the out-turn during the present year was 70,000 lbs. ; and if a supply of labour is obtained from Bengal, the out-turn in 1861 will probably amount to 1,000,000 lbs. of Tea.

Efforts have been made by the Assam Company to obtain labor from Bengal, but as yet without much success; the dhangars are the best class of coolies to import ; they are industrious, hardy and very orderly : a few families were lately brought up by the Assam Company and have enjoyed excellent health.

2. I now submit the following Statements of Factories held by private individuals. First such as are now yielding an out-turn :—

Name of Planter.	Factory and year when commenced.	Extent.	Under cultivation.	Out-turn Crop season 1858.	REMARKS.
Mr. George Williamson, ...	Cinamara, 1854, ...	872 Acres,	343 Acres,	70,000 lbs.,	This Factory is capable of yielding 1,00,000 lbs., but there is no increase from want of labor to collect the crop.
Mr. J. E. Todd, ...	Noakochoe, 1854, ...	500 "	182 "	43,000 "	Increase this year not known; if any, very slight, from the same cause, want of labor.
Mr. R. Spears, ...	Nigri Ting, 1853, ...	1200 "	313 "	40,000 "	Increase expected this year 16,000 lbs. This gentleman obtained a gang of about 100 Cacharie laborers.

The following is a Memorandum showing Factories that have been commenced by private parties, but which as yet have not yielded an out-turn :—

Names of Planters.	Factory and date commenced.	Extent.	Under cultivation.	REMARKS.
Mr. George Williamson, ...	Bengnakhoa, 1857, ...	407 Acres,	117 Acres,	Ensuing season out-turn estimated at 12,000 lbs.
Ditto, ...	Owa Ting, 1857, ...	490 "	100 "	Ditto ditto, 10,000 lbs.
Ditto, ...	Ghilladhary, 1859, ...	244 "	100 "	Unknown.
Ditto, ...	Singloo, 1859, ...	260 "	25 "	Ditto.
Mr. R. Spears, ...	Khongiah, 1857, ...	1300 "	0	Ditto.
Ditto, ...	Nahorunee, 1857, ...	667 "	0	Ditto.
Mr. J. E. Todd, ...	Holongapar, 1857, ...	200 "	20 "	Ensuing season's out-turn estimated at 5,000 lbs.
Ditto, ...	Deborapar, 1859, ...	200 "	30 "	Ditto ditto 250 lbs.
Mr. H. Jenkins, ...	Khawang, 1859, ...	1178 "	0	Unknown.
Mr. Hassack, ...	Eta Barie, 1858, ...	700 "	30 "	Ditto.
Mr. R. D. Nuthall, ...	Jaipore, 1859, ...	400 "	0	Ditto.
Mr. W. Straford, ...	Irok, 1859, ...	400 "	0	Ditto.

3. In addition to the above, applications have lately been made by four parties for Grants for Tea cultivation to the extent of 3,471 acres, which are now being surveyed, preparatory to submission of the applications to the Board of Revenue.

4. Regarding the 3rd paragraph of your letter, I consider it to be an undoubted fact, that Tea cultivation has had a most beneficial effect on the ryots of the district in general, in so far as their own comforts are concerned. It had the effect of stimulating them to industry for a time, but as their wants are few, and land rent very low, they soon acquire, by working on a Tea plantation, a sum sufficient to supply these wants, and they seem indifferent to earning more. The laborers around the factories, and who in the first instance formed them, are now in affluent circumstances and do not now work at those factories. During the past three years also, a considerable increase has taken place in the price of grain and all other produce ; in

* 8 Maunds.	1856-57 dhan used to sell at sixteen poorahs*
† 2 Maunds.	Rupee, and during the past two years it has sold at only

four poorahs† for the Rupee, the producer thus receiving now four times the price for his produce compared to what he did four years ago, and this without paying any increase of land rent or tax of any kind ; and the Assamese laborers being all agriculturalists, they, of course, all benefit by the rise in price. I have no hesitation in stating that there are no peasantry in the world better off than the Assamese.

5. The prospective advance of the commerce of Assam by Tea cultivation, will mainly depend on the measures adopted by Government to aid the Tea planters in procuring an adequate supply of labor. What would materially tend towards the furtherance of this object as regards the Assamese laborer, would be a general increase of the land rent, and the entire prohibition of the cultivation of Opium throughout the province.

In addition to the above, every assistance should be given by Government to the planter in bringing emigrants into the province, and this I think can be best done by organizing under Government patronage a sound system of emigration; every facility being afforded the planter in bringing the emigrants to the Province on board the Government steamers, and if at any, at a mere nominal charge. With a sufficiency of labor, and regular steam communication with the Presidency, the Assam Tea planter would soon become in a position to increase greatly the field of his operations, and the trade and prosperity of the province be in like measure advanced.

Tabular Statement of the Tea Factories established in Assam.

Division.	Number.	Names of the Proprietors.	Names of the Factories or Mehals in which they are situate.	Total Amount in Acres of each plantation.	Amount of land cleared in Acres.	Quantity of Tea produced in lbs. in the Season 1858-59.	REMARKS.
KAMROOP.	1	William Robinson, Esq.	Fatasil, Pergunnah Ramsah,	155 Acres.	35 Acres.	960 lbs.	For the year 1859.
	2	Ditto.	Ditto Desh Beltola,	460 "	5 "	None.	
	3	Mr. T. E. Pinto,	Kharghoollee Clearance Tea Garden,	222 "	30 "	1,600 "	
	4	Mr. C. W. Delanougere,	Ramsah Tea Garden,	144 "	27 "	1,040 "	
	5	Mr. Bruce,	Chandreeparah ditto,	186 "	10 "	None.	
	6	Mr. A. Michel,	Fatasil,	253 "	30 "	480 "	
	7	Mr. J. R. D. Cameron,	Ditto,	136 "	5 "	None.	
	8	Mr. J. P. Wise,	Moreapore,	1,204 "	125 "	480 "	
	9	William Becher, Esq.	Kharghoollee,	121 "	80 "	1,600 "	
	10	Ditto,	Bordoar,	9,326 "	None.	None.	
			Total,	12,207 Acres.	297 Acres.	6,160 lbs.	
DIBRUG.	11	Mr. J. N. Martin,	Baleeparah,	387½ Acres.	187½ Acres.	16,000 lbs.	For the year 1859.
	12	Mr. J. N. Martin, and Son,	Hollessur,	200 "	100 "	880 "	
	13	Assam Company,	Singri,	3,196½ "	87½ "	6,400 "	
			Total,	3,783½ Acres,	375 Acres.	23,280 lbs.	
NOWGONG.	14	H. Burkinyoung, Esq.	Nomoligur in Mehal Morung,	1,020 Acres.	Unknown.	Unknown.	For the year 1859.
	15	G. Williamson, Esq.	Mehal Kulliaur, Mouza Chhillabanda,	500 "			
	16	J. Herriot, Esq.	Mehal Jumoona Mookh, Mouzah Neez Dubka,	700 "			
	17	Mr. Stewart,	Mehal Morung, Kismut Punka,	296 "			
	18	Paterson Saunders, Elder,	Mehal Duntipah, Mouzah Nelly,	1,135 "			
	19	G. E. Barry, Esq.	Bhalleogoree and Rungagora,	1,406 "			
	20	J. Herriot, Esq.	Mehal Mekinpar, Mouzah Kotiatolly,	2,173 "			
	21	Ditto,	Kotiatolly and Bhelleogoree,	466 "			
	22	Mr. R. Spears,	Mehal Morung,	1,333 "			
	23	H. Partridge, Esq.	Rungajan in Mouzah Morungee,	293 "			
	24	Mr. Lyall,	Dukhin Kholah,	300 "			
	25	G. Williamson, Esq.	Mouzah Namdyang,	412 "			
	26	Ditto,	Ditto Rongoligur,	400 "			
	27	Ditto,	Ditto Kazeerunga,	600 "			
			Total,	11,034 Acres.	...	48,000 lbs.	

Division.	Number.	Names of the Proprietors.	Names of the Factories or Mehals in which they are situate.	Total Amount in Acres of each Plantation.	Amount of land cleared in Acres.	Quantity of Tea produced in lbs. in the Season 1858-59.	REMARKS.
	28	Assam Company at Calcutta,...	Mouzah Nazerah,	181½ Acres.	Extent of clearance at each factory is unknown.	Total 3,967 acres.	For the year 1858.
	29		Ditto Dhobabur Cherie,	151½ "			
	30		Dubba,	246½ "			
	31		Katteepoottee,	220 "			
	32		Kacharee Pookhree,	492½ "			
	33		Moonaee Ting, •	207½ "			
	34		Lingree Pookhree,	1,258½ "			
	35		Gabooppo Purbut,	127½ "			
	36		Ditto ditto,	187½ "			
	37		Deo Panee,	186½ "			
	38		Ditto,	375 "			
	39		Galakee	135 "			
	40		Mowdhoomnee	246½ "			
	41		Rockang	313½ "			
	42		Khurkatteea,	150 "			
	43		Janoogooree,	400 "			
			Total, ...	4,778½ Acres.		Total 6,93,249	
	44	Mr. Geo. Williamson,	Cinamara,	872 Acres.	These have not yet yielded an out-turn.	70,000 lbs.	
	45	Mr. J. E. Todd,	Noakacharie,	500 "			
	46	Mr. Spears,	Ningrie Ting,	1,200 "			
	47	Mr. Geo. Williamson,	Bengnakhoea,	407 "			
	48	Ditto,	Owa Ting,	490 "			
	49	Ditto,	Gilladhary,	244 "			
	50	Ditto,	Singloo,	260 "			
	51	Mr. R. Spears,	Khongeeah,	1,300 "			
	52	Ditto,	Nohorunee,	667 "			
	53	Mr. J. E. Todd,	Holongapar,	200 "			
	54	Ditto,	Deborapar,	200 "			
	55	H. Jenkins, Esq.,	Khowang,	1,178 "			
	56	Mr. Hassack,	Eta Barie,	700 "			
	57	Mr. R. D. Nuthall,	Jaipore,	400 "			
	58	Mr. W. Straford,	Jrok,	400 "			
			Total, ...	13,796½ Acres.	5,227 Acres.	8,46,249 lbs.	

From E. H. LUSHINGTON, Esq., Offg. Secretary to the Government of Bengal, to the Agent to the Governor-General, North-Eastern Frontier,—No. 203, dated Head Quarters, Chota Nagpore, the 20th January 1860.

SIR,—I AM directed to acknowledge the receipt of your letters of the numbers and dates noted on the margin, submitting Reports on the state of the Tea cultivation in the Province of Assam, and recommending the following measures, for increasing the cultivation of Tea, viz.:—

No. 111, dated 24th October 1859, with a Map.

No. 118, dated 11th November 1859, with enclosure.

- 1st. To prohibit the cultivation of Opium in Assam.
- 2nd. To allow Grantees of Land for Tea cultivation to redeem the land tax.
- 3rd. To increase greatly the Revenue assessment on all other cultivated land.

2. As regards the first of these proposed measures, the question appears to the Lieutenant-Governor to turn on this, is it *practicable* in Assam to put a stop to the cultivation of Opium, supplying its place in the same manner as in other parts of India, by Abkaree Opium taxed as elsewhere?

3. The question, it appears, was before Government as far back as in 1840, when, on a full consideration of the opinions given for and against the measure, Government decided against interfering with the Poppy cultivation in Assam.

4. Here the question rested for nearly twelve years, when it was again agitated by the Assam Civil Officers supported by Mr. Mills and the Board of Revenue, who were unanimously in favor of such interference.

5. The late Lieutenant-Governor in a Minute dated the 16th April 1855, recorded his opinion, that to prohibit the cultivation of Opium in such a sparingly cultivated country as Assam, with a scanty population of migratory habits, and having sequestered churs and scattered cultivation in the midst of forests, was simply impossible, and that the measure, if attempted, would fail, both as a financial measure, and as a check on the immoderate use of Opium in that province.

6. This opinion is supported in the above-mentioned Minute with great force and effect. The Lieutenant-Governor entirely agrees in the

argument therein maintained, that to attempt arbitrarily to prohibit the consumption of Opium in Assam would be unwise and wrong. He holds that such an attempt would be indefensible, not only for the reasons advanced in the above-mentioned Minute, but also because no intelligible reason can be assigned for treating Assam differently in this respect, from the rest of the Indian Empire. But there is now no question of prohibiting consumption. The present question is the introduction into Assam of the system of excise upon Opium which is in operation in all other parts of India. And unless some specialty can be shown in regard to Assam, which does not exist elsewhere, and which is such as to prevent regulations elsewhere found to work well, from working well in this province, there can be no good ground for refusing to introduce the general system there. The only specialty which has been relied on in support of the exceptional treatment of Assam in this respect, is the assumed impossibility of effectually preventing the cultivation of the Poppy in this province. But whether this assumption is or is not well founded, is a question that can only be certainly determined by experiment.

7. With every respect for the conclusion at which the Government arrived in 1855, it seems to the Lieutenant-Governor that on such a question the local Officers should be best informed. If therefore you and the District Officers subordinate to you, feel yourselves in a position to assure the Lieutenant-Governor, that you have the power practically to enforce the prohibition, he will be prepared to sanction the attempt being made. For such a measure would be consistent with the policy adopted, and found to work well in all other parts of India; it has been supported by a long succession of experienced Officials; and it is now recommended by all the local Officers without exception, and by independent European gentlemen connected with Assam, as a very desirable measure, on what appear to the Lieutenant-Governor reasonable and substantial grounds.

8. The Lieutenant-Governor will be glad to be informed what effect on the local cultivation of the drug the increasing demand for Abkaree Opium may have had. From the accompanying table, the sales of Opium in some of the Districts appear to have nearly doubled since the introduction of this sort of Opium; and the Lieutenant-Governor understands

that a still greater increase would have been shown in some of the late sales had there been a supply sufficient to meet the demand. As Behar Opium, though heavily taxed, has thus been found to meet a ready sale in Assam, there is now less reason than there once was to doubt the practicability of preventing the local manufacture.

9. This table seems to show that the exceptional treatment of Assam in respect to Opium, cannot be supported by the anticipation of the failure, in a financial view, of the introduction of the general system into that province. Where a respectable and increasing revenue is derived from Abkaree Opium, when the local manufacture of the drug is free, and untaxed, it can hardly be doubted that there will be an increase of that revenue if the local manufacture is to any material extent suppressed, even though we may fail in preventing it wholly. Nor does the Lieutenant-Governor see reason to doubt that if the suppression of the local manufacture to a material extent be practicable, the Abkaree system will operate in Assam as elsewhere, to a certain degree as a check on the abuse of this luxury. He does not see force in the argument which has been much relied upon, that there is inconsistency in allowing the sale of excisable Opium, and prohibiting untaxed local manufacture. The object is not to prohibit, but to restrain consumption within practicable and legitimate limits, so far as possible. It may be impossible to enforce prohibition; and if possible, it might be wrong to do so; but it may nevertheless be as right, in Assam as elsewhere, upon moral grounds, apart from financial objects, to impose such check on consumption as an excise affords. When Opium cannot be got without paying a considerable price in money for it, there is some reason to hope that people will cease to give it to their children, and that those unable to afford themselves a sufficiency of food, will no longer resort to it so freely as heretofore: and it is with these two classes that Opium eating is shown to be certainly, necessarily, and uniformly a mischievous abuse.

10. In regard to the second measure, *viz.* that Grantees should have the power to redeem the land tax—I am desired to state, that the Lieutenant-Governor fully agrees in the propriety of the measure, though he does not expect that owners would avail themselves largely of the privilege in Assam, or elsewhere, money being too valu-

able to persons engaged in agricultural and commercial speculations in India, to warrant its being largely invested by such persons at a comparatively low rate of interest. The general question is already under the consideration of Government.

11. With respect to the third proposed measure, I am desired to say that the Lieutenant-Governor agrees with you. The land revenue should be fixed at a proper rate, on general considerations. And the proposal to drive established cultivators away from the cultivation of their land for grain and other ordinary food crops, by imposing on them an inordinate assessment for the purpose of forcing them to work for their subsistence as the laborers of Tea planters, is one that cannot be entertained for a moment.

12. It is manifest that the great want is a sufficiency of labor for the proper cultivation of land already obtained for, and in part planted with Tea, and for the proper gathering and manufacture of the leaves. This is work in which the men, women and grown children of a whole family can be employed; and it is therefore most favorable for the importation of labor at a moderate charge, and the fixing of a new laboring population in the neighbourhood of the Tea plantations. It is also found that the profit of Tea cultivation is such as richly to repay an adequate expenditure in increasing it. This state of things indicates the propriety of high wages; and the generally scanty population of Assam, its remote position, and its difficulty of access for poor people from the populous parts of India, indicate the expediency of having resort to a systematic course of proceeding in the importation of labor from other parts of India. But it is not for Government but for those immediately interested in the Tea plantations of Assam, to apply themselves to this as to all other requirements of their position. If they do so, they may be sure that whatever Government can legitimately do to facilitate their endeavours, will be readily done.

13. It is supposed by some that the wages offered for laborers in Tea plantations are not high enough. How this may be, your letters under acknowledgment do not show, and the Lieutenant-Governor does not know. But certainly if upon the sudden springing up of

a new and very profitable cultivation and manufacture, requiring a very large number of hands, wages were offered in Assam, where the extreme scantiness of the population is the most extraordinary feature of the place, on the principle that what are good wages in Bengal must be sufficient wages in Assam, a great mistake would be made. At this moment it is understood that a laboring man can earn in the Railways in the neighbourhood of the capital four Rupees a month, or more; and these Railways are in the midst of a dense population, and are very much nearer the great markets of surplus labor than Assam is. Taking these circumstances into consideration, a comparison of the rate above-mentioned and the rates actually paid by Tea Planters in Assam, will enable you to judge how far the difficulty still experienced of obtaining a sufficiency of labor for their work, can be regarded as a difficulty which cannot be overcome by ordinary and natural means.

14. It appears to the Lieutenant-Governor that the Tea Planters in Assam might perhaps find it to their advantage to imitate the practice adopted by the Sugar Planters of Mauritius and other colonies, who systematically import, upon an immense scale, labor from India, under a well contrived and equitable system, which is equally advantageous to the Indian laborer and to the Colonial Planter. The system has succeeded because great pains are taken in the selection and transport of the men and families engaged; and because, as compared with Indian rates, very high wages are given. Probably also the good feeding ensured to the Immigrant Indian laborers, after their arrival in the Colonies, is an important element of the success which has attended their employment in the hard work of a Sugar plantation. The wages are five dollars a month, and very ample rations. As there is no sea voyage to Assam, and as small allotments of waste land could be easily given by Planters to families settling as laborers on their lands, which would help to maintain them comfortably, without taking up too much of their time in consideration of an engagement to labor at good wages, for a definite and not excessive term, it may be expected that a much lower rate of pay would be a sufficient inducement to immigration into that province

than is necessary for the Colonies. But as a long and expensive river voyage must be made, it seems to the Lieutenant-Governor that the case requires some organized system, somewhat in the nature of the Indian Emigration system of Mauritius, and various other Sugar Colonies.

15. The Lieutenant-Governor requests that you will communicate these observations to the Assam Tea Planters, and invite them to take the question into consideration. Papers showing the Coolie Emigration system at present in force are herewith enclosed. If the Assam Tea Planters determine to organize a system somewhat of the same character ; and if a law for the regulation of such a system on sound and equitable principles should be found necessary, the Lieutenant-Governor will be prepared to move the Legislature for such a law.

16. The Lieutenant-Governor observes that it is proposed in Mr. Martin's letter submitted with your Report of the 11th ultimo, to exempt Tea from the usual duty of 3 per cent. on Exports. Such an exemption in favor of Tea was allowed by an order passed in 1843 when the cultivation of Tea in India was in its infancy. But the order of exemption ceased, as a matter of course, to have effect on the passing of the new Customs Act, which makes no exception in favor of Tea from the general rule of charging an Export duty of 3 per cent. on Exports. This trade happily, can no longer be treated as a mere experiment. Before determining on the question of special exemption, it is probable that the Government of India may wish to have before it some general information relative to the expenses, returns, and profits of the trade. You are requested to procure and submit information on this subject.

17. The Lieutenant-Governor believes that the time will soon come when Tea will be one of the chief Indian staples, and when it will be able to afford the small general Export duty imposed as well as most other articles of Export. But apart from the general question of Export duties, he is well inclined, in the present state of things, to recommend to the Government of India the special exemption of Tea from Export duty, at least for some definite term of years, if it can be shown that such exemption would have any appreciable effect in encouraging the cultivation.

Statement of Abkarry Opium Sales in Assam from 1851-52 to 1858-59 inclusive.

DISTRICTS.	1851-52.		1852-53.		1853-54.		1854-55.		1855-56.		1856-57.		1857-58.		1858-59.	
	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.	Quantity.	Proceeds.
	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.	Mds. S. C.	Rs.
Alparah, ..	105 6 0	42,060	100 23 0	40,280	102 10 0	40,900	118 30 0	47,500	133 25 0	53,450	160 11 0	64,110	117 18 0	46,980	90 26 0	36,260
Arung, ..	13 31 0	5,510	7 28 0	3,080	3 38 0	1,580	12 18 0	4,980	19 3 0	7,680	19 32 0	7,920	31 0 0	12,400	28 18 0	11,380
Imroop, ..	57 17 0	22,970	36 16 0	14,560	22 0 0	8,800	29 16 0	11,760	27 33 0	11,130	42 35 0	17,150	53 29 0	21,890	49 22 0	19,820
Chimpore, ..	38 22 0	15,420	58 25 0	23,450	24 0 0	9,600	89 32 0	35,920	52 2 0	20,820	119 0 0	47,600	96 24 0	38,240	69 13 0	27,730
Ngong, ..	34 31 0	13,910	9 23 0	3,830	6 19 0	2,590	19 34 0	7,940	11 8 0	4,480	30 26 0	12,260	35 26 0	14,260	29 16 0	11,760
Isagur, ..	52 5 0	20,850	33 25 0	13,450	14 16 0	5,760	50 17 0	20,170	76 14 0	30,540	75 1 0	30,010	53 7 0	21,270	87 0 0	34,800
	301 32 0	1,20,720	246 25 0	98,650	173 3 0	69,230	320 27 0	1,28,270	320 5 0	1,28,050	447 25 0	1,79,050	387 24 0	1,55,040	354 15 0	1,41,750

In the year 1851-52, the Abkarry Opium was first-introduced generally into Assam. Previous to that, it had ly been sent to Goalparah and Kamroop.

During all these years the selling price was 10 Rupees; in June 1859, it was raised to 14 Rupees.

A. EDEN,
Offg. Junior Secretary to the Board of Revenue.

The 22nd December 1859.

From COLONEL F. JENKINS, Agent to the Governor General, North-East Frontier, to
E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal
—(No. 1, dated the 4th January 1860.)

SIR,—IN further continuation of my letter No. 118, of the 16th

1 From Mr. J. R. Barry of Serajgunge, proprietor of two or three of the plantations in the District, dated the 22nd October.

2. From Mr. Masters, Sub-Assistant, No. 42 of the 22nd November, making a report on the progress of Tea cultivation in his Sub-Division.

3. From Mr. Higginson, Juggri Sing Factory.

4. From Mr. Partridge of Ranga Jan Factory.

ultimo, I have the honor to submit a copy of a report from Captain Lloyd, Officiating Collector of Nowgong, No. 202 of the 19th idem, forwarding the correspondence as per margin, regarding the Tea plantations in his Division.

2. I beg to call attention to Mr. Masters' report, which gives a very clear account of the progress of Tea cultivation within his Sub-Division.

3. From his 2nd paragraph it appears that about 550 acres are actually brought under Tea cultivation, and the Planters, he reports, are successfully extending their cultivation; and under the favorable circumstances of a soil and climate well adapted to the plant, the prospects of the Planters in the Eastern District of Nowgong seem to be in all respects promising.

Only two of the plantations within this Sub-Division appear to be as yet producing Tea—

Namely, Mr. Burkinyoung's Factory at Numilighur, which gave this season 52,000 lbs. of Tea;

And Mr. Stewart's Factory at Punkah, which yielded 2,500 lbs. during the same period.

The other Factories at Kuliabur, Sohobe, Rungajose, Namdyong, Hazaragho, Rungolee Ghur and Difboo, have all been recently taken up.

4. In his 5th paragraph, Mr. Masters suggests that were the Planters allowed the benefit of retaining one-tenth of their land under Forest, that it would be a considerable boon to them. Mr. Masters of course means that this tenth part should be counted as a part of the

clearances if properly attended to as a tree plantation. This suggestion appears to me a judicious one, and such as is likely to better the importance of timber-producing land to the factories in a very short time, both for the purpose of procuring charcoal and planks for Tea boxes, that, instead of compelling the Tea Planters to cut down the forests merely with a view to maintain their grants under the terms on which the land has been allowed to be occupied, I should strongly recommend that all the grantees should be allowed to retain one-fifth or one-fourth of the whole grant under forest, but liable to a certain rent, say half rent after the term of ten years. Tea manufacture requires a vast extent of forest land for its supply of timber, and without some encouragement of this kind is allowed, in the course only of a few years, there will be great difficulty in procuring that supply, and of course the price of the Tea must be much enhanced.

5. Under the present terms of the grants, many of the Planters will be forced to destroy the forest to make a show of having brought their lands under cultivation, but it is obviously the interest of the Planters, and no less so of the Government, to encourage the preservation of useful timber.

FROM CAPTAIN E. P. LLOYD, Officiating Collector, Nowgong, Assam, to COLONEL F. JENKINS, Commissioner of Assam,—(No. 202, dated the 19th December 1859.)

SIR,—In continuation of this Office letter No. 165, of the 28th October last,

Letter dated 27th October 1859, from Mr. G. R. Barry with the Reports received from his Agent at Somoogooree in Bengali; Letter No. 42, dated 22nd November 1859, from J. W. Masters, Sub-Assistant Commissioner Golaghat; Letter dated 29th November 1859, from Mr. W. E. Higginson, of Negri Ting Factory, and also letter No. 51, dated 9th December 1859, from Mr. J. W. Masters, Sub-Assistant Commissioner, with Mr. H. T. Partridge's letter, dated 7th December 1859.

I have the honor to enclose the letters in original from the individuals as noted in the margin, which will furnish you with additional information, regarding the progress made in the Tea plantations in this District as required in your communication No. 470 of the 11th September last. A Mr. Herriot, who has nearly 4,000 acres of land, has not yet supplied his

report though repeatedly called for from him.

2. The return of the original letters herewith forwarded is respectfully solicited.

From G. R. BARRY, Esq., to CAPTAIN E. P. LLOYD, Collector of Zillah Nowgong,
Central Assam,—(dated the 27th October 1859.)

SIR,—I have the honor to acknowledge the receipt of your letter No. 155, of the 13th instant, and in reply beg to state that according to the information sent me, I have fifty Poorahs planted out in Tea at Samoogooree, and 140 acres at Doboka, and would beg to refer you to the Managers in charge of the barrees for any further information you may require. The above extent of cultivation has been put in during the last two years. During the present cold season, one hundred acres will be added to the garden. I should have had great pleasure in giving you the information called for myself, but regret that I am not in a position to do so, not having seen the barrees since clearances were commenced two years ago, but I have no doubt that Mr. Herriot who has a share in the Doboka Garden, will give you all the information you require from that quarter. At Samoogooree, I have hitherto had a Gomastah in charge, Baboo Dhermo Dutt Sermono, but Mr. Wills, a young gentleman I have just engaged to take charge of the factory, will be there immediately, if indeed he has not already taken charge.

From Mr. J. W. MASTERS, Sub-Assistant Commissioner, Golaghat, to CAPTAIN E. P. LLOYD, Collector, Nowgong,—(No. 42, dated the 22nd November 1859.)

SIR,—I have the honor to acknowledge the receipt of your letter No. 152, dated the 13th ultimo, together with copy of letter No. 470 of the 11th of September last, to your address, from the Commissioner of Assam, and herewith to submit the report therein called for, relative to the success which has attended, and the effects which have resulted from the cultivation of the Tea plant in this Sub-Division, and to submit a few remarks on the measures which I think the Government may, without detriment or inconvenience, adopt to assist the Planters in extending their cultivation and manufacture. The delay which has occurred in submitting this report has been occasioned by the non-receipt of the necessary information from the parties concerned, some of whom have considered it incumbent on them to refer to Calcutta.

2. The whole extent of land already taken up for the purpose of Tea cultivation within this Sub-Division, including Rungligur and Koliabur, embraces about 4,000 acres, of which land to the extent of 2,200 acres has been taken up during the present year, and on this land, the operations of clearing the forest and sowing seed have commenced; only of the remaining 1,800 acres, land to the extent of 550 acres is *actually under Tea cultivation*, and the Planters are extending their operations by every available means in their power. Generally the attempt has been

eminently successful, the soil and the climate are both exceedingly well suited to preserve a healthy condition of the plant, and to the production of abundance of leaf.

3. Cultivation of the Tea plant has been commenced at the following plains :

Numulighur.—This grant contains 1,020 acres, and land to the extent of 241 acres is under Tea, which produced in 1859, 52,000 lbs. of Tea. Full information has not been yet received.

Mr. H. Burkinyoung.

Kuliabur.—Respecting this grant Mr. George Williamson remarks :—“ The Kuliabur grant is not mine. I applied for it by virtue of a Power of Attorney from Mr. James Williamson. Mr. Lyell

Mr. James Williamson.

is in charge of the factory. The grant is about 500 acres, of which about 120 acres are now under Tea cultivation, and further extensions are being made this year.”

Punkah.—This grant contains 296 acres, and upwards of 120 acres are now actually under cultivation. Mr. Stewart observes, “ I have not met with the success I had anticipated, mainly

Mr. C. W. Stewart.

owing to the great difficulty of obtaining laborers sufficient to keep the gardens in proper cultivation, which circumstance nullifies all my endeavours to carry out the end I have in view, and prevents me from increasing the area of land under Tea. I had expected to obtain from the *Barrie* during this season upwards of 4,000 lbs. of Tea, but the gardens have been in dense jungle during the rains, and I shall only realize about 2,500 lbs. having, on account of the jungle, been unable to pluck the leaf for manufacture. Such being the case, I cannot venture to increase the area of the land now under cultivation.”

Sokolee Dhunsiri Grant.—The actual extent of this grant is not yet decided on, and Mr. Spears is on his way to England ; a square mile has been applied for, clearing the forest has been

Mr. R. Spears.

commenced, and preparations for sowing seed are now going on.

Rungajun.—This grant was taken up in February last, when the clearing the forest was commenced, and a portion of the land sown with Tea seed. The grant contains about 300 acres.

Mr. H. S. Partridge.

Mr. G. Williamson.

Namdyang Grant containing 300 acres ; Rungoligur, two grants, each containing about 200 acres = 400 acres.

Kazeeranga, three grants each containing about 200 acres = 600 acres, altogether about 1,300 acres, but the boundaries are not finally settled.

These five grants have all been taken up during the present year ; clearing the forest, and sowing seed have commenced. Mr. Williamson observes “ Relative to

the success which has attended the cultivation of the Tea plant on lands held by me for that purpose, I beg leave to state, that my plantations are (with the exception of Cinnamara in the Jorehaut District) of too recent a formation to enable me to judge. Cinnamara was commenced in 1854, and there is now under Tea cultivation, 343 acres, from which area about 70,000 lbs. of Tea was produced last year, and about the same quantity this year. There would have been an increase of about 30,000 lbs. in the present season's crop, had a sufficient supply of labor been obtainable. On this Plantation the cultivation of the Tea plant has been successful, and the result satisfactory up to the present time, but the future prosperity of the factory will, I think, mainly depend on the success attending the importation of Emigrant laborers. Regarding the grants applied for by me in the Nowgong District, the aggregate area of the land is about 1,500 acres, of which about one-fourth will be cleared and planted with Tea seed by the month of March next. The Mikirs have entered into contracts to clear thirty Poorahs on each of the grants in the Mouzahs of Kazeeranga and Rangheghur, and I hope to be able to procure Assamese laborers sufficient to bring the cultivation up to fifty acres at each of those places by the above mentioned time. Godowns and other necessary buildings are now being erected, and Tea seed forwarded to plant the land.

Kaujeeranga and
Homgoli Ghow.

At the Diphloo grant clearances were commenced in January last, and about Diphloo or Namdyang. seventy-two acres planted with Coffee and Tea seeds; more land is now being cleared, and the cultivation will be extended to about 100 acres by March next. A bungalow and other necessary buildings are now being erected.

4. With regard to the effects of this cultivation on the people of the District, I consider that it has tended in an eminent degree to better their condition, to enable them to pay their revenue more easily, and to procure for themselves comforts and luxuries to which they were entire strangers twenty years ago; however, it does not appear to have rendered them more honest nor less addicted to Opium.

Effect of this cultivation.

5. With regard to the measures which the Government may, without detriment, adopt to assist the Planters in extending their cultivation and manufacture, I beg leave respectfully to submit, that Measures of Government which would assist the Planters. I consider it would be a considerable advantage if each grantee was permitted to retain 10 per cent of his grant in forest; this portion to be regularly cultivated as *wood land*, the inferior kinds rooted out, and the better, and more useful

kinds planted. Under existing rules, the whole grant *must* be cleared of forest. The forests of Assam comprise by far the most valuable lands in the Province. In their present state they yield a considerable quantity of excellent timber, with a dense under wood suitable for fuel and various other purposes ; and when the forest is cleared away, and the land brought under cultivation, the soil is found to be rich, well suited to the Tea plant, and to almost every kind of permanent crop. The river land must still continue Rice land, and appears to be of no more value after 50 years' cultivation than at first. In fact, the most abundant crops are generally obtained during the first three or four years after breaking up the ground ; the grass plains, *Chaperies*, are almost entirely occupied by two coarse species of *Cacchorum*—the common *Ooloo* and *Barota*; the first is *Cacchorum cylindricum* of Roab. The *Boro*, &c., is not described by Dr. Roxburgh, but is probably the plant alluded to by Mr. Griffith at page 78, Part 3 of his Posthumous paper No. 10. Cutting down, burning and common hoeing will not destroy these two grasses, but when their roots are entirely rooted out, the ground well cultivated and manured, the soil is often well suited to the cultivation of the Tea plant, and many of the best agricultural grasses will spontaneously spring up where the *Ooloo* and *Barota* previously grew. It would also be a great advantage, not only to the Planters, but also to the ryots generally if the roads were repaired and kept in good order. Under this head Mr. Williamson observes :—"As to the measures which the Government could adopt to assist the Tea Planters in extending the cultivation of the Tea plant, I think a moderate increase in the land revenue would in some degree tend towards this object and might be carried out without detriment. A decrease in the Opium cultivation would also cause a greater number of laborers to work on Tea plantations. A steady flow of emigrant labor into the Province is, I think, the principal means by which the cultivation of the Tea plant can be extensively increased. An emigration scheme to be successful, would require to be conducted under the auspices of Government, and a fund for the purpose provided by the Tea Planters." Mr. Stewart remarks to the same effect, adding, "by issuing more stringent laws to compel laborers and contractors to respect their agreements, and a summary mode of proceeding against them when they do not do so, and when they desert the factories ; as at present numbers of them do with very large advances in hand, whenever they please ; thereby causing great loss to the Planters, who, before they can obtain legal redress from the Courts as at present constituted, most of their crops perish before their eyes, with no other means at hand of saving the same."

Replies from Mr. Burkinyoung, Mr. Partridge, and Mr. Spears, have not yet been received. Immediately they come to hand, I will forward them in original.

From W. E. HIGGINSON, Esq., Negri Ting Factory, to J. W. MASTERS, Esq.,
Sub-Assistant Commissioner of Golah Ghat,—(dated the 29th November 1859.)

SIR,—In reply to your service letter No. 33, dated 22nd October 1859, to the address of Mr. Spears, I beg to state that the quantity of land at present under Tea cultivation on this factory is about 350 acres, nearly all of which is in full bearing.

We will push on with the other grants as fast as the local supply of labor will admit, and arrangements are likely to be made in Calcutta for the establishment of an Agency for the supply of Bengali labor.

2. With reference to the 2nd paragraph, calling for my remarks relative to the measures which the Government could adopt to assist the Tea Planters, I would beg leave to suggest that the cultivation of Opium be prohibited. The cultivation and use of this drug have of late years increased considerably, and result in the injury of the people; and thousands who have within a short time past, fallen victims to this dreadful drug, would otherwise be much benefited. I would further suggest that the land revenue be increased; this would throw more labor into the market and the couched laborer, who at the present state of things does just enough to keep himself alive to the end of each year, would be compelled to become industrious to obtain cash, both to protect himself from the land revenue as well as enable him to purchase the genuine Opium from the Government; and as it seems to be the wish of Her Majesty's Secretary of State, and His Honor the Lieutenant-Governor of Bengal to assist the Tea Planters to extend the cultivation and manufacture of Tea, the removal of the Export duty, which adds but little to the general revenue, would be considered a boon to the Planter. In reply to the concluding paragraph, I beg to petition, with reference to Mr. Spears' letter of the 26th January last, to the address of Captain Comber, that a grant of land of one thousand acres may be made to this factory in the Secolee Mouza (Mouzadar Morungqua Gohain) the clearance of this grant of land in question commenced on the 20th October last.

From J. W. MASTERS, Esq., Sub-Assistant Commissioner of Golah Ghat,—(dated the 1st December 1859.)

FORWARDED in original to the Collector of Nowgong this day.

From J. W. MASTERS, Esq., Sub-Assistant Commissioner of Golah Ghat, to CAPT.
E. P. LLOYD, Collector, Nowgong,—(No. 51, dated the 9th December 1859.)

SIR,—With reference to my letter No. 4½ of the 22nd ultimo, I have now the honor to forward a letter dated the 7th instant, from Mr. H. S. Partridge of Burgajan Tea factory.

From H. S. PARTRIDGE, Esq., to J. W. MASTERS, Esq., Sub-Assistant Commissioner, Golah Ghat, Assam,—(dated the 7th December 1859.)

SIR,—I have the honor to acknowledge the receipt of your letter No. 31, dated the 22nd October 1859, requesting information concerning the success which has attended the cultivation of Tea by me, &c., to which I now beg leave to reply.

2. The quantity of land held by me at the Rongajan is 293 acres, of which about thirty acres were cleared and sown by me last season. I am sorry I cannot say much regarding the success which has attended my venture, for, owing to the lateness of the season when the land was cleared and sown, I could not make arrangements for procuring labor sufficient to keep even that small area of land under proper cultivation during the late rains; and now that the garden has again been cleared, I find that a large proportion of the seedlings have been choked by the weeds. I am now making arrangements for clearing and sowing fifty acres more of the land this season.

3. The great and only drawback to the cultivation of Tea in this District is the want of labor, and I beg to state the measures which it seems to me the Government might adopt to assist us if so inclined.—1st. by raising the land rent on Rice and other lands $3\frac{1}{2}$ or $4\frac{1}{2}$ per acre, and to much more for Opium lands, so as to decrease the cultivation of that drug in Assam, while Government Opium could be supplied to be purchased by those who could not do without it. This would cause more laborers to work in the Tea plantations for ready cash.

4. By issuing more strict laws for compelling laborers and contractors to respect their agreements and a shorter mode of proceeding against them when they do not do so.

From J. W. MASTERS, Esq., Sub-Assistant Commissioner, Golah Ghat, Assam,
(dated the 9th December 1859.)

FORWARDED in original to the Collector of Nowgong.

From COLONEL F. JENKINS, Agent, Governor General, North-East Frontier, to E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal,—
(No. 12, dated 28th January 1860.)

SIR,—With reference to the 4th paragraph of my letter No. 1, of the 4th instant, forwarding additional correspondence regarding the Tea plantations of Nowgong, I have the honor to forward a copy of a letter

No. 228, of the 18th instant, from Captain Holroyd, Principal Assistant in charge of the Sebsaugur Division, bringing forward a proposition to the same effect as that suggested by Mr. Masters, *viz.*, that the Tea Planters should be encouraged to reserve a part of their grants under forest, in order to make a provision for the supply of timber that they will therefore require for packing boxes.

2. Captain Holroyd proposes that one-fourth of the whole grant should, for this purpose, be allowed to count as cultivation, and to be taxed as cultivated ground at full rates, but Captain Holroyd does not say after what period it should be brought under taxation. My proposition in the letter above quoted was, that this reserved forest land should be taxed at half rates after a free period of ten years.

3. But I cannot but think that the most acceptable arrangement which the Government can authorize will be to allow the grantees to purchase the fee simple of their lands at a moderate sum, as advocated in the 15th and 16th paragraphs of my letter to you, No. 111, of the 24th October last, and as far as my judgment goes, this measure is consistent with the true policy of Government, as permitting the unrestrained employment of capital. I beg removing from the Planters all terms and restrictions, and freeing them from the heavy anxiety which some of the clauses of the grant must necessarily now impose on them.

FROM CAPTAIN C. HOLROYD, Collector of Sebsaugur, to COLONEL F. JENKINS, Commissioner of Revenue, Gowhatty,—(No. 228, dated the 18th January 1860.)

SIR,—With reference to the provisions of the present rules for the grant of waste lands in Assam, I would draw your attention to the fact of the essentiality when such grants are taken for the purposes of Tea cultivation, that a portion of the land should be reserved for timber and bamboos, required in the packing and manufacture of the Tea.

2. At present on first formation of a factory, timber is felled recklessly and generally burnt, afterwards, when required for Tea boxes, it is cut wherever found, without reference to being within or without the bounds of a grant ; and I foresee that in a few years the fine tracts of forest, which are now available for settlers, will be completely ruined.

3. To obviate this, I would propose the following amendment in the present rules. One-fourth the grant is exempted from assessment for roads, houses, &c. and the remaining three-fourths has, within the given periods, to be brought under cultivation. From enquiry I find that were two-fourths brought under cultivation, and the remaining one-fourth retained in forest for timber and bamboo, it would suffice for the requirements of a Tea Factory, provided the Planters, as he felled his trees sowed seed to replace them ; the trees best adapted for Tea boxes arrive at a fit stage for cutting within five years, and it is calculated that replacing by seed annually the trees as cut, the one-fourth of the land retained in forest would suffice for the requirements of the Tea Factory. This one-fourth allowed to be retained in forest, and considered under the terms of the grant as under cultivation, I do not propose to free from assessment, but it should be assessed as the remaining two-fourths actually cultivated. If this recommendation be adopted, as I hope it may be, feeling convinced it is essentially necessary for the future prosperity of the Province, grantees should be given to understand they are not at liberty to cut timber wherever they choose over the face of the land ; but must confine their operations to the limits of their grants.

4. With regard to the old grants held by the Assam Company, in which the cultivation has been extended to the three-fourths as required by the terms of the grant, I would propose, in such instances, they be allowed to take up the land adjoining the grants, or in the nearest available forest to the extent of the one-fourth ratio, it being held as an integral portion of the individual factories, and the grant dated back to such period as the time when the grant for the factory was given.

5. To carry out the proposal now submitted, it will only be necessary to add a clause to the effect, that of the three-fourths required to be cultivated, one-fourth would be allowed to be held under timber, and considered as cultivation.

FROM LORD H. U. BROWNE, Under-Secretary to the Government of Bengal,
to the AGENT TO THE GOVERNOR-GENERAL, North-East Frontier, (No. 483.
Fort William, the 19th March 1860.)

SIR,—I am directed to acknowledge the receipt of your letters Nos. 1 and 12, dated the 4th and 20th January last, and in reply to state, that the proposal of allowing a proportion of each grant to remain permanently in forest, seems one well worthy of consideration.

2. The conditions under which grants in Assam and elsewhere shall be made, are now under consideration, and will be finally determined by the Governor-General in Council. The proposal will be considered in the settlement of the general question.

From COLONEL F. JENKINS, Agent to the Governor General, North-East Frontier, to E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal,—(No. 22, dated the 29th February 1860.)

SIR,—Adverting to your letter No. 203, of the 20th ultimo, and to my letters therein quoted, on the progress of Tea cultivation in Assam, I have the honor to forward a copy of a letter from Mr. Roberts, Managing Director of the newly formed Jorehaut Tea Company, of the 23rd ultimo, on the progress of Tea cultivation in the Numolighur Factory, one of the plantations purchased by this Association.

2. This plantation was first taken up for the purpose of cultivating Sugar-cane, and was subsequently converted into a Tea plantation for the reason assigned in Mr. Roberts' 8th paragraph. It is now a flourishing Tea factory, 240 acres of land being under Tea plant, (which yielded last year 52,000lbs. of Tea) and a fire-proof godown having been erected for the manufacture of Tea and its safe custody.

3. The Government will be pleased at observing from the 6th paragraph of Mr. Roberts' letter, that arrangements have been made by an association of gentlemen for organizing a system of Coolie Emigration to Assam, to which in his 10th paragraph the Government is solicited to give its assistance.

4. The papers referred to in the 15th paragraph of your letter No. 203, with the observations of the Hon'ble the Lieutenant-Governor on the subject of the Emigration of Coolies, have already been circulated to the principal Tea Planters, and I hope at an early date to be able to submit a further communication on this subject to Government.

5. It will be observed that Mr. Roberts, in his 11th paragraph, adverts to the privilege of purchasing the fee simple of their grants as being one of the measures by which the Government could best promote the interests of the Tea Planters; and so general is this feeling, that I

would beg to solicit the early consideration of Government, to the terms on which the Planters might be allowed the option of reducing the land tax of their grants.

6. Mr. Roberts, in his 12th paragraph, touches on the expediency of restricting the growth of Poppy in Assam. The printed correspondence alluded to therein has not reached me.

7. And in his concluding paragraph he offers a suggestion as to the advantage of Government extending encouragement to the establishment of an efficient Steam Company for the Berhampooter, on the same principle as has been adopted for raising funds for Railways and Canals in other parts of India.

8. With reference to the 13th paragraph of your letter before quoted, I would beg to mention here, that the rate of wages prevailing at the Tea factories, is from 4 to 5 Rupees a month, which with reference to the rate of wages earned formerly by our Assamese laborers in an immense advance, being nearly a fully double the hire formerly attained. But the women and lads employed in picking the leaves, who do that work by contract, can readily earn, for the season, double the above rates of wages.

9. It is perhaps, however, a mistake to suppose that the great rise in wages in Assam is mainly attributable to the demand for labor at the Tea factories. I find in Cooch Behar that there has been the same, and fully an equal rise in laborers' wages in that District. This is certainly not owing to any great Public Works being carried on in the neighbourhood, or by the establishment of any factories, Indigo, Sugar or Tea, for none such exist in the whole country. The Works of the Rajah, I found, were almost totally stopped from want of laborers, and the high price necessary to obtain any workmen was a subject of grievous complaints by all the Officers of the Government.

On enquiring to what the deficiency of labor was owing, the immediate reply was, the extension of agriculture and the increased profits to the ryots from the cultivation of Mustard, Jute and Tobacco, and I think the same cause will be found to have made labor so expensive in Assam, viz.—the vast extension of the Mustard crop, the culture of

which is both very easy and remunerative, and the high profits from it, and the great advance in the price of Rice, have no doubt much to do with the want of labor in Assam. Every one of our laborers being also a cultivator of his own fields, he is of course only to be prevailed on to leave his village, and his own work, for a rate of wages, that is greatly more than he could earn by his labor at home.

10. This state of things, arising out of an immensely increasing commerce, is more or less prevailing, if I be not mistaken, throughout Bengal, and can only be remedied extensively by the introduction of machinery and substitutes for manual labor; and I was much gratified to find that in Cooch Behar since my last visit, this substitution was taking place to a very great extent by the introduction of carts. These carriages are now largely employed for the first time within my knowledge for the carriage of agricultural produce to the river ghauts, and will, no doubt, be a very sensible relief to the great trade in bulky articles going forward.

11. The same resolution will, no doubt, be gradually introduced into Assam, where hundreds of thousands of laborers are daily employed in transporting the produce of their fields to the granaries, markets and ghauts, as I have more than once adverted to, in advocating the speedy construction of roads in Assam. In Cooch Behar and the neighbouring Bengal Districts, carts can almost travel any where, whether roads be made or not from the dryness of the sandy soil, and the shallowness of the streams, but unfortunately this is not the case in Assam; in the deep mould — and retentive clogs of Assam, which makes every unraised road impassable with a slight fall of rain, and renders every water-course, however small, perfectly impracticable for wheeled carriages without bridges, the introduction of these vehicles can only take place except in a very small degree, as the Government prepare the means of locomotion by providing embanked and bridged roads.

12. Frequent advertence has been made to this necessity, and Government have frequently shown a disposition to meet our wants; but up to this time some unexpected financial pressure has always diverted the general funds from being expended on the required local improve-

ments of this Province, and I fear we shall have to record the same indefinite postponement of our hopes until the Government are able to allow us to apply a portion of our local revenues to local improvements.

13. As far as regards the Tea Planters, they have been adopting from the first, the use of Elephant carts for the transport of Tea to the ghauts; and in the Jorehaut and Luckimpore Districts, their want of roads have been in great measure attended to, but as yet I think they have done little in setting an example to the Assamese in the use of carriage bullocks or bullock carts, which alone can be made available for the uses of the agricultural population, and this only, to a partial extent, until we have a better system of roads.

From W. ROBERTS, Esq., Managing Director, Jorehaut Tea Company, Limited,
to J. W. MASTERS, Esq., Sub-Assistant Commissioner, Ghola Ghaut,—(dated
the 23rd January 1860.)

SIR,—Owing to the disposal of the Numolighur Factory to the Jorehaut Tea Company, Limited, your communication, No. 31, of October 1859, to the address of C. H. Stewart, Esq., Numolighur, has not met with prompt attention, but I have now the honor, as Managing Director of the Company, to reply to the several enquiries it contains.

2. The cultivation of the Tea Plant at Numolighur was considerably retarded in the first instance; and a successful result was not realized to so great an extent as it might have been, owing to the necessity of having to sow the Tea seed in lands, that had become partially exhausted by the cultivation of Sugar-cane.

3. The quantity of land held under the Government Pottah No. 1, of the 19th December 1855, amounts to 1026 acres, and under a separate annual rent-paying pottah, there are about 30 acres of land on an adjoining hill.

4. The actual area of land under the cultivation of the Tea plant is 240 acres.

5. The produce of 1859, amounted to lbs. 52,000 of Tea.

6. It has been found a very difficult matter to carry out measures for the extension or improvement of the cultivation, entirely owing to the inadequate supply of labor, which, for years past, has restricted the extension of the clearances, and has prevented the adoption of a proper system of cultivation. With the object of lessening this difficulty, a number of gentlemen who are interested in the cultivation of the Tea plant, established a Tea Planter's Association in December last for the purpose, amongst others, of organizing a system of Coolie Emigration from the Districts of Lower Bengal; a sufficient time has not yet elapsed to complete the necessary arrangements, but in order to carry out the system upon an extensive scale, it would be essential to have the means of forwarding the Coolies to their destination, by Steamers and Flats starting from Calcutta, at regular and stated periods. If the Prospectus issued by the Assam and Dacca Steam Company had met with the support that it merited, the communication with the Province would have been established and maintained at regular intervals.

7. A pukka Tea house covered with a corrugated iron roof, has been erected at the factory. A steam engine and machinery, adapted for manufacturing Sugar are also on the factory.

8. The cultivation of the Sugar-cane was abandoned for many reasons, but not because the cultivation of Tea was more remunerative. The soil and climate appeared to be well adapted for the growth of Sugar-cane. The juice that it yielded however was very weak and impure, and consequently very difficult to treat; and although no expense was spared in purchasing machinery and in procuring experienced Sugar manufacturers, yet success did not attend the efforts of the proprietors,—the paucity of laborers was an insurmountable difficulty,—and from the laborious nature of the work, compared with the cultivation of Tea lands, the cultivation of Sugar-cane could not be maintained in an efficient state. The distance from Calcutta without regular Steam communication, was a serious drawback; for the greatest delay occurred in having repairs effected to the machinery, upon which, in some instances, depended the manufacturing or saving of the crop. The complicated machinery, the scientific knowledge and number of practical artizans required

to conduct the various operations, cannot be maintained in an efficient condition in Assam, to which there has been as yet no regular means of transit.

9. With reference to the measures that Government could adopt to assist in extending the cultivation of Tea, or of any other product in Assam, they may be briefly enumerated as follows,—all of which can be adopted, not only without detriment or inconvenience to the Government, but they will materially assist in developing the rich resources of the Province, by which Government will realize very many and important advantages.

10. The first and most pressing measure would be to assist the Tea Planters' Association, in the efforts which are now being made to establish a system of Coolie Emigration from Bengal, by rendering whatever assistance Government may deem necessary or prudent, in the collection, examination, and despatch of the Coolies, by placing a sufficient number of efficient Steamers and Flats on the Berhampooter river, to keep up a regular monthly communication, until the efforts of the Planters have succeeded in forming a Steam Company for their own purposes.

11. If the foregoing measure was carried out by the Government, the next in importance would be to allow settlers in Assam to purchase the fee simple of the land required for their operations, and to allow the present grantees to acquire the fee simple of their estates upon equitable terms.

12. The next measure requiring the consideration of Government, is the restriction of Opium cultivation in Assam. This question has been so ably advocated by the Assam Company, that I beg leave to hand you a printed copy of the correspondence between Government and the Assam Company on the subject. If the emigration of Coolies from Bengal was successfully carried out, it would, in a great measure, remove the necessity of imposing any restriction upon the cultivation of the Poppy,—for Planters would not then be so dependent upon the local labor,—but in a moral point of view, it would nevertheless be most

important for Government to adopt some measures, that would effectually prevent or remove the rising generation in Assam,—children from seven to ten years of age,—from partaking of, and indulging in, that injurious and intoxicating drug.

13. Finally, I would beg leave to suggest for the consideration of the Government, whether it would not be advantageous to guarantee a certain rate of interest, upon the capital required to establish an efficient Steam Company, on the Berhampooter river, similar to the system now adopted for raising funds for the construction of Canals, Roads, &c.

From RIVERS THOMPSON, Esq., Junior Secretary to the Government of Bengal, to the AGENT TO THE GOVERNOR GENERAL, North-East Frontier.—(No. 733, Fort William, the 15th April 1860.)

SIR,—I AM directed to acknowledge the receipt of your letter, No. 22, dated the 29th February last, submitting, with your observations, a copy of a letter from Mr. Roberts, the Managing Director of the newly formed Jorehaut Tea Company, relative to the progress of Tea cultivation in the Numolighur Factory, and to the measures that appear to be required for the extension of Tea cultivation in Assam, and for the general development of the resources of that Province.

2. The proposals submitted do not appear to differ materially from those that have already been under the notice of Government. As regards the chief desideratum, viz., an adequate supply of laborers, the Lieutenant Governor directs me to say that the Government will give any assistance it properly can to the scheme set on foot by the Tea Planters' Association for organizing a system of importing labor into Assam. It is only the want of available Steamers that prevents Government from maintaining a more frequent and regular communication by Steam between Calcutta and Assam.

3. It will be in your recollection that till April 1859, the exigencies of the Public Service did not admit of any relaxation in the restrictions which had been imposed on the Steam communication with the province of Assam. In that month, the exceptional state of things which had previously existed was brought to an end, and the exclusive

employment of Government Steamers on the Ganges became unnecessary. The Government of Bengal at once availed itself of the opportunity to move one Steamer and a Flat off the Ganges line, and to despatch them to Assam; and when a short time after, all the River Steamers and Flats were replaced by the Government of India at the disposal of the Lieutenant-Governor, instructions were issued to the Superintendent of Marine to lose no time in re-establishing the regular Steam communication with the North-Eastern Provinces. Though it was found impracticable at once to give effect to these orders from the insufficiency of the Boats at the Service of this Government, it was arranged in June last, that a Steamer and Flat were to be despatched to Assam at intervals of six weeks, until the addition to the Ganges Flotilla, already applied for, had been effected, when a regular monthly communication with Assam will be opened.

4. In accordance with this arrangement, the Boats named in the			margin have been despatched to Assam on the dates specified, and as far as it was in the power of Government, a regular periodical communication has been maintained.
The <i>Berhampooter</i> ,	10th July 1859.		
" <i>Indus</i> ,"	13th September 1859.		
" <i>Jumna</i> ,"	7th November 1859.		
" <i>Jumna</i> ,"	15th December 1859.		
" <i>Indus</i> ,"	1st February 1860.		
" <i>Jumna</i> ,"	15th March 1860.		

5. The Lieutenant-Governor hopes that private enterprise will establish an effective system of Steam communication. But the proposal of a "guaranteed" Steam Company does not appear to him feasible.

6. On the point again raised regarding the purchase of the fee simple of grants of land, the Lieutenant-Governor directs me to refer you to what was said in the 10th paragraph of Mr. Officiating Secretary Lushington's letter, No. 203, of the 20th January last.

7. In regard to the want of roads, you are aware, the Lieutenant-Governor remarks, that the amount of imperial funds allotted for Works of internal improvement to the Lower Provinces of the Bengal Presidency is too small, in comparison with the vast extent of country to be benefitted, to enable the local Government to make perceptible progress towards the creation of a tolerable system of internal communication.

But if gentlemen interested in the improvement of Assam, and the many other great Provinces under the Bengal Government, think fit to move the Government of India for such an allotment of the imperial funds available to the Public Works Department for all India, as would give to the Bengal Provinces anything at all approaching to the proportion which the extent, the population, and the revenues of those Provinces may seem fairly to demand, such an appeal will not want all the support that the Lieutenant-Governor can give it. The Lieutenant-Governor has himself never omitted any opportunity of urging the justice and the true policy of more equitable arrangements in this respect than, as it appears to his judgment, have hitherto prevailed.

From COLONEL F. JENKINS, Agent to the Governor-General, North-East Frontier, to A. R. YOUNG, Esq., Secretary to the Government of Bengal,—(No. 79, dated the 31st May 1860.)

SIR,—IN continuation of the 4th paragraph of my letter No. 22, dated the 29th February last, and with advertence to the 15th paragraph of Mr. Secretary Lushington's No. 203, of the 20th January last, on the subject of organizing a system of Coolie Emigration, I have the honor to transmit the accompanying copy of a letter of the 19th instant, from Captain Morton, Principal Assistant, Luckimpore, forwarding the proceedings of a Committee of the several Tea Planters in that District, with reference to the above suggestion of Government.

2. The Committee strenuously deny that it is the wish of the Planters in Upper Assam to drive the ryots from the cultivation of their fields, in order to obtain the labor on the Tea plantations, but they urge the imposing a heavier tax on the ryots, that they might acquire habits of industry, in the belief, that eventually more land would be brought under cultivation.

In the 2nd Resolution the Committee state the present rate of wages to be Rupees 4-8 a month, and adverting to the advantages the imported Coolies would obtain from settling in Assam, they are of opinion that a higher rate of wages than 5 Rupees should not be offered them.

In their next Resolution the Committee, representing the Planters of the Luckimpore Division, pledge themselves to support any equitable scheme for the maintenance of a Government Emigration Agent, and suggest that:—

1st. The laborers should be engaged for a term of five years.

2nd. That the Law for the cognizance of breach of contract should be amended.

3rd. The commodious Steamers should be employed on this line, starting at regular intervals and importing Rice as well as laborers.

In their concluding Resolution the Committee bring to notice, the comparative small number of the inhabitants of the Luckimpore Division, who are employed at the plantations.

3. In submitting these Resolutions, Lieutenant Morton proposes that every Coolie employed on rent free land (I presume the Tea plantations are meant), should be subjected to a Poll Tax, unless they could satisfy the Collector on certain points, the object of which proposition appears to be explained in the following 4th paragraph,—that Natives should not take up grants merely for the purpose of settling on their lands ryots now fully assessed to Government.

And in the concluding paragraph, Lieutenant Morton mentions, that he is impressed with the belief that the Ryot in Assam is not sufficiently assessed, and that any man not cultivating to the extent of two Poorahs (about $2\frac{1}{2}$ acres) should pay a Poll Tax.

4th. I cannot advocate Lieutenant Morton's propositions, which would certainly have one effect however carried out, of making Coolie labor more expensive and less easily procurable by the Planters.

5th. I have only further to remark an observation in the last Resolution of the Committee, of the small comparative number of Muttocks who work on Tea plantations.

I am not surprised at the fact alluded to; the Muttocks like all other classes of the people that I would call Assamese, that is, who have adopted Hinduism, object to leave their homes and will not take up labor at any distance from them. The Cacharees, who are without the pale

of Hinduism, have not this objection, or they have not the same habits as the Assamees, for some classes as the Mikirs and Merees who are not Hindoos, have the same dislike to go abroad to labor.

FROM CAPTAIN B. W. D. MORTON, Assistant Agent to the Governor-General Luckimpore, to COLONEL FRANCIS JENKINS, Agent to the Governor-General North-East Frontier,—(No. —, dated the 19th May 1860.)

SIR,—I HAVE the honor to forward the proceedings of a Committee of Planters and other grantees of land in this District, convened for the purpose of taking into consideration the suggestions of Government on the subject of Immigration.

2. The remarks in *Italics* have been made by two gentlemen who had not the opportunity of attending the Meeting, but to whom the papers were submitted.

3. With regard to the proceedings, I desire to state that whilst as a rule the Planters of Upper Assam would prefer Bengalee Coolies to those of Assam, I certainly think that Government, to secure their own interests, ought to place either a Head or House Tax on every Coolie of this Province employed on rent free land, who could not prove to the satisfaction of the Collector, either that he is independent, paid revenue to Government, or that the family of which he might be a member, paid a sufficiency of revenue to admit of his working as a Coolie.

4. It will be a long time before either *Native* capital or energy will secure labor from other parts of India. Accordingly in giving (and justly giving) natives the same privileges of holding rent free land, as are enjoyed by Europeans, the precautions referred to in paragraph III. will be especially required.

5. In giving full effect to the suggestion I have thrown out, it would undoubtedly be necessary, in a measure, to revise the present system of assessment. I am fully impressed with the belief that the ryots of Assam are not sufficiently taxed, and I believe, that every adult who could not prove that he either independently or as a member of a family, paid revenue on at least two Poorahs of land, ought to be assessed at a certain rate in the shape of Poll Tax.

Proceedings of a Meeting of Planters and other Grantees of Lands in the District of Luckimpore, Assam, on the 30th April 1860, convened for the purpose of taking into consideration certain propositions with regard to the importation of laborers into the Province of Assam, as contained in an Extract from a letter from the Officiating Secretary, Government of Bengal, to the Agent, Governor-General, North-East Frontier, No. 203, dated 20th January 1860.

LIEUTENANT B. W. D. MORTON Officiating Magistrate, Zillah Luckimpore, having been called to the chair, the following gentlemen are found to be present, viz. Colonel Hannay, Messrs. Barry, Wagentreeber, Campbell, Haly, Morgan and Jenkins.

The papers forwarded by the Agent, Governor-General, having been submitted to the Meeting, the following Resolutions are passed:—

1st Resolution.—This Meeting desires respectfully, but most firmly, to enter a protest against the erroneous impression conveyed in the following Extract from the 11th paragraph of the letter under consideration, and the proposal to drive established cultivators away from the cultivation of their land for grain and other ordinary food crops, by imposing on them an inordinate assessment for the purpose of forcing them to work as the laborers of Tea Planters, is one that cannot be entertained for a moment.

In the opinion of this Meeting, no course more detrimental to the true interests of those engaged in the cultivation of Tea could be pursued, than that driving the ryot from his field in the hope of making him take service in a Tea garden. What would thus be gained on the one hand by the addition of a few discontented laborers, would, on the other hand, be more than counterbalanced by the increased difficulty of procuring rice and other articles of food. In the opinion of this Meeting, the Land Tax through the Province is assuredly too light, and in gradually raising it to the higher rates which obtained in Bengal and elsewhere, this Meeting is impressed with the belief, the best interest of the ryot would be consulted. He would acquire habits of industry. Eventually a greater extent of land would be brought under cultivation, and Rice would not at all times be procurable at generally cheaper rates than now.

2nd Resolution.—With reference to the 12th paragraph of the letter under consideration, this Meeting considers itself called on to explain, that allowing for the large amount of capital expended, the length of time it is lying dead, and the trouble that is required to form and carry on a plantation, the cultivation of Tea does not yield more than a fair return. Further, that the wages of a Coolie at present are never less than Rupees 4-8 for a month of thirty days, and that if a laborer chooses to work by contract, and is withall an industrious man, he may earn his 8 Rupees per month with ease.

This Meeting finds it difficult to say exactly at what amount the rate of wages should be fixed. But taking into consideration the many advantages which the Emigrant will have, of not only settling hereafter in the Province, but of also holding from the Planters as much land for cultivation as they choose, rent free, during their time of service; and also considering the small amount of work at present constituting a *day's labor*, it does not consider that more than 5 Rupees per month could be offered.

3rd Resolution.—With reference to the proposal of Government, this Meeting desires to state that in its opinion any system of Emigration, to be successful, must be generally supported throughout the Province.

It further believes that the steady immigration of male laborers, accompanied by their wives and families, would be conducive to the first interest of the Government, as well as those of the Planters themselves. This Meeting representing, as it does, the Tea Planters of the District of Luckimpore, desires gratefully to acknowledge the readiness evinced by Government to meet the difficulty at present experienced in obtaining labor. It pledges itself to support any equitable scheme, to forward the supply of labor, which has for its basis the appointment of a Government Immigration Agent, and, in doing so, it would make the following suggestions:—

1st. That the laborer should be engaged for a term of at least five (5) years.

* *That the law with regard to breach of contract should be so amended, that any persons inducing such laborers, as are under agreement, to quit, on conviction before a Magistrate, should be liable to a fine not exceeding 200 Rupees.*

2nd. That the law with regard to the breach of contract should be so amended, as to afford more efficient protection from breach of engagement on the part of the laborer.

3rd. That commodious Steamers should ply between Calcutta and Dibrooghur, at regular and fixed intervals, with a view to affording the Immigrants a speedy and safe voyage, and keeping up a steady supply of Rice and other articles of food, which, next to labor, is the great want of the Province.

4th. *Resolution.*—This Meeting takes the opportunity of bringing to the notice of Government, that exclusive of the laborers in the Assam Company's gardens, there are not more than 2,000 Coolies engaged in the cultivation of Tea in this District, of whom, at the outside, one-tenth only are natives of this District. Further, that the difficulty of procuring more hands, is the simple and only cause of the amount of land, already being brought under the cultivation of Tea, being so limited.

From RIVERS THOMSON Esq., Junior Secretary to the Government of Bengal, to the Agent to the Governor General, North-East Frontier.—(No. 1624, Fort William, the 30th June 1860.)

SIR,—I AM directed to acknowledge the receipt of your letter No. 79, dated the 31st ultimo, and with reference to the first Resolution passed at the Meeting of the Tea Planters and other Grantees, in the District of Luckimpore, in which the Committee emphatically deny that it is the wish of the Planters in Upper Assam to drive the ryots from the cultivation of their fields, in order to obtain their labor on the Tea plantations, I am desired to explain to you, and to beg you to be so good as to explain to the gentlemen concerned, that the Lieutenant-Governor's remarks, as conveyed to you in the 11th paragraph of the Officiating Secretary, Mr. Lushington's letter, No. 203, dated the 20th January, were not made with reference to any opinion supposed to be entertained by the Planters and grantees, but solely with reference to the opinions of certain Government Officers, conveyed in paragraphs 9 and 10 of

your letter No. 118, dated the 11th November last. A reference to that letter will show, that four public Officers, subordinate to you in the North-East Frontier Agency had, among other measures for the advancement of Tea cultivation in Assam, advocated the advisability of raising the land revenue, "as one means of throwing labor into the lands of the Planters, by compelling the ryots to seek for employment, in order to pay their revenue."

2. The objections you made to this proposition were fully concurred in by the Lieutenant-Governor, who is glad to find that the Luckimpore Planters and Grantees agree, in a certain measure, upon this point with you and him. I have to request that you will be good enough to explain this to the Luckimpore Committee.

3. With reference to the suggestion to raise the tax on cultivated land, with the view of giving the ryots habits of industry, and as a consequence of increasing the cultivation, I am desired to observe that in a Province, where there is so much good culturable waste land, and comparatively so little cultivated land, as in Assam, a light land tax is natural, in the same way that light rents would be natural, were the land farmed under private land owners. Under such circumstances, as the Lieutenant-Governor conceives, any artificial arrangement whereby the cultivation of land should be heavily taxed, could not fail to discourage cultivation. On this principle, reclaimed land for Tea cultivation is not taxed at all for a long term of years; and the same principle holds, as to reclaimed land for any other sort of cultivation. Where any quantity of waste land is available rent free for long terms, a heavy tax on old cultivated land seems impossible, as well as inexpedient.

4. Though, for these reasons, a very large increase of the land tax seems to the Lieutenant-Governor not to be or desirable even if possible, it may nevertheless be true, as maintained by Lieutenant Morton, that the people of Assam are on the whole too lightly taxed, and that a moderate increase of taxation in that Province is expedient. The Lieutenant-Governor would wish you to turn your attention seriously to this subject. The object is to devise a tax that would not discourage the employment of labor and capital in any way, whether upon the cultivation of land, or for any other profitable purpose.

5. In regard to the second and following Resolutions, I am desired to state, that an arrangement has been made with the India General Steam Navigation Company, to run their Steamers on the Dacca and Assam line for the next six months, the Government withdrawing their Steamers from that line. The Company bind themselves to run a pair of boats once in six weeks, and they are to be allowed the use of the Government Pilots, and the coal laid down by the contractors for the Government vessels.

6. The rate of wages to Coolie Emigrants, will resolve itself with the practical question, of what may be found necessary to induce laborers to engage.

7. If the Planters generally agree to some system of importing laborers, the Lieutenant-Governor sees no difficulty likely to interfere with the practical working of such a system. The particular conditions suggested seem to him, as at present informed, unobjectionable: and if a periodical Steamer can be regularly filled, at remunerating rates, with laborers and Rice, or other freight, there is no doubt that the India General Steam Navigation Company, or other private parties will maintain one or more boats on the line.

8. The Lieutenant-Governor desires that you will give every assistance to the Planters of the several Districts, in coming to one understanding, universally, on the important practical question of the importation of labor.

FROM COLONEL F. JENKINS, Commissioner of Assam, to A. R. YOUNG, Esq.,
Secretary to the Government of Bengal,—(No. 426, dated the 24th July 1860.)

SIR,—IN further continuation of my letter No. 79, dated the 31st May last, transmitting the proceedings of a Committee of Tea Planters of the Luckimpore District, on the subject of importing labor into this Province, I have the honor to submit the annexed copy of the further proceedings of the Committee of the Tea Planters in the Sibsaugor District, forwarded with the enclosed copy of Captain Holroyd's letter No. 85, dated the 16th instant, for the consideration of the Hon'ble the Lieutenant-Governor of Bengal on the observations and suggestions touching the questions at issue.

FROM CAPTAIN C. HOLROYD, Principal Assistant, Sibsaugor, to COLONEL F. JENKINS, Commissioner of Assam,—(No. 85, dated the 16th July 1860.)

SIR,—I HAVE the honor to forward the proceedings of a Meeting of Planters of the Sibsaugor District, held at Cinnamara Factory on the 16th ultimo, relative to the importation of labor into the Province of Assam; and solicit the favor of your submitting the same for the favorable consideration of His Honor the Lieutenant-Governor of Bengal.

Proceedings of a Meeting of the Planters of the Sibsaugor District, held at Cinnamara Factory on the 16th June 1860, for the purpose of taking into consideration, certain observations and suggestions referring to the importation of labor into the Province of Assam, as contained in an Extract from a letter from the Officiating Secretary to the Government of Bengal, to the Governor-General's Agent, North-Eastern Frontier, No. 203 of the 20th January 1860.

CAPTAIN HOLROYD, Magistrate of Sibsaugor, having been called to the chair, the following gentlemen are found to be present, viz., Mr. Williamson, Junior, Messrs. Mackintosh, Gibson, Straford, Higginson, Herklats and Minto.

Before proceeding in the regular business of the Meeting, it is resolved to express the sense of gratitude entertained by the Members composing it, towards the Lieutenant-Governor, for the active interest he has evinced in the cultivation of Tea in Assam, for his just appreciation of the difficulties of our position, and for the promise of the legitimate assistance of Government in the establishment and working of a well devised scheme of Coolie Emigration.

His Honor having invited those interested in the cultivation of Tea in the Province, to state their views upon this important proposition, and to indicate in what way the Government could best assist in carrying it into practical effect, we beg to submit the following, as being in our opinion the most important points, for consideration.

1st. A regular monthly Steam communication with the Province, capable of transporting 500 Emigrants at each trip.

2nd. The establishment of an Emigration Agency in Calcutta, subject to the control of the Planters, and under the recognition and encouragement of Government, having a certain recognized form of agreement or contract between the Planters and Coolies as legal, and binding in all Indian Courts of Law, and the signature of the Agent, for the time being, affixed to the document, held to be sufficient proof of its validity.

3rd. That the law relating to breach of contract be rendered more effective.

4th. That whilst we note with much satisfaction the improvement lately effected on the roads of this District, we would still urge upon the consideration of Government, the expediency of the leading thoroughfares being made passable for wheeled conveyances; and that the Grand Trunk Road between Upper Assam and Rungpore, Bengal, be opened out, and kept in a state of repair, so as to promote general intercourse and trade, and facilitate the transmission of Emigrants and cattle by land during the dry season of the year,—a very important matter considering the inadequacy of even a monthly Steam communication to meet our present requirements in labor.

5th. That should special legislation be necessary to give effect to any of the measures proposed, His Honor the Lieutenant-Governor be solicited to move the Legislature to pass the required Act.

With reference to the first point, regular Steam communication, we would beg to submit that, to cultivate in an efficient manner the land already cleared in this District, 8 or 10,000 additional hands would be required, and that the immediate requirements of the entire Province may be estimated at double that number. This does not provide for future extension, which is now purely a question of labor; and in suggesting that the carrying accommodation should be equal to about 500 souls, we have been guided less by a consideration of the actual necessities of our position, than by what we think could be conceded by Government.

In order that the Emigrants be landed in as healthy a condition as possible, it appears to us desirable that Steamers of greater power be provided, so as to perform the trip in a much shorter space of time; and that as far as practicable, arrangements be made to ensure them a certain degree of comfort, convenience, and protection from the weather during the voyage. This is more particularly required where the Emigration consists of entire families.

We are further of opinion that the general trade of the Province is not yet sufficiently developed, to induce a trading Company to place an efficient fleet of Steamers on the Line; and that, in the first instance, we must look to the Government for the effective performance of this service. It is not improbable that, if the Government offered a guarantee of 5 per cent on the capital a public Company could be speedily organized; and it appears to us to merit the consideration of His Honor, whether it would not be true economy to do so, in anticipation of the great impulse it would certainly impart to the general prosperity of the Province.

Adverting to the second point, the establishment of an Emigration Agency—the details of this measure would be matter for arrangement in concert with the Government.

As regards the wages to be offered, we may state that Coolies are now imported into this District at four Rupees per month for men, and corresponding rates for women and children; but that if these wages should prove insufficient to induce Emigration on a scale commensurate to the present wants of the Province, we would be prepared to make such an advance, on existing rates, as might be found necessary to render the scheme practically effective. It ought also to be observed that the nominal rates of wages very imperfectly represent the advantages of the service; the light nature of the work being peculiarly favorable for the employment of women and children, and the tasks so adjusted, that an industrious Coolie can always earn far beyond his or her nominal wages. Instances are not infrequent of men earning from 6 to 10 Rupees per month, and families of four individuals, over 20 Rupees.

We would deprecate the construction put upon a recommendation recently made by several of the Collectors and Planters of the Province, to the effect that it would be conducive to the best interests of the country to put a moderate increase on the land tax. This recommendation appears to have conveyed the impression, that the sole object of the parties making it, was to drive the people away from the cultivation of Rice and other products, and compel them to work as Coolies on Tea plantations. Such was certainly not the object, nor are we prepared to admit that the effect predicted is a logical deduction from the proposition—we do not advocate this measure with the view of obtaining an important accession to our supply of labor, which we do not by any means anticipate; and shall be quite contented if the Assamese can be sufficiently roused from their lethargic habits, to supply the greatly increased demand for the primary articles of food, which is certain to follow emigration on a large scale.

In conclusion, we would beg to observe that we read with regret a Notification in the *Government Gazette* of the ——— to the effect, that grantees of waste land were permitted to commute the annual payment of revenue, by payment down of a certain fixed sum, and from which we infer, that the proposal lately made to purchase the land in fee simple, has not met with the favorable consideration of Government.

We believe it is apprehended that the passing of this measure would lead to undue speculation in land, and afford too much scope of jobbing and monopolizing tendencies, although in our opinion, this would be less liable to be the case than under the existing rules.

The payment down of a considerable sum of money, and the sinking of unproductive capital would, perhaps, in ordinary cases, operate as a sufficient check against abuses of the nature apprehended. But if this should not be deemed sufficient, a few simple conditions might be attached, which would have the desired effect, without in any way crippling legitimate enterprize. For instance, in Canada a tax is imposed, after a certain period, on the uncultivated portion of the lands sold, and perhaps the same principle could be made applicable to Assam.

Proposed and carried (*nem. con.*) that Mr. Gibson be nominated corresponding Member of this Committee, to carry out in conjunction with the Committees formed in other parts of the Province, the contemplated measures for the establishment of an Agency, and the periodical transmission of Emigrants to Assam.

From RIVERS THOMPSON, Esq., Junior Secretary to the Government of Bengal, to the Commissioner of Assam,—(No. 2123, Fort William, the 17th August 1860.)

SIR,—I AM directed to acknowledge the receipt of your letter No. 426, dated the 24th ultimo, submitting a copy of the proceedings of a Committee of Tea Planters of the Sibsaugor District on the subject of importing labor into the Province of Assam.

2. In reply, I am desired to refer you to my letter No. 1624, dated the 30th June last, and to explain that the question of the purchase of land in the Province, in fee simple, is by no means determined in the negative, but is now before the Government of India with the Lieutenant Governor's recommendation in its favor. Nothing can be done by Government till the scheme for immigration of *all* the Planters is stated. You are requested to give them every assistance to enable them to form some generally approved plan of operations.

SELECTIONS
FROM
THE RECORDS
OF THE
GOVERNMENT OF BENGAL.

N^o. XXXVIII.

P A P E R S

RELATING TO

(A SANATARIUM UPON MOUNT PARISNATH.

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ACCOUNT
OF
A VISIT TO MOUNT PARUSNATH
AND
THE JAIN TEMPLES THEREON.

MOUNT *Párswanath*,* (vulgo *Párusnath*) the most remarkable place of *Janai* worship in *India*, forms the point of boundary between the provinces of *Kurreekdeea* to the North, and of *Ramghur* and *Pachete* to the South-west and South-east. From its summit, which I believe is the highest peak of land in the Eastern portion of our territories, the eye may range over a magnificent map of *Bengal* on the one hand, and of *Behar* on the other. Official duties having carried me round the province of *Kurreekdeea*, during the month of November 1827, I ended my tour of that division at this remote and interesting mountain; and, as I was told by the natives that no European before myself had undertaken the ascent, perhaps I may be able to add some information to such as look with interest upon the ancient sect whose Mount *Sinai* it seems to have been. I must confess, however, that the attraction of the very imposing scenery throughout this corner of *Behar*, was quite as powerful a motive as curiosity, in leading me to the top of this princely mountain; and if my account contains as much of the picturesque as research or speculation concerning antiquity, it will only be a more faithful portrait of my tastes.

All Dâk Travellers who have journeyed along the new Military road to *Benares*, must be familiar with the name of this mountain; for

* The ordinary name of this Mountain is *Samet Sekhar*, as noticed in other parts of this article.

they can scarcely have neglected to enquire the title of that remarkable line of hill which haunts them like a shadow from *Bancora* to *Kutumsandy*.* Coming into view at the former place, it grows in height and breadth until it appears frowning in front of the bungalow at *Chass*, at a distance of — koss. From this place, travelling westward, its numerous and craggy points slowly recede from view, until from the high ground at *Huzaribaug*, it becomes a faint but picturesque outline, catching tints from the sky in front of the setting sun. From the Telegraph on the top of *Tutgi Ghaut* the mountain is seen in the most favorable manner; its broad base rises abruptly from the distant plain, and slopes gradually at the extreme sides, until the outline breaks into numerous peaks, that from the corner of the hill seem shooting their arrowy points at the heavens. From the plain to within a few yards of each pinnacle, and even in some of the pinnacles themselves, the mountain is thickly covered with magnificent trees, whose round heads take various tints from the changing seasons of the year, and even from the hourly variations of light between dawn and darkness. Seen from the above point of view, we can scarcely help respecting the eye and taste that first selected this noble pile as the imaginâry residence of a Deity.

I approached *Parusnath* from the North, and its towering heads, like the eye of a watchful monarch, overlooked my winding route from the time I entered the province of *Kurreekdeea*, from the little pergunnah of *Kodurma*, or as it is called by Rennel, *Korumma*, which joins its North-western corner. The road from the village of *Kurreekdeea* to *Palgunjo*, where the holy land commences, affords a constant variety of ascent and descent, passing through as wild a country, perhaps, as the Continent of *India* contains. The scanty villages have, with difficulty, been eked out of the thick jungles, where what open grounds there are, present a hard rocky soil, which is the most stubborn enemy to the plough. Art and labor can only secure a partial irrigation, for the whole Province contains no more than one considerable torrent stream, which is generally dry in the month of April; and so uncertain are all supplies from such resources, that it requires greater labor to bring

* It is only so far visible in clear weather.

water from the narrow channel of these streams through the immense bed of sand on either side, than to dig reservoirs for collecting the showers of the clouds. Few kinds of wild animals, besides the lion, are wanting in the prodigious wastes that extend in every direction; even wild elephants frequently come down from the neighbouring forests of *Kurrukpoor*, and destroy the huts in small villages for the sake of the grain that has been so carefully stored within. The supply of the miserable ryot which he has laid by for the year, becomes the single meal of four or five of these resistless monsters, who demolishing every blade of crop that is standing in the fields, and devouring the contents of every granary, completely expel the inhabitants from homes and lands which it has cost them so much toil to prepare.*

The destruction of human life by tigers along the banks of the *Burrakur Nuddy*, is enormous; an hundred lives during the year were reported to me as a fair average; and if one-third of this number perish in this horrid manner, the continuance of the natives to inhabit the neighbourhood is a strong instance of their naturally indifferent character. The crops are cut and the lands ploughed to the beat of drum; and so impervious are the jungles to all pursuit of the savage enemy, that the only mode of hunting him with success, is to attach some bait to the trunk of the tree, amongst the branches of which the patient hunter must remain concealed with his gun. There is a great scarcity of smaller game in these parts on account of the scanty cultivation and rocky soil.

The village of *Palgunjo* is beautifully situated in point of landscape, between the large woods that spread to the North and East, and the gradually rising hills to the South-west, that centre at last in the majestic pile of *Parusnath*. From this point of view, this fine

* In one of the villages which was visited lately by twelve of these formidable invaders, the first notice of their approach was given to an old woman who was quietly grinding grain in her hut. She was suddenly surprized by a noise more startling than thunder, and by the fall of part of her mud wall upon herself; turning round she was terrified at seeing an elephant's head between the chapper and the wall, and his trunk quietly stealing the grain from the corner. The villagers succeeded in poisoning eight of these animals; the other four were too sagacious to touch the offered poison, and destroyed several persons in their attempt to give it.

mountain forms a screen along the greater part of the Southern horizon—the deep blue tinge, which it wears at sun-set and moonlight, struck me as different from any effects of light and shade which I had observed in other mountainous countries. Amongst the smaller hills and stony plains around, there are very considerable veins of iron ore;* but on the mountain itself there are no traces of metallic strata, and it is thickly covered with trees that flourish in the greatest magnificence—their beautiful foliage is the cause of the singularly blue mantle that the giant seems to assume at twilight.

At *Palgunjo* the devotional duties of the *Jaina* pilgrims who flock to this remote spot from every part of *India*, even from the furthest provinces of the *Dukhun*, commence. The Zemindar, who has dubbed

* An inconsiderable traffic in this metal is supplied from this pergunnah, and it may not be useless to notice the process of collecting and extracting the metal. The families of those who keep *Bathas* (furnaces) are sent out to collect the heavy dust and stones which are loosely scattered on the surface of the part where the stratum discovers itself, such fragments are so abundant that no recourse has been had to excavation. The furnace into which the material is thrown bears a rude and dwarfish resemblance to the smelting houses generally used in Europe. The whole apparatus looks like an earthen stone standing about 4 feet high. An incision is made from the top, descending into the fire chamber in the form of a funnel, which serves for the double purpose of admitting the stones and releasing the smoke. A small aperture in the side admits the throat of the bellows, which is worked by the hand, and through small holes in the bottom of the chamber, the metal, when precipitated falls by its own weight into a cavity prepared beneath. The fuel is admitted either through the funnel above or through a door in the side, in which the aperture for the bellows is bored. The process of fusing in the pergunnahs of *Ramghur*, which supply the whole of Eastern India with iron, is frequently repeated; but in *Kurreekdeea*, the metal of which fetches a less price, the ore is seldom subjected to the fire more than twice. A *tungee*, or 6 maunds of iron from these smelting houses is sold for 7 or 8 Rupees to the *Baparies*, who, carrying it on bullocks to the markets of *Behar* and *Benares*, obtain a price of 17 or 18 Rupees for the same quantity. The iron of *Rhamghur* is sold for 12 Rupees a *tungee* in the Mofussil, and 24 Rupees in the market. The natives distinguish four kinds of iron by the following names:—1. *Sarunsae*—2. *Mahabooa*—3. *Puttul peetha*—4. *Balooa*. The two first kinds are only available in manufactures. In this pergunnah no revenue accrues either to the Zemindar or to Government from this production and traffic, and the smelters are bound to the *Mahajuns* of the nearest villages, who retain them in a species of perpetual slavery by means of the debts which they never allow them to settle. European superintendence and skill would no doubt improve this staple of trade, and send it to the market for a much cheaper price.

himself with the title of Raja, is considered by that sect as the guardian of the holy lands, and has in his possession a small image of *Parswanath*, which every pilgrim pays for worshipping before he proceeds to the temples at the foot and on the summit of the mountain. The manner in which this petty landholder acquired the charge which the *Jainas* themselves acknowledge to be in his hands, was thus related to me by that person himself. Several centuries ago, an ancestor of the family, whom he called *Nawadeo Sing*, came from the western province of *Rohilkund* to perform his devotions at Benares. There, in reward for the unusual piety which he displayed, he was one night visited by a god in a dream; but the degenerate descendant has forgotten the name of this generous messenger of *Indra*. The supernatural stranger declared to the pilgrim that his devotions had been well received, and that if he would travel eastward, he would be invested with the sovereignty of mount *Sekhar*. Accordingly *Nawadeo Sing* proceeded to the country pointed out, and meeting little opposition in the jungles, made himself master of the lands lying at the feet of the mountain. After a residence of some years, *Parswanath*, the principle object of *Jaina* worship, and the habitant spirit of the mountain, appeared to him in a second dream, revealed to him his satisfaction with his conduct, named a certain pond in the bottom of which would be found an image of himself, and declared that henceforward prostration before the Raja should be a necessary prelude to a favorable reception within the sacred precincts.

The only two seeming supports to this claim to ancient and sacred authority, are the facts that *Parswanath*, the principal *Deota* of the place, was born at *Bheloopoor*, a suburb of *Benares*,* and that the name of the mountain preserved in the *Shastras* of the *Jainas* is *Samet Sekhar*,—circumstances, which the extremely ignorant character of the Raja would scarcely have discovered except from tradition. But the whole fable is upset by the fact that the Zemindar belongs to the *Bhoonya* tribe, and has no claim whatever to the *Rajpoot* titles he gives himself. The general history of the Province will afford a better clue to the mystery of present situation as guardian to the *Jaina* sanctuaries.

* Two of the *Jcind Tirthankars* were born at *Benares*, *Suparswa*, the seventh, and *Parswanath*, the twenty third.

The old Raj of *Kurreekdeea*, the family of which is of high *Brahmana* caste, is the representative of the ancient and probably of the earliest local authority in the Province.* The dependent villages of the zemindary, scattered amongst immeasurable jungles, paid their scanty revenues through such persons of the *Bhoonya*† tribe as possessed the greatest influence or interest in each petty state. During the usurpation of *Khamdar Khan*, the Mahomedan Raja of *Mye*, who forcibly expelled the family of *Moor Narayun Deo* from *Kurreekdeea*, the heads of villages were held responsible for the charge of all the *Ghauts* upon the public roads, and for the safety of travellers and their property. In the course of time the increasing passage of travellers, pilgrims and *Baparies*‡ upon whom they levied a tax in return for safe conduct, improved the *Ghatwals*, and gave them power and privileges, which, when the rightful Raja was restored by the British Government in 1783, procured their independence as separate proprietors under the perpetual settlement. But at a time long antecedent to this, the *Ghatwals* of *Palgunjo* levied a rich harvest from the *Jaina* pilgrims who flocked through that country to their sacred mountain; and it is no inconsistent imagination to suppose that some more cunning Zemindar, profiting by the superstition, should conceive the project of investing himself by some fable adapted to the credulity of the pilgrims, with a sacred right to the revenues which he originally collected by force. This plan, in such conformity with the universal customs of *Hindoos*, must have been aided by the fanatic character of the *Sravaks* or *Jainas* themselves, who will comply with any imposition of penance or sacrifice, even to the mutilation of their bodies, rather than be prevented from completing the duties of pilgrimage when once undertaken.

* As *Behar Proper* was formerly the seat of a *Jaina* dynasty, it is not impossible that this Province, previous to its conquest by the predominant sect, may have been subject to *Jaina* authority. The consecration of mount *Sekhur* renders this more probable.

† The *Bhoonyas* are a singular race of people, who seem to be the aborigines of *Kurreekdeea* and the other provinces above the *Ghauts* in *Behar*. They have nothing in common with the *Hindoos*, by whom they are despised and treated as wild inhabitants of the jungles. Their language contains many signs of a different root, and their only religion consists in a superstitious fear of wild beasts, and of the ghosts of those who have suffered violent deaths, and whom they propitiate with offerings or animal sacrifices.

‡ Travelling merchants, who convey grain and other articles from the *Mofussil* to the great markets in droves of bullocks.

This solution of the mystery seems confirmed by the circumstance that the receipts derived from the nuzzurs of pilgrims are divided between the *Palgunjo* Raja and three other junior branches of the family* who, in days of yore, quarrelling amongst themselves, took forcible possession of other parts of the *elakeh* on the South-side of the mountain: this clearly shews that the revenue is a *Ghautwaly* tax, and not a right attached to sanctity of character. The Raja shews a small image of stone, which he affirms to be that found in the tank by the direction of *Parswanath*; its rude appearance and small size (not being above 8 inches high) clearly betray that it was made at *Palgunjo*, probably by the same person who invented the fable attached to it. In posture it is an imitation of the idols peculiar to the sect, and is not otherwise worthy of description.

There are two images of *Parswanath* in the possession of the Raja, besides this old and rude one; one inscribed with the name of *Bindra-bund Sa*, of *Gwalior*, by whom it was given to the Raja, and another which has been lately sent from *Delhi* by a *Mahajun*, in whose charge the old idol was broken about three years ago, while being carried from *Palgunjo* to *Mudbun*, where the temples stand. The broken image, which is the most beautiful, represents a naked figure sitting cross legged in that attitude of abstract meditation which is peculiar to all the idols of the *Jainas*, with the exception of the gigantic figures of *Gomat Iswar* at *Belligola* and *Kurkul*. It measures one foot three inches high, and is cut out of a single piece of black marble with very fair proportions. Comparing this figure with the plates attached to Mr. Colebrooke's article on the *Jainas*, in the 9th volume of the *Asiatic Researches*, it appears to differ from them in the superior beauty of its form and features, the closed appearance of the eye-lids, two rows of necklaces round the neck, and the *Chuttr* rising over the head from the back of the *tiara* that encircles the brows. The *Chuttr* distinguishes the image of *Parswa* or *Parswanath* from those of the other twenty-three *Tirthankars*, which are otherwise undistinguishable by posture or appearance. It is related in the *Jaina Shastras*, that, in token of approbation for his piety, the deity sent a snake to preserve this

* *Palgunjo* receives 8 annas; *Jerrya* 8 annas and a half; *Nowaghur* 2 annas and a half; *Katras* 2 annas.

favorite saint from the approach of all contaminating things during the period of his *Tapasya*, or abstract devotion; the obedient animal crawling up the neck of the honored devotee, arched his hooded head above his crown, and retained this attitude of protection and watchfulness until the apotheosis of his ward. This is the form represented by the marble image; though it was explained to me that the *Chuttr* is composed of 20 *fun*s or hoods of that species of snake which is known to us by the name of *Cobra di Capello*.

The more ignorant pilgrims, believing that the image of *Parswanath* was found by the Raja at the bottom of a tank, in consequence of a revelation from the god himself, commence their devotions at *Palgunjo* by propitiating the guardian of their *Deota*, and procuring his permission to worship the idol and his charge. Every visitor, of whatever consequence, considers this commencement of his duties absolutely necessary. Arrived at the village, the first proceeding is to settle with the *Dewan* the day and hour at which they can be admitted to the presence of the Raja. This individual himself is one of those many examples of idiocy, to which the ministers of such persons too often intentionally reduce their masters with a view to the usurpation of all authority in their estates. The *Dewan*, at the time of my visit, was an adept in such matters, and persuading both the Raja and his heir, that prayer and ablution were the only occupations becoming a terrestrial representative of the deified saint, had appointed a *Kanojia** *Brahmin* to direct them in these difficult ceremonies. The disciples have too little sense to know one religious system or even ceremony from another, and their tutor appears to have little scruple in giving up his services to an idol, considered by his sect the emblem of disgraceful infidelity, for it is to *Parswanath* that all the adorations are offered. Under these circumstances, it will easily be believed that the preliminary fee to the *Omlah* constitutes the heaviest call upon the pilgrim's purse; tens, hundreds, and thousands of Rupees, according to the means of the individual, are in this manner exacted on pretence of propitiation.

* The *Brahmins* bearing this name have an old reputation for intrigue. See Malcolm's *Malwa*, &c.

The day of ceremony being fixed, the Raja is washed (for he is almost as helpless as the stone image he protects), dressed in his smartest clothes, and his brows adorned with some of the sacred sandal wood. Thus prepared, he sits in state to receive the pilgrims in the small courtyard of his house, when the devotees spread before him their *nuzzurs* in money and offerings of fruit. The Raja, having approved the presentation, holds out his right foot to every pilgrim in turn who, having touched his hand and eyes with it, washes the great toe, and pours the abluent water over his own shoulders.* This done, the pilgrim begs the Raja's blessing upon himself and train, a boon which is granted towards every living thing in the caravan of devotees, the Raja repeating "*Soobh Sahib, Soobh Ghora*" until every goat and dog of the procession has received the blessing of fruitfulness. The pilgrims are then permitted to carry away the idol for their private adorations.

From *Palgunjo* the *Jainas* proceed three koss farther to the village of *Mudbun* at the foot of mount *Parusnath*, and as this was my own route, I will endeavour to describe the approach to that noble pile of earth.

The wild scenery which had so excited me between *Kurreekdeea* and *Palgunjo*, assumed a still grander scale after leaving the latter place. The region of plains ended as I rode up a steep path between two small hills about a mile from the last station of my tents, and from that time I did not traverse a furlong of level ground in one situation, until entering another pergunnah after a march of several days. Hills, sometimes crowned with threatening rocks, but more frequently covered to the summit with high jungle, rose on all sides, the stupendous bosom of *Parusnath* perpetually frowning above them, and throwing their heights into insignificance. The road was sufficiently good for horse or elephant even without the extensive destruction of trees on either side, to which the notice of my coming had given occasion. Some-

* A *Jaina Muhajan* at *Gayah*, with whom I conversed, strenuously denied that this humiliating ceremony took place; but a native whom I sent to take down the inscriptions on the images, saw it performed. Perhaps the Raja's people only impose it upon the most ignorant of the Devotees, no notice is taken of any such practice by the intelligent *Jain* whose journey via *Parusnath* to *Gayah*, is published in our monthly series, vol. 1, p. 769.

times it ascended a sheltered *Ghaut*; sometimes it swept along a spacious valley; and sometimes winding round the side of a higher hill, it gave me a distant view of the many little mountains, the perpetual forest and the few peeping villages that lay between me and the monarch mountain I approached. But on whichever side I looked, I could fancy the lurking place of the tiger or the hyena; and the magnificent scale of the desert scene seemed indeed a fit dominion for the most powerful of savage animals. I beat the bushes and the long grass in vain for smaller game; it was a jungle for wild beasts alone — the patches of long grass seemed the prepared bed of the tiger, and the frequent openings which widened into glades along the forests afforded fine pasture and play grounds for the *Saamar* and *Neelgay*. It was a kind of jungle through which, if alone, a man prefers to travel on an elephant to horse-back; so changing from my saddle to my howdah, and loading my gun with ball, I sought to surprize some monster in the midst of his cover; but the clearance of the road, which had been effected by large parties of woodmen, seemed to have driven all wild animals to a distance.

After about two hours leisurely marching, I ascended a small hill, from the top of which a view opened suddenly upon my sight for which I was very little prepared. A panorama, extending far to the East and West, lay before me; nothing impeded my marking the very line at which the pediment of *Parusnath* rose out of the earth; and there, about three miles before me, snugly immersed in the midst of rounded banyan and mango trees, under the very pedestal of the mountain, a collection of brilliantly white temples, with their pointed cupolas, were brightly glittering in the sun. Since I left Europe I had seen nothing so picturesque as this singular landscape. The contrast of these graceful buildings, with the deep color of the foliage, the huge shadows of the mountain, and the desert scene all round, gave a novelty to the combinations of the landscape, indescribable by any comparisons with other views that I can remember. Then indeed that noble pile of hills, revealed in all its grandeur to my sight, looked like a gigantic monarch sitting in state, and surveying the surrounding wide space of his dominions. A lower ridge of the mass, projecting so far beyond the highest pile, that its peak, rising behind, looked like a separate mountain, afforded a singular

resemblance to the sitting posture of a giant ; and under this stupendous figure the white and shining temples might not unaptly be compared to minute and beautiful toys of ivory, brought as offerings by his subjects, and laid at the feet of the deity. But his mighty eye, veiled in the clouds of heaven, seemed to take little notice of such diminutive objects.

From the point of view at which these temples first appeared in sight, until I entered the village of *Mudbun*, which they nearly join, the various turnings in the road gave them in the landscape a position constantly changing and beautiful. As I approached nearer and nearer, a new building seemed to start up at every turn, either from behind a clump of trees, or from the white collection that had seemed to compose one pile ; and it was not till I stood by the ditch that encircles them, that I could definitely make out the walls and enclosures dividing off each range of buildings. From this position I counted four separate temples with their handsome *Nowbut Khanas*, gateways and out-houses. The gardens and fine trees that lay between each, and the long walls that enclosed large yards around each *mutth*, gave the whole the appearance of a beautiful palace ; but that the silence of the picturesque scene seemed more in character with a place of holiness. The buildings were almost tenantless, and nothing caught my ear save the melodious notes of the *koel*, and the cries of the paroquets that flew from cupola to cupola and from *dund* to *dund*.* One fine bush of jasmine (brought originally from *Hazaribaugh*) perfumed the court of the largest temple, and there was on all sides a profusion of those yellow and pink flowers which are commonly offered at every Hindoo shrine. I have stood in the principal *Shiwala* at *Benares*, and in the temple of *Vishnoo* at *Gayah* ; but I have never seen, and I scarcely suppose that *India* can contain a place of consecration whose peace and beauty are so imposing as this.

The temple, the idol in which bears the oldest date of consecration, although the edifice does not exhibit the greatest signs of age, is a handsome building of brick, freshly chunamed and whitewashed every

* *Dund* is the little steeple that generally rises out of the cupola of every Hindoo temple, adorned with golden balls and sometimes bells, but always terminating in a sharp point.

year. It is ornamented with a plain cupola, (or *sikhur*,) with four *Jhimkees*, or little turrets, with roofs like bells at the corners, and a *dund** or steeple, from the top of which several little brazen bells blew about and rang in the wind. The centre chamber of this temple contains two idols of *Parswanath*; one of brass, the other of white marble, both of the same form. A Sanscrit inscription at the foot of the images announces the year of their being placed in the shrine. "*Ast' hapit Shoogul Chund and Hosheal Chund, Sumbut 1825*" (A. D. 1768.) This is called the *Punchayty Mundir*, as it is in the charge of, and its repairs kept up by the *Mahajans* of *Moorshedabad*, heirs of the consecrators. The court-yard is surrounded with roomy galleries for the accommodation of pilgrims.

Adjoining this temple on the Southern side, and more under shelter of the mountain, stands the *Mundir*, which, from its appearance, is evidently the oldest of the set; for though the dates engraven on the pedestals of the idols are more modern, the architecture is less ornamental, and the interior of the building more dirty and decayed than any of the others. The appearance of this building may partly be occasioned by want of attention on the part of its distant guardian, but the beams and the walls bore certain marks of age as well as of ill repair. Although possessing no claims to great antiquity, it is without doubt the oldest of the *Jaina* sanctuaries at *Mudbun*. It contains two handsome images, both of *Parswanath*; one in black marble, in which is inscribed in Sanscrit letters, "*Ast' hapit Jynundhur Bhookun Tirth' ankar, Sumbut 1871.*" (A. D. 1814) the other of white marble, with an inscription bearing the name of *Heera Lall*, of *Patna*, Sumbut 1881, (A. D. 1824). The *Jaina* who placed the former image in this sanctuary, and who calls himself a *Tirthankar*, lives at *Gwalior*, and was described to me, by some of the pilgrims of the season as the head pundit of the sect;† the temple is called his, and a *Chela*, who resides in the sanctuary on his part, was the only *Jaina* resident at *Mudbun*—he was, however, extremely ignorant, and could not even assist me in discovering the

* The common name is *Kulus*. I use that which was used to me by a *Jaina*.

† Some intelligent *Jainas* of *Benares* and *Gayah*, with whom I communicated, deny the pretensions of this person to be a *Tirthankar*, and did not make him higher than other Pundits or *Yatis*.

names of the *Tirthankars* to whom the buildings are dedicated on the peaks of the mountain. As the word *Ast' hapit* (installation) clearly relates to the placing of the idols in the several shrines, the actual dates of the buildings cannot be ascertained; but except in the case of this temple, there is no reason to believe that the consecration could have taken place long after the erections were completed.

The third temple belongs to the *Digumbara* Jainas*; it is less high and less ornamented than the first I noticed, but it is a handsome building, with a square pediment and cupola preserved perfectly clean and white. It contains two idols, one of *Neminath*,† the 21st of the *Tirthankars*, and the other of *Pushpadunta*, the 9th of the *Tirthankars*. The Sanscrit letters on each image announce their consecrator, "*ast' hapit Roopchund Juggut Sét, Sumbut 1873*" (A. D. 1816) the repairs of the sanctuary are at the expense of *Indurchund Sét*, a *Mahajan* of *Moorshedabad*.

A fourth *Mundir*, commenced about three years ago, is still building under the charge of the *Punchayt* of *Moorshedabad* merchants, to whom the first temple belongs, and on which work the contributions of pilgrims are bestowed. This new edifice is on a larger scale, and in a more ornamental style of architecture than the rest, and already presents a very beautiful appearance. The body of the building consists of two stories, the upper of which, being smaller than that on which it stands, is surrounded by a broad gallery, with a balustrade and *Jhimkees*, or bell turrets, at the corners. On the second tier stands the pediment of the cupola, ornamented with arches on the sides, in the same fashion as the lower ranges of buildings. The *dome* is yet unfinished, and had no steeple when I saw it. The whole edifice stands in the centre of a large square court, on the Eastern side of which is a very elegant *Nowbut Khana*, with an arched gateway below

* The *Jainas* have two controversial sects, the *Swetambaras*, who adorn their idols and perform their ceremonies in their ordinary dress, and the *Digambaras*, whose *Mooruts* are unclothed, and who perform their devotions in a similar state.

† This *Tirthankar* seems to be a favorite *Deota* with the *Digambaras*—that sect have dedicated a steeple to him at *Benares*. The image of *Pushpadunta* in this temple is the largest of all the idols—it is about 5 feet high in its sitting posture.

and apartments above. The scarlet purdahs hanging before the open gallery of this building, and contrasted with the brilliant white color of its walls, afforded a most rich combination to the eye at a distance. This temple has not yet been consecrated, and although 32,000 Rs. have been spent upon it, 10,000 more are required to finish the work.

The fashion of these temples is unlike that of any *Jaina* remains in the South or West of Hindustan, of which I have either seen representations or read descriptions. They bear a composite resemblance both to Hindoo *Mutths* and Mahomedan *Mosques*; the *Nowbut Khanas*, balustrades and bell turrets are of the latter style, while the cupolas* and arches are the same as are common in Hindoo architecture. It seems as if the workmen, who in this remote place, so far distant from their employers, had been left to consult their own tastes, considered that the *Jainas*, as belonging to neither of the principal religions of India, should construct their sanctuaries after a style different from the buildings of both people; but their fancies, not being able to hit upon a new fashion, could only produce variety by combining peculiarities from each of the old tastes of architecture. What observations were excited by the want of antiquity in the temples of *Mudbun*, or of ruins in the neighbourhood, I will reserve till I have described the rest of the sacred erections on the top of the mountain.

The preparations for ascending the steep sides of *Parusnath* reminded me in some degree of similar expeditions in the land of the *Alps*. During the Fussly months of *Maugh* and *Poos*, when the pilgrims resort to this place from all parts of *India*, all the bearers of the neighbourhood flock to *Mudbun*, and charge monopoly prices for carrying the *Jaina* devotees to the summit of the mountain in small light *doolies* made for the purpose. One of these swinging seats was prepared for me, and as the distance to the top was estimated at three koss, and I had often fatally experienced the length of these measurements in *Kurreekdeea*; moreover, not entertaining too vain an idea of my own climbing powers at the beginning of the cold season, I was not sorry to engage this vehicle, however ill-adapted to European limbs.

* In the better *Brahmana* temples the cupolas are covered over with *Sooras* (or small Pilasters,) which those of the *Jainas* have not.

As soon as the day dawned, with the refreshing air of a November morning amongst the hills, I started from my tent, and in a few minutes reached the gorge of the path which begins steeply to rise at a very few yards distance from the oldest of the temples, through the courtyard of which the only road passes. At the very commencement of the ascent a foliage peculiar to the mountain enclosed the pathway; magnificent *Sukooa* trees shooting up their tall stems on either side, intertwined their thick shading branches over our heads; and at this early hour, the darkness of the forest passage and the steepness of the stony road, made it appear as if excavated beneath the surface of the hill. It continued the same as I proceeded on, except that the increasing light of day enabled my eye to pierce the surrounding forest, and to look with awe upon one of the most magnificent solitudes of *India*. Not until this moment had any of the jungles through which I had passed completely reminded me of the woods of Europe; here, however, the *Sukooa* boughs towered above me with gigantic grandeur. In the plains this tree, though it bears a handsome foliage, seldom showed itself to me of a greater height than thirty or forty feet; but those of *Parusnath* display a straight clean stem of at least 50 or 60 feet before the branches shoot out in bold arches from the trunk, and I measured several that were upwards of three yards in circumference within the reach of a man.*

But if the size and foliage of these trees reminded me of European forests, there was one characteristic in the *Indian* wilderness with which the woods of the West and North have no analogy. I allude to the innumerable varieties of creepers of the thinnest fibre, and of the

* This wood was described to me as being the least subject to white ants of all Indian timber; if so, the value of such large trees in the timber yards of Calcutta would be very great. Were it an object, the transportation of the wood would be a matter of no great difficulty or expense. At a distance of about 5 koss from the mountain runs the *Burpakur Nuddy*, which joins the *Dumooda* at *Pachete*, and thus communicates with the *Hooghly*. Both of the former rivers are torrent streams, which swelling prodigiously in the rains, would carry logs of timber, thrown into them, in less than 10 days from *Palgunjo* to *Burdwan*. Wood is transported in this manner from the jungles of *Ramghur* to *Gayah* by much smaller streams. The only difficulty in the scheme would be suggested by the *Jainas*, who, in their fanatical respect for every kind of life, regard the felling of a tree in the same light as a human murder.

most gigantic sinews, which bind the boughs and branches of every tree with a magnificent species of net. There are some fine specimens of these curious productions of a tropical soil in the Botanical Gardens on the *Hooghly*, but the largest of those are small in comparison with the creeping chains, that seem to bind down the woody mantle of *Parusnath*. The variety of their appearance is inexhaustible; sometimes they hung in beautiful festoons from branch to branch; sometimes their thick stems encircled the trunks of the trees like crushing snakes, yet darting out harmless limbs from above, that inclosed a thousand giants of the forest in one embrace; sometimes they fell from high branches to the ground, twisting into the most complicated knots by the way; and sometimes they covered the crowns of the fine trees with a hood of beautiful flowers, that made a complete arbour beneath. The confused spreading of their curious stems struck me as resembling nothing so much as the rigging of a Man of War after a wreck or a battle, when cables, stays, braces and ropes, of every size, hang about in twisted confusion from the broken masts.

I had presently an opportunity of remarking how extensively the creepers spread through the forest. The only living creature that I saw on the mountain was pointed out to me at a great height above me on the broad arm of a *Sukooa* tree; it was an animal something like a fox, but larger, of a redder color and longer hair. I knew not what it was, until my native attendants called it a *Kahil*,* a name from which I supposed that it belonged to the species called in England the *Sloth*. On hearing our voices he hid himself behind the leaves; but on my firing a ball at him unsuccessfully, he belied his inactive title by running with excessive speed along the thick cables of the creepers until he reached his hollow home in the trunk of a tree at a great distance.

The road by which I was ascending, in the meanwhile, was a regular pathway cut through the woods, generally very steep, except where, after surmounting the first ridge of hill, I walked over a short space of even ground until the second and principal rise. The forest continued the same, and openings were rarely afforded to show how the horizon of the plains below gradually extended, and how the

* A Persian adjective for Lazy—Slothful.

molehills, which I had thought mountains as I marched among them, mingled with the prodigious mass until they became no longer discernible from the valleys. I was surprised to find, where I had expected to discover traces of iron ore, that the earth on which I trod consisted of a rich black mould that would be invaluable to the flower beds at Garden Reach. Immediately under the craggy peaks at the top of the mountain, the same soil is spread around, and I could nowhere see those projecting and confused rocks which are signs of the volcanic motions of the earth. To this soil may be attributed the exuberance which the mountain trees attain.

In the course of the ascent, I four times crossed streams of falling water. The two first, which are the same torrent, composed of the united waters of *Seeta Nuddy* and *Gundrup Nuddy*, fell with considerable force when I passed, and the breadth of their rocky beds showed to what height they occasionally swelled. Though there is no high shoot of the streams, they are both picturesque. The strength of the torrent during the rainy season, has worn out a deep ravine, and washed the earth from the crowns of the blue rocks, while the banks are strewn with the falling and fallen trees that every rise of the waters brings down, and the dark canopy of those which remain standing in all their grandeur casting a gloomy shade on the noisy and rapid waters, send back an echo to their solitary murmurs. Both the original streams that form the principal torrent were described to me as issuing each from a large cave, yawning on the side of the mountain. Their courses have been traced, and these sources discovered (as I was told), by some of those poor wretches of the villages below, who in seasons of distress and scarcity are reduced to the necessity of seeking a subsistence from the nutritious leaves and plants the jungles afford. Comparing such a necessity with the stupendous solitude of this wilderness, the completest picture of human misery seemed brought to my fancy. It made me shudder to imagine the emaciated forms of *Indian* mendicants, tottering alone up the courses of these mountain torrents, and gathering a bare sustenance from the wild bushes that grow in a place where, if there is any living creature, it can only be the fiercest animal that the world contains. This melancholy imagination would not leave my mind during the rest of my expedition.

The water in these mountain streams, though clear and beautiful in appearance, bears a very bad character with the village inhabitants, who will not even taste it in the plains; its evil qualities are ascribed to the number of poisonous as well as nutritious herbs over which it sweeps in its current to the foot of the hill. I tasted a few mouthfuls, and felt no unpleasant effects. I was curious to trace the greater of these rivers to its source, but it would have incurred a longer way of winding than I could spare time to undertake.

On the near bank of *Seeta Nuddy*, the last stream, there are two small *Mutths*, one on either side of the road. In the largest of these, which is raised on a small *Chaboot*, and more resembles a Mahomedan tomb than a Hindoo *Mundir*, there is a small recess containing three little images of *Parswanath*, with this inscription underneath; "*Ast' hapit Indurchund-Sét*, Sumbut 1877," (A. D. 1820). The building, however, is said to have been constructed by a *Jaina* lady, whose name is now forgotten, many years earlier than this inscription announces. Here I took a short rest and a snack on milk and cold snipe, bagged from the rice fields of *Palgunjo*; I can recommend a similar refreshment on similar expeditions.

I had now come two long koss of continual ascent, and one koss still remained to the summit. Having used my own legs the greater part of this way, I was glad to bestraddle the *dooly*, though far from being a seat of ease. It was too short to admit my head below the pole from which it hung, and too small to receive my feet, which as they hung below, it was a matter of much difficulty to preserve from the sharp stones over which the bearers had now to climb. The path became now extremely steep, yet still it was not till within a few paces from the top, that losing the grand foliage which arched over my head, my eye could wander uninterrupted over the Northern plain that now lay like a map before me. A few more efforts—the bearers start into a trot, and I am set down on the *Chaboot* of a *Mutth* standing on the very ridge of mount *Parusnath*.

From the bottom of the mountain to this point it took me three hours and forty minutes to ascend, including the few moments occupied in my breakfast, which were counterbalanced by the short spaces of

level path over which the bearers were enabled to run. As I had no other means of judging of the mountain's height than from the time it took me to reach the summit, I compared this expedition with some notices in my old journal of a tour through Switzerland. The *Righi* which I was less than three hours ascending on foot, is stated to be 5,676 feet above the level of the sea, and 4,356 feet above the surface of the lake of *Lucerne* which laves its feet. But the road up the *Swiss* mountain is a more gradual rise than that up *Parusnath*; so that on a rough calculation, I supposed myself standing at a height about 4,800 feet from the plain below, and the highest peak still towered at least 300 feet above that point of the ridge at which the path arrives. At a distance the *Indian* mountain appears much higher than the *Swiss Berg* I have mentioned; but the flatness of the country, or the insignificance of the hills that surround the former, must render all estimates so calculated most delusive.

Now that I am standing on the highest point of land in *Bengal* or *Behar* (excepting only the few higher peaks of the mountain to whose ridge I have ascended), let me pause for a few moments to look around. My position is nearly central on the line of ridge, and to my right and left, the West and East, a perspective of mountain pinnacles, of which my eye cannot discover the last, protrudes before the blue horizon and prevents my panoramic prospect from being complete. On every shooting peak, and almost on every projecting mound on the slanting ascents, stands a small square *Mutth*, newly white-washed to a color more brilliant than that of the small summer clouds that sometimes touch their heads. These numerous erections, though small and rough, are superb marks of the industry of man holding their quiet place among the clouds, and ever catching the unmantled rays of the sun; they are enshrined in greater glory than the most magnificent buildings on the plains around. Yet notwithstanding their brightness, so great is the height of their stations, that none of these *Mutths* or *Tooks* (as they are called by the *Jainas*) are discernible from the roads or villages about; and I had no conception of the singular scene which I was approaching, until from about midway in the ascent I beheld a few white specks perched like birds, on the nearest points of the mountain.

But what is the extent to which the eye can range from the summit? and what are the most prominent objects in the plains below? Neither questions can be accurately answered—for that thick haze which perpetually hangs over an *Indian* landscape, until weighed down to the earth by showers or dispersed by wind, wrapped up the whole horizon in a misty veil, which, perhaps, tended to magnify in fancy the extent it really concealed. An immense map lies before me to the North and to the South, on which the prodigious jungles are painted in large black patches, covering at least nine-tenths of the spaces; the smaller circles of cultivation are marked in lighter colors, and the long paths connecting them, look like white lines drawn with a pen upon the spreading shades that mark the impenetrable forests. The shining sandy beds of three rivers,—the *Burrakur* to the North, and the *Damoodah* and *Jumna* to the South winding along the plains, look like the veins of the sleeping earth, till all uniting far to the East, they formed one large and vital artery. It is almost in vain I look for the site of villages; the thatch is indiscernible from the cleared lands, and in no places are they collected together in any conspicuous group.

Thus gazing down from a height which levelled the hills with the plains, it is difficult to believe that my march to the foot of *Parusnath* had been through a mountainous country. A few diminutive mounds are scattered about the province of *Pachete*, and look as if they had been rolled down to the places they now fill from the height on which I stand. The directions of *Bancoora* and *Burdwan* are pointed out to me towards the East, but their walls enveloped in the universal haze, are indistinguishable. The outline of the *Sillee* mountains between *Chota Nagpore* and the South of *Pachete*, is faintly discerned in the mist, and in other parts of the horizon single hills are dimly seen standing like shadowy sentinels over the land. The highest pinnacle of *Parusnath*, bearing the *Churun* and *Mutth* of that *Tirthankar*, obtrudes between me and the site of *Huzaribaugh*, and the ascent is too steep and long to tempt me to climb for so trifling an object.

For beauty the panorama around me was far inferior to similar prospects in Europe; but there was a striking grandeur in the circumjacent wilderness, wrapt up in its veil of mist, and a singular emblem of

devoted industry on the points of the mountain, where sacred spirits were supposed to dwell, that invested the whole scene with an awful interest, more strange, though not so pleasing, as those sensations which an European prospect of the same kind would excite.

- About three quarters of a mile on the Southern descent from the first *Mutth* at which I arrived, and snugly sheltered from the Northern and Western storms, stands the principal and the most beautiful of all the *Jaina* temples in this neighbourhood. The same observation that I had made regarding the mixture of Musselman and Hindoo architecture in the temples of *Mudbun* will apply to this *Mundir*, which, as I descended through the thick jungle upon it, looked more like a Mahomedan *Durgah*, than a building belonging to the original people of *Hindustan*. The pediment and body of the temple were ornamented with arched entrances between single pillars, such as are common in the larger houses of the Hindoos; but above this all was in Mahomedan fashion. Five handsome fluted *domes*, one large one in the centre, surrounded with four small ones, each forming the roof of a corresponding apartment, seemed too heavy a crown for the edifice from which they rose. These *domes* were well ornamented, and were pointed with those spires composed of golden or brazen balls, and ending in arrow heads, which are generally to be seen shooting out of the tops of minarets. The four sides of the building are alike, but to mark the principal approach, a large *Chabootr* lies in front of the Eastern archways.

On entering the centre and holy chamber of this temple, it is impossible to avoid being impressed with the simple beauty of the place. The pavement is composed of fine slabs of blue veined marble, and on a white marble pediment opposite to the entrance, five very beautiful idols of the *Jaina Tirthankars* sit in dignity waiting for the prayers of their disciples, which are rendered more deep toned by the echoing influence of the *dome* that forms the ceiling of the sanctuary. The centre figure, which represents *Parswanath* in the same attitude as that which is at *Palgunjo* is cut out of a beautiful piece of black marble;* it measures between 3 and 4 feet high, as sitting, and is a remarkably graceful idol, in

* Most of the images of *Parswanath* are in black marble; probably because he is described as being of a blue complexion in the *Jaina Shastras* black marble being more consonant with this color than white.

full preservation. The other four are about 2 feet and a half high each; all of them of white marble, and one of them wearing the same *phun* or *chuttr*, which adorns the head of the central image, as the peculiar ornament of *Parswanath*. On the pedestal of each Moorut, the same Sanscrit inscription appears. “*Ast’ hapit Shoogul Chund Juggut Sét, Sumbut 1822*” (A. D. 1765.) The consecrator appearing the same as he whose name I found in the first temple at *Mudbun*, but the date of consecration being three years earlier.

The chamber which constitutes this sanctuary, is about 20 feet square, and between 30 and 40 high to the centre of the *dome*. There are no ornaments beyond those I have described, but the marble pavement, pedestal and idols are the handsomer, for being unadorned. Of the four smaller apartments at the corners, two remain empty, and the other two contain each seventeen idols of all sizes, (but all of the *Jaina* form and posture) ranged along a ledge in the wall. These appear to have been left at will by any pilgrims who may have been anxious to consecrate their household gods at the shrine of *Parswanath*.

I have never visited in *India* a more impressive place of worship; and when it is remembered that it stands near the summit of the highest mountain in this part of *Hindustan*, and that it remains deserted and exposed during nearly ten months out of the twelve, the “Genius of the place” adds a thousand new reflections to the lofty associations which the shrine itself excites. This exalted solitude was indeed a fit scene for abstracting the mind from all worldly ties and contaminations, and that such was the origin of these consecrations and pilgrimages, I cannot doubt. Probably the very spot on which this temple now stands, was once the site of the hut of *Parswanath* when he lived and died a recluse.* This idea receives confirmation from the sheltered situation in which it stands. It would have been the first impulse in the founder, had his motive been that of propitiating the deity, to erect his edifice in some spot of table land along the ridge; there is nothing in the

* There are many hills in the district to which mount *Parusnath* belongs, (*Ramghur*), on the summits of which *Hindu Fukeers* dedicate themselves to seclusion from the world. I mounted one called the *Koolwa puhar*, on the same range as the *Danghye Pass*, which a recluse of this kind, has made the resort of the devout from the neighbouring pergunnahs.

secluded nook, in which the temple stands, to attract the eye of an architect as a convenient station for a large building, but it is exactly such a place as the hermit would select for his hut in shelter from the Northern and Western blasts. Though I could find no vestiges of ruin about, I was told that the same station had held a temple before this modern one was erected by the *Juggut-Sét* of *Moorshedabad*. The labor of carrying large blocks of marble to the summit of the mountain, sufficiently indicates the zeal and perseverance of the enthusiastic *Jainas*.

I have described the singular appearance of the small white erections which adorn the pinnacles of the mountain: these are twenty in number, called by the neighbouring inhabitants *Goomtees*, by the pilgrims and other *Jainas* with whom I conversed, *Chibootrs* or *Tooks*. As there are not so many actual peaks, many of these buildings stand in less conspicuous points of the ridge: none of the pinnacles, however, which at a distance look like arrows aimed at the sky, are without this stamp of human industry; and it was to me, as I looked at some of the steep places, a matter of astonishment that brick-layers could have pursued their labors on such dangerous eminences. On the day I mounted the hill, although the breeze was gentle in the valleys below, there was a stormy wind on the summit, against which I was glad to shelter myself behind the *goomtee* that stands by the side of the path or under the lee-ward brow of the mountain.

Each *goomtee* is a solid pile of brickwork, varying in height and size according to the facility its station afforded to the builders—the largest does not exceed eight feet in height, and the same in length and breadth; some appeared not to be larger than one-fourth of these dimensions. In each of these buildings is a small recess, on the flat of which is marked the print of a foot, revered as the *churun* (or last footmark upon earth) of the *Tirthankar*, whose name is engraved beneath. Upon every *goomtee* near the *churun* an inscription certifies the date of its consecration, "*Ast' hapit Shoogul Chund Juggut-Sét, Maugh Soodit, Tirotsi, Sumbut 1825*"—the 13th day of the second half (or the 28th day) of the month of Maugh, 1825, Sumbut, (A. D. 1768.)

I should here state (as all my readers may not be equally conver-

deists, record that, in the beginning of the Ara, or age, which is now passing away, there were 24 *Tirthankars*, or holy teachers, who all arrived at the third or highest sanctification, attaining *Sayajya*, or union with God. These *Gooroos* have now become the *Deotas* of this sect, and the mode of worship by abstracting the soul in meditation upon the divine nature, which they taught, has relapsed into an idolatrous veneration for them; a gradation which the history of mankind proves to be the universally natural process of superstition.

An account of these *Tirthankars* may be seen in Mr. Colebrooke's Essay on the *Jainas*, in the 9th volume of the Asiatic Researches for Bengal, (p. 304, &c.); but it is necessary here to recapitulate their names, and in doing so, I shall subjoin the places of their nativities, deaths, and consecration, which is not given of all in the paper alluded to.*

1. *Adinath†* or *Rishabhanath*; born at *Ajodhya* or *Oude*, and died at *Mount Ashtapud*, in *Guzerat*.

2. *Ajeetnath*; born also in *Oude*; he underwent his *mooch†* or apotheosis at *Mount Samet Seekhar*; accordingly his *churun* is consecrated in the *goomtee*, which is the second from the Westward.

3. *Sambhoonath*, born at *Sawunta*, and ascended to Heaven from *mount Seekhar*; his footprint appears on the 19th *goomtee* from the West extremity of the mountain ridge.

4. *Abhinandunnath*; born in *Oude*, and died at *mount Seekhar*; his *churun* is imprinted in the 20th *goomtee* on *mount Parusnath*.

5. *Soomutnath*, born also in *Oude*, and underwent his apotheosis at *Mount Seekhar*, leaving the mark of his foot where the 6th *Took* stands.

* This information was obtained from a relation of the *Jaina Juggut Set* at *Moorshe-dabad*, the particular positions of the *Goomtees* were explained by pilgrims and more intelligent *Mahajuns* of *Gayah*.

† *Nath* is a title of honor.

‡ There are five stages in the life of every *Tirthankar*; 1 *Gurbha*, or conception; 2 *Junm*, or birth; 3 *Ditcha*, or abandonment of the world; 4 *Gyana*, or commencement of divine abstraction; 5 *Mooch*, or death and apotheosis.

6. *Pudmapur bhoonath*; born at a city called *Koosumbee* and died on *Mount Seekhar*, where the last print of his foot appears in the 14th *goomtee*.

7. *Superswanath*; born at *Benares* and ascended to Heaven from the position of the 4th of the modern *Mutths* on *Mount Seekhar*.

8. *Chunderpurbhoo*; born at *Chundreepoor*; his *churun* appears in the 16th *goomtee*.

9. *Suvidh'nath* or *Pushpadunta*; born at *Kakunderpoory* and died at *Mount Seekhar*; his footprint is consecrated in the 6th *goomtee*.

10. *Seetabnath*; born at *Bhudulpoor*; the commemoration of his *mooch* is in the 18th *goomtee* of *Mount Seekhar*.

11. *Sree Unsnath*; born at *Sindh*; died on *Mount Seekhar*, and left his footmark in the 12th *goomtee*.

12. *Basoopujya*; born at *Chumpapoory*, where also he died, and underwent his apotheosis. This village is a short distance to the West of *Bagelpoor*, where there is a temple dedicated to this *Tirthankar*.

13. *Beemulnath*; born at *Kumpalapoor*, and died on *Mount Seekhar* where his *churun* is marked on the 3rd *goomtee*.

14. *Anuntnath*; born in *Oude* and ascended to Heaven from *Mount Seekhar*; his footprint appears in the 17th *Took*.

15. *Durmanath*; born at *Rattenpoory*,* died at *Mount Seekhar*, where his *churun* is consecrated on the 7th peak of the mountain.

16. *Suntnath*; born at *Hustanapoor* (near the modern *Delhi*) and underwent his apotheosis at *Mount Seekhar*, as is commemorated by the 5th *goomtee*.

17. *Koonthnath*; born at *Hastanapoor*, and died on this mountain; the largest *Mutth* close on the side of the path where it reaches the ridge, is appropriated to this *Tirthankar*, being the 8th from the Westward end.

* A city in the territories of *Nagpoor*.

18. *Aranath*; born also at *Hustanapoor*; he underwent his *mooch* at Mount *Seekhar*, as is commemorated by the 18th *goomtee*.

19. *Mullinath*; born at *Mithila*,* and died at Mount *Seekhar*; his footprint appears in the 11th *Took*.

20. *Munisuvrata*; born at *Rajgeer*, an ancient *Jaina* city, the ruins of which still remain a short distance to the West of the city of *Behar* in the zillah of that name. This *Tirthankar* went to seclude himself on Mount *Seekhar* where he died, and his last touch on earth is consecrated in the 15th *goomtee*.

21. *Neminath*; born at *Mithila*, and died on this mountain, where the 9th *goomtee* marks the place of his flight from earth to Heaven.

22. *Naminath*; born at *Dwarka*† in the West of India, and finished his life of ministry and seclusion in Mount *Girinara*, in the province of *Kattiwar*. The place of his consecration is held very sacred by *Jaina* pilgrims.‡ There is a temple to this *Gooroo* at *Benares*, built by the *Dajumbaras*, with whom he seems to be a favorite *Deota*.

23. *Parusnath*; born at *Bheloopoor*, a suburb of *Benares*, where a temple is dedicated to him. This *Tirthankar* retired from the world to Mount *Seekhar*, where he died, and that mountain has ever since been known by his name, either because he was the last of the *Jaina* Saints who made this solitude the scene of his sanctification, or because he is remembered and propitiated as the most holy of the *Jaina* Prophets. Accordingly the highest of the mountain pinnacles, being that farthest westward, holds the *goomtee* in which the *churun* of this *Tirthankar* is to be found.

24. *Vardhamana* or *Muhabeer Swami*; born at *Chitr-koot*§ and died at *Pawapoory*, at the place where he had retired from the world.

* *Mithila* is the ancient name of *Tirhoot*.

† A city in *Guzerat*.

‡ An article in the *Bombay Asiatic Society's Transactions*, by Lieutenant Macmurdo, giving an account of the province of *Kuttewar*, contains some notices of the temples at Mount *Girinara*. I have no means of referring to the original memoir at present.

§ *Chitr-koot* is an ancient city of *Bundelkund*, which is resorted to as a sacred place by *Brahmana* Hindoos as well as by *Jainas*.

Pawapoory, adjoining to *Rajgeer*, near *Behar*, now contains the temple of this *Tirthankar*.

In this list the twenty *goomtees* on the peaks of Mount *Parusnath*, formerly Mount *Seekhar*, and the account of them as given me by the pilgrims, are found to correspond with the catalogue contained in the *Kalpa Pootra*, from which the above particulars are originally extracted. All the *Jaina Tirthankars*, except four, *Rishabhanath*, *Basoopujya*, *Neminath* and *Verdhamana*, are said to have chosen this remote mountain as the scene of their seclusion, which was probably the act that led to their celebrity and sanctification.

The countries in which the *Tirthankars* are described to have been born, present perhaps the best attainable evidence regarding the situations of the early dynasties of this sect, if dynasties they possessed; or if not of their most ancient residences as a people. Four out of the five first saints were born in *Oude*; various cities in the *Dekhan* appear to have afterwards been the most frequent scenes of their early careers, then the provinces in the North-west of *Hindustan*, and finally the centre of *Behar* and *Boglipoor*, contain marks of their subsequent dominion. Mount *Seekhar*, with its magnificent pedestal and bold peaks, must have been visible from the pergunnahs of the last kingdom, and perhaps constituted its southern boundary; but it is not easy to conjecture how the enthusiasts of *Oude* were led to select this distant mountain as the place of their sanctification.* *Rajgeer*, or as Mr. Colebrooke calls it in his paper on the *Jainas*, *Rajgriha*, is related to have been the seat of a powerful kingdom, and contains sufficient marks to confirm this fact; the few *Jainas* who are now to be found in those parts, divide their greatest veneration between *Vardhamana* and *Parswanath*, the former of whom they believe to have been the son of the monarch, whose capital was at *Pawapoory*. It is a singular circumstance, that the same part of India (*Behar*) which contains so many consecrated statues of this sect, is scattered over with so many ruins of *Buddha* antiquities,—the last, however, have been defaced by the iron heel of persecution, while the former are standing entire and adorn the most remote valleys and hills with their beautiful, yet simple buildings.

* The stubborn soil and stupendous jungles around this mountain forbid my supposing that populous cities could have ever encompassed its base.

• The speculations into which I was inclined to indulge as to whether the erections on the pinnacles of the mountain should be referred to an earlier time than that recorded in their inscriptions, or whether they were first built in the Sumbut year 1825, were set at rest by a communication with a near relative of *Shoogul Chund* whose name they bear, and who claimed no greater merit for the *Juggut Sét*, than that of having repaired older memorials which had fallen into decay. The practice of constantly, nay yearly, repairing and cleansing these buildings, though an admirable act of piety, effectually disappoints all research ; for he who raises a new edifice on the remains of old ones, thinks himself entitled to obliterate the name of the founder, and to stamp the modern buildings with his own. All agree that on the sites of the principal temple above and the picturesque *Mundir* at *Mudban*, sanctuaries stood before those which have been raised within the last 60 years, but the antiquarian looks in vain for traces of their foundations. In so desolate a country, where materials are scarce, and the labor of artizans difficult to be procured, the bricks and walls of the old erections would doubtless be dismantled to aid in the new work.

But though the existence of houses of worship must be referred to a distance incalculably remote, and was perhaps coeval with the lives of the last *Tirthankars*, the fancy that stamped the peaks of the mountain with communications of their apotheosis is evidently the offspring of a much later age. One hut or more which may have stood in the secluded nook now occupied by the temple I have described, may have formed the successive habitations of the recluses, but it is not likely that the points where the *goomtees* or *tooks* now hold their sublime stations should have been the actual spots at which they removed to die. The *churuns* or *foot-prints*, which these singular little buildings contain, seem to speak of a time much later than that in which the narratives of the several holy men were compiled. Though the *Jaina Shastras* are said to outdo the *Brahmana Pooranas* in extravagances, the fictions of the former, as far as may be judged from the scanty accounts we have of them,* regard rather the description of the early ages of the world, and their calculations of chronology than the adventures and miracles of their saints. The *Tirthankars* of the *Jainas* are not commemorated in those poetical

* See Asiatic Researches, Vol. 9, Article *The Jains*.

colors and heroic romances which are peculiar to the mythology of the *Vishnavas*. The idea of consecrating the last impression of the saint's holy feet upon earth, may have been suggested to some worthy pilgrim, perhaps even to *Shoogul Chund* himself, by the temple at *Gayah*, through which city probably his route passed, wherein the supposed footmark of *Vishnoo*, as he descended to earth, is preserved in the holiest recess of the shrine—an association which constitutes the ancient sanctity of that city. But to whatever time or person the mode of consecration may owe its origin, that pious imagination which first stamped the pinna-cles of Mount *Seekhar* with the emblems of this natural idolatry, deserves itself to be commemorated as an instance of a sublime and elevated genius. The *Jaina* temples in the valley are vested with the beauty of a peaceful solitude; their sanctuaries on the ridge of the mountain occupy solitudes which are the nearest points to Heaven in the land which is their country.

The dates which are marked on the pedestals of the idols, record their installation in the several temples; but I have remarked that only in one instance is there reason to suspect that the buildings are much older than the inscriptions announce. With regard to the most ancient looking *Mundir*, that belonging to *Jynundeer Bhookhun* of *Gwalior*, it was reckoned to be only 50 years old by the most venerable native whom I found in the village; but considering that this veteran whose beard was as white, and back as crooked as the hoary representative of time himself, only estimated his own age at 40 years, this period may safely be multiplied by two. It is scarcely surprising that the expensive works of this place were all completed since that period of peace and prosperity which the British power has secured to the Eastern provinces of *Hindustan*. Though pilgrims were never actually prevented from visiting this remote spot from *Delhi*, *Bengal*, and every part of the *Dekhan*, during the times of persecution and of war, yet these beautiful images, the funds for constructing temples worthy of them, and the very workmen themselves, have only been sent by wealthy devotees from their distant countries, since the influence of our Government has afforded protection to the traveller and security to the conscientious though dissenting devotee.

It remains to notice the ceremonies of worship performed by the pilgrims at the sacred mountains. Arrived at *Mudbun*, they attach themselves to whichever temple they prefer, finding accommodation in the apartments round the courts. Those who are desirous of propitiating Heaven in favor of deceased friends, carry a *Pindah*, or offering of honey, ghee, rice, sugar-candy, and the flower *Umkhana*, to the shrine of the *Gwalior Mundir*. There are no priests to initiate the pilgrims in the mysteries of their ceremonials; each, therefore, pursues his own habits of devotion; and their only expences, after passing through the hands of the spoilers at *Palgunjo*, consists in hiring a *dooly* to carry them up the mountain, and in leaving some small contribution for the repairs of the sacred buildings. Those repairs are undertaken with the greatest punctuality as soon as the rainy season breaks up; the *Punchayt* of *Muhajuns*, of *Moorshedabad*, are responsible for the application of these funds, and make whatever additions are necessary. This attention to cleanliness is inculcated by their religious principles, and the beauty it secures to their buildings, surpasses every thing of the kind that I have seen.

However active and strong, every pilgrim engages a *dooly* to carry him to the summit, for his labors commence when he arrives on the ridge of the mountain. It is held to be necessary that every *goomtee* or *took* should be visited and receive an offering* at the hands of each pilgrim, and as many of the peaks are several *koss* off from the *Mutth* of *Koontnath*, to which the ascending path arrives—as some of them can only be mounted by climbing—this is indeed a penance of extreme labor and fatigue. But no danger or difficulty will deter these persevering enthusiasts, and, rather than return to their houses without having completed this arduous task, they will die in the undertaking; and death in such a service is looked upon as the most honorable fortune that can befall a pilgrim. The length and tediousness of this duty is increased by their strict forbearance from committing any kind of impurity whatever within the holy precincts; and as it is their custom only to eat by daylight, to avoid incurring the destruction of the smallest insect, several excursions to the summit are necessary for the accomplishment of the pilgrimage.

* These offerings are composed of water, *Sandal-wood*, *Rice*, a perfume called *Dhoop*, a flower called *Powa*, fruits, and a *deep* or lamp.

The visits and salutations to the several *churuns* on the peaks are concluded by a more deliberate adoration at the temple of *Parswanath*, which is so admirably situated to encourage those abstract exercises of the mind in which the *Jainas* ordinarily indulge. After concluding the duties on the mountain, those who desire to leave no claim to a sanctified character unadvanced, perform a circuit round the base, starting from *Mudbun*, to which they again return after traversing a circle of at least thirty miles. From this place the greater part of the pilgrims depart for the other temples at *Pawapoory* in *Behar* and *Chumpapoory*, near *Boglipoor*.

The researches of many learned men, who have occupied their talents in bringing to light the mysteries of oriental mythology, appear to have settled one point in Hindoo history; and it is generally believed that the *Brahminical* system represents the original religion of *India*; that the *Buddhists* were a dissenting scion from this stock, and that the *Jainas* originally issued from amongst the disciples of *Buddha*. What evidence can be obtained from oriental and classical history has already been brought to bear upon this question with great learning and ingenuity; but this evidence from the fabulous character and extravagant chronology of the principal records, can never establish a very high degree of probability, and it is proper to compare it with that analogy which universal philosophy affords, before we allow our minds to draw a decisive opinion from its reflections.

Although the *Shastras* of the *Jainas* are said to contain still greater extravagancies than the *Vedanta* of the *Brahmins*, it is remarkable that these imaginative histories remain unknown to the multitude of the sect, whose belief and form of worship are consistent with the principles of pure *deism* which were preached by their earliest founders. The only portion of the year which these simple people hold sacred to devotional exercises, is dedicated to a meditative adoration of *Bhugwan*, the supreme God. The month of *Bhadon*, the whole of which composes their *Puchoosur*, anniversary, is kept holy by retirement from worldly duties, and, by keeping the thoughts employed upon the nature and attributes of the one sublime and perfect Godhead. It is true that 24 *Tirthankars* seem to stand between them and the deity, and are the objects of ordinary veneration, like the saints of the Catholic calendar; but they are

only remembered as holy men who have attained association with God in reward for their exemplary piety; they are esteemed in this light by the multitude, and the first principles of their *theogony* are not so concealed in the idolatry of the *Jainas* as in the saint-worship of the Catholics.* This circumstance is in singular contrast with the secret system of the *Brahmins*, who, when hard pressed to defend the absurdities of their fabulous mythology, reply that the multitude being incapable of appreciating the notion of a metaphysical divinity, they keep this mysterious truth to themselves, and have devised a scheme calculated to amuse the fancies and the fears of the world. With the *Vaishnavas*, polytheism is the religion of the people, and deism the secret faith of their wisest priests. Among the *Jainas*, if there are any similarly credulous polytheists, they are of that number who read their *Sanscrit Pothas* and *Poems* with imaginations that cannot resist the romances they contain.

Not having had so much opportunity of observing the practices of the *Buddhists*, I am content to take the opinions expressed by others, that their religion, in its latest known character, bears a nearer affinity to pure deism, and contains a shorter catalogue of idols than the *Puranas* and *Belief* of the *Brahmins*. Viewing* therefore the present relative situation and principles of these different sects, should there be no direct clue to the secret of their comparative antiquity, all speculation on this subject will be embraced in the broad philosophical question.—“Which
“seems to have the strongest claim to be regarded as the first and original religion of mankind, a pure deism founded upon an unity of
“divine power, or a polytheistical system implying a veneration of
“ancestry, and for every thing that operates upon the hopes and terrors
“of mankind!” This is a question which at first should be considered without allowing a bias for any particular train of record or tradition to forestall our philosophical conclusions.

* It is common with the more ignorant of this sect to select one of their *Tirthankars* as their *Deota* and to pay him all the adoration and ceremonies they would shew towards the *Deity*. This is the practice with many small numbers of *Jainas* in the district of *Ramghur*, by whom the name of *Parswanath* is the only sacred symbol known and acknowledged; they are sworn, in our Courts, on a piece of paper in which this name is written. The form of deistical religion remains in these instances; the object alone is changed.

It seems inconsistent to say that we can have an idea of the power* of many, before we have received an idea of the power of one. The child or the savage, from first observing the strength and force of an individual, infers a notion of the strength and force of an army or multitude; and it seems contrary to the ordinary process of the intellect, that a thought of multiplex violence should precede the knowledge of this character or act in one. If, therefore, human fancy be supposed by its own impulse, to have applied the observations of sense to supernatural subjects, or to a world beyond its own, the first step must surely have been to imagine *one* subject invested with powers and attributes unseen and spiritual; it is not difficult to conceive that this idea would soon be multiplied. In the same manner, therefore, as unity in abstract reflections must have preceded multitude; so I am inclined to think that the notion of one God must have been antecedent to the notion of polytheism.

This is an argument for those who may be of opinion that the belief in any kind of supernatural influence or existence was, most probably, the spontaneous impulse of human reason alone. Those, however, who think that a revelation was originally necessary to communicate a sense of religion to mankind, will soon be aware of the thousand difficulties attending the fancy that *polytheistical* truths, or the description of innumerable *deities*, must have been the subject of the first divine communication to man. Revelation must have announced the truth; and if a multiplicity of gods be the truth, why is this notion so repugnant to reason and feeling, and why have not the many impostures of mankind imitated this character of divinity?

Upon a superficial consideration of this subject, we should be inclined to look around amongst the various examples of savage society on the globe, to try the truth of our metaphysical speculations by the test of their primitive character and customs. But such a criterion must always be delusive, as the communities which we may discover, even in the remotest corners of the earth, can never be observable in their *primitive* state. The succession of generations carries with it the reports of

* The notion of God abstractedly resolves itself into the notion of power. But in this reasoning any attribute of divinity may be substituted.

tradition, and if this succession has passed on, similar metaphysical reasoning or historical research must be applied to things in order to trace their origin; and by this the character of a test is lost.

If, then, experience and demonstration are unattainable, history and analogy are the only kinds of evidence within our reach; but I do not here appeal to the real foundation of those influential religious systems which have overspread the world both in ancient and modern times, because those very systems, which have given rise to these reflections, are examples of, not exceptions to, the universal process of things. The foundation of the *Brahminical* Pantheon of *Devas* and *Deotas* is a pure principle of a divine unity; and the earliest records existing of the origin and early condition of this singular polytheism, begin with a description of *Brahme*, that single ineffable first cause from which every consequence has ensued. So that the only evidence* adduceable to the matter under consideration goes to prove that this metaphysical Deism was not the inference of intellectual genius from a polytheistical idolatry previously prevalent, but the source from whence has proceeded the mythology now adored.

If then these reflections, and especially the last deduction, are plausible, it becomes a rational theory to say that the *Brahminical* Hindoos, at a time immeasurably distant, were disciples of a religious system, the principles and practice of which proclaim the unity of the Godhead. Such, however, which was the original character of the Hindoo creed, is also the modern character of the *Buddha* and *Jaina* systems; and it becomes an obvious inference that the two latter, which retain what the former has lost, present the truest representation of antiquity.*

Having taken this brief view of the subject metaphysically, it is proper to revert to those facts which relate to the question, and which have furnished the principal materials for research on this interesting point of history and philosophy. * These facts may be divided under the following heads:—

* The question is not whether the stock of the *Buddhas* and *Jainas* was earlier than the stock of the *Brahmanas*, but whether the principles now observable in the one preceded those now cherished by the other. I suppose that all issued from the same stock, and that the two former retain the best resemblance to the original race.

1. It may be remarked that the sects of the *Buddhas* and *Jainas* are now in ruins ; the tribes of the former dispersed, their numbers collected in countries far distant from the territorial cradle of their race and their temples defaced and crumbling to decay ; the latter banished from all political consequence as a people, and pursuing the humiliating profession of trade alone.

2. The account which may be extracted from those classical historians who have described the ancient state of *India*, may briefly be said to divide the philosophers of the East into two sects,—one having the favor of the multitude ; the other consisting of “captious dissenters” whose doctrines were more annoying to the orthodox “*gymnosophists*” than their numbers.

3. The writings held to be sacred, or rather of indisputable authority by the *Buddhas* and *Jainas*, though they differ from the *Vedanta*, in their descriptions of the Deity and the creation of the world, seem to imitate them in the extravagant accounts of their first holy men, and even to surpass them in monstrous calculations of chronology.

1. That those parts of the Indian continent whence the *Buddhists* are supposed to have issued, or at any rate were populous, now only contain the broken ruins of their temples, is a convincing proof of their antiquity as a sect ; and a presumptive evidence that their religion is more ancient than that which now flourishes on the land that once teemed with marks of their piety and grandeur. Such is the natural conclusion to be drawn from this state of things ; and after observing this fact, it would seem as plausible to suppose that the Latins were a scion of the Christian stem, because the ruins of their temples are to be found in the streets of Rome, as that the *Buddhas*, whose sanctuaries have been despoiled to give place to those of *Mahadeo*, must have sprung from the crowds of their persecutors.

What says the analogy of history on this interesting subject ? Has it been more usual that the old religions have been able to subdue and put down all new sects that preach reformation and novelty, or that the earlier faith should be swallowed up, or should be broken and dispersed,

by the force of the new enthusiasm? The records of the nations will not allow of a doubtful interpretation on this point; and it is needless to multiply examples of revolutions caused by the founders of new religious systems, and, of new beliefs, less complicated than the old, capturing the minds of men in spite of the precautions and violence of power. If the *Jainas* or the *Buddhas* sprung from the multitudes of the *Vaishnavas*, after the compilation and diffusion of the *Vedanta*, they must have been allowed to attain to great consequence and popularity; to have erected temples, not in one limited tract of country, but in the most opposite provinces of *India*, and to have become a distinct people; and yet not till this degree of prosperity was attained, could the orthodox sect have commenced, with success, that persecution which has ended in expelling the one race beyond the boundaries of *Hindustan*, and subjecting the other to one of the least honorable professions which man, according to their notions, can pursue. But such is not similar to the progress of other nations. We have no example of a rebellious sect, being defeated and obliterated from the mother land, after having been allowed to spread its temples, and to increase its disciples over the greater part of the country; but we have innumerable instances of the sect overcoming the prior system; of new sanctuaries supplanting the old, and at last of broken remains, or of persecuted families, being the only traces of religious tribes on the lands where they once flourished in dominion.

There is no dismissing the immediate inference that succeeds an observation of the present relative situation of these different tribes of *Indian* religionists. If we see a grove flourishing in vigour and maturity, another traceable only by withered trunks and broken stems, and a third presenting a scanty appearance of dried branches, without foliage or fruit, can we hesitate to pronounce upon the relative age of the respective trees? A conviction thus attained is so strong from universal analogy, that any particular evidence capable of refuting it, must not be short of clear demonstration.

The remarkable circumstance of the race of *Jainas* being now exclusively occupied in the profession of traffic, does not seem to have attracted the attention of antiquarian speculators, and I do not remember that this fact has been brought to assist the learned, in resolving

the claims to this sect of antiquity.* At the period of the great persecution against this people, it would be the first act of tyranny to exclude them from all official consequence in the State, and to expel them from the possession of lands, a kind of wealth which is most substantial in the eyes of the Hindoos. Thus debarred and banished from all those duties which the *Vedas* describe as connected with the life of man, the *Jainas*, like the Jews of the Western world, were driven for sustenance to the exercise of trade; *bankers* and *merchants* are a portion of society, whose wealth, though not their persons, is more beyond the reach of tyranny, than any other class of people; they are convenient instruments and aids in the management of public affairs; and the principles of mortgage and loans seem long to have found a chapter in the laws of property in India. Probably more tractable in character than the *Buddhas*, they endured persecution with a more patient spirit; till at last their oppressors, feeling the convenience of their industry, consented to leave their banks and shops in security.

It is not difficult, in this manner, to account for the situation in which we now find this singular race, but it is less easy to fix the period at which this great change and downfall occurred in their fortunes.† That they were previously a distinct and powerful people is established by the confession of the *Brahmanas*, whose records describe them as opposed to themselves in war; by the traces of their ancient kingdoms in *Behar* and elsewhere, and by their having formerly been divided into four castes similar to the *Vaishnavas*, a division which is now lost in the simple distinction of *Yatis* and *Sravaks*,‡ or priests and laity.§ Had they been a new and upstart sect, when persecution bound

* In a part of *Behar* where the *Vedanta* is not very intimately known to the orthodox *Hindoos*, the Pergunnah of *Chota-Nagpore*, and where also the number of cultivators is in a small proportion to the cultivable lands, there are a few *Jainas* who are ryots to the *Jageerdars*. These are the same people whom I have described in another note as acquainted with the name of *Parwanath* alone.

† The inscription found at *Belligola* (See *Asiatic Researches* Vol. II p. 270) and supposed to bear date from the beginning of the 11th century, seems to be a chronicle of such a toleration in the province of *Mysore*.

‡ This is now the common name by which this sect is known.

§ The distinction of castes prevails amongst the *Jains* of Southern *India*. Dr. Buchanan Hamilton's view of this subject is very different from that of our correspondent. There

them to the profession of money changers, we know that the fanaticism of young apostates aim at the conversion of members, and is inconsistent with the patient pursuit of mercantile industry. Submission to power is more like the act of a people worn out with contention, and too old for enthusiasm, than of a young sect impassioned with the new hopes that enlightenment never fails to excite.

The *Buddhists* who preferred emigration to *Cashmere*, to *Nepal*, and to *Burmah*, displayed a spirit more like that of religious rebels, but that the works of art which they left behind, point out the provinces in which they once were powerful.

2. Mr. Colebrooke in his Essay on the *Jainas* in the 11th volume of the Asiatic Researches for *Bengal*, has collected together the testimonies of Greek authors on the subject of the Religion of *India*, with a learning that excludes all necessity of reverting to the original works.* The *Brachmans*, the priesthood of the East, are described in *Arrian*, *Strabo*, and others, very particularly; the latter mentions an opposing sect called the *Pramnæ*, and *Porphyrius*, and *Clemens Alexandrinus* mention two distinct classes of religious men, the *Brachmans* and the *Sermanes* or *Savamanas*, (identified with *Sunyasyes*, by Mr. Colebrooke). The last mentioned author in one remarkable passage, says that there is another sect in *India*, disciples of Butta ($\beta\omega\tau\lambda\alpha$) whom they revere as a god.

All that can be gathered from these ancient witnesses, is, as Mr. Colebrooke infers, that at the time of Alexander's invasion, the relative position of the religious tribes of *India*, was the same as it is now; or that the *Brahminical* was the prevailing faith, and that the opposing

is great reason to suspect that the proper doctrine of caste, or at least of four castes, similar to those which the orthodox Hindoos suppose to have originally existed, is an innovation amongst the *Jains*, although in the South of *India* it seems now completely adopted in compliance with the prevailing opinions. Trans. R. As. Soc. 1, 532.

* One remarkable passage in *Arrian*, unnoticed by Mr. Colebrooke, affords a singular subject for theory to etymological antiquarians. In the 8th Chapter on his Indian history, he says that *Spartembas*, a friend of the conqueror *Bacchus*, dying, left his kingdom to his son *Budyas*, who after a reign of 20 years, was succeeded by his son *Crudevas*. The resemblance of *Budyas* to *Buddha*, and the perfect Sanskrit termination *Devas* (gods,) is a very striking coincidence. If these names can be assimilated to *Buddha* and *Crishna* we have a slight evidence to the priority of the former.

Sectarians, (or probably the *Buddhas* and *Jainas*,) were few in numbers. This evidence then assists the main question in no degree, and the arguments that we apply to the present age, are not altered by the knowledge we derive from the collateral accounts by the writers of other nations. The only inference to be deduced from these accounts, is, that the existence of the heretic sects having attracted the notice of visitors, it is most probable that they were more numerous than now; for how many strangers might spend the greater portion of their lives in this country, without ever hearing the name of *Buddha*, unless attentive to those researches, which the inquisitive spirit of our countrymen conducts into the remotest corners of foreign lands.

3. But the most important of the facts to be noticed is the resemblance in fabulous character between the *Shastras* of the *Buddhas* and *Jainas*; and the *Puranas* of the *Vaishnavas*. By those, indeed, who are best able to judge, the books of the former are said in the accounts of their saints, to contain exaggerations and fables, still more monstrous than either *Menu's* account of the creation, or his calculations of chronology.* The belief or the rejection of the *Vedas* appearing to have been the original point of controversy between the sects, the similarity which may be observed in the *Jaina Shastras* to some of the fables which they, or their commentaries contain, seems indeed to establish, that the writings of the *Tirthankars* were compiled in imitation of the *Puranas*, composed by the priests of *Muhadeo*. This hypothesis is so strongly supported and believed by those who are most capable of judging, that I readily acknowledge my own inability.

The original motive for rejecting the *Brahminical Vedanta*, is stated to be that their pages contain an account of creation which no man

* It may be remarked that all the accounts we have of *Jaina* works (from which alone I am able to form an opinion) display much more simplicity and freedom from fable than the *Brahmana Puranas*. The principal extravagancies in the former seem to consist in counting the statures and height of the *Tirthankars*, and the period of their lives and apotheosis. The translated notices by *Jaina* priests in Vol. IX. of the *Asiatic Researches* are sensible essays, and are only poetical, when speaking of the former ages of the world. Since writing this notice, Mr. Wilson's account of Colonel Mackenzie's collection has fallen into my hands;—this work contains a more complete notice of *Jaina* literature, than any former publication. I have found in it nothing to make me alter the above remarks.

could have witnessed, and a description of gods, which no human eyes could have compared with truth. Now we know that it is the character of the Hindoo, implicitly to believe those facts however extravagant, which he learns either from the written declarations of the ancient or from the assertions of the modern priests. It is not the habit of the people to examine metaphysically the principles either of their own or of other religions; and that infidelity should have broken out amongst the priesthood, seems to have been rendered most improbable by the sacred and privileged confederacy of power in which they had bound themselves. Such a national, and such a clerical character, appears least of all others calculated to engender heresy to the original creed, or to allow of disciples detecting errors in the system and predicating reformed mythologies of their own. Accordingly within the period of which any authentic records remain, the Hindoo histories contain no examples of truant converts to reason, who have dared to beard their own *Brahmins* and collect a number of listeners around them.* Two grand and ancient sects of infidels alone present themselves, whose origin is involved in the darkness of time, and of whom the *Brahmins* themselves report that they once disputed for dominion with their own race of Kings.

Such reflections induce me to lean to the conjecture, (for it is no more), that the division of the sects cannot be referred to a dismemberment of the original people at a period *much later* than the compilation of the *Vedanta*, their bone of contention; but rather that the time of compiling those works, which must have been a season when theological discussions were fashionable, was also the time at which the schism took place, many of the wise refusing to adopt the imaginative records of the past published by others, and adhering to the deistical principles which it was then proposed to supplant by a countless host of divine beings. But as this sentence seems to contain the first principle of a theory, let me briefly recapitulate the facts and reflections upon which I would found it. 1.—The source and root of the mythology now popular in *Hindustan*, is a principle of pure and simple Deism, the sect of the

* I here make no exception for the *Saivas* or others who have selected particular deities as the objects of their worship, for these are orthodox *Hindoos* who merely admire one portion of their mythological system as more beautiful and adorable than the rest.

Jainas contains stronger traces of this original character both in their worship and their creed, than the *Brahmanas*. 2.—The *Jainas* were once a powerful people, and are now humbled and dispersed; and it is contrary to the evidence of things in other continents, that ruin and dispersion should be taken as signs of recent origin, and present prosperity as a proof of greater antiquity. 3.—The *Jainas* have been persecuted, subjected, and finally only amalgamated amongst the unhonored classes of their oppressors; and it is contrary to the analogy of general history, that the reforming sect should be allowed to reach a degree of grandeur, and finally be swallowed up in the multitudes of the bigotted idolators of whom they were a rebellious and dissenting portion.

These circumstances and reflections appear to warrant the hypothesis that the *Jainas* faintly represent that original stock from which all the religious sects of *India* have issued, that while the multitude, charmed with the wisdom and the fancies of their *Menus* adopted a multiplicity of gods, they refused to receive records which they knew to be imaginative, and like the Jews of Egypt, preferred slavery to an idolatrous apostacy. But how does this theory, it may be asked, agree with the similarity between the *Jaina* and *Brahmana* Shastras? I reply that because they appear to be the most ancient people, it does not necessarily follow that their books must be most ancient also. I am supposing that the compilation of the *Vedanta* gave the signal for religious controversy, and that the *Jainas* were some of those who refused to receive these wonderful publications. To the *Vedas* succeeded commentaries, having been thought necessary perhaps on account of the obstinate prevalence of infidelity. About this period it would appear natural that the infidel *Pundits* should imitate this mode of recording the principles of their sects, and *Vrishabha Natha* (the first *Tirthankar* compiled for his disciples an Institute of Laws, similar to that which *Menu* had presented to the followers of *Mahadeo* and *Brahma*. Though determined to avoid the principles, which formed the basis of dispute, it is not extraordinary that the *Jaina* writers, amalgamated as they were with the other tribe of *Hindoos*, in country and character, should have taken as the model of their compositions the only literature which their language contained. They were not forbidden to indulge their fancies in the matters relating to the Earth, and as Mr. Colebrooke says, though with a different intent.

“In this rivalry of absurd fiction it would not be unreasonable to pronounce that to be most modern which has outgone all the rest.” The style of their intellectual works was imitated from that which was most popular at the time, in the same manner that the architecture of their temples is copied from the buildings of the most opposite people that occupy the continent on which they are erected.

From these latter considerations, I have banished the name of the *Buddhas*; but in regard to that sect, I have retained one reflection, which seems to forbid all doubt on the subject of their relative antiquity,—indeed it is so forcible, and the conclusion it warrants so obvious that I attribute to my own ignorance alone, my inability to remember any previous writer to whom the same remark has occurred.

It is a singular fact, that among the incarnations of *Vishnu* (detailed in the *Vedas*) that divinity in his ninth metempsychosis, is described as assuming the form of *Buddha*, and giving origin to all the infidelities against the religion of *Brahma*, which existed on the face of earth. Now if the *Vedanta* were penned by the hand of man, and not communicated by revelation, no presumptive proof can be stronger than this, that the infidel chief here personified must have existed, and existed amongst the Hindoos, before this passage of Hindoo literature was imagined and written. For, to suppose the contrary involves the hypothesis that the *Buddhists* arose into a sect upon the foundation of this chapter in the *Vedanta*; or in other words that a dissenting people took and adopted as their god, a being or a name which had been branded by the most powerful religionists of the age as the most despicable and hateful of appellations. The title might be applied to them from some work previously popular,—but it is repugnant to probability that they should themselves assume the despised name as their religious badge. This remarkable passage occurs not in the commentaries on later works, but in the *Vedas* the original subject of dispute, the earliest of Hindoo books, and what ingenuity of argument can make it seem probable that *Buddha* existed after the history that describes him!

Associate with this singular circumstance, the facts that the same language contains the literature of each people, the same continent contains the marks of their origin and dominion, and who can doubt that

the *Buddhas*, the *Jainas* and the *Brahumanas* have sprung from the same stem, and that *Hindustan* was once the seat of the same simple religion which was the real faith of *Jerusalem*, *Persepolis* and *Memphis*! All the superior antiquity which my observations advocate for the two latter sects, and especially for the last, is that they afford us the best procurable representation of the religious belief of the *Hindoos* before the compilation of those books which seem to have established the present idolatrous system.

In the general view that I have taken in this paper, I have avoided the question of the relative origin of the *Jainas* and *Buaddhas*, as one which requires considerable acquaintance with their literature; for both are a broken and a banished sect, and their condition is too assimilated, their traces too scattered, to assist the more general philosopher.

A. P.

Note.—Since sending this article to the Printer, I have ascertained that Colonel Franklin ascended mount *Parusnath* in the year 1819 or 20. Had that gentleman published the 5th part of his work, which, I believe, contains an account of his ascent, I should not probably have thought that the narrative of my own visit could be publicly interesting.

A. P.

From CAPTAIN C. B. YOUNG, Officiating Chief Engineer, Lower Provinces, to the Secretary to the Government of Bengal,—(No. 2614, dated Fort William, the 5th August 1858.)

SIR,—I have the honor to submit for the consideration of Government the annexed copies of letters as per margin, from the Officiating Superintending Engineer 2nd Circle and the Superintendent of Embankments, suggesting that a Sanitarium for European Troops be established on the Parasnath hill.

Public Works Department,
Military.
Officiating Superintending
Engineer 2nd Circle's letter,
No. 977, dated 30th June 1858.
Superintendent of Embank-
ments' letter No. 779, dated
8th July 1858.

2. If the proposal is deemed worthy of consideration (which it appears to me it might receive) I would recommend that the Executive Engineer, Ramghur Division and a qualified Medical Officer, be deputed to visit the hill and submit a practical Report on the scheme. The former Officer will be furnished by me with a Memo. of instructions for his guidance in examining and reporting on the subject, and I would suggest that a similar Memo. be furnished to the Medical gentleman, who may accompany him, by Doctor Forsyth.

3. I have in the meantime called on Captain Beadle to report with reference to the concluding portion of his letter why he does not recommend that the Sanitarium should be used by sick men during the rains. If this objection be well founded, it would be a serious drawback.

From CAPTAIN WILLIAM MAXWELL, Officiating Superintending Engineer, 2nd Circle, Lower Provinces, to the Chief Engineer, Lower Provinces,—(No. 977, dated Fort William, the 30th June 1858.)

SIR,—During my late tour up the Grand Trunk Road, I could not help looking to the hill of Parasnath, as one that should not be lost to us at this juncture, when so many of our European soldiers are sinking into their graves from want of change of air and climate; I have the honor, therefore, to refer to the subject now, in the hope that it may be taken into consideration, whether it would not be advisable to afford some retreat on the hill for our sick Officers and men.

2. From the only records before me, I perceive the height of Parasnath to be 4,483 feet above the level of the sea, and that there is

water on it ; all that is apparently required is, to explore the hill, and after due observations, determine whether the climate is such as would warrant its being made available as a sanitarium.

3. An elevation of 4,483 feet would, in this case, reduce the temperature some 10 or 12 degrees; this, at this season, would afford the agreeable temperature of "summer heat"—what more could be required for our soldiers and sailors? Timber and stone abound on the hill; its base is only 70 miles from the Raneegunge Railway Terminus, and there is only one unbridged river to cross between the hill and Raneegunge; the construction of a road up the hill appears very simple, indeed, I think, for a very trifling sum the whole project might be carried out, and the benefit to be derived is incalculable, and as a beginning, temporary buildings might be erected.

From CAPTAIN J. P. BEADLE, Superintendent of Embankments, Lower Provinces, to the Officiating Chief Engineer, Lower Provinces,—(No. 779, dated Midnapore, the 8th July 1858.)

SIR,—I have the honor to acknowledge the receipt of your No. 1812, dated 5th July 1858, with Captain Maxwell, Officiating Superintending Engineer 2nd Circle's accompanying letter No. 977, dated 30th June 1858, suggesting that a Convalescent Depôt for troops be established upon Parasnath.

2. In 1846, I visited mount Parasnath, and urged by Sir John Cheape, sent a description of the trip to the *Hurkaru* Press, where it was published, and I append a copy of the sketch which will perhaps help to explain matters.

3. The great drawback at that time to effecting a lodgement on the mountain was the Pachete Raja, and had reference to the religious character of the hill top, which at every eminence is crowned with a little temple.

4. The Raja has forfeited his estates, and the obstacle is in a measure removed, but the Jain monastery at MODOOBUNDH and the Temples, &c., have still to be considered.

5. No one lives on the mountain. When the thermometer was standing at 94° in the bungalow, at foot was not higher than 81° ; on the hill top the mercury was at 76° when I reached the summit at midnight on the 15th May 1846, and at 5 A. M. on the 16th it had fallen to 68° ; on the 17th May the mercury stood at 67° in the early morning.

At mid-day the water in the beautiful spring that wells up near the large temple was at a temperate of 70° .

Parasnath rises 3,178 feet above the ground of Topechancee dâk bungalow, and Topechancee is 928 feet above the sea: these are Dr. Hooker's measurements.

The rock is syenite and good for rubble building purposes; I saw no vermin nor reptiles on the summit; there is fine saul timber in the lower portions of the mountain; the road from the MODOOBUNDH side is a very fair track, but long, and the ascent from the Trunk Road side (MODOOPORE) is much shorter and less fatiguing. As European troops will very possibly be stationed along the Trunk Road, it is scarcely possible that the advantages of this elevated site should be longer ignored; and, I am sure that the climate will be found very beneficial to sick men during the hot weather. In May 1846 I found the transition from the plains to the hill top a delicious one.

• There is ample room for barracks to contain a 100 men, and there is sufficient water of an excellent pure kind. A grant of 10,000 Rupees would go a great way towards making a hot weather sanatorium for the above number of men. I do not recommend that it should be tried for sick men during the rains.

From CAPTAIN C. B. YOUNG, Officiating Chief Engineer, Lower Provinces, to the Secretary to the Government of Bengal,—(No. 3069, dated Fort William, the 20th August 1858.)

SIR,—In continuation of the concluding para. of my letter, No. 2614, of the 5th instant, I have the honor to submit a copy of the Superintendent of Embankments' letter No. 1238, of the 9th, received on the 12th Idem explaining why he did not recommend Parasnath

Public Works Department,
Military.

hill to be used as a sanatorium by sick men during the rains, and to observe, that there appears to be no special objection to this sanatorium which is not common to all hill Stations during the rains.

From CAPTAIN J. P. BEADLE, Superintendent of Embankments, Lower Provinces, to the Officiating Chief Engineer, Lower Provinces,—(No. 1238, dated Midnapore, the 9th August 1858.)

SIR,—I HAVE the honor to acknowledge the receipt of your No. 2615, dated 5th August 1858, asking me to explain why “ I did not recommend that Parasnath should be tried as a sanatorium during the rains.”

2. I would try Parasnath during the hot weather with sick men and I see no objection to trying it as a rainy season sanatorium with men in health. If it answered well, I would then improve the buildings and comforts and try it with sick men during the rains; but the buildings should be built in the cold weather, and occupied during a hot season before they are made any use of during a rainy season.

3. There is coal in the neighbourhood, and with warming and drying fires, I dare say sick men might, after a year's occupation of the sanatorium manage on the hill top very well during the rains, but I would not expose them to the trial before the place has acquired a good reputation, and the buildings have been made comfortable and become thoroughly dry.

From C. T. BUCKLAND, Esq., Junior Secretary to the Government of Bengal, to the Officiating Chief Engineer, Lower Provinces,—(No. 2748, dated Fort William, the 4th September 1858.)

PUBLIC WORKS, MILITARY.

SIR,—Your letters, Nos. 2614 and 3069, dated respectively the 5th and 20th ultimo, and their enclosures having been laid before the Lieutenant Governor, I am directed to inform you in reply that His Honor has seen and carefully examined Parasnath Hill, and is convinced that it is quite unsuited for a sanatorium for European troops; as there is an entire want of space on its summit either for buildings or for recreation,

while the average difference of heat only (about 10 degrees) between the temperature at the top of the mountain and the plain below would not be of any sufficient advantage.

2. The Lieutenant Governor believes too, that during the rains all but the very summit of the hill must be unhealthy.

3. Under these circumstances His Honor is unable to recommend the proposition to the Supreme Government.

From CAPTAIN C. B. YOUNG, Officiating Chief Engineer, Lower Provinces, to the Secretary to the Government of Bengal,—(No. 2202, dated the 21st July 1859.)

SIR,—WITH reference to late demi-official communications, I have now the honor to submit a Report by Chief Engineer's letter No. 2614, of 5th August 1858. Major Maxwell, Officiating Superintending Chief Engineer's letter No. 3069, of 20th August 1858. Engineer, 2nd Circle, of observations made on the hill of Parisnath on the Grand Trunk Road, about 200 miles from Calcutta. Major Maxwell submitted a Report last year which, with other papers on the same subject, is in your Office, and which was laid before the late Lieutenant-Governor, with my letters marginally noted.

2. It appeared to me that information, having special reference to building on the main hill, was still wanting, and I therefore requested Major Maxwell, when another inspection tour up the Grand Trunk Road should again give him an opportunity, to visit the hill with particular regard to this object. This he has now done, and the accompanying is his Report. It will be seen that Major Maxwell is of opinion that there is ample room on the top and around it for 3, 4, or even 500 men, (paragraph 7.) He is of opinion that many miles of level road could be constructed round and about the hill. The difference in temperature (June) he found to be $88^{\circ} - 73^{\circ} = 15^{\circ}$. The difference temperature has been ascertained frequently by other observers to be from 10 to 15 degrees; but those who have been there state, and of the fact all who have any hill experience are well aware, that the advantage and pleasureable feeling of the change from the plains below consists at

least as much in the improved freshness and purity of the air as in its greater coolness by thermometer. Dr. Liebig's observations, taken in April, show 12 to 15 difference.

3. Dr. Hooker, whose visit was made in February, found the difference to be that between 54 and 75 or 21 degrees.

4. Captain Beadle found it in May 1846, 94—81=13 difference.

5. With regard to the actual construction of buildings, the Superintending Engineer observes, that there is abundance of stone on the spot with which rubble masonry walls could be built. Captain Beadle also says, the stone is good for rubble building, and calls it syenite (Dr. Hooker says it is gneiss) ; the stone would be cemented with mud, as in the northern hill Stations, and such lime as required for chimney building, plaster, white-wash, &c., could be obtained from below the hill, as for the bridges on the Grand Trunk Road in the neighbourhood. For burning it, and for other domestic and economic purposes, coal is reported to be available, fortunately found near the base of the mountain.

6. Saul timber is in plenty about the hill, the road to the top lying through a forest of it ; jarool and bamboo are in like manner found in the forest.

7. Roofing, the Superintending Engineer states, should be of corrugated iron. Than this there can be no simpler or better roof, although a little more expensive at first ; it is very generally coming into use here now.

8. Doors, windows, furniture, &c., could either be made on the spot, or, which would be better, sent from Calcutta, as they have frequently been of late, to spots further removed, to meet the exigencies of the Department. Laborers and workmen could be brought from Raneegunge or Burhee, if requisite.

9. The nearest point on the Grand Trunk Road is Madhoopoor a village at the 194th milestone. Dr. Hooker's route *via* Madoobund, at northern base of the mountain, is circuitous. He describes the first part of it from the Trunk Road to Madoobund as a short one through

rocky valleys; the rise in this distance is 300 feet, or from 900 to 1217. The remainder of the route is a tolerably easy ascent of about 3,000 feet, without any difficulties of consequence.

10. A direct road from Mudhoopoor also leads to the summit, which was that taken by Major Maxwell.

11. The Superintending Engineer describes the direct road as somewhat rough, and about 5 or 6 miles in length from Madhoopoor, at the base of

* No. 227, of 1858-59.

the hill to the temple, (see Captain Beadle's Sketch* accompanying, and one with which Mr. W. Atkinson, Secretary of the Asiatic Society, has favored me,) two miles of it (paragraph 4) are easy enough. This road, as he says, is one of the first things which should be made.

12. The actual height of the saddle of the hill is, by Dr. Hooker, 4,200 feet above the sea, the peaks are 4,148 and 4,348 respectively. The height, as measured later by Dr. Liebig, is 4,450, Madhoobund is 1217, (Hooker) the difference is 3,000 feet in a distance of 6 miles, supposing that to be the distance, and would give an ascent from that side of 500 feet in a mile, or about 1 in 10, which is too steep for a hill road. The direct road from Madhoopoor is steeper. It would therefore require some care and judgment to select, line out, and execute a road with good and easy gradients, but otherwise there appear to be no difficulties in the way.

13. The journey from Calcutta is singularly easy. To Ranee-gunge, 122 miles are accomplished by Railway; the remaining distance from Ranee-gunge to the 194th milestone at Madhoopoor, or 66 miles, consists of a first rate metalled road, bridged throughout, with the exception of the Burrakur river, and is one night's trip by dawk carriage, after which 3 or 4 hours by jampan or pony would take a visitor to the top. When the East Indian Railway is completed to the Burrakur river, which I believe it is to be, the journey will be still easier of accomplishment; 24 hours will amply suffice to convey the invalid or the visitor to Parisnath, or if necessary, to carry him back to business or to the English Steamer at Calcutta indeed; by an active person and with suitable Railway arrangements, and perhaps eventually a Mail Coach from the Burrakur to Madhoopoor or Topchancee; it could be

then done in 12 hours, the Rail trip occupying 5, and the rest of the journey 7 hours.

14. In the matter of supplies, any amount of luxuries could, of course, be conveyed to the sanatorium without difficulty as soon as the road up the hill is made. Those of more ordinary consumption must be obtained from Topchancee, where there is a village and Dawk Bungalow 4 miles from the foot of the hill ; rice and milk can be obtained from Madhoobund at the immediate base of the hill. A bazaar would therefore require to be established on the hill, which should be maintained by supplies from below.

15. The supply of water is not so abundant near the hill top as could be wished, although a little lower down there is no want of it : its quality is excellent. The spring from which it flows is near a temple, and 430 feet only in elevation less than the top of the hill : more copious

† Lieutenant Clayton says it is somewhat further than this.

supplies are found at about 800 feet from the summit, Mr. Atkinson says.† Major Maxwell says the supply from the upper spring is not very abundant, but by management would suffice for 60 or 80 men. This is not much, when a bazaar, servants, and animals have to be supplied, in addition to European residents. It is probable that this spring, conveniently situated as it is, and affording excellent water, would require to be guarded (as at Almorah a similar one is) and permitted to be used for drinking only, while for other purposes the supply would be derived from the other springs lower down.

16. Those who have visited the hill have generally done so for a short period only, as a day or two ; but during the present year two Officers of Her Majesty's 99th Regiment spent a considerable time there, viz. from 1st April till 8th June. One of these to whom I applied, Lieutenant Clayton, has kindly written to me as follows :—

“ I and a brother Officer lived on the top of the hill from about the 1st of April till the 8th of June ; during which time we found the climate beautifully cool and pleasant. I must not forget to mention though, that during the last few days that we were there, the top of the hill was enveloped both by day and night in a dense mist.

"With regard to supplies, none can be obtained nearer than at Topchancee, a village 4 miles from the foot of the hill; there is however a small village at the foot of the hill where rice and milk may be obtained. •

"The top of the hill abounds with wood; there is also a spring of good water; the soil is of a black, light, loamy nature, and I should imagine well adapted to gardening purposes. My companion and myself enjoyed capital health the whole time we were there, with the exception of a fever that my friend caught by imprudently sleeping out in the jungle at night."

17. The information regarding soil is in reply to an enquiry on my part with a view of ascertaining if soil could be readily obtained for mud cement for building, and also if the ground was likely to prove favorable for the growth of potatoes and other garden produce, to which it appears to me the climate might in other respects be found very advantageous.

18. There is no lack of animal life on the hill. Birds abound, and afforded the two Officers mentioned very fair sport during their stay. Tigers are found in this jungle occasionally, but these would disappear before the sound of the axe and the pursuits of civilization. The jungle also, which has been alluded to as likely to be unhealthy, would no doubt rapidly diminish, as it was required for building, burning, &c.

19. Regarding the occupation or taking possession of the hill, I need say nothing, as I am imperfectly acquainted with the subject. It belongs, or did belong to the Pachete Rajah, but has become forfeited, I believe, to Government; at present it is unoccupied by any one.

20. Dr. Thomson and Mr. W. Atkinson, Secretary to the Asiatic Society, have visited Parisnath several times of late years for scientific purposes, and to them I am indebted for the following communications with which they have very kindly favored me.

"The main ridge for the last 800 or 1,000 feet is extremely steep on both faces, especially the southern one. Its summit is of inconsiderable width and would afford little room for building, though space sufficient for two or three bungalows might no doubt be found.

No water however is obtainable within 400 feet of the summit. At that elevation there is a scanty supply issuing from a spring at the temple on the South side, but this is nearly dry in April. No other water is, I think, procurable within some 800 feet of the summit, at least at the surface. But on the North side there are two copious streams, issuing probably at about 800 feet from the summit, both of which had an abundant supply of delicious water at my April visits in 1855 and 1856. I found them hardly fuller at my last visit in September 1858, at the end of the rains.

“ A considerable spur, diverging in a direction somewhat North-east from the centre of the main ridge, occupies the space between these streams.

“ This lateral spur offers, I conceive, the greatest advantage as a site for building. It is now covered with tall and tolerably open jungle, amongst which Saul trees, many of them of large size predominate.

“ The Pilgrim's Road, between the sacred village of Madhoobund and the temple of Parisnath, skirts it on the South-east, running parallel with and at no great distance from one of the streams already mentioned as defining the boundaries of the spur. The ascent from Madhoobund by this road is easy, and is often made, I believe,—on ponies at any rate,—to within 1,000 feet of the summit. In the event of a Station being formed on any part of the hill, the easiest approach to it must be by a road following generally the direction of this path. The Southern face is so steep that a practicable road could only be constructed at a very considerable outlay; at least such is my impression.

“ On its Northern face Parisnath is far more broken, and therefore more striking and picturesque than on the Southern face, which overlooks the Grand Trunk Road.

“ I know few hills of its size which surpass it in natural beauty, though from its isolation the views from the summit are deficient in the grandeur which characterizes mountain scenery.

“ For the temperature I refer you to a paper by Dr. Liebig in the Asiatic Society's Journal (No. 1, 1858), which gives the results of

a series of observations of the barometer, and wet and dry bulb thermometer, made by us during our visit in April 1856.

“ It will be seen that the actual temperature on the hill, as shown by the thermometer, is something less than 10° Faht. lower than the temperature on the same days at Calcutta. This however is no true indication of the difference perceptible to the feelings. The air on the hill is always delightfully fresh, elastic, and exhilarating, and offers the greatest contrast to the steamy heat of Calcutta. A small Station there would afford a most grateful retreat from the town, and I sincerely hope the scheme of a sanatorium may be carried out.

“ Dr. Thomson, Superintendent of the Botanical Gardens writes, Dr. Anderson and I agreed in opinion in November last, that a Sanatorium on Parisnath would be of great value for individuals from the damp relaxing climate of Bengal. The climate is dry and bracing, and the temperature always 10 or 12 degrees lower than in Calcutta.

“ The elevated part of the ridge, safe above fever heat, that is above 4,000 feet, is about two miles long, but it is not in all parts eligible for building sites. There is however ample room for Barracks for 100 men, and for at least a dozen moderate sized bungalows.

“ Water will be the principal difficulty, but it is not more distant than at Mussooree or Simla in the dry weather; and with artificial banks, water collected during the rains might be kept during the cold and dry weather.

“ I think the present road from the South might be made practicable; but, if the hill be built upon an easy road, may be carried from the Trunk Road not far from Topchancee Bungalow.

“ I am sorry that Dr. Anderson has gone home, as he looked very carefully at the place in a sanatory point of view.”

21. I would beg to propose that steps may be taken to construct a practicable road leading to the hill top, to establish a small bazaar there, and to build at once, say four bungalows for the accommodation of such Officers, invalids or others, as His Honor may think proper to permit to occupy them for the season.

22. Bungalows of this description were constructed, I think, about the year 1820, at Almorah, in the hills by the Government, for the occupation of invalid Officers, and are still kept up. They were always gladly occupied by many who obtained the requisite permission through the Executive Engineer.

23. During the first season much will have to be done, as I know from having been concerned in the building at Nynce Tal, when that Station was first established. The place has to be explored thoroughly, and the best site, the best materials, &c., are not discovered till many individuals have examined the ground in various directions, and imparted their information to each other. The establishment of a bazar, with ordinary supplies for daily use of servants, as well as their masters, getting up a baker, butcher, &c., is not an easy matter, and cannot be done without the zealous co-operation of the Civil Authorities, who must also be present to encourage and obtain labor, to adjust disputes, settle rates of pay, and see justice done. Arrangements of this kind do not, however, fall into my Department; the establishment of the bazar and arrangements for supplies and labor must be done by the Civil power.

24. I should feel disposed to limit the operations as above for the first year.

25. It appears advisable to me,—and I find Captain Beadle saying the same,—to try the capabilities of the place as a sanatorium for a year, before advancing so far as to the construction of Barracks.

26. As regards building and making the road, this latter work should, I think, be commenced at once, so that by the cold weather some progress at least might have been made towards its lining-out and construction; building operations would then, at that season, get on all the quicker and better.

27. We are fortunate in having just now an Officer in charge of the Ramghur Division, in which Division Parisnath lies, who has had special experience in hill roads, and is besides an indefatigable and judicious Executive—Captain Dawson. I have also now available the services of a Supervisor, Mr. Hembrough, who has earned a high character for skill in the construction of some of the Punjab hill roads. As soon

as His Honor may think fit, Mr. Supervisor Hembrough might be despatched to take up his quarters at the nearest Inspection Bungalow, and he might at once, under the guidance of the Superintending Engineer, Major Maxwell, and of Captain Dawson, proceed to survey and lay down a line of road over the most favorable ground, as selected by Captain Dawson and the Superintending Engineer. Should the Lieutenant Governor think proper, I could myself go there, with this object, for a short time.

28. If a practicable line can be found from Topchancee on the South, as Major Maxwell and Dr. Thomson seem to think is possible, it should be selected in preference, as being so much shorter. If not, the other line by Madhoobund on the north must be taken.

29. If some of the Darjeeling or Roorkee Pioneers could be obtained, the work of the hill road would doubtless be more quickly and satisfactorily performed, and such men would always be useful in Bengal.

30. For the above purposes a grant of 15,000 Rupees would, I think, suffice; say 5,000 Rupees for the road, and the remainder for bungalows.

From MAJOR WILLIAM MAXWELL, Officiating Superintending Engineer, 2nd Circle, Lower Provinces, to the Officiating Chief Engineer, Lower Provinces,—(No. 1393, dated the 12th July 1859.)

SIR,—I VENTURE to address you again on a subject I brought casually to your notice last year, namely, the hill of Parasnauth; my idea on making it a sanatorium was not approved of; I had not then visited the hill or gone to its summit, but having done so last month, I would wish to be allowed to place on record a few observations regarding it and its climate.

2. The starting point on the Grand Trunk Road is at the village of Madhoopoor (close to the 194th mile stone from Calcutta, or 68 miles from Raneegunge); it took me $3\frac{1}{2}$ hours (in no way hurrying myself, but casually stopping to look at this flower or that tree or stone) to reach the temple, a distance of between 5 and 6 miles, but I returned in 1 hour and 50 minutes.

3. On the 3rd ultimo at 6 A. M., I left Madhoopoor, the thermometer

was then 86°; in due course, I reached the top of the hill which is about $\frac{1}{4}$ of a mile above the temple referred to.

4. The road up for about 2 miles was easy enough, but rough; after that and to the temple, there can hardly be said to be a road at all—a rude track, straight up the hill was visible only here and there; so occasionally I had a little difficulty in scrambling up; but from the temple to the top, the pathway was easy enough.

5. The day happened to have been a moderately cool one below, for there had been rain. My Thermometer, as I have before said, was 86° early in the morning. I think I may assume that the mercury did not rise above 88° during that day; at 4 P. M. on my return to Muddoopoor it was 87°. At the top of the hill, placed in one of the small temples, the Thermometer between 12 and 2 o'clock varied from 69° to 73°. It rose to 73° only when there was bright sunshine; at the large temple it ranged about 1 degree more, the temperature of the air and of the water there were alike.

6. At the large temple there are two springs, one immediately above it, and the other just below it; the water is pure and delicious; it is not very abundant, but by management it would suffice, I think, for from 60 to 80 men; but on the other side of the hill, about a mile down, I heard there was abundance of water. I had not time to go down and see it, but there is no doubt whatever about this, for an Officer of the 99th Foot whom I found on the hill, with a comrade shooting, told me he had seen it himself.

7. On the ridge of the hill there is ample building ground for many cottages; there would be no difficulty in finding room on the top and immediately round it, for buildings for 3, 4 or even 500 men; there is abundance of building stone at hand, and timber is plentiful some little way down, but there is no limestone on the hill as far as I could learn.

8. No one resides on this hill or any of the neighbouring ones. I believe the temples are periodically visited, but no one is left in charge; the jungle up to and about the temple is dense, and wild animals of all kinds abound; but on the ridge it is comparatively speaking clear; once a lodgment was made, this jungle would soon disappear near the settlement.

9. All supplies of course would have to be arranged for from below in the first instance, but the settlement would in due time draw in its own requirements; a road properly lined out from the Grand Trunk Road to the ridge is one of the first things that should be thought of; if a Sanitarium is

ever decided upon, this once prepared, shops built, a bazar formed—in fact there is no fear that the neighbouring plains will not supply the market.

10. Within the past few years I have seen something of hill Stations and their wants for the residence of Europeans, and I feel convinced that Parisnath has only to become known to us to be a suitable, delightful, and healthy spot to retire to. The ranges of hills adjoining and extending to the North-west of Parisnath would admit of roads being made round them, joining the Station ones, at very trifling outlay, and afford means for exercise and pleasure; in fact, I think that many miles of level road could be constructed round and about Parisnath; and here I would refer to its easy approach from Calcutta. Starting by the morning Train at 9 o'clock you reach Ranee-gunge at 4, staying 2 hours there, you get into a gharree and at the moderate rate of 6 miles per hour, you would reach Muddoopoor at 6 A. M., then up the Hill in say 4 hours; that is, in about 24 or 25 hours you are transported from the Calcutta climate to one comparatively speaking perfect, viz., with the mercury at summer heat.

11. If it be determined to try Parisnath, the matter of building would be very cheap, materials being at hand and in abundance; rubble stone walls set in mud would be sufficient for any buildings constructed, and, for the covering of the roofs I would use common sheet iron properly fixed (if corrugated galvanized sheet iron is not procurable in the market); doors, windows, furniture, &c., I would send from Calcutta, and any lime required for plastering walls, &c. &c., could be burnt at the foot of the hills and carried up. It is difficult to say what would be the cost of the Sanitarium even say for 50 men; but it would not be great; it is well, however, for me to state that the road up will in all probability cost 5 or 6,000 Rupees. A grant however of 25,000 Rupees (twenty-five thousand) would enable us to make a good and permanent commencement, and if success attended our endeavours (of which I have in my own mind no doubt whatever) the place can be extended as thought proper.

From CAPTAIN C. B. YOUNG, Officiating Chief Engineer, Lower Provinces,
to the Secretary to the Government of Bengal,—(No. 4213, dated the
21st October 1859.)

SIR,—I BEG to report for the information of His Honor the Lieutenant-Governor, that I took advantage of the late holidays to visit Parisnath (with reference to my previous correspondence as per margin on that subject)

Chief Engineer's letter No. 2202, of 21st July 1859.
Chief Engineer's letter No. 2614, of 5th July 1858.
Chief Engineer's letter No. 3069, of 20th July 1858.

to select a few good sites for bungalows, and to fix upon an accessible road to the summit, in improving which a small sum of money might be judiciously expended.

2. Travelling to Ranegunge by Rail, I left that place at 6. P. M. on Saturday, the 1st Instant, and arrived at Topchancee Bungalow at the foot of Parisnath hill by bearer (Gari) Dâk at 12 the next day. The distance is 63 miles, and is of course by horse Dâk easily traversable in one night or say ten hours. The accompanying Eye-sketch of the hill and its neighbourhood will show how I then proceeded.

No. 474 of 1859-60.

3. A further distance of $4\frac{1}{2}$ miles along the Grand Trunk Road brings the traveller to the village of Madhoopore, and from this village, a pathway leads to the temple at the summit. It is a rather steep climb of about 7 miles, but can be easily accomplished on foot in 3 hours. The bearers, resident in the country and villages about the base of the mountain, are accustomed to go to the top, and will carry the traveller well, in rough doolies made up for the purpose from small charpoys.

4. Except at the very commencement, the pathway lies through a jungle of trees or grass the whole way to the temple itself, but there are no precipitous or dangerous parts in it, and it could readily be improved in its gradients, as well as widened at little cost.

5. This is the Southern aspect of the hill, and there are no streams of water of any consequence on the actual line of the road itself, although I obtained water a short distance from it about $\frac{1}{3}$ of the way up. Bamboos and timber abound, but not of such fine character as on the North side, of which I shall speak hereafter.

6. During my ascent the weather became unfavorable for observing any thing beyond what was in the immediate neighbourhood, being cloudy with heavy rain.

7. On the next day, Monday, the 3rd, it cleared up in the middle of the day for about a couple of hours, and I was then able to walk over about $\frac{1}{2}$ a mile of the summit of the hill, and to mark out with pegs seven sites upon which it would be easy to build bungalows, each having a little ground to spare for compound and servants' houses. In marking these out I kept clear of the small mountain peaks of which there are several, and on each of which there is generally built a small "Muth" the size of an ordinary tomb.

8. These are all near each other, and I have no doubt that the remainder of the top of the hill Eastward, probably a couple of miles in extent—but of this owing to the state of the weather I cannot speak with any certainty—would in like manner, being of the same character, afford numerous other sites. A levelled space of perhaps 90 or 100 feet would occupy the whole width of the crest in most cases, but in some there is a good deal more than this. From the edges of this platform the sides of the hill slope gently away with no great declivity or precipice. They are grassy and wooded pretty well towards the top, but not thickly, with a peculiar tree, the Sahr Jam, but have no Alpine vegetation as Pines or Rhododendrons that I observed. On the other hand I saw Plantains at a considerable height on the North side. The ground is not of a very compact, rocky nature, so that it would be cleared and levelled without much difficulty. There is no want of soil upon it which would be good for gardens and useful as a cement in building.

9. The grass jungle about the sides and near the top of the hill is thick, and, though it dries up or is burned in the hot season, it at present hides from view much of the character of the surface.

10. The Thermometer which had been 84° at the Topchancee Bungalow at noon, stood this day at noon at 69°, a difference of 15°; but, though cool and pleasant, it was not decidedly or unpleasantly cold without a fire either in the day or night.

11. The only place to obtain cover in, at or near the top, is the temple which has an inner room about 16 feet square with a verandah all round 8 feet wide, containing four small rooms at the corners.

12. It has a stone platform or chabootra about 40 feet square on the East side, which is supported, as the temple itself is, by a revetment wall 10 or 12 feet high on the outer or steep side of the hill. At the foot of the revetment wall is the principal spring, giving just now in the rains an abundance of water, and perennial. Twenty yards above the temple is another smaller spring, the stream from which has evidently been formerly led into a stone reservoir 8 feet square and $4\frac{1}{4}$ feet deep, on the West side of the Temple. This was formerly surrounded by a garden, the rose-bushes of which are now nearly hidden by grass and jungle, and the cistern is choked with mud and rubbish. I think it may be found advisable to construct a larger cistern hereafter as a reservoir for water for which there would be plenty of room in this place. The whole North side of the hill including the environs of the temple is finely wooded. There is no one whatever resident at the top, and the

temple though carefully and expensively built and provided with good doors and staples for padlocks, is open and unguarded.

13. Chunar stone and marble have been used liberally in its construction, and I found slabs of an excellent slate in the platform, for which, as it is believed to come from the neighbourhood, I have directed further search to be made.

14. On the following day, the weather still continuing very heavy with clouds and rain, as indeed it was at this time all over the country, with no prospect of clearing up; and having succeeded in finding several bungalow sites on the hill, which for the present was all I desired, I left the temple in order to return to Topchancee Bungalow.

15. Having come up the South side, I proposed to return by the North; and the Madhoobund road which turns the left or West flank of the mountain, being well known and frequently traversed by visitors, while another passing round the East flank to Topchancee was not at all known to European travellers, I chose the latter.

16. For some distance, *viz.*, about 8 miles, the two roads are the same. After ascending the first $\frac{1}{4}$ of a mile to the summit of the hill, the road leads by a rather steep descent to an extensive and comparatively level plateau which is probably 1,000 feet below the hill above. On the West side of this a large and perennial stream, the "Seeta Nullah," flows to the plains falling into the Burrakur, and beyond it a smaller but more elevated knoll projects from the hill side at a high elevation, free from trees, on which, no doubt, one or more houses could be built, with a fine North exposure and protected from the Southerly winds. It is also not far from the source of the "Seeta Nullah," which however still remains to be explored, and the quantity of water it will afford in the dry months, ascertained.

17. If the large plateau be 1,000 feet below the main hill, it would be about 3,500 feet high above the sea. This may be thought too low for Sanitarium purposes. If it be so it will not be a matter of much consequence, as there is still a good deal of room on the hill top. The Hope Town Settlement plantations near Darjeeling extend, I believe, from 3 to 6,000 feet, and I should think this plateau would be well adapted for similar *viz.*, agricultural purposes, which, situated as Parisnath is, would, in my opinion, prove one and that not the least of its advantages.

18. It is however an opinion with some Medical men, of whom I believe Dr. R. Martin is one, that it is not necessary or advantageous to locate Euro-

peans at very great heights to ensure a beneficial result to their health, and in this opinion, I confess, I concur. There is more tendency to healthy exercise, undoubtedly at a moderate elevation and comparatively level ground, than on a chilly and precipitous hill top.

19. At the foot of this plateau, on and about which are now cut in considerable numbers the Sal wood sleepers supplied to the East India Railway Company at Raneegunge, the roads separate. For 6 miles further, the Topchancee road (so to call that which I followed) goes on a level nearly through a plantation, like forest containing various woods, Sal, Toon, Sissoo, Jarool, Bamboo, &c., till with a little fall it reaches the village of Pandydee a distance of 6 miles. The whole of this route is intersected by many streams of water some of considerable volume at this season. From the point of divergence nearly, it is a hackery track, traversed by the buffaloes who are employed in dragging the sleepers beforementioned to the Grand Trunk Road at Topchancee.

20. The North is the water side of the mountain as compared with the Southern, which appears to be, owing to the geological dip of the strata, in a Northerly direction. It is all well wooded and in appearance quite Sub-Himalayan, and similiar to any of the like approaches to the Northern Sanitaria, Simla, Nynee Tal, &c.

21. From Pandydee to Topchancee, the road passes over the lower slopes and hills round the base of the great mountain. The scenery is more European than Indian, being open, undulating, and intersected with many little streams, while the road winds among fields and grassy knolls studded with fine large trees, or among low wooded hills and down small ghauts which finally bring it into the level country close to the Topchancee Bungalow. It is a long distance however. From Pandydee to Topchancee is about 10 miles, and the whole distance therefore probably not much short of 24 miles, while by the Southern route it is only $11\frac{1}{2}$ or one half of that.

22. I saw no wild animals or signs of any. The weather and the nature of the jungle at this season were not favorable certainly, but the Natives express no fear on the subject; indeed they say that there are very few; and that no instance of visitors to the temple being hurt or carried off is known.

23. In conclusion of this Report, I would beg to suggest that I be allowed at once to improve the road leading from Madhoopore on the Grand Trunk Road to the top of the Hill, and to construct two Bungalows similar to those constructed for Commissariat Officers on the Grand Trunk Road, on the

two most convenient sites, establishing a small bazaar for the workmen, servants, &c., near the spring at the Temple, which can be supplied from Madhoopore.

24. The accompanying copy of a Memorandum I would propose to issue in case my proposal meets with His Honor's approval, for the guidance of Major Maxwell, Superintending Engineer of the 2d Circle, and of Captain Dawson, Executive Engineer, Ramghur Division, in whose District the Hill lies, will give His Honor such further information in regard to facilities for building, &c., as may be requisite. Based upon this, Captain Dawson could submit Estimates while the improvement of the road was progressing. The probable expenditure on all accounts would be say 15,000 Rupees or less.

25. The construction of these Bungalows, for there is no other place of shelter save the Temple now available, would enable persons to reside in comfort for some time at the top of the Hill, make observations on its climatal conditions, and explore its resources so as to collect data for a final judgment as to its capabilities and advantages as a Sanitarium for the European Soldier. If favorable, a Hospital for Invalid Soldiers could then be built next year.

*Memorandum of work to be done, observations to be made, &c.,
on Parisnath Hill.*

THE present road from Madhoopore, near the 189th milestone on the Grand Trunk Road to the summit of the hill, to be widened to 5 feet in breadth, and improved in its gradients so as to be easily ascended by ponies and pedestrians.

2. A space to be cleared not far from the springs at the hill top for the huts of workmen, bazar shops, &c., the grass in the neighbourhood being rooted out and destroyed and low jungle cut down.

3. The road from the temple to the top of the hill to be also cleared and improved.

4. The two springs near the temple to be cleared out as well as the cistern into which the upper one falls, and the quantity of water they are capable of giving during each month of the hot season, to be ascertained in gallons during the 24 hours.

5. The top of the hill to be cleared and levelled at the sites marked on the accompanying Sketch Plan, and a road constructed connecting them with each other : also a path leading as far as the small plateau marked A.

6. On two of the sites selected as best adapted for bungalows, two houses to be built on the plan* herewith forwarded : also out-offices and servants' houses attached, for which sites will be cleared on the hill side to the North.

7. The whole top of the hill to be further explored and its capability of affording building sites accurately ascertained, measured, and recorded—reference being made to the distances of water and the amount obtainable.

8. A survey of the hill top to be made, together with the roads leading to it, including portion of the Grand Trunk Road. The Madhobund and Topchancee roads to be also roughly surveyed, measured, and marked in.

9. The source and amount of supply of the "Seeta Nullah" to be carefully ascertained, as well as all other discoverable sources or springs of water on the hill.

10. A pathway or means of access to the perennial source of the "Seeta Nullah" to be cut from the hill top and the small plateau marked A. overlooking it.

11. Thatching grass, stone and clay for mortar, as well as ordinary timbers for servants' houses, can be obtained on or close to the top. Heavier timber and bamboos, half way down.

12. Inquiry and search to be made in the neighbourhood for the slate, some of which has been used in the construction of the temple platform.

13. Workmen to break up, and if necessary blast the rocks, can be got from the Burrakur. Sawyers to be established on the hill sides from Kandra on the Grand Trunk Road or other villages.

14. *Timbers for roofs, chowkuts, doors, floors, windows, &c., can be here sawn and sent up by coolies, who can be had, it is believed, for 3 annas a day or (1) one anna more than in the plains.

15. Lime and soorkee must be made and brought from the plains at the foot of the hill, where they are now obtained for bridge and other work. The cost of masonry at the top, using lime and soorkee, would be about 10 Rupees per 100 cubic feet according to the data given by the Assistant Overseer on the spot.

16. In addition to the foregoing, it will be highly interesting and useful to take a continued series of observations* by means of the proper instruments* with regard to the heat, humidity and weight of the atmosphere.

* Thermometer.
Barometer.
Maximum and minimum
Thermometer.
Dry and wet Bulb Thermometer.

17. The dew point and amount of dew ; the height of vapour plane ; the amount of clouds and fogs, and the direction of the prevailing winds and their force, should be observed and recorded regularly.

18. The rainfall should be accurately registered also.

19. And it would be interesting if observations could be made upon the terrestrial and solar radiation of heat upon the animal and vegetable productions of the mountain, and in what respects, if any—in all of the above particulars,—the North differs from the South side of the hill.

(Sd.) C. B. YOUNG, *Captain,*
Offg. Chief Engineer, L. P.

From RIVERS THOMPSON, Esq., Junior Secretary to the Government of Bengal, to the Officiating Chief-Engineer, Lower Provinces,—(No. 3856, dated Fort William the 3rd November 1859.)

SIR,—THE Lieutenant-Governor has perused with much satisfaction the account given in your letter No. 4213, of the 21st Ultimo, regarding your late visit to Parisnath hill, and he is glad to learn that the general features of the locality are favorable to the supposition that some portions of it may be adapted, at a moderate cost, for the purposes of a Sanitarium.

2. Under these circumstances, the Lieutenant-Governor has no hesitation in authorising you, as a preliminary step, to expend a moderate sum in improving the shorter of the two existing roads to the summit of the hill, as recommended by you. But I am desired to add that nothing further can be undertaken till some arrangement is made with the proprietors of the land, whose wishes respecting the temple and Muths must first be ascertained. The Commissioner of Chota Nagpore has this day been requested to make the necessary enquiries on this point, and on the receipt of his reply further orders on the subject shall be communicated.

3. The original drawing and plan, which accompanied your letter, are returned herewith.

From RIVERS THOMPSON, Esq., Junior Secretary to the Government of Bengal, to the Commissioner of Chota Nagpore,—(No. 3857, dated Fort William, the 3rd November 1859.)

SIR,—I AM directed by the Lieutenant-Governor to forward to you the accompanying copy of a letter No. 4213, dated the 21st Ultimo, from the Officiating Chief Engineer, Lower Provinces, and to inform you that as the account therein given by Captain Young, of Parisnath hill, appears to the Lieutenant-Governor to be on the whole favorable to the supposition that a portion of the hill is eligible for purposes of a Sanitarium, he is desirous of ascertaining all particulars respecting the ownership of the land.

2. I am therefore directed to request that you will have the goodness to make the necessary enquiries on this point, and also ascertain and report whether the owners, some of whom are understood to be minors under the Court of Wards, are willing to sell any of the land that Government may wish to buy for building sites.

3. You are also requested to report, after enquiry, what arrangements will be necessary in regard to the large temple on the summit of the hill, which is understood to be resorted to by numerous pilgrims once a year.

4. An early reply is very desirable.

From BABOO KALIDAS PALIT, Deputy Magistrate and Deputy Collector, Govindpore, to E. H. LUSHINGTON Esq., Officiating Secretary to the Government of Bengal,—(No. 305, dated the 12th December 1859.)

SIR,—AGREEABLY to the order contained in the 5th paragraph of the letter No. 168, dated the 12th November last, of the Commissioner of Chota Nagpore, I have the honor to report, for the information of His Honor the Lieutenant-Governor of Bengal, that upon proceeding to Parisnath and making the necessary inquiries, I find that there are four owners of the Parisnath hill. Of these three are Minors with ages ranging from thirteen to fifteen years. The one who is thirteen years of age, has, as his guardian and manager of his estate, his mother, the Ranee of Palgunge in the Sub-Division of Burhee in the District of Hazareebaugh, and has an eight anna share of the whole range called the Parisnath hill. The holders of the remaining eight anna share, of which the minor Zemindar of Jhoria has three annas and six pie, the minor Zemindar of Nowaghur two annas and six pie and the Katras Zemindar two anna, are in the Sub Division of Govindpore in the District of Maunbhoom—or the South and East sides of the hill belong to the Maunbhoom Zemindars, and the North and West sides to the Ranee of Palgunge. The Maunbhoom Zemindars being unwilling to sell the land for money, have severally agreed to make a free gift of their shares of the hill to Government, provided the temple of Parisnath be held inviolate, the pilgrims visiting it be not in any way molested, and the Shât forest and bamboos be left at their disposal, and if taken for building purposes, be paid for. By the repeated assurances of the minors and Dewans on the part of their guardian mothers, I doubt not they will ratify the gift which they are now making to Government when they come of age.

2. Of the two persons Lala Sahèbram and Joylal Sing on the part of the Palgunge Ranee, Joylal Sing stated that the Ranee is willing to follow the example of her co-shareholders, but Saheb Mooktear on religious grounds opposed his colleague and made a reference to her. An Urzee or a letter has this day been received from her, stating therein that the holiness of the mountain is known to all, and it would be an act of sacrilege on her part either to sell or give up the hill.

Thus she having kept me nine days at the foot of the hill, now in an indirect manner refuses to give her share. This is to be attributed to the chicanery of Sahebram Mooktear, who also stated that in 1832 a gentleman made an attempt to take this sacred hill, but Government passed an order on the petition of the Jains that no offence will be offered to their religious prejudices and no obstruction to their usual pilgrimage, and that this time he will again go and petition the Government.

3. The temple has no lands attached to it, and the priests officiating at the ceremonies receive fees from persons who employ them.

4. The chief temple of Parisnath, in which is his image or figure, as well as the twenty-two smaller ones, in which are the sacred feet of the Jain deities or their deified saints, belong to the Jain sect, and are situated on Samet Shithar or Parisnath hill where he (Parasnath) died. The Jain sects are Oswals, Agurwals and eighty-two other tribes residing in Bengal and the Upper Provinces, who come to worship these deities generally from the month of Magha up to Choitro, or from January to March, when a regular fair takes place at Madhubun at the foot of the hill on the North side where there are also temples dedicated to Parisnath and the deified saints. The hill is considered very sacred by them, and some of the smaller temples are interspersed in such a manner on the table land that the sites selected for bungalows would, in my humble opinion, perhaps interfere with the religious prejudices of the pilgrims; and, as it is well known to all that the Jains, who refrain from injury to any sentient being and remain quite separate from other Hindus who offer sacrifices, would not like to see shambles or a meat Bazar established on the holy mountain, or Europeans sitting on or entering their temples.

5. I would have made all haste in sending in this report, but was delayed in doing so owing to the non-receipt of the Palgunge Ranee's decisive answer.

From CAPTAIN E. T. DALTON, Commissioner of Chota Nagpore, to E. H. LUSHINGTON, Esq., Officiating Secretary to the Government of Bengal,—(No. 148, dated the 7th February 1860.)

SIR,—WITH reference to your Office letter as per margin, and
 No. 3857, dated 3rd November 1859. Baboo Kallie Dass' letter to your address, No. 305, dated the 12th December 1859, I have the honor to submit for the information of the Lieutenant-Governor, copy of a letter* from Mr. Wilson, Deputy Magistrate in charge of the Burhee Sub-Division, with copies and *translations* of the Vernacular annexures, from which His Honor will observe that the Ranee of Palgunge has consented to cede to Government any land that may be required on the Parisnath hill, providing only that the Jain pilgrims be permitted as heretofore to visit all the shrines on the hill, and that the shrines and temples themselves be not violated.

2. I beg to add, that having myself explained to the Ranee's agents and also to her son the minor Zemindar of Palgunge, that there would be no interference whatever with the temples or the approaches to them, they expressed themselves perfectly satisfied.

3. The Ranee of Palgunge, it will be observed, claims the whole hill as belonging to her son's estate. There has been no actual division of the hill, but the Zemindars of Katras, Jhurea, and Nowagurh received shares of the offerings of the pilgrims. As however these Zemindars have expressed their willingness to assign to Government any lands on the hill, to which they have any right or title, it is not likely that any difficulty will arise.

From A. G. WILSON, Esq., Deputy Magistrate of Burhee, to LIEUTENANT-COLONEL S. SIMPSON, Principal Assistant Commissioner, Hazareebaugh,—(No. 16, dated the 28th January 1860.)

SIR,—I have the honor to acknowledge the receipt of your Office Memorandum No. 318 of the 27th Ultimo, with copies of correspondence annexed thereto regarding lands on the Parisnath hill for Sanitarium purposes.

2. In reply I beg to inform you, that agreeably to the instructions conveyed in the Commissioner's letter to your address, I proceeded on the 4th Instant to the village of Palgunjoo for the purpose of negotiating with the Ranee for the cession of the land required, and I am happy to state that after I had explained to her, through her Dewan, that the Government in requiring the land did not wish to interfere in any way with the religious privileges of those who visited the temples, she, after stating that she was merely the guardian of her son during his minority, consented to such lands, as might be required by Government for building sites on being taken, but expressed a hope that the pilgrims would be permitted to visit and perform their worship as heretofore unmolested, and the temples themselves protected from being violated in any manner.

3. I have the honor to forward in original the Ranee's replies to my Perwannahs, from which you will observe that she repudiates altogether the existence of any person having a share in the Parisnath hill with herself; and, as it was not necessary, I did not make any enquiries into the correctness or otherwise of her assertion.

Urzee of Ranee Poorun Koonwuree, mother and guardian of Rajah Parusnath Sing, minor Zemindar of Gadde Palgunge, Pergunnah Khurruckdeah, Zillah Hazareebaugh, dated the 5th January 1860.

To the Deputy Magistrate of Burhee.

AFTER compliments states—I beg to acknowledge the receipt of your Perwannah, dated 4th January 1860, regarding the cession of land on the Parisnath hill required for a Sanitarium for Europeans. Rajah Parusnath Sing, my minor son and I are bound as subjects to execute all orders issued by the authorities; we cannot therefore withhold our assent to your wishes. Parisnath hill in Gadde Palgunge is a hereditary tenure for the enjoyment of which my son is dependent on the Government. Should the Government wish to convert it into a Sanitarium, I have no power to object to the measure. This much, however, I would wish to say that Gadde Palgunge, the hereditary estate of my son, is very hilly, and in the temple on the Hill resides the god Parisnath. More than 25 generations ago this god appointed Munde Singh, the ancestor of my son, to be Rajah and proprietor of Parisnath Hill and Gadde Palgunge. Parisnath's shrine, is annually visited by a large num-

ber of pilgrims from the West, including such tribes as the *Sarâwak*, *Juggut Sait* and others. Owing to the Government having contemplated the formation of a Sanitarium at this place, the pilgrims have become discontented and do not now visit the shrine. Such of them as did come to the spot were displeased at a Sahib's having entered the temple, and remarked that they were in danger of losing a place which they had always been accustomed to regard as sacred. If the Government convert the Hill into a Sanitarium and Sahibs come there, how shall the worship of the god be performed? Though I have endeavoured to conciliate the pilgrims through my servants, yet they refuse to acquiesce. Let it be considered that Gadde Palgunge which is the Zemindary of my son, is hilly and covered with jungles. After payment of the Government revenue and expenses, public and private, my son and his ancestors have depended for their livelihood upon the scanty proceeds of the hills and jungles. If the Government build bungalows on it the *Juggut Sait*, *Sarâwak* and other pilgrims from the West will cease to frequent the shrine. You will be pleased to consider that the site is totally unfit for a Sanitarium. During the hot season the wood in the jungles ignites and renders the place very hot.

In regard to the statement in your Perwannah that the Zemindars of Kuttrass, Jhurreeh and Nowagurh have consented to cede half of the land required, I beg to say that they have no concern with or share in the Parisnath hill. They have not a cottah of ground on it. The whole of the Parisnath hill is within my son's Zemindary. It is from a desire to get possession of half of it, that they have made this false assertion, but their fraudulent designs cannot succeed. I have stated all the necessary particulars.

Urzee of Ranee Poorun Koonwuree, mother and guardian of Rajah Parusnath Sing, minor Zemindar of Gadde Palgunge, Pergunnah Khurruckdeah, Zillah Hazareebaugh, dated the 5th January 1860.

To the Deputy Magistrate of Burhee.

IN reply to your Perwannah inquiring as to whether I do or do not consent to make a grant of land on the Parisnath Hill, I beg to state that Rajah Parusnath Sing, my son, is a minor, and the Government has

appointed me to be the guardian of his property and estate. I have consequently no power beyond that of a guardian, and I am bound to carry out the orders of the Government. If the Government wish for land on the Parisnath Hill for building purposes, they are welcome to it. As however there are several shrines of the god Parisnath on the Hill which are visited by the *Jugget Sait* and other pilgrims from the West, I would venture to request that the Government make such arrangements as will prevent all interference with their religious sentiments and ceremonies, secure free access to the worshippers, and preserve inviolate the sanctity of the shrine. If such arrangements can be made, I am perfectly satisfied.

From MAJOR WILLIAM MAXWELL, Superintending Engineer, Behar Circle,
to the Chief Engineer, Lower Provinces,—(No. 162, dated the 15th
May 1860.)

SIR,—WITH reference to the verbal orders received by me on 7th January last, from the Hon'ble the Lieutenant-Governor of Bengal, I have the honor to submit a report on the Hills lately visited by Captain Dawson and myself, situated *North and West* of the highest peak of the Parisnath mountain.

2. A sketch of the Hills is submitted,* on which a tracing of the path-way lately constructed, leading from the plains below to the top, is shewn.

* By Dāk Banghy.

3. The road up is between six and seven miles in length, commencing at the 198th mile-stone on the Grand Trunk Road, where we have the Nimia Ghât 2nd Class Chowkey. It is at present a mere path-way with an easy gradient except for the last one and half miles, which is more steep and difficult, but the whole line is workable, and, I have no hesitation in saying that, with an expenditure of about Company's Rupees 1,500, an excellent hill road might be made the whole distance, easy for ponies or pack bullocks. The Hills are well wooded and the scenery is pretty and refreshing nearly the whole way; about a mile and a half from the top, water is obtainable, which is a great point.

4. Our tents were pitched on the top of a Hill called "the Observatory" in the plan, where I constructed a rude chupper, open on all sides, but covered over from the direct rays of the sun with branches of trees. In this chupper I fixed Thermometers and Barometer.

5. We remained on these Hills from 24th to 29th of April, both days inclusive, and the following was the reading of the Thermometers:—

Maximum.			Between 2 and 4 P. M.	Minimum.		At day-break.
24th	...	86°		Not taken.		
25th	...	87°		72°		
26th	...	87°		76°		
27th	...	90°		76°		
28th	...	86°		78°		
29th	...	84°		73°		
Mean - $86\frac{2}{3}^{\circ}$				Mean - 75°		

The weather down below, during this time, I learnt, was excessively hot. At 10 o'clock on the morning of the 30th, when I reached the foot of the Hill, the Thermometer was 96°, and in an open verandah, at 12 o'clock it was 107°; this should be considered on comparing temperatures at top and below.

6. The hills are very inferior to those occupied by the Jain temples, and the building sites are very few and circumscribed. Small cottages can be built at the following spots:—

- 1st. The Observatory.
- 2nd. Between Observatory and highest peak.
- 3rd. The Saddle under the Observatory, called Mr. Grant's site; and
- 4th. At the Plateau houses for fifty or sixty soldiers.

One or two other sites for cottages may be discovered on clearing the jungle, but beyond this there are no expectations.

7. The great Trigonometrical Station in Latitude $23^{\circ} 57' 37''$ and Longitude $86^{\circ} 10' 37''$ has been taken as 4,477 feet above the level of the sea (the height given me by the Deputy Surveyor General,) with that datum to work upon. The following are the heights of the spots visited (taken by Mountain Barometer):—

Observatory	...	...	...	...	4,312 feet.
Highest temple	...	...	...	...	4,624 „
Where Lieutenant-Governor's Tents were pitched last					
January	...	...	...	...	4,365 „
The large temple	...	...	...	...	4,195 „

Site called Mr. Grant's	...	...	...	4,212 feet
Plateau (centre of)	...	...	...	4,006 "
Water (Seetah Nullah)	...	...	...	3,609 "

8. The water (called Seetah Nullah) is 633 yards from the centre of Plateau and 1,033 yards from the Observatory. The road to it is now steep and indifferent, but a good road is easy of execution. The supply at the head was about 5,000 Gallons per twenty-four hours, and it becomes more abundant as you proceed downwards; its temperature was 68° , that of the air being 88° ; the distance to it is a great draw-back.

9. I may mention, *en passant*, that I observed growing plentifully over the Hills the Barbary shrub; the Natives below appeared quite aware of its medicinal properties. I speak with some knowledge of its use, for I administered it in large quantities in the Rohilcund Tarae, and I can therefore recommend it to the notice of the Faculty in Bengal; its tincture is a wonderful tonic and in low fevers I have known it do great good. I made it myself extensively in the Kumaon hills and used it chiefly among the inhabitants of the swampy country referred to as a substitute for Quinine. White Ants I found also on these Hills; as they are not common in hill Stations, it is as well to notice this.

10. I fear the range of the Thermometers, as given in paragraph 5 of this letter, will disappoint others as it did me, but it must be borne in mind that during my visit the weather below was very warm, and moreover that the instruments were exposed in an open chupper. In a house with open doors, I

feel convinced the maximum range would seldom or ever be 84° ;* with closed doors during the three or four hours of greatest heat, it would be less, and it is no novelty

* I have known the Thermometer 82° at Nynee Tal in an open Verandah.
(Sd.) W. MAXWELL.

shutting up the house in the hills; at Almorah this is almost always done during the summer; at all events there would be no need for Punkahs at any season, and the delicious cool water is no trifling luxury; a snug refreshing and healthy retreat from the parching or muggy heats of the Plains, and where cool nights can be depended upon, is to be had in those Hills, where the temperature will always be 10° or 12° lower than in the Plains, and where the breeze (which by the bye blows *very strong* on the ridges,) even at the temperature of 90° on 27th was pleasant to sit in.

11. I need not refer in the letter to points that have been touched upon in previous correspondence regarding the Parisnath Hills; what has been stated

of the temple Hill holds good for the Hills I have just visited; that they are inferior in height and in building sites to the large Hill is a fact that no one can gainsay; the great draw-back of distance to water is another thing to be considered; for a few this would not so much matter, for a Pukhal Pony would supply the wants of a family, but where numbers are collected the inconvenience would be great.

12. On the 28th I visited the large temple, and remained in one of its Verandahs from 10 A. M. to 3 P. M. At 10 o'clock the Thermometer was 82°, at noon it was 84°, and at 3 P. M. 86°; shut in as this temple is, and where we got no breeze, the range is not greater than expected, but there is a feeling of freshness in the air even when the Thermometer is high that makes every one pay less regard to the mercury.

13. I have, I believe, in the above given all the information desired by His Honor the Lieutenant-Governor. Should I have omitted any point, I will thank you to inform me of it, that I may at once make good the omission. I have not in this letter referred to building facilities, as what has before been stated of the Temple Hill is applicable to the ones we have explored. The procuring of work-people will be the only difficulty, for, as you know, these ranges of Hills are without inhabitants of any kind.

Memorandum from MAJOR W. MAXWELL, Superintending Engineer, Behar Circle,—(No. 274, dated the 23rd May 1860.)

COPY of Superintending Engineer's letter No. 262 of this date, to the address of Executive Engineer, Ramghur Division, regarding Works connected with the Parisnath Hill, is submitted for the information and approval of the Chief Engineer, Lower Provinces.

2. It is impossible to say what the bungalow will cost, but it is thought, it can be completed for about 1,200 Rupees. Superintending Engineer has no great hopes, however, of its early completion, owing to the difficulty of procuring workmen, and the doubt of any remaining upon the Hill during the rains. The road has cost about Company's Rupees 400; the keeping it in repair will only cost a trifle, and it should be cared for, pending the orders of Government on the project of occupying these Hills.

3. The Ooropholite roofing has been ordered in this instance, because it is very simple to execute,—a consideration where good workmen are not to be had.

4. The construction of the Chowkey bungalow was sanctioned in Chief Engineer's demi-official note of 15th March 1860.

Office Memorandum from F. R. BOYCE, Esq., Officiating Assistant Chief Engineer, Lower Provinces,—(No. 682, dated the 1st June 1860.)

TRANSFERRED in original to the Government of Bengal, in the Public Works Department, in continuation of this Office No. 681, dated this day.

From MAJOR W. MAXWELL, Superintending Engineer, Behar Circle, Lower Provinces, to CAPTAIN J. DAWSON, Executive Engineer, Ramghur Division,—(No. 262, dated the 23rd May 1860.).

SIR,—WITH reference to our late visit to the Hills, North and West of the temple Hill of Parasnath, I have the honor, pending the orders of Government, to issue the following instructions:—

1st. The path-way lately made up to the top of "Observatory Hill," and from this Hill to the head of the Seetah Nullah to the North is to be kept in passable order. No improvements need be undertaken yet to the line, but all large stones which interrupt the passage of a Dooley, should be removed, and the path-way kept open and in repair.

2nd. A small Chowkey bungalow, and Out-offices may be built on "Observatory Hill." Two rooms with open Verandah to the North, and enclosed Verandah to the South for dressing, and Bath-rooms will suffice for the present. The walls may be of dry stone (or stone in mud, if built during the rains,) plastered with lime, mortar externally, and with kutcha plaster internally. Covering timbers may be of good strong Bullahs placed from $2\frac{1}{2}$ to 3 feet apart, covered with the "Ooropholite Roof," of which I can send you a description, if you are not acquainted with it.

2. I request you will from time to time inform me of the progress of the bungalow, and what prospect there is of its speedy completion.

From **LIEUTENANT COLONEL C. B. YOUNG**, Secretary to the Government of Bengal, in the Public Works Department, to **MAJOR W. MAXWELL**, Superintending Engineer of the Behar Circle,—(No. 2243, dated the 7th June 1860.)

SIR,—**YOUR** report No. 162, dated 15th ultimo, on the Parisnath Hill, having been laid before the Lieutenant-Governor, I am directed, pending the issue of further more precise orders, to instruct you to take the following steps without delay towards advancing the progress of the Works already commenced.

2. The road up the Hill should be completed and perfected as soon as possible to a minimum width of ten feet, with an inside drain and cross underdrains. You will not neglect to improve it wherever possible ; and in some places, it would appear from the many zig-zags marked on the Plan, to be susceptible of this.

3. A road fit for Puchalies should be made to the Seeta Nullah water source, and the other Springs mentioned in your subsequent letter should be opened out.

4. An accurate Plan to a large scale should be made immediately of this portion of the hill top, and sites should be cleared and pegged off for the following houses :—

1st. Barrack for about fifty Europeans. This would probably be on the lower part of the Plateau below the main road of the Station, and not far from the supply of water.

2nd. An Officers' bungalow, say for four Officers. This and the following would probably be above the road.

3rd. A Civilians' Bungalow, same dimensions.

4th. A bungalow or chowkey for the Building Department, Establishment and Officers.

5th. A private residence for the principal Government Official at the place.

6th. A site for a Bazar, which should be convenient of access, and not far from water.

5. The completion of the road and the construction of the Officers' and Departmental bungalows, should first engage your attention, and the Lieutenant-Governor trusts they will be rapidly constructed.

6. The Lieutenant-Governor expects to receive from you an early report of the progress made in carrying out the objects above indicated.

7. Should you require assistance of any kind, you will be good enough to notify the same to me as soon as possible.

8. A Rain Gauge should be at once established on the summit, and the rain-fall registered.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal, in the Public Works Department, to the Officiating Secretary to the Government of India, Public Works Department,—(No. 2593, the 29th June 1860.)

SIR,—I HAVE been directed by His Honor the Lieutenant-Governor of Bengal to report, for the information of the Governor General in Council, the steps which he has lately taken towards facilitating the establishment of a small Sanitarium for convalescent European soldiers and others upon Parisnath, should His Excellency the Governor General of India in Council think fit to approve of such a measure.

2. Parisnath is the highest of the range of Hills separating Lower Bengal from Behar, through which the Grand Trunk Road runs. It stands off from the range on its South-Eastern face, thus overlooking the Plains between the valleys of the Damooda and Burrakur rivers. Its summit is 4,624 feet above the sea; and the mass of the Hill overhangs the Grand Trunk Road from the 189th to the 198th mile-stone from Calcutta. This Hill is one of those places mentioned in the Volume of Printed Reports of Sanitaria, received from the Government of India with a letter from the Officiating Secretary in the Military Department, regarding which it was desired that enquiries might be made. But the measures now to be reported were commenced before the receipt of that letter.

3. The Hill had been visited from time to time by many Euro-

peans, being very favorably situated for this purpose, as the road runs immediately at its base. It is believed that European gentlemen have spent several days on the Hill, during every month of the year, and at no season has it been found to be feverish, or otherwise than perfectly healthy. The late Lieutenant-Governor ascended the Hill in February 1855, but he was not favorably impressed with its capabilities for a Sanitarium. He believed that there was want of space on the top for building, and for the recreation of European soldiers; and he considered the difference of temperature between it and the Plains, which he estimated at only about ten degrees, to be too small to make it an object for Europeans requiring a change to a cool atmosphere.

4. In his despatch No. 28 of 1860, dated 14th April, received on the 30th ultimo, the Secretary of State observed, with reference to the late Lieutenant-Governor's opinion of this hill, that he appeared to have arrived at a sound conclusion in regard to it.

5. The Officiating Chief Engineer, and Major Maxwell, the Superintending Engineer of the Circle in which Parisnath is situated, both of whom have had considerable experience in hill Stations, reported to the present Lieutenant-Governor, their belief that the Hill had not been sufficiently examined by persons professionally and practically able to offer a sound opinion as to the facilities afforded for building upon it. They were both of opinion that, although the actual difference of thermometric range between it and the Plains, might not be very great, much less of course than at such of the several Hill Stations as are of much greater elevation, yet the advantages, when drawing a comparison between this Hill and the neighbouring Plains, of the very much purer and more bracing air of the Hill, apart from mere difference of temperature, had not perhaps been sufficiently appreciated.

6. The Superintending Engineer was requested to take an opportunity of being in the neighbourhood of the Hill in the course of his duty to ascend it, and to make special explorations and observations, with reference to the possibility of building upon it any, and if any, how many barracks or bungalows for Invalids; and also with regard to the temperature, the supply of water, and other practical matters connected with Mountain Sanitaria.

7. This Major Maxwell did, and his report,* a copy of which is
 * No. 1393, dated 12th July 1859. herewith submitted, was forwarded by the
 Chief Engineer to the Lieutenant-Governor
 on the 21st July 1859. In the month of June, in the day time, Major
 Maxwell found that the Thermometer on the Hill did not rise above
 73°, and showed a minimum difference of 15° as compared with the heat
 in the Plains below, where, owing to rain, it was moderately cool for the
 season. In regard to water, and in other respects, his report was equally
 favorable.

8. Subsequently, the Officiating Chief Engineer himself took
 advantage of the Doorga Pooja Holidays in October 1859 to visit the
 Hill; and he submitted on the 21st of October 1859 a report of his
 examination, which also embraced parts of this fine mountain not till
 then visited.

9. These two reports, independently drawn up, were so favorable
 that the Lieutenant-Governor, on the 3rd November following, autho-
 rized, as a preliminary step to a closer examination, the expenditure
 of a few hundred Rupees in improving the shorter of the two existing
 paths to the hill top, as recommended by the Officiating Chief Engineer.
 Nothing further could be undertaken till some arrangement should be
 made with the Proprietors of the land, whose willingness to grant
 building leases, and whose wishes respecting the temple and muths
 situated upon the Hill it was necessary first to ascertain. The
 Commissioner of Chota Nagpore was, on the same date, desired
 to make the necessary enquiries on this point.

10. While these enquiries were in progress, the Lieutenant-
 Governor, during his tour in January of this year, in company with
 the Officiating Chief Engineer, the Superintending Engineer, the
 Commissioner of Chota Nagpore and other officers, ascended the
 Hill, pitched tents on level ground at the top, and remained there two
 days, during which the whole of the summit of the Eastern part of
 the Hill, and the neighbouring slopes, were inspected.

11. The Lieutenant-Governor was struck with the number and
 excellence of the building sites on this part of the Hill, which exceeded
 what he had been led to expect. The water is excellent, but it is believed

not to be enough for more than sixty or eighty men. The beauty of the place, and the purity of the air, were remarkable; and he was fully as favorably impressed by the capabilities of that part of the Hill for the location of a small Sanitarium as the Officers of the Department of Public Works who had examined it.

12. There is no doubt that sufficient space exists on the Eastern division of the Hill for Barracks for a few hundred men, and for several pleasant bungalows. But there seems not to be enough water on this part of the Hill for any large number of men.

13. This part of Parasnath Hill, like Mount Aboo in Western India, is a great place of pilgrimage for the Jains from all parts of India. There is a temple, containing Gautamas or images of Boodh, a few hundred yards from the summit; and along the ridge on this Eastern part of the Hill, all the peaks have small masonry buildings said to be twenty-one in number, over representations of the footsteps of Boodh, at each of which the pilgrims make an offering. The time of pilgrimage is in January and February, during which very many thousand Jains, men, women, and children, in their best attire, ascend the Hill. For the rest of the year, the solitude of the place is undisturbed. Petitions against making Parasnath a Sanitarium had been presented by many respectable and wealthy Marwarrees in Calcutta; and when the Lieutenant-Governor was on the hill, it being then the time of pilgrimage, large numbers of pilgrims were present, and made the same representations in person. The feeling was unmistakeable, and in the Lieutenant Governor's opinion natural and not unreasonable. When it was observed that no one would think of interfering with the temple and the shrines, round all of which, if desirable, walls might be built, the spokesmen with whom the Lieutenant-Governor conversed, explained that, as we saw, ladies and children performed this pilgrimage; and they gave him to understand that their real and great dread was not so much any desecration of their holy places, as the disorderly conduct of European soldiery who would be about the place, were it to become a Military Sanitarium.

14. Although the Eastern and perhaps, in all except the important point of water, the most favorable portion of the Hill is covered with the sacred spots, the Western portion of the Hill is not considered sacred.

and is never visited. It is divided from the Eastern portion by a deep cut, near the top of which a water-course takes its rise. That portion of the Hill, and indeed all to the West of the shrine on the highest peak of the Hill, (marked highest peak 4,624 on the plan,) is wholly unoccupied. From its appearance, as viewed from the above peak, notwithstanding its being of somewhat lower elevation, it seemed to present favorable facilities for building.

15. When the Lieutenant-Governor asked the spokesmen of the pilgrims whether they would feel any objection to a Sanitarium on that part of the Hill, they replied that they had none whatever. The Lieutenant-Governor then told them that he would build on that part, and not upon the Eastern part of the hill, at which they expressed their great and perfect satisfaction.

16. It appears to the Lieutenant-Governor that Soldiers could not be quartered on the sacred part of the Hill to which the pilgrims resort without offending feelings which it is neither right nor wise to offend.

17. The Officiating Chief Engineer was accordingly directed to have the Western part of the Hill, which was as yet unexplored, carefully examined. The measures necessary to effect this, it was obvious, would occupy a considerable time, inasmuch as no path had ever existed by which this part of the Hill could be approached from the Plains; and it would therefore be necessary to construct a new path of about six or seven miles in length, starting from a new point of departure on the Grand Trunk Road.

18. While these instructions were in course of being carried out, a reply was received from the Commissioner of Chota Nagpore to the letter addressed to him, in regard to the ownership and occupancy of the Hill. Captain Dalton had been directed to report whether the owners of the Hill, some of whom were understood to be minors under the Court of Wards, were willing to sell any land that Government might require for building sites, and also, after enquiry, what arrangements would be necessary in regard to the temples.

19. The reply of the Commissioner of Chota Nagpore, dated 7th February, was received on the 20th idem. He forwarded with it a letter

from the Deputy Magistrate in charge of the Burhee Sub-Division, Mr. Wilson, enclosing two Urzees from the Ranee of Palgunge, who was found to be the sole owner of the hill. Captain Dalton reported that the Ranee of Palgunge consented to cede to Government any land that may be required on the Parisnath hill, providing only that the Jain pilgrims be permitted as heretofore to visit all the shrines on the Hill, and that the shrines and temples themselves be not violated. He added that, having himself explained to the Ranee's Agents, and also to her son, the minor Zemindar of Palgunge, that there would be no interference whatever with the temples, or the approaches to them, they expressed themselves perfectly satisfied. Captain Dalton explained that the Ranee was the sole owner of the Estate, but that the Zemindars of Kotras, Jhurea and Nowaghur received shares of the fees paid by the pilgrims; and that they too had expressed their willingness to assign to Government any lands on the hill to which they have any right or title; wherefore no difficulty on this point was likely to rise.

20. The plan of restricting the buildings to the Western division of the Hill will avoid all difficulties connected with the shrines.

21. The new Road of ascent up the Western end of the Hill, after much labor having been completed by Mr. Supervisor Hembrough in April, the Superintending Engineer, Major Maxwell, proceeded by it to the Western ridge of the Hill, and remained there a week, taking obser-

* No. 162. vations of heights, temperature, &c. His final * report, dated 15th May, was submitted

by the Chief Engineer on the 1st instant, and together with a Plan, of such extent as the time at disposal enabled the party to make, is submitted herewith.

22. It will be observed that this report is very favorable. From an Inspection bungalow of the Department of Public Works, built upon the Grand Trunk Road at the 198th mile-stone, to the summit, is a distance of between six and seven miles; and the road, with an expenditure of Rupees 1,500, can be made an excellent one, easy for ponies or Pack bullocks. There is water within a mile and a half of the top, on this road.

23. On the top there are sites for a Building to hold fifty or sixty Convalescents or Invalids, besides other sites at present observable for

five or six bungalows. There can be no doubt, in the Lieutenant-Governor's opinion, that more sites can be found. A perennial Spring, giving a supply equal to 5,000 Gallons a day of delicious water, at a temperature in April of 68° , is within a thousand yards of the top of the Hill, and within six hundred yards of the largest building site which it is proposed to occupy with a Barrack. And since this report was sent in, I may add that another report has been received from Major Maxwell, with Chief Engineer's, No. 901, of 12th instant, saying that two other Springs have been discovered, one of which is within three hundred yards of the Hill top.

24. The general elevation of the building ground is four thousand feet, about equal to that of Soobathoo (4,200) and of Cherra Poonjee (4,120); and not very far below that of Mount Aboo (4,500). The highest peak on this division of the Hill (marked Observatory on the Plan,) is 4,312 feet, or 312 feet below the highest peak of the entire Hill. The temperature by Thermometer, under an open thatched shed, gave an average maximum during the last week of April of 86° . The season being one of the hottest that has been known for many years, the Thermometer rose to as high as 107° in the Plains below, showing a difference in the heat of the day of twenty-one degrees. While the heat was so extreme down below, Major Maxwell says, that he and those with him had merely a grass temporary thatch over their heads, open on all sides, and he describes the air as refreshing and pleasant. He says that punkahs would never be required; and that during his stay the nights were cool even somewhat cold towards morning.

25. The temperature of Parisnath seems, as might have been expected from the latitude and elevation of the two places, to be about the same as that of Cherra Poonjee; but Parisnath has the advantage of only a moderate rain-fall.

26. The Western division of the Hill would seem to be somewhat inferior to the Eastern division in every respect excepting water, of which the supply, hitherto discovered in the Eastern division, is scanty, whilst it is ample in the Western division. This important advantage, for practical purposes, probably more than counterbalances the somewhat superior elevation, and the greater extent of building ground on the sacred part of the Hill.

27. The Lieutenant-Governor is satisfied from these reports, that advantage should be taken of Parisnath for the purposes of a small Sanitarium. The top will be no more than fifty-four miles from the Railway Terminus on the Burrakur. Thus Convalescents from Fort William, Barrackpore, Dum-Dum, Chinsurah and Raneegunge, can easily be sent thither. The distance from Dehree is 138 miles. The Sanitarium will be much appreciated by the European Public of Calcutta; and the fact of its being actually upon the chief line of internal communication in all India, gives it a peculiar value.

28. The Lieutenant-Governor has, therefore, in a letter, No. 2243, of the 7th instant, copy of which is forwarded, directed the preliminary operations, which have been commenced as before described, to be prosecuted; and he has instructed the Chief Engineer to complete and perfect the road to the top, in the first place, and to mark out more exactly the several building sites which have been indicated, furnishing a more correct and more detailed Plan of the whole ground as soon as possible.

29. The building sites are too limited in extent and number to make it advisable to sell them to private parties. To afford the greatest possible advantage to Civil and Military Officers, and to private gentlemen and families requiring a short relaxation in a cool climate, the Lieutenant-Governor is of opinion that a few bungalows should be built, and rented on fair terms, or allowed to be built by private persons on special conditions. But it would be premature, at present, to discuss this point.

From F. N. MACNAMARA, Esq., M. D., Chemical Examiner to Government, to
LIEUTENANT-COLONEL C. B. YOUNG, Chief Engineer, Lower Pro-
vinces,—(No. 274, dated the 3rd September 1860.)

SIR,—WITH reference to your letter, No. 1547, I have the honor to report on the quality of the specimen of water therewith sent.

Owing to an accident I was unable to furnish the analysis of one of the waters, but I had gone so far as enables me to say that it is of the same character as the others.

The waters are all very pure, and admirably fitted for domestic use.

In 20 Ounces.	Solid Residue.	Silica.	Earthy Carbonates.	Saline Matters.	
Small Spring No. 1.	Gr.				
1,600 feet from Observatory..	1·0	·1	3·5	·55	In all, the saline matters were the same : chiefly Chlorides with a little Alkaline Carbonate.
Small Spring No. 2.					
1,700 feet from Observatory..	1·05	·25	·55	·25	
Parisnath Temple Spring, ...	1·0	·2	·4	·4	
Small Spring, two miles from Observatory on Road to Neemeah Ghât,... ..	1·1	·22	·38	·5	An accident prevented the completion of this analysis.
Seetah Nullah about 3,000 feet from site, ...	...	·18	·4	...	
Tokerah Nullah half way on the Neemeah Ghât Road,...	1·0	·16	·5	·34	

F. N. MACNAMARA.

The 3rd September 1860.

From CAPTAIN C. H. DICKENS, Officiating Secretary to the Government of India, to the Secretary to the Government of Bengal, in the Public Works Department,—(No. 5209, dated Fort William, the 5th October 1860.)

SIR,—I AM directed to reply to your letter of the 29th June last, reporting the steps taken by the Hon'ble Lieutenant-Governor of Bengal towards the formation of a small Sanitarium upon Parisnath.

2. The Right Hon'ble the G. G. in C. quite approves of H. H.'s proceedings in this matter; but would suggest that the expenditure should be limited to the trace road and one bungalow, until regular estimates have been prepared and sanctioned.

3. It would be well to issue orders prohibiting the cutting of any but dead trees and underwood, within certain limits, so as to prevent the ground near the Station being denuded of trees to the injury of the appearance and climate of the Hill.

4. I am further to suggest that it will probably be found that for the development of a scheme of this kind, the best agency will be a well selected Medical Officer, who can take charge of sick and invalids, and can hereafter, when necessity arises, be appointed Superintendent, with Magisterial powers, and with a general control over the Station.

5. A fair experiment of the value of the Sanitarium during the hot season, might be made by having a few tents erected on the Barrack site, and thatched in. If not required for soldiers, they might be let to Officers or others, and would make the place better known.

6. The first thing to be done, however, is to secure the conveyance of the Hill from the Ranee of Palgung to the Government in proprietary right, supposing His Honor to be satisfied that this step may be taken without waiting for further experiment as to the advantages of the place as a Sanitarium.

7. The G. G. in C. understands from your letter that the Ranee is disposed to transfer the required ground as a free gift to Government. But H. E. in C. is of opinion that this should not be accepted. A fair price in money, or an exchange of land, should be given for it, as the Lieutenant-Governor may deem best. It is not of course intended to lay out any large sum on the purchase.

8. The Rt. Hon'ble the G. G. in C. concurs in the Lieut. Govr.'s opinion expressed in the concluding paragraph of your letter, and would take no step at present to induce private persons to expect to obtain building sites.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal, in the Public Works Department, to the Superintending Engineer of the Behar Circle,—No. 4322, dated the 20th October 1860.

SIR,—MY letter, No. 2243, dated the 7th June last, directed you to carry out certain preliminary Works towards the establishment of a Sanitarium on Parisnath.

2. I am now directed to forward, for your information and guidance, a copy of the orders issued by the Government of India, from which it will be seen that His Excellency the Governor General in Council approves of the Lieutenant-Governor's proceedings in this matter, but suggests that, in the first instance, the expenditure be limited to the construction of the new road up the Hill, and to one bungalow.

3. In modification therefore of the orders conveyed in the 4th paragraph of my letter above quoted, the Lieutenant-Governor requests you will confine your attention to the Works mentioned by the Government of India; until regular Plans and Estimates for the other buildings have been prepared and sanctioned. These should be submitted at as early a date as possible, and the Executive Engineer should proceed at once to the spot, and take proper measures to put the road in order, and carry on the building of the first bungalow to completion. But the very first thing to be done is to prepare and submit for approval a Plan, showing the proposed arrangement of the Station, and the sites proposed for the several buildings likely to be required. For this purpose a contour Plan of the top of the Western portion of the Hill, with the lines at about fifty feet of elevation apart, will be very useful.

4. In accordance with the 3rd paragraph of the letter under transmission, you are requested to take steps to preserve strictly all fine trees on the Hill, and to see that underwood is only cut consistently with the orders of the Government of India.

5. With reference to the 4th paragraph, I am directed to say that steps will be taken hereafter to appoint a Superintendent, until which time Captain Dawson, the Executive Engineer, will be regarded as the Superintendent.

6. 'You are requested to give due consideration to the remarks made in paragraph 5 of Captain Dickens' letter in your arrangements for the next hot season, and to report upon them in due course.

7. A letter this day addressed to Captain Dalton, the Commissioner, with respect to securing the conveyance of the Hill from the Ranee of Palgunge to the Government, accompanies; and you are directed to afford every assistance in your power towards the furtherance of this object.

No. 4323.

COPY of the above letter, and of its enclosures, forwarded to the Chief Engineer, Lower Provinces, for information.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal, in the Public Works Department, to the Commissioner of Chota Nagpore,—(No. 4324, dated Fort William, the 20th October 1860.)

SIR,—MY letter, No. 2593, dated the 29th June last, to the address of the Government of India, contained a report of the steps taken by the Lieutenant-Governor of Bengal for the establishment of a small Sanitarium upon Parisnath Hill.

2. The 18th and 19th paragraphs of this letter were based upon information received from you, and treated of the ownership and present occupancy of the Hill, and the means by which it would become the property of Government.

3. I am directed to forward for your information and guidance, the above Extracts, as also paragraphs 6 and 7 of the reply* received on the subject from the Government of India.

* No. 5209, of 5th October 1860.

4. You are requested now to make arrangements for paying either in cash, or by an exchange of land, for the Hill, in accordance with the instructions conveyed in these Extracts.

5. Your report should be submitted through the Board of Revenue to whom a copy of these orders has been sent.

6. The Superintending Engineer of the Behar Circle has been directed to afford you every assistance in his power towards the furtherance of this object.

No. 4325.

COPY of the above, and of its enclosures, forwarded to the Officiating Secretary to the Board of Revenue for information and guidance.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal, in the Public Works Department, to MAJOR W. MAXWELL, Superintending Engineer, Behar Circle,—(No. 4681, dated Fort William, the 14th November 1860.)

SIR,—THE Lieutenant-Governor having, during his stay on the Parisnath hill, from the 8th instant to the present date, examined the progress of the Works now being carried on for the establishment of the proposed Sanitarium thereon, I am now directed by him to convey to you the following instructions for their further prosecution.

2. The road leading from the Grand Trunk Road at Neemeah Ghât Choky to the summit, should be actively carried on upon the present improved alignment and gradients, and completed with all requisite bridges as soon as possible, to the width originally designed, *viz.* ten feet.

3. Where this Road crosses the hill-top, a site has been selected above to the Eastward, upon which a house may be constructed sufficiently capacious to accommodate two persons. Here the Officer in charge of the Public Works should reside. This site should be cleared and levelled at once. It is calculated that it will afford a level space of about 70 × 120 feet, and on this site, as soon as it can be prepared, the house authorized by the Government of India should be built. This house will accommodate the Superintendent, and also for the present the Executive Engineer.

4. In drawing out the map of the Station, which should be prepared and submitted as soon as possible, including the levelled sites for

houses as ordered in the present letter, Lieutenant Steel will include the hill at a lower level to the extreme West, ascertaining and recording its true elevation.

5. The site now called the Observatory site, will be cleared and levelled, but no building carried on there at present.

6. The upper Plateau, upon which the Lieutenant Governor's tents have been pitched, will be also cleared and levelled as the Barrack site, and you will submit a Design for a Barrack, or a set of small Barracks, to be built thereon, extending the whole length of the level ground, and accommodating as many men as possible. In this and in all cases, the sites and dimensions of the requisite Out-offices should be determined, and they should be shown on the plan.

7. A good broad road, with as easy a gradient as possible, should be constructed from the station to the highest and nearest spring of water, and a substantial and capacious reservoir built there

8. The site suggested for the bazar on the North-East slope of the Hill should be carefully examined, and if found after such examination to be convenient, a road should be lined out to it.

9. Lieutenant Steel, Engineers, is appointed temporarily to the Ex-officio charge of Parisnath station. He must make it his Headquarters, and his main duty must be the Parisnath works. Although one bungalow only will be built at present, in road making, clearing and levelling, and water arrangements, there is plenty to do.

10. It is the intention of the Lieutenant-Governor to send a small party of Goorkahs from one of the Police Battalions, who will be under Lieutenant Steel's Orders; and he should turn his attention immediately to putting up some shelter for them, and for the work people. The Goorkahs will be available for work, and for superintending workmen, and they will assist Lieutenant Steel in establishing and enforcing conservancy arrangements, a matter of much consequence.

11. I am desired to request you will impress strongly upon Lieutenant Steel, that all success in getting Laborers at new places like this, depends upon making the place as little inconvenient and as cheap

to them as possible. It may therefore be found advisable to give encouragement to some good Modee or Bunya to settle at the place, by allowing him a small monthly salary of say ten Rupees, on condition of his keeping a sufficient store of all supplies at reasonable prices for the people. All necessary arrangements for getting workmen to come and stay contentedly will be approved. For the sake of their health and comfort good housing and plentiful food are essential.

12. The Lieutenant-Governor is of opinion, that the organization of a Coolie establishment to bring up supplies daily might perhaps be a good measure. It will be necessary in one way or the other to make up to the work-people for the expense and inconvenience of living on the Hill.

13. I am also to suggest that Captain Dalton, the Commissioner of Chota Nagpore, if applied to, might be able to entertain a party of Coles, to be regularly employed at the Station and on the roads, who, under the superintendence of the Goorkahs, would be found efficient workmen.

14. In accordance with the Orders of Government already communicated in paragraph 4 of my No. 4322, Lieutenant Steel should be instructed to exercise a strict and judicious superintendence over the timber now growing on the hill, and to see that specially in those parts included in the Station itself, or within 300 yards of the top of the hill no ornamental timber is felled, if it can be avoided, while the requisite clearances and levellings are being made, and the roads being constructed.

15. Another Assistant Engineer will be appointed to Captain Dawson's Division to take the place of Lieutenant Steel, on the Grand Trunk Road, and in the supervision of its repairs, &c.

16. The Lieutenant-Governor hopes that rapid progress will now be made in completing the above-mentioned works, and he requests that Lieutenant Steel will send him demi-officially, through me, a report of progress on the 1st of every month, commencing from the 1st proximo.

No. 4682.

COPY forwarded to the Commissioner of Chota Nagpore for information, with special reference to paragraph 13.

No. 4683.

COPY forwarded to the Chief Engineer, Lower Provinces, for information, in continuation of Orders No. 4323, dated the 20th ultimo.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal, in the Public Works Department, to the Officiating Secretary to the Government of India, Public Works Department,—(No. 4707, dated Fort William, the 20th November 1860.)

SIR,—IN the 4th paragraph of your letter, No. 5209, dated the 5th October last, it was stated that, in order properly to develop the scheme for the establishment of a Sanitarium upon Parisnath, it would probably be found desirable to select a Medical Officer to take charge of Sick and Invalids, who could hereafter, when necessity arises, be appointed Superintendent, with Magisterial powers, and with a general control over the Station.

2. Having given His Excellency's suggestion every consideration, I am desired to say that the Lieutenant-Governor thinks that the selection of a Medical Officer is scarcely called for at the present time, though hereafter such Agency will no doubt be very valuable.

3. What is wanting at present is an Officer of some experience to superintend the construction of Roads and Buildings, and the general disposition and laying out of the new station. The Lieutenant-Governor has accordingly appointed Lieutenant Steel, of Engineers, to the Ex-officio charge of Parisnath Station, and he now recommends that Lieutenant Steel be appointed in independent charge of the Station, with the usual allowance of Company's Rupees 100 per mensem.

4. Consequent on this arrangement, it will be necessary to appoint some young officer to take up Lieutenant Steel's place on the Grand Trunk Road.

5. I am directed to take this opportunity of submitting for the approval of the Government of India, a copy of the instructions* issued by the Lieutenant-Governor to the Superintending Engineer, based on information derived from a late personal examination and visit to Parisnath.

* No. 4681.

From H. L. DAMPIER, Esq., Officiating Secretary to the Board of Revenue to the Secretary to the Government of Bengal, Public Works Department,—(No. 622, dated Fort William, the 27th November 1860.)

SIR,—With reference to your letter, No. 4325, dated 20th ultimo, I am directed to forward a copy of a letter No. 1572, dated 5th instant, from the Commissioner of Chota Nagpore, regarding the acquisition of the proprietary right in the Parisnath hill.

W. J. ALLEN
and
A. GROTE, } ESQRS.

2. The Board think that it will be found that the Palgunge Zemindar is not, and never has been the sole proprietor of the Hill; in fact, when Mr. Allen was Commissioner of the Division, the Palgunge Raja never denied the right of the other zemindars to a share of the Hill on their side of it.

3. It is likely that the zemindars will not consent to transfer the entire hill to the Government, and any attempt to enforce such a transfer will, in the Board's opinion, give great dissatisfaction to the people of that part of the country and elsewhere; they therefore, think that the course recommended in the 7th paragraph of the Commissioner's letter is the only safe and judicious one, and it is one to which the zemindars will probably not object; as a matter of course the temples and pilgrims must not be interfered with.

From Capt. E. T. DALTON, Commissioner of Chota Nagpore, to H. L. DAMPIER, Esq. Officiating Secretary to the Board of Revenue, Lower Provinces,—(No. 1572, dated the 5th November 1860.)

SIR,—With reference to the letter to my address from the Secretary Government of Bengal, Department Public Works, No. 4324, of the

20th ultimo, directing me to arrange for the conveyance to Government of Parisnath Hill in proprietary right, I have the honor to submit for the Board's consideration the following observations.

2. The Government of India have, I observe, given this order on the understanding first, that the Rance of Palgunge owns the Hill, and secondly that she is disposed to transfer it as a free gift to Government.

3. In my letter, No. 148, of the 7th February last, to the address of the Secretary Government of Bengal, I stated that the Rance of Palgunge *claimed* the whole Hill as a part of her son's estate, but that though no actual division had been made, other zemindars received portions of the collections from the pilgrims to the shrines.

4. Since I wrote this, the Revenue Survey has been carried over Parisnath, and the Superintendent of Survey in defining the boundaries has assigned one-half of the Hill to Palgunge and the other half to the zemindars of Jhurria, Katrass and Nowagurh.

5. The Rance of Palgunge has appealed to my Court against this decision and the case is now pending. It will not be easy to arrange for the proposed transfer on any terms till the boundary dispute is finally settled.

6. In regard to the 2nd point it is my duty to submit that the Rance was not asked to transfer the Government the title of her son in the *entire* Hill. This I am certain she would not have consented to, as the family regard the Hill as a sacred trust as well as a valuable property. All that I consider the Rance as having agreed to, is, that the Government should be allowed to occupy unconditionally any portion of the Hill *except* the *sites* of the shrines and the *approaches to them*. Knowing the sensitive feelings of the Zemindars in this Division in regard to alienation of title, and assured that in this case these feelings would be peculiarly strong, I did not moot the question of conveyance of proprietary right, and I am of opinion that no such right could be acquired except by declaration in due course, under Act VI. of 1857.

7. But the circumstances hardly warrant our having recourse to the Act, and it is not necessary. Instead of being directed to negotiate

for the purchase of Parisnath or for its acquisition by an exchange, I respectfully request, I may be authorized by Government to obtain from the proprietors, a grant in perpetuity of such portions only of the Hill as are required and can be taken up without interfering with the temples on a reasonable quit-rent.

8. It is thus that we have acquired the Cantonments of Hazareebaugh, Dorundah and all other lands required for public purposes in this Division.

From H. L. DAMPIER, ESQ., Officiating Secretary to the Board of Revenue, to the Secretary to the Government of Bengal, Public Works Department, (No. 9, dated Fort William, the 4th January 1861.

SIR,—IN continuation of my letter, No. 622, dated 27th November last, I am directed to submit copy of a further communication from the Commissioner of Chota Nagpore, No. 1699, dated 3rd ultimo, and to state that the Board agree with him that the Ranee is not legally competent to give a sound perpetual title to that part of the Parisnath Hill which belongs to the Palgunge Rajah.

2. The course proposed in the Commissioner's 3rd paragraph has the Board's approval, and they recommend that he may be instructed to act in accordance with it.

From CAPTAIN E. T. DALTON, Commissioner of Chota Nagpore, to H. L. DAMPIER, ESQ., Officiating Secretary to the Board of Revenue, Lower Provinces,—(No. 1699, dated Camp Kotam, the 3rd December 1860.)

SIR,—IN reply to your letter No. 91 of the 27th ultimo, enquiring if the Ranee of Palgunge is competent to give a sound perpetual title to that portion of the Parisnath which undoubtedly belongs to the Palgunge Estate, I have the honor to state that in my opinion the title so obtained would not be legally valid under the Hindoo Law till confirmed by the young Rajah on his obtaining his majority.

2. The Raneé herself is of this opinion. In a Petition, dated the 5th January last on this subject, she expressly stated she had no power but as a guardian, but I have some recollection that on mentioning this verbally to the Secretary to Government with the Lieutenant-Governor, when we were together at Parisnath, I was informed that it was considered that the son would be bound by the acts of his guardian in the matter.

3. The confirmation of the grant by the minor we should, I conceive, have no difficulty in obtaining, if in negotiating for the grant, the parties interested are given to understand that the Government ~~now~~ abstain from taking possession by a declaration under Act VI. of 1857 as an indulgence, and on condition that the minor, who is now fourteen or fifteen years of age, shall confirm the grant when he attains his majority.

4. I expect to be in the vicinity of Parisnath about the end of next month, and it would be convenient if I were in possession of the necessary instructions before that time.

FROM LIEUTENANT-COLONEL C. B. YOUNG, Secretary to the Government of Bengal in the Public Works Department, to the Officiating Secretary Board of Revenue, Lower Provinces,—(No. 284, dated Fort William, the 19th January 1861.)

SIR,—FROM the enclosures of your letter, No. 622, of the 27th November last, it appears that the Commissioner of Chota Nagpore is of opinion that, instead of negotiating for the purchase of Parisnath, or for its acquisition by an exchange, the best course would be to obtain from the Proprietors a grant, in perpetuity, of such portions only of the Hill as are required and can be taken up, without interfering with the temples on the Hill, at a reasonable quit-rent.

2. From your subsequent letter, No. 9, of 4th instant, forwarding a further Report, No. 1699 of 3rd December 1860, from the Commissioner of Chota Nagpore, it would appear that it will be necessary

to obtain formal confirmation of such grant by the Rajah, who is now a minor, on his attaining his majority. In this, I am directed to inform you, the Lieutenant-Governor concurs and approves also of the present grant being now negotiated in the manner recommended in the 3rd paragraph of the Commissioner's letter.

3. I am directed to request that arrangements may at once be made for carrying out the above orders.

No. 285.

COPY of the above letter, and of the two letters from the Board of Revenue, together with their enclosures, forwarded to the Officiating Secretary to the Government of India in the Public Works Department for information, with reference to the 7th paragraph of his letter, No. 5209, dated the 8th October last.

FROM LIEUTENANT COLONEL H. YULE, Secretary to the Government of India with the Governor General, to the Secretary to the Government of Bengal in the Public Works Department,—(No. 325, dated Head Quarters, Camp Goonwarra, the 31st January 1861.)

SIR,—I AM directed by the Governor General to communicate the approval of His Excellency of the measures taken by His Honor the Lieutenant-Governor for carrying out the works authorized by the Supreme Government at the Sanatarium upon Parisnath, as reported in your letter, No. 4707, of 20th November.

2. Lieutenant J. P. Steel, of Engineers, has, in Notification No. 29 of this date, been appointed to the charge of the Station from the date on which he entered on the duty, and will receive the usual allowance of Rupees one hundred (100 Rs.) per mensem.

3. The issue of these orders has been accidentally delayed.

From Lieutenant-Colonel J. P. Beadle, Officiating Secretary to the Government of Bengal, in the Public Works Department, to the Secretary to the Government of India, Public Works Department, No. 3966, dated, Fort William, the 5th September 1861.

SIR,—YOUR letter, No. 964, dated the 28th March last, stated that the amount intended to be spent on the Superintendent's Bungalow on Parisnath, and Road leading up to it, (Company's Rupees 15,000,) was very large for such an object; that it was inconsistent with the orders recently received from Her Majesty's Secretary of State; and that whatever was to be done should be limited by those orders.

2. In accordance with these instructions, the Superintending Engineer was informed, that after expending the lime in store, Bungalow building must be stopped, and the work executed covered over to prevent it being injured. The Superintending Engineer was further instructed to push on the construction of the Road to the Hill-top, so as to complete it as speedily as possible.

3. This Road is six miles and 2,000 feet in length, of which two and half miles have been made ten feet wide, and the remainder six feet wide. The ascent is easy, the greatest incline being $8\frac{1}{2}$ in 100 feet, which is two and a half feet less than some parts of the Dunwah Pass on the Grand Trunk Road. Without any difficulty the top peak, which has been called the "Observatory," will be an hour's ride from Nimya Ghât.

4. The Secretary of State has remarked that Parisnath, though of limited extent, appeared in other respects to be suited for a Sanatorium, and that any remaining doubt on the subject would be cleared up if a few thatched tents were erected and occupied during the hot season; and that in the meanwhile no permanent buildings should be commenced. This experimental measure has now been fairly and fully carried out. The Lieutenant-Governor resolved to try the climate himself; and tents having been thatched for his accommodation, he left Calcutta on the 17th of April, and remained on the top of the Hill till the 20th May, when a fire accidentally breaking out destroyed the three tents, which had been

thatched, and compelled him to return to the Presidency. About the 31st of May the Lieutenant-Governor returned to Parisnath, where he lived in unthatched tents, transacting business, till about the end of June; the rainy season having, for some weeks, previously set in, and very heavily.

5. The results of these visits have convinced the Lieutenant-Governor that, so far as climate is concerned, no further knowledge of it can be gained, or is required. He found the air pure and bracing, whilst no sickness showed itself in his camp, or in that of Lieutenant Steel, the Engineer Officer in charge of the works, who has lived on the Hill from the end of September last year.

6. It appears to the Lieutenant-Governor that no further expense should be incurred in erecting thatched tents: the conflagration that occurred is an accident, which it is very likely would be repeated, if the same sort of accommodation were again put up. In less than five minutes the three thatched tents were entirely destroyed. If this conflagration had occurred at night, with many persons in the tents, there would probably have been loss of life. Situated on a high ridge, with a ravine running on either side, so that in whichever direction the wind blows, there must necessarily be a strong draught, the position seems peculiarly exposed to accidents from fire; and the dryness of the atmosphere, and the consequent dryness of materials, tend to increase the risk.

7. The pleasant nature of the climate, and the salubrity of Parisnath, having been placed beyond a doubt, and the comparative register of the temperature on Parisnath and at Raneegunge, which has been carefully kept, proving that the temperature averages, in the afternoon, during the seven hot months of the year, 16 degrees lower than in the plains at foot, the Lieutenant-Governor strongly urges that orders may now be issued for proceeding with the work, which was commenced and has been stopped; and that permission may be further accorded for the construction of one of the three Barracks in the position shown in the accompanying Survey of the Hill, and contoured map of the portion selected for the Sanatarium.

8. A lithographed Sketch of Parisnath, as seen from Doomree,

is submitted. The Station can clearly be traced in this drawing. Lithographed Sketches of the Hill-top also accompany, one of which, although drawn for the purpose of exhibiting the saddle-back, which is held in religious veneration, and is crowned at every point by small Temples, shows also the North-Western ridge which has been occupied for the Sanatarium.

9. The Agent of the East Indian Railway Company having applied for a site for a Barrack, the Lieutenant-Governor has set apart a convenient portion of the ground for their occupation. A Hospital for the convalescent workmen and Officers of the Company will accordingly be constructed on Parisnath.

10. I am directed to advert to the Despatch of Sir Charles Wood, (No. 15 of 16th April 1861,) to the Madras Government, on the subject generally of the choice and experimental establish-

ment of Sanataria, and with reference to the Extract in margin, to say that the Lieutenant-Governor strongly recommends that the original scheme for the establishment of the Sanatarium on Parisnath be adhered to, and that the

“When it may be desirable to test the fitness of a situation by actual experiment, the experiment, in order to be perfectly conclusive, should neither be confined to a single season nor made with detachments of Troops hastily provided with cover and ill-prepared in other respects to meet unexpected changes of weather. It is needless to say that, however slight may be the temporary dwellings erected, they should at least have roofs which will keep out the rain, and floors raised high enough above the ground not to absorb its moisture.”

double Bungalow, of which the foundations have been laid, and which will accommodate the Medical Officer in charge of this Station, as well as the Officer Commanding, should be completed, in the first instance, with a Barrack for thirty-three men; the space appropriated for the Barracks being sufficient for three such Buildings accommodating 100 men.

ROAD.—Earth-work	...	8,020	} Rs. 10,937
Rubble	...	1,025	
Other items	...	1,892	
SUPD'S. Double Bungalow			
Foundations...		..	1,007
Out-Offices	...	..	1,914
Huts and other items	...	..	203
Total Rs.			14,061

red, of 50,000 Rupees.

11. The expenditure already incurred is stated in the margin. To carry out the recommendations now made in a complete way, will probably involve an expenditure, including that already incur-

Barrack for thirty-three men...	...	...	...	Rs. 15,000
Medical Officer's and Commanding Officer's double Bungalow	...	...	...	„ 16,000
Road and paths to water supply, &c.	...	...	...	„ 19,000

From LIEUTENANT-COLONEL H. YULE, Secretary to the Government of India, Public Works Department, to the Officiating Secretary to the Government of Bengal, in the Public Works Department,—(No. 3494, dated the 27th September 1861.)

SIR,—UNDER the circumstances represented in your letter, No. 3966 of the 5th instant, the Governor General in Council has been pleased to sanction the resumption of work towards the establishment of a Sanatorium at Parisnath, on the scale proposed, but I am directed to request that no time may be lost in preparing Estimates.

*Comparison of the Temperature on Parisnath Hill with observations taken at Ranee-
gung, from June 1860 to May 1861.*

MONTH.	MEAN MONTHLY OBSERVATIONS TAKEN ON PARISNATH.						MEAN MONTHLY OBSERVATIONS AT ● RANEEGUNGE.					Difference of Mean Tem- perature of month.
	At Sun-rise.	At 9 A. M.	Noon.	At 3 P. M.	At Sun-set.	Mean-temperature of the month.	At Sun-rise.	At 10 A. M. ●	At 4 P. M.	At 10 P. M.	Mean temperature of the month	
1860.												
June, ..	71.	73.	76.	74.	72.	73. 2	82.78	89.60. At Noon	88.97 At Sun-set	83.34	86.17	12.97
July, ..	71.	76.	75.	75.	72.	73. 2	80.46	86.86	88.48	81.35	84.28	11.08
August, ..	67.88	68.88	70.62	71.12	69.75	69.65	76.35	81.93	85.84	79.	80.78	11.13
September,	Report not received, ..					..	79.13	84.83.	90.76	81.83	84.13	...
October, ..	64.	66.	70.	69.	66.	67.00	73.77	81.19	83.29	75.71	78.49	12.49
November,	60.	62.	63. 5	64.	59. 5	61. 8	67.	71.26	74.66	71.23	71.03	9.23
December, .. 1861.	52.85	56. 1	57.85	57.87	54.63	55.86	57. 3	67. 9	72. 8	66. 4	66. 1	10.24
January, ..	51. 5	54. 6	58. 1	57. 6	54. 3	55.22	58. 3	69. 5 At 9 A M	75. 6 At 3 P M.	67. 8	67. 8	12.58
February, ..	52.	55. 4	60.	60.	55. 5	56.58	57. 7	73. 1	85. 6	69. 1	71.37	14.79
March, ..	62.13	67. 7	74.66	74.53	65.36	68.87	69.64	80.25	93.51	74.83	79.55	10.68
April, ..	72.84	77.92	86.07	85.46	75. 5	79.56	78.56	91.43	103.48	82.36	88.94	9.38
May, ...	72.71	77.71	80.90	78.64	74.	76.79	80.84	87.83	96.41	81.45	89.13	12.34

Abstract Register of Temperature on Parisnath.

(100)

MONTH.	SUN-RISE.			AT 9 A. M.			- NOON.				AT 3 P. M.			SUN-SET.			Total rain fall. Inches
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.		
From 1st to 9th Aug. 1860, ...	70°	66°	67°88	70°	67°	68°88	74°	68°	70°62	75°	68°	71°12	72°	67°	69°75	26"4	
From 10th to 31st Aug. 1860, ...	Reports not received.																
September 1860, ...	Reports not received.																
October 1860, ...	69°	.....	64°	71°	...	66°	78°	...	70°	76°	...	69°	72°	...	66°	0"42	
November 1860, ...	66°	54°	.....	68°	56°	.....	71°	56°	.....	71°	57°	.....	63°	56°	.....		
From 1st to 14th Dec. 1860, ...	58°	51°	53°3	59°	53°	55°6	62°	56°	58°6	63°	56°	58°5	59°	51°	55°1		
From 15th to 31st Dec. 1860, ...	...	51°	52°4	...	...	56°6	...	...	57°1	62°	...	57°1	...	...	55°		
January 1861, ...	59°	38°5	51°5	61°	42°	54°6	62°	51°	58°1	62°	50°	57°6	60°	44°	54°3	0"566	
February 1861, ...	58°	44°	52°	61°	48°	55°4	69°	55°	60°	69°	55°	60°	66°	52°	55°5	.....	
March 1861, ...	71°	52°	62°13	81°	54°	67°7	85°	61°	74°66	84°	61°	74°53	72°	56°	65°36	1"45	
April 1861, ...	80°	65°	72°84	85°	70°	77°92	93°	78°	8°607	90°	77°	85°46	81°	70°	75°5	0"425	
May 1861, ...	79°	65°	72°71	85°	70°	77°71	88°	71°	80°90	87°	66°	78°64	85°	69°	74°	6"415	

Abstract Register of Temperature at Raneegunge.

MONTH.	At Sun-rise.			At 10 A. M.			At 4 P. M.			At 10 P. M.			Total rain fall. Inches.
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	
June 1860, ..	90°	80°	82°78	96°	83°	89°60	98°	82°	88°97	88°	78°	83°34	.....
July 1860, ..	88°	72°	80°46	92°	82°	86°86	98°	83°	84°48	86°	79°	81°35	.....
August 1860, ..	82°	75°	76°35	88°	77°	81°93	97°	80°	85°84	88°	78°	79°	32"1
September 1860, ..	81°	74°	79°13	88°	74°	84°83	96°	74°	90°76	89°	70°	81°83	23"8
October 1860, ..	80°	62°	73°77	88°	72°	81°19	89°	74°	83°29	82°	70°	75°71	8"7
November 1860, ..	70°	56°	67°	77°	61°	71°26	78°	66°	74°66	78°	70°	71°23	.....
December 1860, ..	64°	51°	57°3	72°	64°	67°9	76°	68°	72°8	69°	60°	66°4	.....
January 1861, ..	67°	52°	58°3	78°	62°	69°5	84°	70°	75°6	74°	61°	67°8	.....
February 1861, ...	63°	51°	57°7	85°	64°	73°1	95°	74°	85°6	76°	64°	69°1	.....
March 1861, ..	77°	61°	69°64	95°	69°	80°25	104°	72°	93°51	84°	68°	74°83	... ..
April 1861, ..	84°	72°	78°56	101°	79°	91°44	112°	92°	103°43	88°	75°	82°36	2"35
May 1861, ..	85°	75°	80°84	96°	81°	87°83	105°	83°	96°41	87°	72°	81°45	17"

SELECTIONS

FROM THE

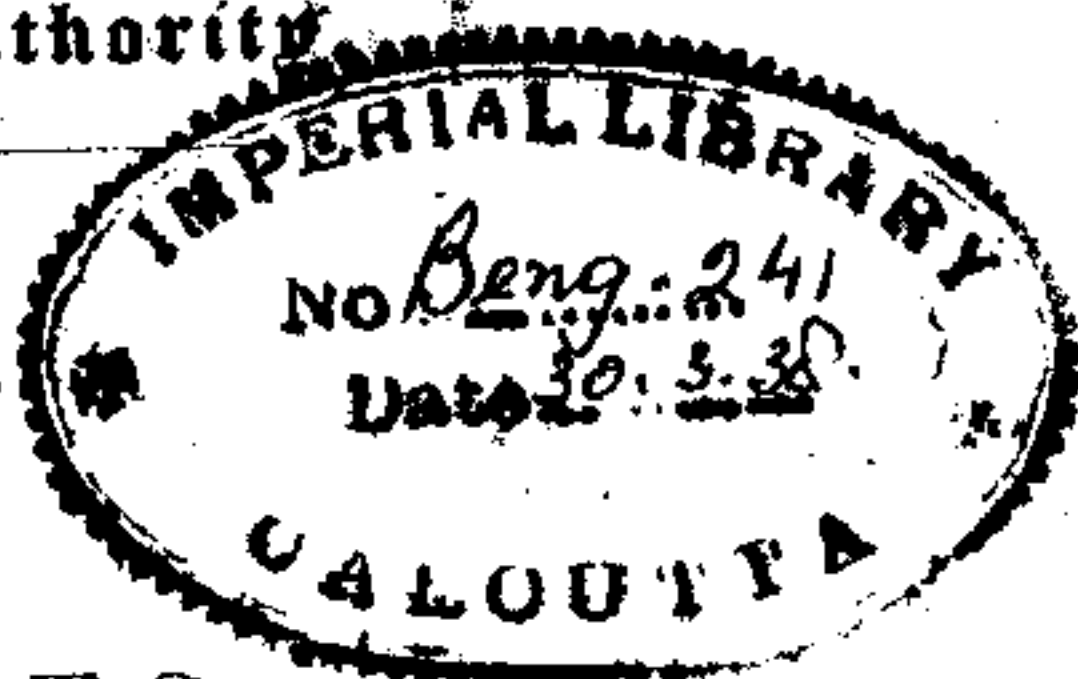
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REPORTS

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