



REPORT
ON THE
SETTLEMENT OF PARGANA JAUN SAR BAWAR.

No. 1026, dated Camp Sujapur, the 29th December, 1874.

From—F. M. LIND, Esq., *Commissioner of the 1st or Meerut Division,*

To—E. C. BUCK, Esq., *Offg. Secy., Board of Revenue, N.-W. P.*

SIR,—I have the honour to submit the accompanying letter, No. 478, dated 9th instant, from the Superintendent of the Dun, with its accompaniments, on the subject of the recent settlement of pargana Jaunsar Bawar in that district.

Vide Secretary's No. 176, dated 11th April, and Commissioner's No. 855, dated 28th October last.

2. Mr. Ross's report is not so much a final report on the settlement lately brought to a conclusion as an explanation of the manner in which the difficulties which arose in connection with Mr. Cornwall's proceedings were overcome. Mr. Ross commences his report by reference to the various preliminary orders issued; the deputation of Mr. Cornwall to conduct settlement proceedings; the views of that officer on various points; and, finally, the difficulties which arose in consequence of the recusance of the saianas to sign the settlement compact. The report then proceeds to show what these difficulties were, how they arose, and the manner in which they were eventually overcome.

3. Mr. Ross has refrained from entering upon the previous history of the pargana, the system in force prior to British occupation, or the arrangements made in former settlements. He concludes that information on all these points will be found in Mr. Williams' memoir of the Dun recently published, as well as in Mr. Cornwall's report on his own proceedings. The annexures of Mr. Ross's letter contain, however, information on some of these points in tabular form.

4. The main difficulty with the saianas was in connection with their supposed rights in forest lands. They endeavoured to set up a claim which they must have known was untenable; still it was perhaps better that the question was brought forward for final determination. The liberal manner in which the Government disposed of the matter induced the saianas to accept the settlement made by Mr. Cornwall and to sign the final compact. Mr. Ross's report deals for the most part with the duties which devolved upon him in carrying out the orders of Government. A more detailed report of these proceedings has already been submitted to the Board, as noted by Mr. Ross.

5. In the course of his present report, Mr. Ross briefly sketches certain prejudices which prevail among the Jaunsaris; their manners and customs; and their superstitious proclivities. A brief account is also given of the mode of cultivation and the ordinary crops sown. It seems unnecessary to recapitulate these. One point, however, requires a passing remark.

6. The Jaunsaris have the reputation of indulging in polyandry. Possibly the practice may still to some extent be in vogue, but I am inclined to think that it must be dying out. I have no doubt that in former times polyandry was largely practised, but the resort to the custom implies a scarcity of females, and this can hardly be the case now. A reference to the census returns will show that the proportion of females to males is not such as would justify the entertainment of the idea that there is any general necessity for a resort to the practice. The census statement appended to the report no doubt includes minors as well as adults; but this circumstance would make

little difference in general results. The proportion of adult males to adult females would probably be retained ; and if this be so, there would be little reason for continuing polyandry.

7. There is one point in connection with the settlement which requires notice.

8. According to the custom of the pargana, the saianas are the representative men : they practically occupy the position of lumberdars, but their authority and the powers they exercise are far in excess of what is recognized in the status of a lumberdar. The sharers are called zemindars. A reference to Mr. Ross's report and to the translation of the wajib-ul-urz, which was subsequently received, but which is also forwarded, will show that the term 'zemindar' is in all cases used to represent the persons who are really sharers in the khat or mahal. I cannot say whether the use of the term is accidental or whether it has been designedly adopted. The peculiar powers of the saianas may have induced a notion that whilst the use of the term 'zemindar' admitted a proprietary title in the land in favour of the person to whom it was applied, that it restricted this right solely to ownership in the soil, and to nothing else. Be this as it may, the absence of all allusion to the term 'sharers' is striking.

9. To revert, however, to the power of the sudder saianas, it will be seen that they possess the power to make a fresh annual distribution of the sum to be realized from each zemindar, or, as I would call him, sharer in the khat, on account of the Government demand. Mr. Ross admits that this power is sometimes abused, and that the difficulties in the way of rectifying the abuse are so great, that, practically, the right of appeal to the Superintendent is valueless. The question is one which, I think, demands consideration.

I have, &c.,

F. M. LIND,

Commissioner, Meerut Division.

No. 478, dated Dehra Dun, the 19th December, 1874.

From—H. G. ROSS, Esq., C. S., Superintendent of Dehra Dun,

To—F. M. LIND, Esq., C. S., Commissioner of 1st or Meerut Division.

SIR,—I beg herewith to forward statements connected with the Jaunsar Bawar settlement.

2. In this office No. 140, dated 29th May, 1868, Government was reminded that the then settlement of Jaunsar Bawar would expire in the end of 1869, and orders were asked for. When His Honor the Lieutenant-Governor, Sir William Muir, came into the district in 1870, a conference was held, at which the Members of the Board, Mr. Court, and Mr. Cornwall were present, and resolutions were come to. Orders were issued in a memo. of Sir William Muir's, sent under Secretary to Government's No. 1558A., dated 19th November, 1870, forwarded to this office under Commissioner's No. 169, dated 6th December, 1870.

In that memo. the Lieutenant-Governor sanctioned a new settlement, to be founded on a field survey similar to that in Kumaun and Garhwal. Mr. Cornwall, who was then employed settling forest boundaries in Jaunsar Bawar, was appointed Settlement Officer, and was directed to go to Kumaun to consult Mr. Beckett.

Mr. Cornwall went to Kumaun, consulted with both Colonel Ramsay and Mr. Beckett, and in his No. 25, dated 26th January, 1871, reported the result. He agreed that the Kumaun plan of field measurement without use of plane-table would answer well for Jaunsar Bawar, but he urged that the khat boundaries should be properly surveyed. He recommended that the settlement should be khatwar (*i. e.*, settlement for the whole khat or taluqa should be made with one headman called a saiana, instead of separately with each zemindar in the khat) and not mauzawar ; that measurement should be in acres and not in bighas ; and he sent in a budget estimate.

The Commissioner forwarded on this letter with a very full report of his own, No. 70, dated 30th January, 1871. The Board forwarded both under their No. 1421, dated 21st February, 1871. The proposals sanctioned in Secretary to Government's No. 270, dated 11th March, were a khatwar settlement; shajras to be made without plane-table; but boundaries of khats to be properly surveyed by some competent persons appointed by Mr. Cornwall. The budget estimate was also sanctioned. Work commenced on 11th April, 1871, and the field measurements were completed in February, 1872. Mr. Cornwall in the meantime occupying himself in settling boundary disputes.

In July, 1872, Mr. Cornwall sent up a brief report of his intended plan of operations, with separate reports on tenures, duration of settlement, and principle of assessment. The Commissioner forwarded on the report on 16th July. The Lieutenant-Governor recorded a memo. calling for further information. Some demi-official correspondence ensued. On 16th September, 1872, Mr. Cornwall prepared a further report in accordance with the Lieutenant-Governor's wishes. In December, 1872, His Honor the Lieutenant-Governor himself came into the district, preceded by Mr. Reid, who went into Jaunsar Bawar with Mr. Cornwall. A conference was held; matters were discussed and formally settled; as reported by Mr. Cornwall in his No. 1, dated 2nd January, 1873, Mr. Cornwall completed the assessment and gave it out, and sent off his final report No. 109, dated 10th March, 1873. The saianas, or headmen of the khats with whom the settlement was made, however had refused to accept the assessment, and before their refusal could be enquired into, Mr. Cornwall was most unfortunately constrained, from ill-health, to leave the country. The apparent real grievance of the saianas was the unsettled state of the forest boundaries. Mr. Bagshawe and myself were deputed to settle these boundaries, which we did in May and June, 1873, as reported in my No. 340, dated 15th September, 1873. It was then too late to prepare the roll of distribution of rent over the khats by the saianas, called phantbandis; and until the saianas had prepared these papers, it was impossible to say whether they really intended to accept or not. Work had therefore to be postponed until March, 1874. I then went to the spot, assembled the saianas, and directed them to prepare the phantbandis; but they one and all refused, on the plea that they had not previously known that the cesses were separate from the land revenue. This was simple nonsense, as I had myself explained matters to them in June, 1873. I therefore took two khats in hand, and commenced to make out the phantbandis myself, explaining to the saianas that I was going to hold kham, and that the saianas' fees would be credited to Government. When I had worked two or three days at the papers, and nearly completed the khats, the saianas gave in. After considerable delay, all the phantbandis were finished. As they were the first after the new settlement, I gave the people more than fifteen days in which to lodge their objections, so that the matter was not finally settled until the end of May. I then commenced preparing the returns: these were not completed until October; hence the delay.

Reason for not giving history of pargana or previous settlement.

3. It is unnecessary for me to give any history of the pargana, of its former rulers, or the manner in which it came into our possession, because this is all clearly stated in Mr. Williams' memoir of the Dun. Neither is it necessary to detail all the arrangements made at previous settlements, and the different systems carried out, because Messrs. Robertson and Cornwall have dwelt at great length on these subjects.

Boundaries and geographical position.

4. The pargana commences at the junction of the Tons and the Jumna: the former is the boundary of the pargana in a north-westerly direction for about 30 miles, separating it from Sirmur; the latter is the boundary in a north-easterly direction for about 40 miles, separating the pargana partly from the Dun and partly from Garhwal. A small stream, called the Kerogard, runs into the Jumna on the edge of the Baunder Khat a little above Lokha Mandal; this forms the boundary between the pargana and Garhwal in a westerly direction; the boundary then runs west until it again hits off the Tons a little above Hanole; the

Tons is then the boundary to the Pahar ; the pargana then crosses the Tons, the boundary running along the ridges of some hills behind Mandhole, separating it from the States of Jabal and Trochi.

It will thus be seen that nearly on every side the pargana is surrounded by foreign territory. The two large States of Sirmur and Garhwal give no trouble. No dispute has ever arisen with them since I have been in charge of the district ; but the two petty little States of Trochi and Jabal, which are under the superintendency of the Deputy Commissioner of Simla, give incessant trouble : they knock down boundary pillars, make raids into Bawar, cut and carry away crops, and in every way give a great deal of annoyance and vexation. The pargana is divided into 39 khats or taluqas ; 34 of these are in Jaunsar and five in Bawar.

Natural features.

5. The pargana is composed entirely of a succession of hills. The Jumna at Kalsi divides it from the plains, the hills rising from the very banks of the river ; a large portion of these hills are covered with forest. In the lower khats of Jaunsar there are only oak, a little sisham, and some few sál trees. The oak continues everywhere, but as the land gets higher, chir, spruce and silver pine appear, and, best of all, deodar. Of these different firs, there are some splendid forests, beautiful to the eye and valuable to the Government. It is only within the last ten years that they have been properly preserved, and so it may now be expected that year by year they will increase and improve instead of decreasing as hitherto.

A curious feature that at once strikes the eye in the lower khats is, that the northern slope of the hills is invariably well wooded or cultivated, and the southern face bare and unprofitable. This is not owing to the rays of the sun beating on the southern face, but to the geological formations. The southern faces are comprised of rock and shale ; are generally steep and rugged, with little or no water. The northern slopes, on the contrary, are covered with good soil, are not steep, and are well watered by numerous springs of good water.

6. There are three distinct styles of cultivation. Rice, for instance, is grown in terraced beds made along the edges of all the rivers and streams, but seldom at levels over 3,000 feet, although I have seen some few as high as 4,000 or 4,500 feet ; another style, and the most general, is that of terraces rising one above the other up the hill side. All these terraces have to be supported by stone retaining-walls, varying from a height of 4 to 10 feet. The expense of making these walls is very great. When I say 'expense' I of course allude to time and trouble, because the cultivators make the walls themselves. A landslip or an extra heavy thunder-shower will sometimes wash away a whole hill side of these terraces, thus either ruining the unfortunate cultivator, or involving him in fresh work for years to come. Wherever there is any good land these terraced fields exist.

There are very many little isolated plots where fresh terraces can be made and cultivation increased, but within village bounds there is nowhere a block of good untilled land in one place sufficiently large to form a separate village. Wherever it is possible, water is led on to these terraces from streams and springs : some of these "kuls" or small canals are carried great distances, through most impracticable ground and at great expense.

The third style of cultivation is carried out where the tops of the hills form small table-lands, round and smooth. Khats that have many such hill-tops are considered the most favoured ; the soil is always good, and crops better than in the terraced lands.

7. The chief crops are—rice, mandua, wheat, barley, turmeric, ginger, potatoes, and opium ; a little Indian-corn is grown, also sweet potatoes and some small pulses. The rice is grown entirely in the valleys, some

The different crops grown in the pargana.

high, some low ; requires good land ; and is nearly always watered. A certain amount of dry rice is sown, but the people don't care to run risks with it, and so, as a rule, they keep their dry lands for mandua. Mandua is the chief article of food of the hill-men : the plant is most hardy, and will apparently grow amongst mere stones and shingle. It is a rain crop, but too much rain spoils it. A good year for rice is a bad year for mandua, and *vice versa*. Wheat and barley are grown a good deal on the high tops. The seed is sown in the end of September, so as to germinate before the frost comes on. These crops depend entirely on snow : if there is a heavy fall of snow, the crops are good ; if not, they are bad. Turmeric and ginger are the most paying crops grown : they are grown on the high hills and table-land already spoken of, and also in the valleys where there is good irrigable land. A few square yards of turmeric or ginger is quite sufficient for a family. The cultivation of potatoes is year by year increasing ; and if the people will only be careful about their seed, it ought to continue a most paying crop. Potatoes are grown either on the high table-lands or on virgin forest soil on the slopes. The cantonment of Chakrata has been a great incentive to the increased cultivation of potatoes. Indian-corn is grown always at the village doors in small garden patches. Red pepper is also grown in considerable quantities all over the pargana ; opium is confined entirely to the high hills. If there are no hail and severe thunder storms, it is a most paying crop ; but it is very risky, and requires a great deal of manure. Apricot and walnut trees abound all over the pargana. The fruit of the former is either exchanged amongst the people themselves or sold in Chakrata ; that of the latter is largely exported. Tobacco is grown in small quantities for home consumption.

8. As the new cantonment of Chakrata is now one of the principal features of the pargana, a short account of it here will perhaps not be out of place. It is situated about the centre of the pargana. At present only one regiment is located there, but it is in contemplation to have another regiment, and move the invalid depôt there from Landour. The station has proved a most healthy one : the difference in the appearance of a regiment when it marches up and marches down is most marked. The station is connected with the Saharanpur railway station by a first-class cart road. The only drawback at present is the want of a bridge over the Jumna : a very fine bridge is in course of construction over the Isan. At present the arrangements for the supply of water at Chakrata are not perfect, as it has to be carried up from different khuds by bullocks, mules, &c. There is a good supply of pure spring water at a very high level close to the cantonment, and when it is brought in, in pipes, it can be led to each separate barrack with the greatest ease. The first outlay will be great, but the subsequent annual saving will, I should think, recoup the expenditure. Wood is expensive, and I fear likely to remain so. The great expenditure of wood takes place from 15th November to 15th March. I see no reason why the troops should not be marched down to Haripur Bias for those months. There is no room at Chakrata to make a parade ground sufficiently large for the purpose of military manœuvres. If the troops were located in tents at Haripur Bias, there would be a saving to Government in fuel and in carriage of commissariat stores, and the troops would have the advantage of extensive parade grounds and a flat country to carry on drill, and also of good cricket grounds for the recreation of the men. Under the impression that this idea might some day be carried out, I have taken up 190 acres of land at Haripur Bias as an encamping ground. Although Chakrata is a wonderfully healthy station, still the men find it very dull. Government should, I think, make a cricket-ground and fives-courts for the men, and a racquet-court for the officers. No outsider has hitherto been allowed to build or possess house property in cantonments. This rule should be most rigidly enforced, otherwise complications are sure to arise, as at Landour and other military stations.

9. With regard to the population of Jaunsar Bawar, I find the upper classes are composed entirely of Rajputs and Brahmans, the former the most numerous. The Brahmans are Bhats and Sar Sut. The Rajputs are chiefly Ramhayets. The lower classes are Dumras, similar to

chamars in the plains; Kulis like Mehtars in the plains; a few blacksmiths and carpenters, and Bajgirs or musicians: these latter are chiefly employed in singing the praise of Mahasu. They all worship Mahasu or Parsram; and towards the east there are a large number of snake worshippers.

All castes alike work in the fields, and there are no Brahmans or Rajputs who won't put their hands to the plough. In the upper khats the people keep large herds of sheep and goats. There are not many buffaloes kept in the pargana, but a great many cows and bullocks of a very small short-legged breed peculiar to the hills. There is a very prevalent custom of buying bull calves in the plains and keeping them for two years in the hills, and then bringing them back to the plains for sale: the two years' residence in the hills is supposed to strengthen the animals very much, and they fetch a much higher price than similar animals reared in the plains. The people are very superstitious, but are decidedly honest and more truthful than their fellows in the plains. As an instance of their superstition, I may mention the burning of the deodar forest at Chijal. The village was attacked by small-pox, and to appease the wrath of the gods the villagers set fire to the forest and burned down upwards of four thousand magnificent deodar trees. They are very much afraid of incurring the anger of their gods. The custom of deciding cases by oath is very common. The pernicious part of the system is, that if the party who takes the oath, although he is at once put in possession of the disputed property, suffers any loss either amongst his cattle or distant relations, or even if he is attacked by fever or a bad headache months and months after the oath, this is looked upon as a sign of displeasure on the part of the gods, and for fear of further manifestations of their displeasure he at once relinquishes the land or property. The opposite party, however, is equally unable to take possession, and so the land, if that was the subject of the dispute, is left to lie waste. There is a similar superstitious custom by which the wrath of the gods is invoked against an enemy. If a man has a grudge against any one, he takes up some earth out of his enemy's field and lays it at the shrine of one of the gods, with prayers and offerings. If after that any misfortune happens to his enemy, it is looked upon as a sign of displeasure on the part of the god, and the poor man has to relinquish the field and let it go to waste. The Jaunsaris are very particular about their houses: they all have double-storied houses, and in many instances three and four stories.

In the lower khats the wood-work of these houses is deodar, procured from the higher khats, but the covering is slate; in the upper khats the roofing is deodar, split planks being used. The upper khat people say there is no slate in their khats. I have not myself seen any, but I think there must be slate there, just the same as below. It is easier for the people to split deodar than to quarry slate. They have hitherto had as much deodar as they could use, and so there has been no incentive to look for slate.

The people drink a great deal of a kind of beer made in the following manner: In the rains they make thick cakes of the roots of some trees and barley meal; these cakes are stored up, and when they want beer they break up one of these cakes with some cooked cheena and sawak, and soak the mixture in water for eight or nine days; they then strain off the liquor and drink it, and also eat the refuse. In December and January a great deal of drinking goes on, many people being drunk the whole time: all kind of work is stopped, and nothing is thought of but feasting and drinking. They shut up sheep in a room, and feed them upon oak leaves. Each man takes his turn of killing a sheep and feasting his brethren. Owing to the severity of the weather there is little or no work possible at that season except looking after the cattle, and this is left to the women: the Brahmans do not, as a rule, drink.

Polyandryism is general among all castes and classes; a family of brothers having only one wife amongst them. If there is only one son, it is with great difficulty that he can get a wife. Some of the census returns would tend to show that infanticide is practised, but I know that this is not the case: the birth of a girl is hailed with more delight than the birth of a son; and in marriages the family of the bride receives all

the presents and gives none, except a copper cooking pot; on the other hand, the family of the bridegroom has to give the presents. The hill-men make very strong woollen blankets, out of which they make coats and trousers. A suit of well made blanket is supposed to last at least two generations: this is an exaggeration, but it is wonderful stuff to wear.

All the larger zemindars keep ploughmen, called halis, who are serfs or bondsmen of the zemindars; they receive no wages, but are fed and clothed by the zemindars. Sometimes they are given a little land to cultivate for themselves, but they do not acquire any right in this land; the zemindars defray all their marriage expenses. If one of these serfs dies, the zemindar has to look after his widow, should there be no other husband and children. If the widow marries again, she goes to the house of her second husband with her children; but the master of the second husband has to pay to the master of the deceased the amount advanced by him for marriage or maintenance of children. No account is kept of the money spent in food and clothing during the ploughman's lifetime, as he is supposed to work that off; but an account is kept of all monies advanced for marriage or monies spent in the maintenance of young children after the decease of their father. No interest is charged on these accounts. If the ploughman disagrees with his master, he cannot leave him until he pays off the advances against him, or until he finds another master agreeable to pay them for him. The zemindars wanted very much to have a set of rules about these halis entered in the *wajib-ul-arz*; but as the system is opposed to our notions, I have not done so: as long as the people choose to settle these matters amongst themselves, I do not think any interference necessary or advisable. Zemindars have once or twice brought complaints against halis to compel the return of the latter; the cases have, as a matter of course, been thrown out at once, and so the halis must know that if they choose they can leave and go where they like.

10. There is a good deal of iron ore scattered about the pargana, which is worked in a desultory kind of way by the people; but I know of no place where it is as yet found in sufficient abundance to render it worth while working on a large scale. Limestones abound everywhere, and there are very good slate quarries; also a great deal of antimony.

11. In all former settlements lump sums were assessed on the general capabilities of the khat; at last settlement the Settlement Officer took into consideration the area of cultivated land, the adult population, the head of cattle, sheep, and goats, number of fruit trees, &c., &c. The settlement was made with a *saiana* or *saianas* for each khat: the *saiana* was responsible for this amount, and distributed it over the khat himself.

12. The present settlement is based entirely upon the cultivated area as shown by the field measurement.

13. There were no *patwari's* papers to assist the Settlement Officer in calculating his rent-rate. No rent was paid except in one khat. The soil had never been classed, and the people did not understand any classification. Under these circumstances, it was necessary for the Settlement Officer to devise some new method of arriving at a good average rate.

Mr. Cornwall tried many systems: first of all, the old plan; next, a plan of Mr. Beckett's; and, finally, he worked out the actual produce of each khat and the market value of such produce; he then worked out what kind of lands grew different crops, and eventually fixed on the following assessment rates, which were approved of by Government:—

			Rs.	a.	p.	
Irrigated,	4	0	0 per acre.
1st class dry,	2	0	0 „
2nd class dry,	0	13	4 „

reported by Mr. Cornwall in his No. 1, dated 2nd January, 1873.

Heavier rates were to be charged for turmeric, ginger, and opium lands, and lighter rates for occasional cultivation; at the same time Mr. Cornwall distinctly stated that he would have to vary this rate in different khats. The chief causes that led Mr. Cornwall to depart from his fixed rate were proximity to or distance from markets, number of population, and liability to ravages from wild beasts.

The saiana of each khat is, as before, responsible for the lump sum assessed. He distributes it over the khat. In this distribution he does not confine himself to the value of land actually cultivated; he takes into consideration the general capabilities of the cultivator. The saiana gives in his distribution roll in March of each year, and can alter it each year if he likes. The cultivator is given fifteen days within which to object to the amount of revenue put down against his name by the saiana; the decision of the district officer on this objection is final. The saiana has the entire management of the khat. He must arrange for the payment of revenue on account of any defaulter who may abscond. He can give the deserted land to whom he likes under certain restrictions mentioned in the wajib-ul-urz. He has to carry on all litigation on the part of the khat or any residents in it; it is his business to represent all grievances or hardships; and he is given a certain allowance to cover his travelling and other expenses whilst so engaged.

All that Government has to do is to collect the lump sum from the saiana.

Financial results of the different settlements.

14. The financial results of the different settlements are as follows:—

				Rs.	a.	p.
1815 to 1817,	...	...	...	16,247	8	0
1818 „ 1823,	...	...	...	15,703	0	0
1824 „ 1829,	...	...	...	17,282	0	0
1830 „ 1834,	...	...	...	15,354	0	0
1835 „ 1849,	...	...	...	16,280	0	0
1850 „ 1859,	...	...	...	19,953	0	0
1856 „ 1870,	...	...	...	19,695	0	0
1874 „ 1884,	...	...	...	26,181	0	0

This shows the increase by present settlement to be Rs. 6,486; but it must be remembered that at last settlement the only extras collected were the saianas' fees, 5 per cent.; patwaris' fees, 5 per cent. Both these cesses are collected now, and in addition the 10 per cent. cess is collected, and so the real increase is Rs. 9,104. In the former settlements a grant of Rs. 1,000 was given annually out of the land revenue for roads.

15. As I did not assess the pargana, and as I have had considerable means of judging of the correctness of the assessments, it may not be out of place for me to give my opinion about it. I think the assessment very fair on the whole, and I do not think I shall have any difficulty in collecting it except from one or two khats. The difficulty I shall experience in these will arise not so much from the assessment being too heavy, as from the internal quarrels of the inhabitants. Although I think the assessment fair, I am quite positive that Government gets its rights to the uttermost farthing; and unless some most unforeseen changes take place, I do not think any great increase can ever be expected. Although a good deal of the land can be improved, there is very little fresh land that can be advantageously broken up, and from the geographical position of the pargana, I do not see how the markets can be improved, as it would never pay to make roads everywhere. I feel quite sure that at present the assessment presses heavily on the people, and will press heavily for some time to come, but here again this arises, not from the assessment being too heavy, but from other causes. One great cause of the assessment pressing heavily now on the people is the closing of the forests. Although they have been ostensibly closed for many years, yet in reality the people could do very much as they liked. The people have now undoubtedly got their forest rights to the full, but their

boundaries have been clearly defined and marked out, and a proper watch is kept to see that they keep within those boundaries. There is not the slightest doubt that formerly they made a considerable income out of the Government forests unknown to the Government officers; that income is now stopped, and its stoppage coming at the same time as the land revenue is raised, will press hard upon the people.

16. In my No. 340, dated 15th September, 1873, paragraph 46, I expressed an opinion as to the system of assessment, that the actual amount to be paid by each small proprietor should be laid down by the Settlement Officer. From my further experience I see the necessity of this more strongly. The cost of a fresh zemindari settlement would be great; the villages would have to be all demarcated, so would the third-class forests lately made over to the villages; and even when that was done there would still remain the same objections that now exist.

By the present system the khat is assessed in a lump sum, and the saiana is responsible for this amount. He distributes it over the khat each year, giving in a phantbandi or rent-roll; this rent-roll is changed each year. There are two objections to this system:—

First.—The small village saianas and mass of the people have not now as much respect for the sudder saianas as they formerly had: there is no doubt but that the sudder saianas do so favour, assessing their friends and relations lightly, and their enemies heavily. True, objections can be lodged to this assessment, but as the saiana is allowed to take other matters into consideration besides the actual area cultivated by each person, it is very difficult for the district officer to decide upon the fairness or otherwise of the assessment.

Secondly.—As this phantbandi can be altered each year, there is no real incentive to thriftiness and exertion in improving the land. For instance, a man commences with a small holding, and he is then assessed lightly. He saves up money, adds to his land, improves it by building up retaining-walls, bringing on water, &c. He is at once pounced down on by the saiana and made to pay heavily. On the other hand, a man who originally had good land, gambles and drinks, neglects his land, and impoverishes the soil, is rewarded for his improvidence by being assessed lightly. This system is radically wrong.

17. What I would propose is that each man's quota should be assessed by the Settlement Officer, and for the term of the settlement he should pay no more, but should be allowed to reap the advantage of his own exertion and good management. Let the saianas remain as at present—the middlemen or collectors; let them arrange about land deserted by cultivators and new land to be broken up, &c.; but as regards collections they should be confined strictly to the sum assessed by the Settlement Officer, and not allowed to alter it at all. If land was deserted, the newcomer would have to pay just the same as the deserter paid. I do not think there would be any difficulty in holding the khats kham if Government should decide to do away with the saianas altogether. Land is now of great value in Jansar Bawar, and if any cultivator became insolvent and deserted, there would at once be many applicants for the deserted land. Notwithstanding this, I think it would be more profitable for Government and better for the people to keep on the saianas.

18. Intimately connected with the saianachari system is the police system. At present the saianas are responsible for the police arrangements of their khats; they have to provide for watch and ward, and they have to report crime, trace criminals, and bring them up for trial. Crime in the pargana is almost unknown; theft there is little or none; and as the people are not of a jealous disposition as regards their wives, murder and crimes of violence seldom or ever occur. Under these circumstances, I think the less interference on the part of Government the better.

There is one point here worthy of notice,—the khats have to pay the 10 per cent., but, under instructions contained in G. O. No. 417A., dated 19th August, 1872, the saianas have to pay for the chaukidars. I think this hardly fair. I think that Government should either pay the chaukidar or should make a proportionate reduction in the 10 per cent. cess. The latter plan is the one I would recommend; because if the chaukidars are left entirely under the control of the saiana as to pay and everything else, the responsibility of the latter can be more strictly enforced, and there will be less interference on the part of Government officials.

19. There used only to be eight patwaris, and they did nothing; there is no reason why a certain number of the regular papers should not be kept up. I have appointed fourteen patwaris, and proposed that they keep up the following papers :—

I.—A diary in which all monetary transactions about land, and all changes, &c., should be entered.

II.—A kind of terij and jumabandi combined, showing—

Number.	Name of cultivator.	Number of fields.	Total area.	Names of crops and area under each.	Weight of each.	Market value.	Total receipts.

III.—Milan khasra, showing all increase in cultivation.

IV.—Jummakharch.

V.—Register of proprietary mutations.

The saianas wish the number of the patwaris reduced, and a proportionate amount remitted; but this is out of the question.

20. Up to the present settlement there have been no regularly recognized muafi villages; but in practice certain villages always were left rent-free.

In calculating the lump sum at which the khat was to be assessed, these villages were left out; but they were not recorded as muafi. The field measurement of the present settlement brought the matter prominently forward. After considerable correspondence, Sir William Muir determined to admit the right to hold rent-free, and sanctioned seven muafi villages in G. O. No. 872A., dated 21st March, 1874. The following are the holdings showing cultivated area only :—

Lakha Mandal,	...	...	...	...	36 acres.
Nard,	...	...	...	...	48 "
Maindrot,	...	...	...	...	45 "
Bartar,	...	...	...	...	27 "
Hanol,	...	...	...	...	5 "
Phartar,	...	...	...	...	35 "
Chatra,	...	...	...	...	22 "

These villages represent an annual revenue of Rs. 154.

I think sanads might be given to the muafidars, distinctly laying down the boundaries of the land to be held rent-free, and thus future complications would be avoided.

21. There are no Government canals in the pargana, but the zemindars water freely from the different rivers and streams. I do not think that any water that can be fairly utilized is allowed to run waste. Mr. Cornwall was under the impression that both on the Tons and Jumna there were tracts of

land into which Government might lead water and charge water-rates. I think he was mistaken. I carefully examined the spots and found that in all the cases where the zemindars had not led on water themselves, the expenses of doing so would be too great to warrant the outlay, as the return would never repay it. I spoke to the zemindars about it, and they agreed with me, and they would not even take takavi advances to assist in making any more little canals.

22. Up to the present settlement there have been no regular village forests. The zemindars possessed the cultivated land only. They had not even a right to break up culturable land in their khats without permission of the district authorities. They were allowed to use the forest in a general way, taking as much wood as they wanted for household purposes, but selling none. They were not supposed to cut deodar without permission; they however did very much as they pleased. When the forest rules began to be strictly enforced the people became very much dissatisfied, and thought their rights were being infringed. Sir William Muir accordingly determined to make over certain tracts of forest land to them, and otherwise to define their rights. This work was completed and reported on in my No. 340, dated 15th September, 1873, and sanctioned in G. O. No. 872A., dated 21st March, 1874. The boundaries of the village forests are clearly laid down in English, so there can be no dispute hereafter, and the Forest Department have put up the pillars.

23. In the wajib-ul-urz the rights of the villagers in their own forests and in Government forests is clearly laid down.

In the wajib-ul-urz I entered everything that in any way affects the people. I had each wajib-ul-urz carefully read over to each saiana before he signed, and they, one and all, clearly understood everything entered in them. I mention this because this time the saianas declared that they had never heard the wajib-ul-urz read out at last settlement, and did not know what was in them. This was false, but it was a long time before Mr. Cornwall could lay his hand upon clear documentary evidence proving its falseness.

It may be thought that too many details have been entered into, but it was quite necessary,—the hill-men are so very suspicious.

24. I send up the following returns only:—Village statements II. and III. arranged khatwar. In the miscellaneous remarks I have entered Mr. Cornwall's reasons for fixing his assessment.

General statement in acres of each khat in the pargana.

Annual jumma statement.

Statement showing tenures on which the khats in the pargana are held.

Census return for pargana.

Statement showing expenditure on the settlement.

25. I cannot think of anything further to report on. I must apologize for the meagreness of the report. I know that there must be much wanting. I have never done any settlement work, and do not know on what points information is required. I am well acquainted with the whole pargana, the people in it, and their manners and customs; I also know how the settlement work was carried on, and how it now works, and so should there be any point on which you wish further information, I will at once supply it.

I have, &c.,

H. G. ROSS,

Superintendent.

Statement of Settlement Charges incurred during 1871-72 and 1873-74.

Salary of gazetted officers.	Establishment, fixed.	Establishment, variable.	Travelling allowances of officers.	Travelling allowances of establishment.	Contingencies.	Stationery.	Cost of instruments.	Total.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
14,400 0 0	6,613 6 10	12,038 8 9	1,056 4 2	1,388 4 11	3,014 2 0	1,101 5 9	16 4 0	40,078 4 5

H. G. ROSS,
Superintendent.

Statement showing the Tenures in Pargana Jaunsar Bawar, Zila Dehra Dun.

1.	2.	3.	4.	5.	6.
Pargana.	No.	Zemindari Villages.	Villages Pati-dari.	Villages Bhayachari.	Total.
Jaunsar Bawar.	1	Haripur Bias.			
	2		...	Udpalta,	1
	3		...	Uperhathgaon,	
	4		...	Athgaon Chandao,	
	5		...	Bana,	
	6		...	Besahil	
	7		...	Bangaon,	
	8		...	Barasoa,	
	9		...	Behlar,	
	10		...	Bislar,	
	11		...	Bounder,	
	12		...	Bamtar,	
	13		...	Barmao,	
	14		...	Bharm,	
	15		...	Bawar,	
	16		...	Banadhar,	
	17		...	Phuniar,	
	18		...	Deoghar,	
	19		...	Silgaon,	
	20		...	Phartar,	
	21		...	Panjgaon,	
	22		...	Taplar,	
	23		...	Chartar,	
	24		...	Dassao,	
	25		...	Dhanao,	
	26		...	Dowar,	
	27		...	Rangaon,	
	28		...	Seli,	
	29		...	Seli kothan,	
	30		...	Samalta,	
	31		...	Silgaon,	
	32		...	Koro,	
	33		...	Kothi,	
	34		...	Kallo,	
	35		...	Lakhwar,	
	36		...	Lakhao,	
	37		...	Mohna,	
	38		...	Malehtha,	
	39		...	Massao, ... ..		38

H. G. ROSS,
Superintendent.

Jumma Statement of Pargana Jaunsar Bawar, Zila Dehra Dun.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Pargana	Number.	Name of village.	Last year of former settlement.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.
Jaunsar Bawar.	1	Udipalta,	679	775	775	775	775	775	775	775	775	775	775
	2	Operliathgaon,	218	309	309	309	309	309	309	309	309	309	309
	3	Athgaon Chaudao,	635	855	855	855	855	855	855	855	855	855	855
	4	Bana,	219	380	380	380	380	380	380	380	380	380	380
	5	Besahil,	684	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
	6	Bangaoan,	490	665	665	665	665	665	665	665	665	665	665
	7	Barasona,	21	71	71	71	71	71	71	71	71	71	71
	8	Bahar,	773	831	831	831	831	831	831	831	831	831	831
	9	Bishar,	313	380	380	380	380	380	380	380	380	380	380
	10	B-ander,	570	855	855	855	855	855	855	855	855	855	855
	11	Banitar,	1,415	1,971	1,971	1,971	1,971	1,971	1,971	1,971	1,971	1,971	1,971
	12	Borhnao,	518	561	561	561	561	561	561	561	561	561	561
	13	Bhurm,	1,089	1,335	1,335	1,335	1,335	1,335	1,335	1,335	1,335	1,335	1,335
	14	Bawar,	1,316	625	625	625	625	625	625	625	625	625	625
	15	Banadhar,	...	261	261	261	261	261	261	261	261	261	261
	16	Phumiar,	...	178	178	178	178	178	178	178	178	178	178
	17	Deoghar,	...	702	702	702	702	702	702	702	702	702	702
	18	Silgaon,	...	245	245	245	245	245	245	245	245	245	245
	19	Phartar,	...	1,166	1,166	1,166	1,166	1,166	1,166	1,166	1,166	1,166	1,166
	20	Panj-aon,	...	675	950	950	950	950	950	950	950	950	950
	21	Taplar,	...	494	712	712	712	712	712	712	712	712	712
	22	Chirtar,	...	58	95	95	95	95	95	95	95	95	95
	23	Daaso,	...	940	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211	1,211
	24	Dowar,	...	611	689	689	689	689	689	689	689	689	689
	25	...	...	356	475	475	475	475	475	475	475	475	475
	26	Rangao,	...	53	86	86	86	86	86	86	86	86	86
	27	Sali,	...	1,444	2,114	2,114	2,114	2,114	2,114	2,114	2,114	2,114	2,114
	28	Sahkotthan,	...	648	760	760	760	760	760	760	760	760	760
	29	Samalta,	...	522	618	618	618	618	618	618	618	618	618
	30	Silgaon,	...	787	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069
	31	Koru,	...	1,069	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377
	32	Kothi,	...	59	35	35	35	35	35	35	35	35	35
	33	Kalao,	...	214	293	293	293	293	293	293	293	293	293
	34	Lakhtar,	...	688	751	751	751	751	751	751	751	751	751
	35	Lakhao,	...	125	316	316	316	316	316	316	316	316	316
	36	Mohna,	...	285	355	355	355	355	355	355	355	355	355
	37	Malaktha,	...	53	76	76	76	76	76	76	76	76	76
	38	Masso,	...	603	784	784	784	784	784	784	784	784	784
	39	Haripur Bias,	...	146	310	310	310	310	310	310	310	310	310
		Total,	19,730	26,181	26,181	26,181	26,181	26,181	26,181	26,181	26,181	26,181	26,181

H. G. ROSS,
Superintendent.

Statement of Population of Fargana Jaunsar Bawar according to last Census.

	Male.	Female.	Total.	Remarks.
Rajput,	10,734	8,251	18,985	
Brahman,	2,500	1,871	4,371	
Bania,	282	73	355	
Bajgi,	1,351	1,069	2,420	
Koli,	2,191	1,540	3,731	
Dom,	1,749	1,455	3,204	
Chanal,	176	136	312	
Lohar,	370	276	646	
Badhi,	518	401	919	
Jogi,	146	98	244	
Chamar,	1,537	1,329	2,866	
Jolaha,	118	98	216	
Sunar,	149	105	254	
Hujam,	25	10	35	
Gushain,	19	11	30	
Kahar,	174	8	182	
Kumhar,	53	9	62	
Fakir,	6	...	6	
Gujar,	3	3	6	
Ahir,	13	...	13	
Taili,	24	2	26	
Kurmi,	14	1	15	
Bhangi,	103	47	150	
Kaith,	12	1	13	
Khatri,	9	...	9	
Kori,	30	4	34	
Dhobi,	22	6	28	
Gaderia,	3	...	3	
Jaiswar,	10	4	14	
Mandraji,	1	...	1	
Bairagi,	5	...	5	
Fakir Ughar,	2	...	2	
Kambou,	4	...	4	
Kalal,	10	...	10	
Mali,	9	3	12	
Bhujwa,	2	...	2	
Rajdhema,	9	1	10	
Gharani,	1	...	1	
Chhipi,	6	4	10	
Khatik,	18	...	18	
Malla,	3	...	3	
Naigi,	2	4	6	
Khasaoker,	3	...	3	
Tamoli,	3	...	3	
Thapa,	1	...	1	
Jat,	2	...	2	
Kumbi,	10	4	14	
Patwa,	1	...	1	
Pasi,	4	...	4	
Basri,	1	...	1	
Benaudhia,	2	...	2	
Lodha,	9	2	11	
Kahari,	2	1	3	
Badi,	1	...	1	
Kanjer,	2	...	2	
Muchi,	21	12	33	
Total Hindu,	22,475	16,828	39,313	
Sheikh,	185	55	240	
Syud,	21	1	22	
Mogul,	5	1	6	
Pathan,	391	26	417	
Rajput,	4	1	5	
Miscellaneous Musalman,	57	10	67	
Total,	463	94	757	
GRAND TOTAL,	23,138	16,932	40,070	
Zemindar, ... ..	...	...	16,812	
Cultivator, ... ..	...	...	12,661	
Non-cultivator, ... ..	...	...	10,597	

H. G. BOSS,

Superintendent.

GENERAL STATEMENT.

Pargana.	Number.	Name of Village.	HIGHEST JUMMA OF FORMER SETTLEMENT.					Proposed jumma	Total area in acres.	MINERAL.		Culturable waste.	MALGUZARI.				AVERAGE RATE PER ACRE ACCORDING TO THE PROPOSED JUMMA.		
			1st.	2nd.	3rd.	4th.	5th.			6th.	7th.		Lakhs.	Barran.	Fallow.	Irrigable.	Unirrigable.	Total.	Per acre of total area.	Per acre of malguzari area.	Rs. a. p.
Jannsar Bahar.	1	Udpalta,	391	400	480	410	561	579	775	658	Rs.	160	43	455	498	1 2 10	1 2 10	1 8 10½	
	2	Operiathgaon,	188	150	310	240	316	269	309	426	Rs.	126	14	286	300	0 11 7	0 11 7	1 0 6	
	3	Angson Chandao,	565	525	655	520	622-14	601	635	790	Rs.	168	12	610	622	1 1 4	1 1 4	1 0 6	
	4	Bana,	175	125	140	120	177-4	144	219	300	Rs.	58	12	379	391	0 13 6½	0 13 6½	0 15 6½	
	5	Kesahil	461	430	465	420	507-4	509	584	1,182	Rs.	180	50	952	1,002	0 15 5	0 15 5	1 2 2½	
	6	Bangaoon,	421	355	420	370	511-4	519	490	665	Rs.	138	26	354	380	1 4 6	1 4 6	1 12 0	
	7	Barasua,	18	14	14	12	15-4	14	21	71	Rs.	45	5	100	105	0 7 6	0 7 6	0 10 9½	
	8	Behlar,	511	612	500	450	612-8	614	773	831	Rs.	99	36	385	421	1 9 7	1 9 7	1 15 7	
	9	Bislar,	327	255	355	310	334	283	313	380	Rs.	187	24	243	267	0 13 4½	0 13 4½	1 0 9	
	10	Rounder,	481	410	500	450	620-8	557	570	855	Rs.	365	110	711	821	0 10 9½	0 11 6½	1 0 8	
	11	Bumtar,	1,081	1,000	1,121	1,010	1,316	1,380	1,415	1,971	Rs.	232	57	938	1,040	1 8 9½	1 8 9½	1 14 4	
	12	Birhmas,	451	365	420	370	520	561	618	511	Rs.	116	36	369	405	1 1 6½	1 1 6½	1 6 1½	
	13	Bhurm,	885	858	1,000	875	1,149	1,104	1,059	1,285	Rs.	137	74	566	640	1 9 5	1 9 5	1 14 10½	
	14	Bawat,	1,101	1,100	1,300	1,150	1,681	1,344	1,316	1,625	Rs.	362	75	438	513	0 7 10½	0 11 5	1 3 6	
	15	Bahmadhar,	261	Rs.	78	...	13	123	186	0 14 8	0 14 8	1 4 11½
	16	Phuniar,	178	Rs.	58	...	191	597	783	0 7 6	0 7 6	0 14 3
	17	Peoghar,	702	Rs.	677	...	191	597	783	0 7 6	0 7 6	0 14 3
	18	Silgaon,	245	Rs.	174	...	14	268	282	0 8 7	0 8 7	0 13 10½
	19	Phurtar,	766	737	880	790	1,016	1,114	1,166	1,666	Rs.	102	44	570	614	1 9 9½	1 9 9½	1 14 4½	
	20	Punjaon,	506	516	515	460	632-12	650	675	950	Rs.	153	35	695	730	1 1 2½	1 1 2½	1 4 10	
	21	Tuplar,	451	385	405	405	506-8	520	494	726	Rs.	191	42	448	535	0 15 8½	0 15 8½	1 5 3½	
	22	Churtar	61	65	61	45	64-4	48	55	95	Rs.	97	...	131	131	0 6 8	0 6 8	0 11 7	
	23	Dasno,	1,211	1,100	975	915	1,250-8	1,132	949	1,211	Rs.	239	16	933	949	1 0 3½	1 0 3½	1 4 5	
	24	Dhimao,	871	750	685	630	820	730	611	6 9	Rs.	86	40	421	461	1 4 2	1 4 2	1 7 11	
	25	Dwar,	286-8	258	375	310	424-4	384	356	475	Rs.	248	10	381	391	0 11 10½	0 11 10½	1 3 5½	
	26	Kungao,	81	65	61	55	57	47	52	86	Rs.	47	10	60	70	0 11 9	0 11 9	1 3 8	
	27	Sih,	666	1,010	1,175	1,075	1,428	1,416	1,444	1,114	Rs.	249	75	1,014	1,019	1 9 2½	1 9 2½	1 14 11½	
	28	Salkothan,	451	425	490	450	557	567	648	760	Rs.	49	5	556	561	1 2 6½	1 2 6½	1 5 8	
	29	Samalta,	341	341	380	310	385	427	522	6 8	Rs.	46	12	335	347	1 9 2	1 9 2	1 12 5½	
	30	Silgaon,	595	545	570	520	690-8	691	737	1,069	Rs.	173	14	843	857	1 0 7½	1 0 7½	1 3 11½	
	31	Kuro,	916	925	951	890	1,053-8	1,046	1,069	1,377	Rs.	153	36	892	858	1 5 9½	1 5 9½	1 9 8	
	32	Kothi	16	30	28	25	34-4	25	29	35	Rs.	3	1	43	44	0 12 2	0 12 2	0 12 9	
	33	Kalao,	266	255	205	180	223-4	226	214	293	Rs.	58	54	243	297	0 13 2½	0 13 2½	0 15 9½	
	34	Lakhwar,	425	411	385	355	526	538	638	761	Rs.	48	28	385	403	1 10 7½	1 10 7½	1 13 9½	
	35	Lakhas,	215	180	231	184	316	325	216	448	Rs.	148	74	221	295	0 7 9½	0 7 9½	0 11 8½	
	36	Mohna,	196	180	320	250	342-4	316	285	355	Rs.	95	37	179	216	1 2 3	1 2 3	1 10 3½	
	37	Mulethar,	61	45	41	36	50-8	35	52	76	Rs.	24	...	140	118	0 8 10½	0 8 10½	0 10 9	
	38	Mussau,	581	525	580	535	688	667	603	784	Rs.	101	140	409	549	1 3 3½	1 3 3½	1 6 10	
	39	Harpur Beas,	150	51	81	65	711-4	111	46	310	Rs.	154	112	32	184	0 13 4½	0 13 4½	2 2 5½	
		Total,	16,198-8	15,298	16,054	15,534	20,016-10	19,085	26,181	24,933	Rs.	5,846	1,619	16,873	18,493	...	...	...

H. G. ROSS,
Superintendent.

List of Patwaris' Halkobandi in Jaunsar Bawar Pargana.

No. of Halks.	Name of Halka.	Names of Villages.	Amount of land revenue of each village.			Amount of Patwaris' fees.			REMARKS.
			Rs.	a.	p.	Rs.	a.	p.	
1	Lackwar, ...	Lackwar, ...	751	0	0	8	0	0	
	Ditto, ...	Phartar, ...	1,166	0	0	58	0	0	
2	Koru, ...	Koru, ...	1,377	0	0	69	0	0	
	Ditto, ...	Bilar, ...	831	0	0	42	0	0	
3	Sali, ...	Sali, ...	2,114	0	0	106	0	0	
4	Udpalta, ...	Udpalta, ...	775	0	0	39	0	0	
	Ditto, ...	Samalta, ...	618	0	0	31	0	0	
	Ditto, ...	Birmon, ...	561	0	0	28	0	0	
5	Kalsi, ...	Kalsi, ...	310	0	0	16	0	0	
	Ditto, ...	Pachgaon, ...	550	0	0	48	0	0	
	Ditto, ...	Sahkothan, ...	760	0	0	38	0	0	
	Ditto, ...	Bana, ...	380	0	0	19	0	0	
6	Bislar, ...	Bislar, ...	380	0	0	19	0	0	
	Ditto, ...	Bongaon, ...	665	0	0	33	0	0	
	Ditto, ...	Barasua, ...	71	0	0	4	0	0	
	Ditto, ...	Aoperhathgaon, ...	309	0	0	16	0	0	
	Ditto, ...	Rungau, ...	86	0	0	4	0	0	
7	Dawar, ...	Dowar, ...	475	0	0	24	0	0	
	Ditto, ...	Mohna, ...	355	0	0	18	0	0	
	Ditto, ...	Kalou, ...	293	0	0	15	0	0	
8	Boweder, ...	Boundar, ...	855	0	0	42	10	5	
	Ditto, ...	Ohartar, ...	95	0	0	5	0	0	
	Ditto, ...	Taplar, ...	712	0	0	36	0	0	
9	Silgaon, ...	Silgaon, ...	245	0	0	12	0	0	
	Ditto, ...	Baundhar, ...	261	0	0	13	0	0	
	Ditto, ...	Phaniar, ...	178	0	0	9	0	0	
	Ditto, ...	Lakhow, ...	216	0	0	11	0	0	
10	Bawar, ...	Bawar, ...	715	0	0	36	0	0	
	Ditto, ...	Deoghar, ...	719	0	0	38	0	0	
11	Masau, ...	Masau, ...	784	0	0	39	0	0	
	Ditto, ...	Bharm, ...	1,235	0	0	65	0	0	
12	Disou, ...	Disou, ...	1,211	0	0	61	0	0	
	Ditto, ...	Malatha, ...	76	0	0	4	0	0	
	Ditto, ...	Dhanaw, ...	689	0	0	34	0	0	
13	Bomtar, ...	Bomtar, ...	1,971	0	0	99	0	0	
	Ditto, ...	Koti, ...	35	0	0	2	0	0	
14	Athgaon Chandu, ...	Athgaon Chandu, ...	855	0	0	43	0	0	
	Ditto, ...	Silgaon, ...	1,069	0	0	54	0	0	
	Ditto, ...	Bissahal, ...	1,140	0	0	57	0	0	

H. G. ROSS,
Superintendent.

TRANSLATION OF WAJIB-UL-URZ.

I.—The amount of assessment of the last settlement was _____, and was based on the general capabilities of the whole khat.

Class I.—Revenue.

In the present settlement the assessment, based on the cultivated area and sayer calculations, has been raised to _____, which amount I (or we, as the case may be) agree to pay annually during the period of the present settlement, *i. e.*, from 1st July, 1873, to 30th June, 1883; and for such further term as it may take to complete the next settlement, I hereby bind myself to pay the Government revenue in the Kalsi tahsil, having collected from the several zemindars the sums due from them according to the phantbandi to be annually made, the zemindars to pay in instalments on 15th July, 15th October, 15th January, and 15th April. I also bind myself to be responsible for the payment of all the Government revenue for the whole of his khat.

II.—The zemindars in this khat are the proprietors of all the land cultivated by them; but according to the custom of the country they must pay the Government revenue as fixed by me on their general capabilities, as well as the actual cultivated area. I promise to make this phantbandi fairly and impartially, after careful enquiry into the condition of each zemindar, and to file the phantbandi in the tahsil by the 1st of April of each year, for the confirmation of the Superintendent of the Dun. All increases or decreases of revenue are to be clearly shown. All objections are to be lodged by the zemindars within fifteen days. After the phantbandi has been sanctioned, it will be deemed a sufficient record of the amount of revenue to be paid by each zemindar. In the event of the death or desertion of any revenue-paying zemindar, I bind myself to make arrangements for the payment of the Government revenue, either by having his fields cultivated by some one else, or by distributing the amount over the whole khat.

III.—The custom here as regards tenants-at-will is that they take land from the zemindars, some paying in cash and some in kind, *i. e.*, a fixed portion of the produce of the land. This is termed "kan." But these tenants possess no proprietary right in the lands, nor can they acquire any. The zemindar can at his will oust them at the end of the year, but must have it entered in the patwari's papers. There are no maurusi tenants.

IV.—In the event of any balance accruing against any zemindar, I will realize it by filing a suit against the defaulter according to the revenue laws of the pargana. Should any zemindar leave the village, the lands and houses (if not mortgaged) belonging to him will fall into my possession, and I will arrange for the cultivation of the said land, &c. On the return of the zemindar, and his stating his intention to live in the village, I will give him back his property,—the said zemindar to pay the revenue from the date of possession and balance that formerly accrued.

V.—The zemindars possess full proprietary right in their holdings with right of transfer. Land of one village must be transferred to a person holding lands in the same village, or lands of one khat must be transferred to a person holding lands in the same khat as far as possible,—residents of the same village or khat having a right of pre-emption.

After the execution of the deed of sale on a proper Government stamp, it must be duly registered. I shall only under these conditions allow the sale, and I shall have this fact entered in the patwari's papers. Should the sale not be effected according to these rules, it will be deemed void.

The fact of the change is to be entered in the khasra. No zemindar or saiana has any power of sale as regards the waste lands or forests situated in the khat, as the said waste lands and forests are either the property of Government or the common property of the whole khat: no one has any exclusive right to them.

VI.—Whereas in this pargana the cases about land and those of monetary trans-
actions, and not criminal cases, are generally settled by pancha-
Clause VI.—Saiana's powers. yat, I bind myself to decide all cases without partiality, and according to the customs of the place. In the case of a dispute being about lands I shall have the quantity of land under dispute, when decided, entered in the patwari's papers. It has been customary here, when a dispute about land or houses arises, the dissatisfied party dedicates some of the earth belonging to the house or field to "the gods," and thus incapacitates the whole country from using the house or field; and thus results the loss of Government revenue. I bind myself to give information of this dedication to the gods to the public authorities, or not to allow the dedication to be made. In the event of my failing to give the said information to the public authorities, I bind myself to be responsible to pay the Government revenue on account of that piece of land.

VII.—I do hereby bind myself not to charge heavy expenses on account of coming
and going to Court for miscellaneous purposes, but only take
Clause VII.—Expenses of village. fees at the rate of half an anna per rupee on the Government revenue. I shall also take the saiana perquisites according to the prevailing custom only. I will also charge the amount of talbana which a khat has to pay on account of the default on the part of a zemindar to that zemindar.

VIII.—Whereas Government has fixed the patwari's cess at the rate of Rs. 5 per
cent. on the Government demand, I bind myself to pay it with
Clause VIII.—Patwargiri. the Government revenue, having collected it annually from the zemindars according to the phantbandis.

IX.—Since the sum of Rs. 5 per cent. has been fixed as saiana's fees, I bind myself
to realize the same from the zemindars with the Government
Clause IX.—Saiana's right. revenue according to the phantbandi. The eldest son, according to the custom of this place, succeeds to the saianaship. In case of his incapacity, the younger brother, with the sanction of the authorities, becomes saiana. If a saiana dies without issue, no woman is to be his successor. Government may appoint another man of the same family or any one whom it pleases. Saianas can be removed on account of keeping arrears of revenue, or for any other fault that may be proved before an officer. In the event of the death of a saiana, the new saiana will take care of the wife of the deceased.

X.—With the exception of those lands that are situated within the boundaries of
any khat, and those that are entered in the khasra in my name,
Clause X.—Boundaries. I bind myself not to take possession of any lands beyond the said boundaries, except by means of purchase or mortgage, or by regular suit. I shall annually inspect the boundary pillars now fixed, and at the time of the payment of the April instalment of Government revenue, I shall inform the tahsildar of Kalsi of the state of the pillars, and shall comply with such orders as the tahsildar may give regarding the pillars.

XI.—I shall be responsible for the police duties. I shall not allow bad characters
to enter or stay in my khat. I shall not conceal any criminal,
Clause XI.—Police. nor stolen property, nor any criminal occurrence. I shall give information of the commission of offences to the Kalsi police, trace out the offenders, and assist the police in prosecuting. I shall decide petty criminal cases which are really of a civil nature according to the customs of the place.

XII.—The zemindars of the khat have power to fish three times a year by poison-
ing, and throughout the year by rod and line: they can also fish
Clause XII.—Fisheries. with nets in the large rivers, as the Jumna and Tons, but not in the small streams.

XIII.—In my khat there is first-class Government jungle in _____, the bounds of which have been explained to me, and pillars have been put up. Clause XIII.—Forests. In this jungle we zemindars have no right of any kind whatever, and cannot enter to graze, or take leaves, or for any purpose whatever.

There is second-class Government forest in the _____, boundaries of which have been read out to, and pillars have been put up. In this we zemindars have the right to graze our cattle, cut grass, and, with the permission of the forest officer, can cut leaves for sheep. We can collect fallen leaves from under the trees for manure. We can take also dried wood for fuel, and stone for building houses. We can cut *ringal* for our own use. We can also cut trees, as *ginghar*, *kaith*, *lod*, *ampar*, *makh*, for hedging purposes, with the permission of the forest officers. If any zemindar of the khat wishes to break up any new land in the said forest, he must before doing so obtain the permission of the forest officers as regards the quantity of land, the position of the field, and the period for which it is to be cultivated; and he shall also pay such revenue as may be fixed by the Superintendent of the Dun. After the expiry of this term, he must get fresh permission; if he does not get it, he must relinquish the field, and under no circumstances can he acquire any right whatever in it. Should the forest officer at any time wish to close any portion of the second-class forest and make it first-class, he must give a month's notice through the Superintendent of the Dun, and leave us such forest as will suffice for our use. Should we not deem the forest so given us sufficient, or find that the forest officer has shut up the forest near the village, and gives us forest which is at a distance, we can apply to the Superintendent, and get just arrangements made for grazing, &c. The piece of forest thus closed we will not enter into till the permission of the Superintendent is given, nor graze our sheep in it. We cannot sell or mortgage anything belonging to second class forest under any pretence whatever. We will not set fire to the forest where our sheep graze, but will preserve the same from being set fire to. Should a fire take place in the forest, we will be liable to a fine, should carelessness be proved against us. We will have the same right over the water which flows through the forest which we have hitherto had, and the right of way to the water will continue. Besides the above forest, all other forests and waste lands which lie in our khat are our property for our use. A zemindar can sell to another of his own village or khat, or to that of another village or khat, the trees which have been planted by himself; but no zemindar can sell any wood or tree of any kind to any person, such as contractor or inhabitant of Chakrata, or to the servants of the Department Public Works, or Commissariat, or any other outsider, by any means whatever. We cannot sell even amongst ourselves the trees which are self-grown, but we can give to the people of another khat for nothing, or in lieu of something received from them. We can sell grass, *ringal* or *bansi* to any person. The zemindars of other khats who used to get dried wood and leaves from our forest will continue to do so without payment of any fees. For sheep which they bring in the morning and take back in the evening we can make no charge. If they make any shed for the sheep, we will have a right to demand grazing dues. If at any time for any reason we wish to close any portion of our jungle, the zemindars of other khats who have a right to graze in our khat must refrain from grazing in the closed jungle. Should the Government discover that any zemindar of our khat has acted contrary to any of the conditions entered into above, it can confiscate the whole forest.

In the case of our requiring any wood which is not to be found in our forest, we must apply to the Superintendent six-monthly, i. e., on the first of March and first of September, stating the quantity of wood required; and after the sanction of Superintendent has been obtained, we shall be entitled to get wood from the Forest Department. If we fail to make the said application on the date fixed, we shall have no right to get wood for six months. After obtaining the sanction of the Superintendent, we must present ourselves to the forest officers between 20th and 30th March, or 20th and 30th September. On our failing to appear on the dates fixed, we shall not be entitled to get wood during the year.

The deodar wood which we get from the Forest Department we will cut by no instrument but by saw. If we cannot procure saws, we will deposit fees in the Forest Department for sawing.

Clause XIV.—Orders. XIV.—We shall obey all orders given us through the tahsildar of Kalsi.

Clause XV.—Lands required by Government. XV.—In future if Government requires any land, cultivated or uncultivated, or trees, it must take up the land under the Act then in force, and pay compensation for it.

Clause XVI.—Coolies. XVI.—In the case of coolies being required for public purposes, or for European travellers, we shall act according to the orders passed on phantbandis of coolies by the Superintendent about the supply of coolies. The Superintendent can from time to time alter the phantbandis.

The saiana is liable to fine for delay in obeying orders. We will make phants of coolies according to number. Should a cooly fail to work on his turn, by absence or refusal, we shall report the same to the authorities, and he shall be liable to fine. Nobody, without the order of the Superintendent or Cantonment Magistrate of Chakrata, can take coolies from us, but we can at our pleasure supply coolies.

H. G. ROSS,
Superintendent.

From Secretary to Government of India, Department of Agriculture, Revenue, and Commerce, to Secretary to Government, North-Western Provinces, (No. 75).—
Dated Simla, the 17th June, 1872.

SIR,—The great and growing importance of the Indian tea trade renders it desirable that the Government of India should be placed in possession of certain general statistics in regard to the present position of tea culture in all parts of the Empire.

2. I am therefore desired to request that, with the permission of His Honor the Lieutenant-Governor, you will take measures for causing the annexed statement to be carefully filled in, in regard to all tea plantations or gardens now existing in the North-Western Provinces for the present year, and that you will submit the same as soon after the 1st November as may be practicable.

3. His Excellency the Governor-General in Council is deeply interested in this important national enterprise, and he does not doubt that, appreciating the interest he feels in their success, the planters as a body will cheerfully furnish the information required.

4. This statement should be accompanied by a brief history of tea planting, and by a well considered estimate of the present position and apparent prospects of tea culture, in each district.

5. Opportunity should be taken to ascertain what (if any) obstacles exist in each locality to the fullest development of this important branch of production, and what, if any, measures could properly be adopted by Government in view to facilitating this object. The planters themselves should of course be consulted on these points, because, although considerations of general policy may in many cases render it impossible for Government to do all that those pecuniarily interested in the undertaking might desire or suggest, His Excellency is nevertheless anxious to learn what their views upon this branch of the question are, and to ascertain what, if any thing, might, in their opinion, be done by Government towards encouraging the Indian tea trade.

I have, &c.,
A. O. HUME,
Secretary to the Government of India.

Nos. 956-57A. OF 1872.
REVENUE DEPARTMENT.

Dated Nynee Tal, the 28th June, 1872.

COPY forwarded to the Commissioners of Meerut and Kumaon for compliance, and for expression of opinion on the general question (to Commissioner of Meerut only), after communication with the Superintendent Botanical Gardens.

By order of the Hon'ble the Lieutenant-Governor, North-Western Provinces.

J. S. MACKINTOSH,
Under-Secy. to Govt., N.-W. P.

From Commissioner of the Kumaon Division, to Secretary to Government, North-Western Provinces (No. 1156).—Dated Camp Ramnuggur, the 9th December, 1872.

SIR,—I have the honor to acknowledge the receipt of your endorsement in the Revenue Department, No. 956A., dated 28th June last, with its enclosures, requiring statistics of tea culture, and a report on its present position and future prospects.

2. Immediately upon the receipt of your reference, I sent to every tea-planter in my Division a copy of the letter from the Secretary to the Government of India, ask-

ing them to favor me by filling in the statement called for, and to offer any suggestions as to improvements that might be introduced, or obstructions removed, in connection with the advancement of this important trade. From the replies received, I now submit a Divisional statement showing the yield of tea in Kumaon for the year 1872 ; and I beg to represent what, in my opinion, is most desired by the majority of planters, and practically attainable.

3. I have purposely not entered into any history of tea culture in Kumaon from its earliest stage, as I am aware that Dr. Jameson, Superintendent of the Government plantations, will furnish a full and correct account of all that has been done in this province; but I may observe that at first most of the largest estates made the mistake of having too extensive plantations, and in my opinion, in some instances, more attention was given to the selection of a site on account of its being a pleasant residence, with lovely scenery, than to the choice of soil, altitude, and other points connected with large tea crops. A good deal of money in some cases was, I think, unnecessarily expended on houses ; but experience, dearly though it was bought, has, I trust, altered the tea prospects of this province ; and I am convinced, as I always have been, that with proper management, a tea plantation ought to give very satisfactory returns.

4. It strikes me that the tea-planters of Kumaon make a great mistake in not agreeing to send their tea to one house in London, where it could be always procured. Under the existing practice, the tea grown in this province is sent home to different agents, disposed of generally on arrival in large quantities, purchased by those who at once distribute it to smaller dealers, who mix it to flavor in different teas ; and thus it disappears unknown. There is no place where any one partial to Kumaon teas can supply himself in England throughout the year, or even can buy sufficient only for a year, and there is nothing in the way of eating or drinking one gets so accustomed to as tea. A person in the habit of drinking Doonagiree tea, for instance, does not at first like Kousanie tea ; and in the same way there is a difference in the teas of every plantation in the province. Planters have no safety in sending their teas to Calcutta brokers, and it is most disheartening to have a large quantity of really good tea pronounced worth only ten or twelve annas a pound, when it is known that this so-called indifferent article is used at home to flavor worthless teas, and make *them* saleable at a price which would have remunerated the planter. A little more unanimity among the planters on this important point would, I think, do much to establish the value of Kumaon teas in the market at home.

5. The accompanying statement shows that the tea crop of the past year amounted to 2,85,700 lbs., and that quantity required about 8,000 porters to carry it down to the foot of the hills, while a large number of men would also be required to carry up the lead to the plantations. Ponies or mules are considered unsafe carriage for tea, and carts or camels have hitherto been unknown at any plantation, therefore porters are the only carriage employed, and this is not only expensive, but it entails the withdrawal of laborers from the plantations, or the employment of extra men at a season when labor is most needed on the plantations. It is almost impossible to procure hired porters at that season, because the people are busy in their fields, and men from the interior have such an objection to going through hot valleys to the foot of the hills in June and July, that porters for this work could only be hired at enhanced rates, which add considerably to the expense.

6. To remedy this great drawback, it is the universal wish of the planters that cart-roads may be made in the province, and two lines would be sufficient to meet the wants of most of them, in so far that they would reach points to which tea could be sent without the objections noticed in the preceding paragraph. One line would be an extension of the Ramnuggur and Almorah cart-road from Hawalbagh up the Kosee valley, as far as the base of the hill to a place called Tota Siling. The other would be

a branch from the Raneekhet road from Ramnuggur up the Ramgunga valley, as far as Gunnye. The length of the former new line would be about 20 miles, and of the latter about 40 miles. There are no difficulties on either of these lines. The Ramgunga valley especially is very open, and these cart-roads would bring most of the plantations into easy connection with the railway terminus at Ramnuggur.

7. Another request urged by many of the planters is that Government will authorize the contracts for the supply of tea to the troops in Oudh and the North-Western Provinces being given in smaller quantities, in order that they may compete. At present they are debarred from doing so in consequence of the present contracts being on so enormous a scale as to be entirely beyond the capabilities of any single plantation. If this could be allowed, it would give a healthy impulse to the tea interests of this province, and might give the advantage to planters of being able to dispose of their produce near home.

8. A third very important request of the planters is that they may be assisted by tuccavee advances, and thus be relieved of the ruinous rates of interest charged by agents or bankers, which tend more than anything else to make tea cultivation unprofitable. I think this assistance might be given with great advantage to this important trade, and without any risk to Government. The immense advantages to this province from the prosperity of tea plantations are, apart from the fairness of assisting those who have contributed so much to the wealth of the people from which Government derive profit, a sufficient reason, in my opinion, for rendering all possible assistance in not only maintaining the existing plantations in a way which will remunerate the present proprietors, but in some measure enhance the value of those plantations on which it is estimated upwards of sixteen lakhs (16,00,000) of rupees have already been spent. Many of the planters commenced work in the province 15 years ago, and I regret to say, speaking generally, that their efforts have not been crowned with success pecuniarily during this long period. A variety of circumstances have prevented the fulfilment of their hopes, but they have struggled manfully against the many difficulties incident to all new enterprises. Experience has brought about many improvements in the management of tea plantations, and a happier state of affairs seems now in prospect, which I should be glad to see aided by any reasonable assistance that Government could grant. I think that tuccavee advances at 5 per cent. interest, to the extent of half value of the crop, might be made without any risk to the Government, on the understanding that the account was cleared every year, and I have no doubt such advances would very materially help the tea interests. The granting of such advances might be left to the discretion of the local authorities (subject to the sanction of the Board of Revenue) who would be well acquainted with the circumstances of individual applicants.

9. Some other suggestions of a minor and local nature have been made which I have not thought necessary to bring before the Government of India. Cart-roads, contracts, and tuccavee advances are the only points on which the favourable consideration of Government is required. These questions will, I trust, be favorably received. A great deal depends on the success of existing plantations. Should they prove successful, there are thousands of acres of waste land which could be brought under tea cultivation. It is superfluous to enlarge on the vast benefits already conferred on this province by the introduction of capital expended on tea culture, or to anticipate the results that would follow could it be practically established that tea cultivation was a certain source of honorable profit.

I have, &c.,

H. RAMSAY,
Commissioner.

KUMAON DIVISION.

Statement illustrative of the state of Tea culture in 1872.

District.	Name of Plantation.	Approximate average elevation.	AREA IN ACRES.				APPROXIMATE YIELD IN 1872 IN LBS. AVOID DUPOIS.										Average yield in lbs. per acre of mature plants.	
			Mature plants.	Immature plants.	Taken up for planting but not yet planted.	Weng. area.	BLACK.		GREEN.			Grand Total.						
KUMAON DISTRICT.	Kousanie Tea Company, Limited,	5,600	250	150	not given	1,619	2,019								35,000	16,000	50,000	125 lbs. on total planted area.
	Doonagiri,	6,300	150	...	...	-150									5,000	18,000	23,000	151 1/2 lbs.
	Kumaon and Kuhjoor Tea Co., ...	4,500	200	200	not given	1,850	2,250								40,000	10,000	50,000	146 lbs. on total planted area.
	Rheem Tal,	4,300	120	...	80	...	920								8,000	...	12,000	100 lbs.
	The Lines,	4,400	70	...	40	...	110								1,600	...	7,000	100 lbs.
	Luknee and Monghur, } } } Dr. Old- } man's.	6,000	...	30	* 2,000	...	2,030								400	...	900	3) lbs.
	Dumote,	5,500	100	...	8	...	108								17,100	900	19,000	200 lbs.
	Reneeng,	6,200	60	...	...	340	400								8,000	...	13,500	225 lbs.
	Purana Thul,	4,500	20	...	...	360	388								3,120	...	6,000	300 lbs., manured regularly.
	Peerpulta,	3,000	45	...	...	355	400								4,000	...	8,000	177 and seven-ninths lbs.
Chowkooree,	6,500	10	25	...	1,965	2,000								2,050	...	3,500	350 lbs. due entirely to manure and elevation.	
KUMAON DISTRICT.	Lowhaghat,	...	Colonel Dansey has worked his plantation as a source of amusement, kept no record of results, and can give no information.															
	Julna,	5,600	50	...	...	100									2,000	...	3,000	130 lbs.
	Ramgurrh,	6,000	15	...	...	15									1,200	...	3,700	250 lbs.
	Eycote, ...	6,200	60	...	300	460									...	...	1,500	Can give none. Area planted not fully under cultivation.

KUMAON.	Soonaodyar, ...	5,000	60	...	35	...	3,196	6,529	11,456	5,640	7,150	...	1,200	...	6,600	1,900	...	2,800	4,000	66 lbs.
	Jaitola, ...	6,500	...	3	...	8	...	...	...	126	500	...	625	...	...	...	...	2,075	2,700	77 lbs.
	Jeenabad, ...	...	20	...	40	...	...	...	60	...	...	...	100	...	...	...	...	...	100	33 lbs.
	Boonga, ...	...	...	...	...	...	...	...	...	...	...	...	300	...	...	...	...	...	300	15 lbs.
	Total Kumaon, ...	...	1,233	498	3,196	6,529	11,456	5,640	7,150	46,270	22,265	162,825	6,600	1,900	56,375	219,200				
GARHWAL.	Gudoollee or Peoree, ...	5,000	215	...	...	...	...	...	215	...	1,400	...	3,400	...	...	...	...	...	3,400	15½ lbs.!
	Mooselee, ...	6,000	2	11	...	...	...	...	13	...	300	...	2,600	...	...	...	...	...	2,600	200 lbs. on total planted area.
	Gwaldom, ...	4,500 to 6,000	120	...	...	1,680	...	...	1,800	400	1,000	...	11,400	...	...	...	...	4,100	15,500	130 lbs.
	Telwarae, ...	not given	not given	...	...	...	...	...	120	700	600	...	2,500	...	...	...	...	...	2,500	20 and five-sixths lbs.
	Silkot, ...	5,500	300	...	...	...	...	...	300	...	10,000	...	40,000	...	...	...	...	...	40,000	133 lbs.
	Willow Bank, ...	6,500	16½	...	30½	...	...	...	47	...	...	...	2,500	...	...	...	...	...	2,500	180 lbs.
	Total Garhwal, ...	...	653½	11	30½	1,680	2,495	1,100	13,300	...	45,500	62,400	...	...	...	...	...	4,100	66,500	
	Grand Total, ...	...	1,886½	509	3,226½	8,209	13,951	6,740	20,450	46,270	67,765	225,225	6,600	1,900	60,475	285,700				

KUMAON COMMISSIONER'S OFFICE: }
The 9th December, 1872.

H. RAMSAY,
Commissioner, Kumaon Division.

From Commissioner, of the Meerut Division, to Secretary to Government, North-Western Provinces (No. 11).—Dated Meerut, the 14th February, 1873.

SIR,—I have the honor to acknowledge the receipt of your office endorsement No. 956A., dated 28th June last, enclosing a letter No. 75, dated 17th idem, from the Secretary to the Government of India (Department of Agriculture and Commerce), requiring a report on the present position and future prospects of tea plantations, with certain statistical information. I observe that I am required to give an expression of my opinion on the subject of tea culture generally, after communicating with the Superintendent of the Botanical Gardens at Saharunpore. I regret that I have been unable up to the present time to obtain from Dr. Jameson any detailed reply to my call. The accompanying dockets from that gentleman, Nos. 118 and 306, dated 17th July and 23rd November last, will explain the reasons which have hitherto prevented Dr. Jameson from replying to my letter; and as I have received several reminders from your office, I do not wish to delay any further the submission of such information as has been collected.

2. The accompanying letter No. 437, dated 16th December last, from the Superintendent of the Doon, contains an interesting history of the rise and progress of tea-farming in the Doon, and of the difficulties which have had to be encountered. It was perhaps inevitable that the pioneers of tea-farming should be the victims of losses. It is true that tea cultivation in India was nothing new at the time the experiment was tried in the Doon; the plantations in Assam and Cachar had prospered, and some of the leading farms were realizing large profits, but even these had experienced their period of trial, but I think sufficient attention was not at first paid to natural and climatic difficulties. It was probably urged that what had succeeded in Assam must succeed in the Doon, and that all that tea required was a hill climate. I am unable to explain what the peculiar difference in climate may be between Assam and the Doon, but I believe it will be admitted that tea grows more luxuriantly in the former than in the latter district. But climate alone was not the sole cause of failure. Mr. Ross has detailed the blind infatuation which seized the first speculators in tea-farming in the Doon, and the natural result of the ignorance and carelessness shown were failure and loss. The original promoters had to give way to others, and for a time it seemed as if tea speculation in the Doon would never rise to be an accomplished fact. I am happy, however, to say that prudence and capital have at last overcome most of the difficulties, and that in the present day tea-farming is likely to prove a paying speculation.

3. Mr. Ross has obtained from most of the more important planters an expression of their views on the subject. It will be seen how varying the opinions of these gentlemen are. For instance, Colonel Thelwall complains of a scarcity of labor, whereas Mr. Watson, the Manager of the Annfield concern, thinks there can be no difficulty on this point. I believe that both gentlemen may be partly right and partly wrong. There can be no doubt that some parts of the Doon are more thickly populated than others, and each may have written according to his own experience.

4. The chief points urged by the planters from whom Mr. Ross has received replies are—*1st*, the propriety of permitting planters to purchase their estates in fee simple; *2ndly*, the necessity of arranging for a proper supply of fuel; *3rdly*, opening up grazing lands, or rather permitting cattle to graze in Government forests; and *4thly*, maintaining lines of communication in serviceable and passable condition. I do not here include the item of canal-water, as I believe the question of the charge to be made for water has been definitively settled.

5. With respect to the first point, I would urge for favorable consideration the request to be allowed to purchase tea estates in fee simple. There can be no doubt that nothing will give such an impetus to tea-farming as this concession. But I would restrict the indulgence in the first instance to *bonâ fide* tea farms held by persons of capital and character, so that there might be reasonable assurance that the concession would not be abused.

6. The second and third points are rather more difficult to deal with. Manure and firewood are two chief articles required in the proper cultivation and preparation of tea. The former may possibly be provided by the planters if sufficient grazing lands are made available for their cattle. But the supply of fire-wood will really, I think, be a difficulty in years to come, as land is opened up and brought under the plough, the sources of supply are curtailed. There are, as it would seem, two conflicting elements at work. The land-owner will of course do what he can to improve his own estates by the extension of cultivation, whilst the tea-planter would desire a certain amount of jungle to be kept up to supply him with fire-wood. Government can however assist by supplying wood from their forests.

7. The question of maintaining roads in a proper condition is one which will receive due attention at the hands of the local authorities. Hitherto want of funds has prevented more being done than has been done, and this was necessarily so as long as the former system of local funds management continued; but under the present system grants of money are made irrespective of the contribution of the district itself to provincial funds, so that the question now hinges on the actual requirements of a district, and not on what funds may be available for expenditure from its own road cess.

8. I would note a remark in Mr. Watson's letter (the Manager of the Annfield concern) relative to the Punjab octroi dues having a depressing tendency on the importation of tea into that province. Mr. Watson refers very briefly to the matter, still it might be well to make further inquiry.

9. Speaking generally, I am of opinion that tea-farming under proper management ought to pay. I believe that the former notions of realizing fabulous interest on capital laid out on tea-farming are exploded, and that people now look to and are content with the prospect of a fair return for their money. There is no reason why this expectation should not be realized. The Central Asian market alone will buy up almost any quantity of tea, provided it be of good quality, and there is a daily increasing disposition on the part of the natives of this country to use tea. I do not think there is any fear of a market failing. But planters should be careful to keep down their working expenses as much as possible, so as to supply tea at the cheapest possible price.

I have, &c.,

F. M. LIND,

Commissioner.

From Superintendent of Dehra Doon, to Commissioner of the Meerut Division (No. 437).

—Dated the 16th December, 1872.

SIR,—In reply to your No. 117, dated 8th July, and enclosure, I beg herewith to forward returns filled in for most of the tea estates in the Doon. I have been

waiting for replies from the others, but do not like to make any further delay. The returns of only a few unimportant estates as per margin are wanting.

1. Malookawala of Mr. Dick.
2. Meorkham of Colonel Thelwall.

2. Tea was commenced in the Doon before 1840, but by Government only. An experimental garden was formed at Kowlagir. In 1847 there were about eight acres of bearing plants, and three hundred acres planted out. One or two European landholders, who had bought land or received grants, commenced planting in a small way ; but it was not until 1853-54 that any great advance was made ; in [that year, owing to the efforts of the District Officers, four or five native landholders and three or four Europeans took the matter up, and made gardens of different sizes. They one and all failed ; the Europeans who had invested all their means in their gardens were of course ruined. The natives being Zemindars, simply let the tea lie untouched, and looked upon it as so much land wasted.

3. For years plantations were worked at a dead loss. In many companies shares originally costing Rs. 100, could not find purchasers at Rs. 5. In other instances the parties who broke up the land and commenced the plantations were ruined and sold up. The parties who bought were also ruined, and the second purchasers, who bought at very low rates, only just managed to pay actual working expenses.

4. I am thankful to say a great change has now come over the scene. All the plantations that have any pretensions to being properly worked are now paying, and will, I have no doubt, year by year extend their cultivated area.

5. The failure above alluded to must, I think, be attributed entirely to ignorance on part of first planters.

(a.) They were ignorant of the time it took the tea plants to grow up to tea-producing shrubs. Hence they commenced work with too little capital : they expected immediate returns, not getting such returns they could not go on with their work, and were ruined.

(b.) They were ignorant of the style of cultivation, and thought they had nothing to do but to put the plants in, water them now and then, and then reap a harvest. Hence instead of properly cultivating small gardens within their means, they planted out large areas, which from want of attention yielded nothing.

(c.) They thought any body could manage a tea plantation, and appointed as managers persons utterly ignorant not only of tea, but of cultivation of any sort. As tea requires very high cultivation and a peculiar treatment, the result of bad management was that the plants never thrived, and instead of improving year by year deteriorated.

(d.) It was supposed that plants should be five feet apart, hence only 1,740 bushes could be planted in an acre. In Cachar it is found best to plant $3 \times 1\frac{1}{2}$, thus giving 9,000 bushes to the acre. If originally bushes had been planted close, they would perhaps have killed the grass. They would have been close together, and only a small area would have had to have been cultivated.

Finally no regard was had to the nature of soil. No attempt was made to manure, leaves were plucked from bushes a year old. Year after year leaves, such as they were, were plucked. No attempt was made to prune. Many of the managers added dishonesty to their ignorance : under these circumstances it cannot be wondered that tea failed. Apart from this, some natives seeing the mania there was for tea, planted a few bushes in land that was utterly useless to them and unfit for any crops. European speculators, quite ignorant of what they were doing, bought their lands at

ruinous prices. In 1850-53 tea was fetching high prices ; there was a very small quantity produced, and it fetched over three rupees a pound ; planters rushed to the conclusion they could always secure this price, but the price rapidly went down to ten and twelve annas a pound. This of course put people out in their calculation.

6. A very different state of affairs exists now. In all the large plantations there are highly paid managers, gentlemen who thoroughly understand the science of farming and gardening generally, and tea in particular. Manure is now harboured and collected most carefully, and large herds of cattle are kept simply and solely for manure. Bushes are carefully pruned and trimmed, the ground is properly cultivated, and a system of order and precision prevails. In plantations that of themselves are unable to afford such managers, the proprietors have taken advantage of the example set, and have not been slow to follow it. In justice to the above-mentioned managers, I must say that they seem always ready and willing to give any information and assistance in their power to their poorer and less well-informed neighbours.

7. There is now a ready sale for green tea. Cabul and Central Asian merchants come and buy on the spot, and give up to a rupee a pound for the first four sorts without packing, they themselves taking away the tea in their own bags. Even very average tea is now easily sold at thirteen annas a pound on the spot.

8. There are only two real difficulties that threaten the tea-planters :—

I.—Want of manure.

II.—Want of fire-wood.

The planters have now awakened to the fact that without manure they can reap nothing, and so they collect as much manure as they can from villages, keep as many cattle as they can, &c., &c., but still they run short. Many of the plantations have little or no grazing ground attached to them, and so they are nearly helpless. Fire-wood is another necessary, without it tea cannot be made ; as cultivation extends, the supply of fire-wood decreases, has to be brought from longer distances, and is more expensive, and day by day is becoming scarcer and scarcer.

9. In both these matters Government can render material assistance. As regards manure, they can throw open their forests for grazing, and so induce cattle to enter the Doon.

As regards fire-wood they can allow tea-planters to purchase fire-wood at reasonable rates from Government forests, and can reserve certain jungles near the tea-growing tracts for the purpose of supplying fire-wood.

10. Some tea-planters have urged the necessity for better roads, the roads are certainly not regular raised roads, but still they are quite passable, and I do not think are any hindrance to the advancement of tea cultivation. I do not think better roads would in any way improve the prospects of tea-planters.

11. Some tea-planters complain of the want of a criminal law of contract, and state they are entirely at the mercy of the workmen. They are obliged to give advances, and the men often run away just at the most critical time. All they can do is to sue the men in Civil Court : if they obtain a decree, they cannot realise the amount, and so it is merely throwing good money after bad. This no doubt is often a great hardship, but I do not think any thing can be done, as I believe it has been finally decided by all political economists that a criminal law of contract interferes with trade, and in the end does more harm than good.

12. Some planters pray that they may be allowed to purchase their estates in fee simple according to the old rules. This would of course be a great favour, but is one on which I refrain from expressing any opinion, as it has been so often before Government in other cases.

13. Some planters wish Government to guarantee that tea lands shall never be assessed higher than wheat lands, and that water for tea will never be charged for at higher rates than water supplied for wheat: this I certainly recommend.

14. I think it would be a great mistake of the planters to trust too entirely to the Central Asian trade. They should certainly keep up a home connection. Dehra Doon green tea has a high name in the London market, and a certain quantity should be sent home yearly, so that in event of any interruption to Central Asian trade, sales could be carried on in the home markets.

15. I enclose copies of letters received from Colonel Thelwall, Mr. Watson, Mrs. Vansittart, and Mr. Mooney, to enable you to judge of the feelings of the planters themselves.

16. I regret the delay that has occurred in answering the letter, but it was unavoidable, owing to non-receipt of returns, &c., from the planters.

I have, &c.,

H. G. ROSS,

Superintendent.

Statement illustrative of the state of Tea culture in India in 1872,

Province.	District.	Name of Plantation.	Approximate average elevation.	Area in acres.				Approximate yield in 1872 in lbs. Avoirdupois.				Average yield in lbs. per acre of mature plants.				
				Mature plants.	Immature plants.	Taken up for planting, but not yet planted.	Total.	Congou.	Pekoe.	Fannings.	Total.		GREEN.	Grand Total.		
North-Western Provinces.	Dehra Doon.	Dehra Doon Tea Company Limited, Arcadia, and Hurbunswala.	Feet. 2,000	500	50	1,000	1,550	EUROPEAN.			1,500			200,000	201,500	Approximate yield 400 lbs.
		Kaonlagir, ...	2,500	250	...	...	250	...			6,000			54,000	60,000	240 lbs.
		Annfield, ...	2,000	300	...	256	556	...			2,000			78,000	80,000	About 250 lbs.
		Ambaree, ...	2,000	...	170	100	270	3,000			...			30,000	33,000	400 lbs.
		Nirunjunpore, ...	...	75	25	...	100	...			...			12,000	12,000	About 120 lbs.
		Dyrham Town, ...	1,500	...	...	...	19	659			659			343	1,002	52 lbs.
		Goodrich, ...	...	20	...	50	70	990			990			7,100	8,090	80 lbs.
		West Hope Town, ...	...	80	...	12	92	300			300			15,500	15,800	About 180 lbs.
		Nuthunpore, ...	...	20	...	...	20	...			...			462	462	23 lbs.
		Hurbhujwala and Gurhee, ...	...	{ 120 } 30	...	...	150	...			...			13,200	13,200	88 lbs.
		Gurhee Deen Hatee Burkulla, ...	...	45	...	26	71	800			800			3,700	4,500	100 lbs.
		Nirunjunpore, ...	...	100	...	...	100	160			160			800	960	50 lbs.
		Dhurtawala, ...	...	16	...	...	16	...			...			1,920	1,920	120 lbs.

H. G. ROSS,
Superintendent.

From MRS. MARY AMELIA VANSITTART, to Superintendent of Dehra Doon.—Dated the 20th July, 1872.

SIR,—In answer to your letter forwarding the questions asked by Government concerning tea, I beg to state that I consider that tea *may* pay a capitalist who can afford to wait seven (7) years for a return on his capital. We ourselves worked at a loss for ten (10) years, partly from inexperience, from neglect of pruning, and partly from want of labour, which we now have attracted to our estate by our money, so that we can at times command the labour of 400 women and children to pick the flush.

I *do* however consider that it will pay commercially to add to the area of existing plantations whoever after the past crisis may now be the holders, *how* many of us *have* been ruined who shall say. We have not extended of late years, because the Hon'ble Mr. Drummond raised on us the rates of water taken from the canal. We took this as a hostile measure towards us, who were in difficulties, entertaining, as we then did, the erroneous impression that artificial irrigation was essentially necessary for profitable cultivation, whereas we have now found that plots of tea unirrigated for seven years are the hardiest and most productive in our estate. Plants regularly irrigated are, we think, exotic; unirrigated bushes acclimatizing themselves.

Now that Sir William Muir has reduced the charge on canal-water, confidence in the intentions of Government has revived, and we have both plucked our own seed, which for some years was allowed to rot; and have bought other seed from Assam and Cachar, and we now have lacs of seedlings ready for immediate and after extension.

Government can, I think, best assist all planters, Native and European, by publishing the letter in the *Gazette* of His Honor the Lieutenant-Governor, which was proclaimed in the Doon by its then Superintendent, Mr. M. Thornhill.

This letter, we believe, conveys some security of title against Government itself in the Revenue Department, and perhaps as against enhancement of the water-rate. Government might also permit us to buy the fuel falling in its forests adjacent to our plantations.

We do not think Government can otherwise assist us, and indeed we now do not ask for extraneous aid. The fact that Government has been good enough to honor us with this letter is of itself a guarantee of a revival of that interest by which the barren and unhealthy Doon may some day be made a charming garden.

The greatest guarantee of assistance however that Government can give to the Indian tea-planters is to allow them to commute the land-tax on the ground set apart by them for planting out tea, and to hold such lands in fee simple. This would encourage them to lay out capital on the thorough cultivation and improvement of that soil as their own property.

The accompanying copies of letter and receipt from the late Mr. Manderson will

Copy No. 1.

Received from Mrs. Vansittart the hoondee payable on 1st April, 1862, for Rs. 2,000 (two thousand), which amount, when realized, will be placed to her credit in purchasing the fee simple of the estate of West Hope Town.

CAMP DEHRA DOON : }
The 4th March, 1862. }

R. MANDERSON,
Superintendent.

however show, that as regards the oldest grantees in the Doon, the local authori-

Copy No. 2.

MY DEAR MRS. VANSITTART,

I have to-day received your letter of 1st instant, enclosing an order payable on 1st April. for Rs. 2,000, which, to use mercantile phraseology, when realized, shall be placed to your account in purchasing the fee simple of West Hope To wn.

On receipt of the order from Government, for which I applied more than a month ago, you shall have every facility possible shown you, &c., &c.

Yours very sincerely,

R. MANDERSON.

CAMP UMBARRY : }
The 4th March, 1862. }

ties, having placed to current revenue our deposit for payment of fee simple during our absence in England, did not afford us the promised

facility for the purchase of the said fee simple.

We submit therefore that Government might now in equity permit us to commute the land-tax on 1,000 (one thousand) acres, which are situated in one block in a ring-fence, and on which our three existing tea plantations now are.

I have, &c.,

MARY AMELIA VANSITTART.

From J. B. THELWALL, ESQUIRE, to Superintendent of Dehra Doon.—Dated the 20th July, 1872.

SIR,—In reply to your memo. No. 555 of 15th July, 1872, I beg to state—

1. That tea cultivation in the Doon is extending slowly.
2. That tea is beginning to pay as a commercial speculation.
3. The obstacles which have hitherto prevented the successful and remunerative cultivation in the Doon are numerous : some have been overcome, many remain.
4. The introduction by the D. D. T. Co. on their plantations of the Hybrid Assam plant, of which they now have many acres, will tend much to improve the yield and quality of the teas. Many of the varieties now cultivated in the Doon are comparatively worthless.
5. The cultivation, pruning, and manufacture of tea in the Doon is now being conducted on sound principles, but still very much remains to be done before it can be said that tea is properly cultivated in the Doon, or elsewhere ; whilst the manufacture of tea, until the use of good, efficient and cheap machinery becomes universal, must always be open to great risk, and mainly depend for its excellency upon the energy and efficiency of the European in charge of the factory.
6. The want of a ready and local market is much felt, the North-West traders are now coming forward, hitherto the planters have been at the mercy of the brokers, &c., in Calcutta, who combine to keep down the price of tea.
7. The prohibitory inland freight charged by Railway Companies on tea, tea-lead, &c., &c., would only admit of the very finest teas being exported at a profit. A local market obviates this great drawback to success.
8. The want of a simple and just contract law between master and servant is much required. At present the master is completely at the mercy and caprice of his native establishment, who often, after receiving advances, run away whenever any heavy and critical work is coming on, entailing heavy loss on tea-planters, for whom there is no redress. This reason alone deters hundreds from embarking capital in a country where the settler and cultivator is left entirely at the mercy of his labourers. Labour in India is becoming scarcer and dearer every year : the labouring classes appear to be rapidly diminishing in numbers all over the country. Whether this is caused by

disease, many of them becoming small cultivators on their own account, or whether they are absorbed into the crowds of faqueers and beggars who infest the country, it is hard to say, but as to the diminution in the number of this class there can be no doubt.

9. Government might remove some of the obstacles by enabling the planters to buy good and efficient tea-rolling and tea-hoeing machinery to be driven by mules at a cheap rate. The prices charged at the foundries in India are capriciously exorbitant, and unless the order was given a year or two before the machinery was required, the planter would be unlikely to get any, and probably when sent, the machinery would not act from carelessness in fitting, &c., &c., so constantly experienced in this country.

10. Government might also maintain the roads in good order in the Doon. I believe the main roads running east to Hurdwar and west to the Jumna are impassable during some portion of the rains. A comparatively small sum would keep these in good repair. Material for their repair of the best kind could be had in any quantity merely by paying for its cartage from a short distance. The whole line to Hurdwar might be kept in as good or better order than the Grand Trunk Road at a mere trifling expense, provided the work was properly looked after.

I have, &c.,

J. B. THELWALL.

From Manager Annfield Grant, to Superintendent of Dehra Doon.—Dated the 27th July, 1872.

SIR,—I have the honor to return the form sent me duly filled in to the best of my knowledge.

Tea is paying now fairly as a commercial speculation, but only after long years of losses.

It does not pay any better in my opinion than any other good ordinary mercantile enterprise. In Assam, I believe, the present area under cultivation is being greatly extended, and I suppose extension will be made in this district too; but in Assam extension is easy, and owing to the early period at which the rains commence, and to there being no hot weather really, the results are pretty certain to be good, but here the making of a garden is a very laborious and risky business, and this may retard extension till the present area is at its best, then if tea stands as it does now, that area will assuredly be increased.

I do not know why tea should have failed hitherto in the Doon, but I suspect that the real reasons were the distrust of it, and inattention to it, by proprietors and the ignorance of managers.

There may have been *land* difficulty, but I am rather ignorant of the land tenures of the Doon.

There could have been no labour difficulties. I fancy as the Doon has all Upper India to draw on, labour here is cheap and plentiful. *Labour* difficulties have had *much* to do with failure in Assam and Cachar; and I consider that Government has scope there for the carrying out of its good wishes, but what it could do here to help us I really do not know, unless it remitted the octroi taxes imposed on tea in some of the Punjab stations, and to which the bulk of our tea finds its way. But candidly the chief reason of non-success has been the great ignorance of us planters ourselves.

If I may offer a suggestion, it is that fire-wood reserves might be made in the Doon, or that plantations of suitable fire-wood and box-wood timber might be made at central stations in the Doon. Government conserves its forests rigorously, and it is yearly becoming more difficult to get fire-wood, which to us is a vital commodity. The cost of making fire-wood plantations by the Forest Department would rapidly be very profitably repaid, and I believe that the assurance of being always able to get fire-wood would greatly stimulate the extension of tea cultivation, as gardens could be formed in many spots that are now from this sole reason unsuitable.

I look upon a deficiency of fire-wood as one chief difficulty in the future.

We necessarily consume much of it in the manufacture of green tea, the only kind of tea which the Doon can produce of really good quality.

I have, &c.,

J. T. WATSON,

Manager Annfield Grant.

From Manager Kowlaghur Tea Plantation, to Superintendent of Dehra Doon (No. 254).

—Dated the 12th September, 1872.

SIR,—Referring to your No. 555 of the 15th July, 1872, I now beg to enclose the statement called for.

It would be a matter of doubt for me to say at present how much of the different classes of tea I will have of black and green, and have consequently given you my probable outturn for the year. The average of first class tea may be taken at from 60 to 65 lbs per cent.

There is always a greater demand for green tea in the Doon than for black, hence the small quantity manufactured, which I have made only to meet local demands. This description of tea has always sold well, but the demand is small. The green until lately has on the contrary sold at prices very unremunerative; and after paying for packing in lead-lined boxes for transit to Calcutta, the immense commission and other charges of the Calcutta brokers, the balance in favor of the planter per lb is very insignificant and very discouraging, but I am happy to add that for the last two seasons the price of tea is looking up, so much so that it has instilled courage in one or two private parties to commence planting.

The causes of failure are various, and in a great measure this is attributable to Government itself, in the first instance in so much as they caused estimates, &c. &c., to be published, which were based on probabilities and not on facts; and parties with a small capital embarked in a speculation of which they were utterly ignorant, and depending on these estimates, they looked for a return before it was actually due, and consequently ruined themselves. Of this I speak from experience, having been in the tea line since 1855, and eleven years of which I spent as Assistant in the Government Plantations in Kumaon.

I have not the slightest doubt that if tea is looked after as it should, it would pay as well, if not better than, any other commercial speculation in India; and I may add that if Government patronized the Indian teas more than they do at present, it would induce planters to bring a better description of tea into the market. More than two-thirds of the tea now supplied to the Indian Army is imported from China, and as a natural consequence, tea is exported from India, and is at the mercy of brokers and others.

Another greater disadvantage under which the planters labor is the bad state of the roads in the district : it is almost dangerous to ride or drive after dark on any of the roads, unless a person is acquainted with them ; among these I may mention the road leading to Hurdwar, and the one leading *viâ* Sainspore to the Jumna. If once put into thorough repair, a trifle would keep them so.

I may add that the Doon is yearly rising in commercial value, and if Government take the matter into consideration, I have no doubt that in a few years it will be one of the important districts of this province.

I have, &c.,
T. MOONEY,
Manager Kowlaghur Tea Plantation.

From Superintendent Botanical Gardens, North-Western Provinces, to Commissioner of the Meerut Division (No. 450).—Dated Camp Roorah, Etawah Division, Ganges Canal, the 26th February, 1873.

SIR,—With reference to your docket No. 339, dated 8th July, 1872, with enclosures, I beg to submit two Tabular Statements* showing the outturn of tea during the last season, 1872, in the Dehra Doon and in the Districts of Kumaon and Gurhwal. In doing so I beg to make a few observations on the introduction of the tea plants into the Kohistan of the North-West Provinces and Punjab.

Small tea plantations were first established in the Kohistan of the North-West Provinces in 1836, *viz.*, at Bhurtpoor in the Bhim Tal Pergunnah, and at Lutmaissur and Kupeena in the neighbourhood of Almorah in Kumaon : about the same time several small plantations were formed in Western Gurhwal, *viz.*, at Koth and Rama Serai. In all these localities the tea plant succeeded tolerably well. In 1842-43 plantations were formed in an extensive scale at Hawul Baugh in Kumaon, Gadowli in East Gurhwal, and at Kowlaghir in the Dehra Doon.

In 1842 eight Chinese tea makers were imported from Assam, and by them a small quantity of tea was manufactured. This was the first attempt made at preparing tea in the North-West Provinces. A sample of this tea was forwarded to Dr. Forbes Royle at the India Office, and by him it was submitted to Messrs. Thompson of Mincing Lane, for examination, and by them it was pronounced to be “ of the Oulong Souchong kind, fine flavored and strong, and equal to the superior Black Tea generally sent as presents, and better for the most part than China teas imported for mercantile purposes.” From this report dates the gradual rise of tea cultivation throughout the Kohistan and Doons of the North-West Provinces and Punjab.

Orders were received in 1844-45 to extend the plantations in Kumaon, Gurhwal and the Dehra Doon, and to erect at Hawul Baugh and Russiah in Kumaon, Paoree in East Gurhwal, and Kowlaghir in the Dehra Doon tea factories.

On the annexation of the Jullundhur and Kangra Districts, the Kohistan of the Punjab was traversed in 1847, and the Kangra Valley having been found well adapted to tea cultivation, two plantations were formed—one at Nagrota, and the other at Bawarnah in the Pahlum Valley. These plantations were inspected by His Excellency the Governor-General, the late Marquis of Dalhousie, in 1851 ; and so gratified was His Lordship at the luxuriant manner in which the tea-plant was growing, that he issued orders for a plantation to be formed in an extensive scale. For the purpose the undulating waste plain of Holta was taken up, and a plantation of about six hundred acres formed with factory and offices complete.

* The second of these is a copy of the table for the Kumaon Division, which follows Colonel Ramsay's letter above. The first is printed after Dr. Jameson's letter No. 530, dated 11th April 1873.

To work the factories in Kumaon, Gurhwal, Dehra Doon, and the Punjab, two parties of tea manufacturers were imported in 1851 and 1855 from some of the best tea districts in China (the first tea makers received from Assam being indifferent tea manipulators), with large supplies of tea-plants, seeds, and several complete sets of implements. The importance of the cultivation attracted particularly the attention of their Excellencies the Governor-Generals Lords Hardinge and Dalhousie, and by them much was done to place it on a proper footing.

To inspect the progress of the plantations in the Kohistan of the Punjab, the late Viceroys the Earl Canning and the Earl of Elgin made long journies over a difficult mountainous country. To the Dehra Doon the Marquis of Dalhousie and Lord Lawrence journeyed to inspect the work there going on.

By every Lieutenant-Governor, from the establishment of the plantations in 1842, *viz.*, by the Hon'bles Sir G. Clerk, J. Thomason, J. Colvin, Sir G. Edmondstone, E. Drummond, and Sir W. Muir, inspections were periodically made. With such countenance and support it is not therefore to be wondered at that the undertaking progressed, and has taken firm hold of the country.

In 1865-66 Government declared that the objects for which the experiments had been conducted had been attained, *viz.*, the manufacture of tea fitted for the market, and that too at a rate that would yield a good interest for money embarked in the speculation. The plantations and factories were therefore sold, and the field left open to private enterprise. The results, as shown in the tabular statements, prove how far the cultivation has now progressed in the Kohistan and Doons of the North-Western Provinces. But these are not the only results, as great fields of tea cultivation in other parts of India owe their rise chiefly to the support in the form of seeds, plants, and skilled labour received from the Government plantations of Upper India.

But I regret much to state that both tabular statements are very incomplete, so far as the filling up of the blank form received from your office is concerned. Thus the classes into which the teas are divided cannot be accurately shewn, as many of the planters and tea manufacturers do not separate the different kinds of tea from each other, but sell them in an unsifted state, and in the lump. This particularly applies to green teas, nor is it much to be wondered at that many planters have declined to give detailed returns, as by so doing they might lay themselves open to strictures by the public at large.

But though the tabular statements are incomplete, still they contain much valuable information, I therefore forward them with the following brief analysis.

Number of plantations in the Dehra Doon.—The number of plantations in the Dehra Doon, now under cultivation with tea, is 17, belonging partly to Europeans and partly to natives. In addition there are some plantations also cultivated by natives, but which are too small to be worthy of notice. The general altitude of the plantations is from 2,000 to 2,200 feet above sea-level. Their gross outturn is lbs. 411,548. By the returns given by several managers it will be perceived that the outturn varies from 8 lbs. to 312 lbs. per acre, and that too obtained from land the annual rental of which does not exceed twelve annas or one rupee per acre.

Of the kinds of teas manufactured during the season 3,692 lbs. were black, and 407,856 lbs. green teas. The green teas were manufactured entirely for the Central Asia trade, the whole stock having been purchased by Amritsur and Cabul merchants for transmission to Peshawur and Cabul.

Owing to the want of details, barring those kindly submitted by the Manager of the Dehra Doon Tea Company, it is impossible to show the proportion of fine to coarse teas prepared in factories. But this will always vary, as such results depend entirely on the manner in which green or raw leaves are gathered. In a well conducted factory the following is the percentage presented by the different kinds of green teas :—

1. Hyson, 1st and 2nd Class, ...	...	9 per cent.
2. Young Hyson, ditto ...	...	31½ ditto.
3. Gunpowder, ditto ...	...	1½ ditto.
4. Imperial Gunpowder, ditto ...	...	3 ditto.
5. Hyson Skin, or Twankay, ...	...	55 ditto.
		—
		100
		—

Of black tea, if the green leaves be carefully gathered and prepared, there ought not to be more than five (5) per cent. of coarse to 959 fine teas.

Number of plantations in Kumaon.—In the Kumaon and Gurhwal statement, for which I am indebted to Colonel Ramsay, C. B., Commissioner of the Province, there are some interesting details which are well worthy of notice. The number of plantations under cultivation with tea is 19, varying in altitude from 3,000 to 6,500 feet. The number of acres covered with plants in full bearing is 1,233, and in addition there are 498 acres planted with young plants, making a grand total of 1,731 acres : to extend the cultivation 9,725 acres have been taken up,—thus making the grand total of tea land in Kumaon equal at present to 11,456 acres.

On coming to details we find that the gross quantity of tea manufactured was in 1872-73, 219,200 lbs., of which 162,825 lbs. were black, and 56,375 lbs. green teas. This quantity has been obtained from an acreage of 1,731, which is thus equal to upwards of 126 lbs. per acre, and which will be considerably increased as soon as the land lately planted comes into full bearing. It too will be perceived that some of the plantations yielded from 300 lbs. to 350 lbs. per acre—a larger outturn than that obtained from the best plantations in the Dehra Doon. These excellent results have been entirely brought about by heavily manuring and high cultivation, and that too from land paying only from twelve annas to one rupee per acre. Proprietors, therefore, with such results, can well afford to manure heavily and cultivate highly. The returns too show the high percentage that may be obtained for capital well laid out.

Number of plantations in Gurhwal.—In Gurhwal there are six (6) plantations, with altitudes ranging from 4,500 to 6,500 feet, and with an acreage under cultivation with tea of 2,395½ ; to extend the cultivation 11,435½ have been taken up,—making a grand total of 11,951 acres.

By the 2,395½ acres of land under cultivation, 66,500 lbs. have been yielded, or at the rate of about 23½ lbs. per acre. When we come to details we find that the yield in the different plantations varies from 15½ lbs. to 200 lbs. per acre. Of the whole quantity manufactured 62,400 lbs. were black teas, and 4,100 lbs. green teas.

In Gurhwal tea cultivation in many of the plantations is at a very low ebb when compared to that in Kumaon or the Dehra Doon. But if two plantations in Gurhwal show an average yield of from 180 lbs. to 200 lbs. per acre, it proves how greatly the produce of other plantations may be improved by good manuring and cultivation.

In the Dehra Doon statement there is but little to show the quantity of land under cultivation, and the quantity available and capable of being cultivated with tea. It however is very large. In Kumaon and Gurhwal the quantity of land is also extensive and in the Kangra Valley and the Kohistan of the Punjab generally there are large tracts filled for the purpose. In the Kohistan and Doons of the North-West Province^s and Punjab the cultivation of tea has for some years (*viz.*, from 1866, as already stated) passed from experiment to fact, all the plantations of Government having passed into the hands of private individuals, barring one which has been reserved for other purposes. The teas prepared have been declared by competent authorities equal to the best China teas, and the fact that they have entirely superseded the China teas in the markets of the North-Western Provinces and Punjab, fully bear out the opinions of the brokers. A brisk trade is now springing up with Central Asia, large quantities, particularly of green teas, having been sold to Punjab and Cabul merchants to supply that market. Nor is the supply nearly equal to the demand. When it is considered, therefore, that the first factory for the manufacture of tea in the Kohistan of the North-West Provinces was only erected in 1844-45, and in the Punjab in 1853, that the cultivation and manufacture in Assam for a time had ended in ruinous failure from causes which are well known, that the exportation of Indian teas has now risen to 18½ millions of pounds, and in addition a considerable local trade for exportation to Central Asia and consumption in the country,—when all these things are considered, tea cultivation in India may, in my humble opinion, be considered to be in a highly satisfactory state, and its future foretold to be a bright one. The day too is not far distant when the export of Indian teas to European markets will rival China itself. Such views we enunciated a quarter of a century ago, but which were generally considered visionary. But we have maintained them through good and bad report.

True it is that the plantations in the Kohistan and Doons of the North-West Provinces and Punjab are still on a small scale when compared with those now met with in other parts of India. But it is not the less a fact that the work carried on in this part of India has been the means of re-assuring the public of the value and importance of the cultivation when it had broken down and become a ruinous failure, owing to mismanagement, in other parts of India. The cultivation has now taken a firm hold of the country, and all well managed and prudently conducted concerns are paying dividends. The cultivation is rapidly extending, and the limit to which it may be carried on is boundless, if carefully fostered by Government.

In the Kohistan and Doons of the North-West Provinces and Punjab all that is required is the opening up the hilly country by the formation of good roads to enable planters to send their teas to good markets. To planters with good paying concerns in the interior of the mountains, who from this cause find it impossible to forward their produce to markets until the cessation of the rains, small advances on the crop might with much advantage be given, and a moderate rate of interest, 6 or 7 per cent., charged. This would be considered a great boon, and give a great impetus to the cultivation.

To open up the hill country of Kumaon, a magnificent cart-road is being constructed from Ramnuggur in the plains, and leading to the capital of the Province *viâ* Raneekhet, and thence north to the Kosanee Range. The Dehra Doon has been opened up by great roads, leading through the Mohun and Timli Passes. In the Kohistan of the Punjab, the Kangra Valley has been opened up by two great roads,—one leading from Bijnath in the east of the valley to Nurpoor on the west, and thence to the plains, and the other from Dhurmsalla to the plains *viâ* Dehra and Hoshiarpoor. Both these fine roads are well fitted for carts. But before these roads are complete, they must be connected by branch lines with the great Railway centre lines leading

to the sea-board. When this is accomplished, tea will no longer require the fostering care of Government.

To the teas of Upper India a check has, it is said, been given by the advance of the Russians in Central Asia, and by them a heavy duty imposed. But when it is considered that two-thirds of the raw produce of Russia's greatest staples, viz., hemp, flax, and tallow, find markets in Britain, it surely will not be a very difficult matter of diplomacy to obtain a reciprocity for a staple, which tea must now be styled, the produce of a part of the British Empire. Early attention to the subject is well worthy of the serious and earnest attention of Government.

I have, &c.,

W. JAMESON, SURGEON-MAJOR,
Superintendent Botanical Gardens, N.-W. P.

From Under-Secretary to Government, North-Western Provinces, to Superintendent Botanical Gardens, (No. 705A.)—Dated the 31st March, 1873.

SIR,—With reference to your report on the cultivation of tea in the North-Western Provinces, No. 450, dated the 26th February, 1873, I am directed to forward for your information a letter,* in original, from the Superintendent of the Doon, and its enclosures (to be returned), on the subject. I am to point out that neither the quantities of tea produced, nor even the names of the plantations in the Doon given in Mr. Ross's statement, agree with those contained in the statement appended to your report, and I am to request that you will be good enough to endeavour to reconcile these differences. An early answer is requested, as the Government of India have issued several reminders on the subject.

* No. 437, dated 16th December, 1872.

I have, &c.,

C. J. LYALL,
Under-Secy. to Govt., N.-W. P.

From Superintendent Botanical Gardens, to Secretary to Government, North-Western Provinces (No. 530).—Dated Botanical Gardens, Saharunpore, the 11th April, 1873.

SIR,—I have the honor to acknowledge the receipt of your letter No. 705A., dated 31st ultimo, with enclosures, and in reply beg to state that I at once placed myself in communication with the principal tea-planters in the Dehra Doon, in order to get the tabular statement of the yield of tea in the Dehra Doon rectified, as far as it was possible to do so. I proceeded to Dehra, and communicated with Mr. W. Bell, Managing Director Dehra Doon Tea Company, Mr. Mooney, Manager Kowlaghir Tea Plantation, Colonel McPherson, shareholder in several Tea Companies, Lalla Ram Nath, &c., from all of whom I received ready answers to all my questions. I also saw the Superintendent of the Doon, and by him was informed that his figures were only approximations.

In the tabular statement now furnished by me, I have taken advantage of the tabular statement forwarded by the Superintendent Dehra Doon, to enter the land so far as it is given now under cultivation with tea in the Dehra Doon, as in the copy first received from him this item was altogether omitted. In my report to your address No. 450, dated 26th February last, I have stated that the plantations in the

Dehra Doon under cultivation with tea are 10 in number, belonging partly to Europeans and partly to Natives. I have in the tabular statement now submitted increased the number to 17, viz., 11 cultivated by Europeans and 6 by Natives, and have brought up the whole outturn to lbs. 411,548, a difference of 20,200 lbs., with the outturn given by the Superintendent. The yield too of plantation varies from 8 lbs. to 333 lbs. per acre. But the outturn now given by me shows an increase of 25,374 lbs. over the first statement, caused by a large increase in the Dehra Doon Tea Company's outturn on finishing off their annual crop. Still between my statement and that furnished by the Superintendent Dehra Doon, there are considerable discrepancies. Thus he gives as the yield of the Dehra Doon Tea Company 201,500 lbs., my tabular statement shows only 166,592 lbs., or 34,918 lbs. less. Annfield is given at 80,000 lbs., I, on the best authority, have given it at 67,000 lbs., or 13,000 lbs. less. Brinjarawallah, the property of Colonel Barlow and others, is not mentioned in the Superintendent's statement, and I find that the yield was 8,000 lbs. Charlivilla too is omitted, with an outturn of 7,000 lbs., and Horowallah with 2,000 lbs. To reconcile my statement with that furnished by the Superintendent of the Dehra Doon is impossible, as his statement was compiled from approximations. I, on the other hand, received correct data from the proprietors six weeks later: when the Superintendent of the Dehra Doon applied to the tea-planters, their crops had not all been gathered. I too informed the Commissioner that if Government wished to receive correct information, they must give the planters time to finish the preparation of their crops. Owing to this cause, therefore, the statement furnished by the Superintendent of the Dehra Doon does not correspond with the one I furnished with my report dated 26th February last, and with the one I now submit, which is as correct as can be obtained.

Regarding Mr. Ross' review of the progress of tea cultivation in the Dehra Doon, it does not become me to criticise it, as it is a tissue of mistakes, and to no one is the subject better known than to His Honor the Lieutenant-Governor. In my report I have briefly given the progress of the experiment in the North-Western Provinces and Punjab. It would have been more becoming had the Superintendent of the Dehra Doon omitted to mention the share that the Civil authorities of the Doon had taken to encourage the cultivation, as when Mr. Fortune sent in his first report on the cultivation of the tea-plant in the Dehra Doon, the Superintendent advised the Native cultivators to plough up all their tea-plants. Fortunately for the experiment, His Excellency the Governor-General the Marquis of Dalhousie inspected the Government plantation at Kowlaghir six months after Mr. Fortune's report had been received by Government, and was so gratified with the luxuriant manner in which the tea-plant was growing, His Lordship after learning the cause of Mr. Fortune's injurious report remarked, "consider Mr. Fortune's report as waste paper. I shall take care that nothing results from it." He then ordered the cultivation to be carried on with the greatest vigour, and another party to be deputed to China for implements, &c. By His Honor the Lieutenant-Governor the late Honorable J. Thomason, the subject was also taken up most warmly, and in the space of a season the damaging results of Mr. Fortune's report and the action of the local Civil authorities were counteracted.

I regret exceedingly that there has been so much delay in forwarding the statement called for. But correct data were not forthcoming at an earlier date: approximations could have been obtained. But unless calculated with the greatest nicety, they are very liable to mislead. For the results of the tabular statement now given I am chiefly indebted to Mr. W. Bell, Managing Director Dehra Doon Tea Company, Mr. Mooney, Manager Kowlaghir Plantation, Colonel McPherson, Lalla Ramnath, &c.

As requested I return the enclosures received, and respectfully solicit that the enclosed tabular statement may be substituted for the one forwarded with my report submitted on the 26th February last.

I have, &c.,

W. JAMESON, SURG. MAJOR,
Superintendent Botanical Gardens, N.-W. P.

Statement illustrative of the state of Tea culture in India in 1872.

Province.	District.	Name of Plantation.	Area in acres.				Approximate yield in 1872 in lbs Ancoirdupois.				Average yield in lbs. per acre of mature plants.					
			Mature plants.	Im mature Plants.	Taken up for planting but not yet planted.	Total.	Congou.	Pekoe.	Ranking.	Total.		GREEN.	Grand Total.			
North-West Provinces.	Dehra Doon.		Feet.	Approximate average elevation.										lbs.		
		1. Dehra Doon Tea Company or Hurbunwala and Arcadia.	500	50	4	524	...	...	...	...	...	...	...	...	...	333
		2. Anfield,...	300	...	256	556	...	...	...	...	...	...	...	...	...	223
		3. Ambarce, ...	...	170	100	270	...	...	...	...	...	...	...	...	...	187
		4. Nirunjanpoor, ...	75	25	...	100	...	...	500	...	...	...	...	...	...	153
		5. Nirunjanpoor, ...	...	...	...	...	...	...	...	...	...	...	...	...	...	52
		6. Dyham Town or Luckhunwala, ...	20	...	...	19	...	...	...	...	...	...	...	...	...	171
		7. Gooderich, ...	80	...	50	70	...	...	...	...	...	...	...	...	...	270
		8. West hopeTown,...	...	...	12	92	...	...	...	...	...	...	...	...	...	...
		9. Kowlagthir, ...	250	...	...	250	...	...	...	...	...	...	...	...	...	261
		10. Nuthunpoor, ...	20	...	...	20	...	...	...	...	...	...	...	...	...	75
		11. Hurbhajwala and Garhee, ...	150	...	...	160	...	...	...	...	...	...	...	...	...	88
		12. Garhee Daen and Hatee Burkulla, ...	45	...	26	71	...	...	...	...	...	...	...	...	...	73
		13. Nirunjanpoor, ...	100	...	...	100	...	...	...	...	...	...	...	...	...	8
		14. Dhurtawala, ...	16	...	...	16	...	...	...	...	...	...	...	...	...	120
		15. Brinjarawala, ...	Not given.	...	...	...	...	...	...	...	...	...	...	...	...	...
		16. Charlie Villa, ...	"	...	...	...	...	...	...	...	...	...	...	...	...	...
17. Horowalla, ...	"	...	...	...	...	...	...	...	...	...	...	...	...	...
		Total,	...	...	...	...	3,692	...	...	...	...	...	...	...	4,11,548	

* As the quantity of Tea yielded by mature and immature plants has not been shewn separately, it is difficult to state what is the actual out-turn per acre, the figures given must therefore be considered as mere approximations.

W. JAMESON, SURGEON MAJOR,

Supt. Botanical Gardens, North-Western Provinces.

From Officiating Secretary to Government, North Western Provinces, to Secretary to Government of India, Department of Agriculture, Revenue, and Commerce (No. 1130A.).—Dated Nynce Tal, the 2nd June, 1873.

SIR,—I am directed to acknowledge the receipt of your letter No. 75, dated 27th June, 1872, requesting to be furnished with statistics of the outturn, area, elevation, &c., of tea plantations in the North-Western Provinces, together with a history of the progress of tea cultivation in each district, and recommendations as to the measures to be adopted with the view of facilitating its fuller development.

2. In reply I am to forward, for the information of His Excellency the Governor-General in Council, copies of the reports marginally noted, which furnish a complete view of the past history and the present state of tea culture in the three districts of Kumaon, Gurhwal, and Dehra, to which, in these Provinces, its growth is confined.

From the Commissioner of Kumaon, No. 1156, dated the 9th of December, 1872, and enclosure.

From the Commissioner of Meerut, No. 11, dated the 14th of February, 1873, and enclosure.

From the Superintendent, Botanical Gardens of the North-Western Provinces, No. 450, dated the 26th of February, 1873.

From the Superintendent, Botanical Gardens of the North-Western Provinces, No. 530, dated the 11th of April, 1873, and enclosure.

Gurhwal, and Dehra, to which, in these Provinces, its growth is confined.

3. A full account of the rise and progress of tea cultivation will be found in Dr. Jameson's report of the 26th of February, 1873. Small plantations were first established in Kumaon in the year 1836. They steadily increased in number and extended in area until 1844-45, when orders were issued by Government for the extension of the plantations in Kumaon, Gurhwal, and Dehra Doon. In 1865-66 Government withdrew from the management of tea plantations, after having successfully attained the object for which they had been undertaken, namely, the introduction of tea fitted for the market at a rate sufficiently high to yield a good interest for money embarked in the speculation. The field was left open to private enterprise, the plantations and factories were sold, and the results, shown in the reports herewith submitted, bear undoubted testimony to the success of the experiment.

4. The following figures show at a glance the area and outturn in these Provinces during the year 1872 :—

District.	No. of plantations.	Elevation above the level of the sea.		Area in Acres.				Total yield in 1872 in lbs. Avoirdupois.	Average yield in lbs. per acre of mature plants.	Average yield in lbs. per cultivated acre.
		Maximum.	Minimum.	Mature plants.	Unmatured plants.	Taken up for planting, but not yet planted.	Total.			
		ft.	ft.							
Kumaon, ...	19	6,500	3,000	1,233	498	9,725	11,456	219,200	177.7	126.6
Gurhwal, ...	6	6,500	4,500	653½	11	1,710½	2,495	66,500	101.8	100.1
Dehra Doon, ...	17	2,500	1,500	1,556	245	1,458	3,264	411,548	264.4	228.5

The figures for Dehra Doon, as given by Dr. Jameson, the Superintendent of the Botanical Gardens, differ from those furnished by the Superin-

tendent of the Doon. While satisfied of the accuracy of the outturn given by him, Dr. Jameson has not found it possible to satisfy himself as to the statistics of the areas under cultivation. In the above statements the figures showing area are those reported by the Superintendent of the Doon, while the total yield is that given by Dr. Jameson: the former appear to have been approximations made at a time when the season was not over, while the latter are founded on later and more minute inquiries; and so far as the total yield is concerned, Dr. Jameson's figures may be accepted. The figures showing the area for the Doon and the average yield per acre must therefore be regarded as only approximately correct.

5. The total yield of tea during 1872 in the North-Western Pro-

District.	Black Tea.	Green Tea.	Total.
	lbs.	lbs.	lbs.
Kumaon, ...	162,825	56,375	219,200
Gurhwal, ...	62,400	4,100	66,500
Dehra Doon, ...	3,692	407,856	411,548
Total, ...	228,917	463,331	697,248

vinces will be seen, with the above reservation, to have been 697,248 lbs. in 1872, according to the figures marginally noted.

6. The area under tea cultivation in Kumaon is re-

turned at 1,731 acres, and in Gurhwal at 664½ acres: of which 1,233 acres in Kumaon and 653½ acres in Gurhwal are covered with mature, and the remainder with immature plants. In addition to this area there are in Kumaon 3,196 acres and in Gurhwal 30¾ acres, which have been taken up for tea-planting, but not yet planted: while 6,529 acres in Kumaon and 1,680 in Gurhwal, included in the area of the tea estates, remain uncultivated. These two last entries appear generally to refer to the same thing, since there is only one plantation in the Kumaon Division (Ryekot) which gives both. The total area of tea grants is 11,456 acres in Kumaon and 2,495 in Gurhwal: grand total, 13,951 acres.

7. The area under tea cultivation thus bears a proportion to the total grant area of 15·1 per cent. in Kumaon and 26·6 in Gurhwal, and in the whole Division of 17·16 per cent.

8. The elevation of almost all the tea estates in the Kumaon Division is considerable. The highest are "Willow Bank," "Juttola," and "Chowkooree," 6,500 feet above the sea: the lowest, Peepulta, 3,000 feet. The following figures shew the plantations are those which make the most tea, with their several elevations:—

Order in productive-ness.	Estate.	Order in elevation.	Tea produced	Cultivated area.	Average lbs. per acre.	Height.
			lbs.	acres.		feet.
7	Kousanee, ...	3	50,000	400	125	5,600
7	Kumaon and Kutyooree, ...	8	50,000	400	125	4,500
4	Silkot, ...	5	40,000	300	133	5,500
3	Doomagiri, ...	1	23,000	150	153	6,300
2	Dumloote, ...	5	20,000	100	200	5,500
6	Gwaldom, ...	7	15,500	120	129	5,250
1	Benee Nag, ...	2	13,500	60	225	6,200
5	Julna, ...	3	13,000	100	130	5,600
9	Bheem Tal, ...	9	12,000	120	100	4,300

This table would seem to show no general connection between richness and height. The richest of all is the highest but one (Benee Nag): the lowest, Bheemtal, is the poorest. But the intermediate estates do not in any way vary in richness with their elevation.

9. Of the total production of the Division, *viz.*, lbs. 285,700, lbs. 225,225, or 78·8 per cent., was black tea, and the rest green. Some of the largest growers do not give details of their different kinds of tea. But of black tea we have details of 141,225 lbs., or about two-thirds of the whole. The proportions stand thus :—

	lbs.	<i>Per cent.</i>
Bohea,	6,740	4·77
Souchong,	20,450	14·48
Pekoe Souchong,	46,270	32·76
Pekoe or Pek,	67,765	47·99
Total,	141,225	100·00

Thus of the black tea manufactured no less than 80·75 per cent. is of the higher qualities, and a very small proportion of the common or Bohea sort. This argues a demand chiefly among European and foreign consumers. The best sorts, it is believed, never sell for less than one rupee a pound, and probably the whole annual market value of the outturn cannot be much under three lakhs of rupees.

10. With regard to the measures which could properly be adopted by Government, with the view of facilitating the future development of tea cultivation, the Kumaon planters strongly urge the necessity for the provision of improved facilities of carriage by the introduction of cart roads. The absence of such roads adds considerably to the cost of carriage, and renders the tea-producing tracts in Kumaon unable to compete in the market with tracts which, though less favored in point of capability for tea cultivation, have the advantage of more ready means of communication. His Honor, however, observes that great attention has of late years been paid to the roads in Kumaon. A cart-road has been made from the plains to Raneekhet, and is now being carried onwards to Almorah. Two lines of road suggested by the Commissioner of Kumaon will be recommended for the consideration of this Government in the Public Works Department. The prolongation of the Oudh and Rohilkhund Railway from Moradabad to Ramnugger will also be a great boon to the planters in the locality.

11. The second request relates to the contracts for the supply of tea to the Commissariat. These contracts are now given in amounts so large as practically to prevent any competition on the part of tea plantations in these Provinces. The planters desire that if possible the con-

tracts should be given in smaller quantities, to allow of their entering the local market, instead of being obliged to undergo the loss and delays of a sale in Calcutta and a transit to Europe. The same request is made by the planters of Dehra Doon. The request His Honor regards to be reasonable, and recommends it for the consideration of His Excellency in Council.

12. His Honor is however unable to support the request made by the planters of Kumaon that pecuniary Tuccavee advances should be allowed under certain conditions. The practical object of such advances would, in the case of tea cultivation, be merely to afford planters additional facilities for carrying on trade, and the necessity for such advances for an object of this nature cannot be allowed.

13. The Commissioner of Kumaon also advocates greater unanimity amongst the planters, and points out the benefits which would result from the establishment of a common Agency in London for the sale of the teas of Upper India. His Honor considers this latter suggestion a very important one. Home consumers, who have been accustomed to, and have a preference for, the tea of Upper India, are unable, in the absence of such an Agency, to procure it. Were such an Agency in existence in London, the difficulty of supply would cease to exist.

14. The figures of the Doon, as has been stated, are less reliable than those for Kumaon: and it is unnecessary to comment in detail on them. But the chief points urged by the Doon planters are the propriety of permitting planters to purchase their estates in fee simple, the necessity for arranging for a fresh supply of fuel, the maintenance of lines of communication in serviceable condition, and the opening of Government forests for grazing purposes, in order that the large herds of cattle which they keep chiefly for the purpose of supplying manure may have sufficient grass; and that with the extension of the area available for grazing purposes, they may be enabled to increase the number of head of cattle, and consequently to increase the supply of manure.

15. The alleged want of fuel and opening of Government forests for grazing purposes, His Honor will consider in the Public Works Department. Fuel is at present available on a moderate payment, and the conditions as to grazing have been lately relaxed. The request urged by the planters, that they may be allowed to purchase their estates in fee simple, appears to His Honor to be sufficiently met by existing rules, inasmuch as plantations fall within the exceptions mentioned in the despatch of 1861, and redemption can therefore be allowed under the rules at present in force. In respect of roads, I am to add that the Lieutenant-Governor has repeatedly traversed the Doon, and is satisfied that no reasonable complaint can be made in respect of the defective nature of existing means of communication.

16. In conclusion, I am to state that the submission of these reports has been necessarily delayed by the difficulty which has been found in procuring the needful statistics, and the necessity for waiting until the operations of the season of 1872 were brought to a close.

I have, &c.,
A. COLVIN,
Offg. Secy. to Govt., N.-W. P.

No. 1131A.

EXTRACT paras. 1, 10, and 15 of this letter, with para. 5 of Colonel Ramsay's letter, and paras. 8 and 9 of Mr. Ross' report, forwarded to the Secretary to this Government, in the Public Works Department, for consideration.

No. 1132A.

Copy forwarded to the Commissioner of Kumaon, for information, with reference to his letter No. 1156, dated the 9th of December, 1872.

No. 1133A.

Copy also forwarded to the Commissioner of Meerut for information, with reference to his letter No. 11, dated the 14th of February, 1873.

No. 1134A.

Copy also forwarded to the Superintendent, Botanical Gardens of the North-Western Provinces, for information, with reference to his No. 530, dated the 11th of April, 1873.

c. 1134A Pr

GOVERNMENT OF INDIA.

DEPARTMENT OF AGRICULTURE, REVENUE, AND COMMERCE.

[Agriculture and Horticulture.]

Dated Simla, the 17th June, 1873.

RESOLUTION.

READ :—

A letter from the Government of the North-Western Provinces, No. 1130A., (Revenue Department), dated the 2nd instant, reporting on the past history and present state of tea culture in the Districts of Kumaon, Gurhwal, and Dehra Doon, in the North-Western Provinces.

THE Governor-General in Council desires to express his thanks to the numerous planters of Kumaon, Gurhwal, and Dehra Doon, who have responded to His Excellency's call for information as to the exact position of tea culture in those districts, and his satisfaction at learning that, after a long period of depression, this enterprise now seems to promise reasonable returns for the labour and capital expended on it.

His Excellency in Council is glad to learn that, besides the Raneekhet and Almorah cart-road, two other important roads, calculated to open up the whole of the tea-producing tracts in Kumaon, are receiving His Honor the Lieutenant-Governor's consideration ; while in the Doon, the supply of fuel and the relaxation of the rules in regard to grazing within the forests, so far as this may be consistent with the conservation of the forests themselves, have not been overlooked.

In regard to the contracts for the supply of tea to the Commissariat a further communication will be made.

A. O. HUME,

Secretary to the Government of India.

ORDER.—Ordered, that a copy of the above Resolution be sent to the Government of the North-Western Provinces, for information and for communication to the tea-planters referred to.

No. 193.

REVENUE DEPARTMENT.

Dated Allahabad, the 12th July, 1873.

COPY forwarded to Commissioner of Kumaon for information, in continuation of G. O., No. 1132A., dated 2nd June, and communication to the planters of Kumaon and Gurhwal.

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No.

REVENUE DEPARTMENT.
NORTH-WESTERN PROVINCES, JULY, 1873.

PROGS.
No. AND
DATE.

No. 8.

No. 194.

JULY 12,
1873.
—
No. 3.

COPY forwarded to Commissioner of Meerut for information, in continuation of G. O., No. 1133A., dated 2nd June, and communication to the Superintendent of the Doon and the Doon planters.

No. 195.

COPY forwarded to Superintendent, Botanical Gardens, North-Western Provinces, for information, in continuation of G. O., No. 1134A., dated 2nd June.

J. S. MACKINTOSH,

Offg. Under-Secy. to Govt., N.-W. P.

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GOVT., N.-W. PROVINCES,
Public Works Department.
FORESTS.

ALLAHABAD, THE 17TH MARCH, 1869.

To

THE CONSERVATOR OF FORESTS,
North-Western Provinces.

**REPORT ON THE SUB-HIMALAYAN FORESTS OF KUMAON
AND GURHWAL.**

Conservator's No. 102A., dated 31st January, 1869.

CONVEYS the best thanks of His Honor the Lieutenant-Governor for the clear and comprehensive report now submitted on the forests in the outskirts of the Himalayas in the Kumaon Division, and observes that the views of the Conservator as to their general conditions and the vast treasury of valuable timber, existing and prospective, contained in them, are considered highly gratifying.

2. The proposals submitted by the Conservator, in respect of the future management of these forests, have the concurrence of the Lieutenant-Governor in every respect. The objects to be kept in view are the closing absolutely of all forests which from previous treatment need time to recover themselves; the division of the virgin or other forests that can be worked, into blocks which may successively be taken up as sources of current supply; and the thinning out of all the overstocked forests.

3. For the second and third objects, and, indeed, for effective administrative control, it is absolutely necessary that the construction of pathways and roads be diligently prosecuted; and if there is any point which may not have been sufficiently dwelt upon by Major Pearson, it is perhaps this. His Honor the Lieutenant-Governor would be glad to have a scheme as to the best means of carrying this out, and the Government of India will be requested to consider the desirability of devoting the current forest income to carrying out these essential works and providing sufficient establishment for this purpose.

4. The Lieutenant-Governor notices with regret that portions of the forest have been so cleared of timber, and so overgrown with grass and scrub as to prevent the rise of forest trees; and His Honor will be glad to find that the plan of keeping the grass from fires in the expectation that it will die out, may prove successful. There is, however, some ground for

apprehending that these tracts will continue in their present state ; and if so, it might be worth considering whether they should not be cleared for cultivation ; but this should not be done so long as there is any prospect of their becoming again productive as forests.

5. Major Pearson's expression of his appreciation of the labors of the Commissioner, his predecessor in the charge of these Forests, is noticed with much satisfaction by His Honor the Lieutenant-Governor. It is in every way pleasing to find so high a testimony borne to the forest administration of Colonel Ramsay, and its excellent results. His testimony to the services of Colonel Ramsay's staff, especially Colonel Baugh, and Mr. R. Thompson, has also been noted.

6. In conclusion, states that His Honor the Lieutenant-Governor is much pleased at the energy and intelligence with which Major Pearson has opened his administration of the forests in these Provinces.

By order, &c.,

C. J. HODGSON, COLL., R.E.,
Secy. to Govt., N. W. P., P. W. D.

No. 80F.

ORDERED that a copy of Major Pearson's Report, with a copy of the foregoing, be forwarded to the Secretary to Government of India, Public Works Department, for information.

Pines of

Himal.

giving the approximate range of elevation at which the Pines grow, and the supposed height and girth they attain under ordinary circumstances.

Madden, in the Journal of the Agri-Horticultural Society of India IV. p. 269 has given the exceptional trees.

	Locality	Average girth.
na	Annandals } Simla { South water-fall	10 feet
na	Hill States	11 "
	Ditto -	16 "
		14 1/2 "

Chiana No. 11, had partly fallen to pieces before it was sketched.

THE NEW YORK
PUBLIC LIBRARY
ASTOR LENOX AND
TILDEN FOUNDATIONS

No. 102A. OF 1869.

FROM

G. F. PEARSON, MAJOR,
*Conservator of Forests,
North-Western Provinces, Allahabad,*

TO

COLONEL C. J. HODGSON,
*Secretary to Government, North-Western Provinces,
Public Works Department.*

Dated Camp, Kumaon Forests, the 31st January, 1869.

SIR,

THESE forests extend from the Ganges on the west to the Sarda, on the east, covering the lower spurs and ridges of the Himalayas. They are bounded on the south by an excellent cart-road which has been constructed from the Ganges as far as Karnsote in Kumaon. From thence the Pheeka river marks the boundary for about three miles, and from that point an irregular line marked by roads and pillars carries it on as far as the Sarda. The Ramgunga, and its tributary the Bursotee, are the boundary between the two grand Divisions of Kumaon and Gurhwal, while the Himalaya mountains in the rear of both shut them in like a wall towards the north. Except the Kumaon Iron Company's grant, which is clearly marked off by pillars, and a very few villages which do not affect the actual forests in any way, and for the removal of which it has not been thought worth while in consequence to make arrangements, the whole tract forms a Great State Forest, in one compact block, perfectly defied by natural and easily-recognized boundaries. Within these limits no private rights exist which can prove injurious in any way to the forests, and cattle-grazing is entirely prohibited, except in a few places, where the cattle can do no harm whatever. The taking up of fresh land for cultivation has been entirely stopped above the main road, and I believe I may say that there is no State Forest in India to be compared to this one for extent, compactness, and perfect control.

2. The principal timber tree is saul, which grows with vigor everywhere, and covers by far the greater portions of the forests. Toon and shisum are also plentiful in certain localities, especially along the low flats and moist valleys, and they grow exceedingly well, and attain a large size; while other jungle trees, especially the pentaperras, conocarpus, and the naucleas (sein, bakla, and huldoos or kyem) are found mixed with the saul everywhere, even where the latter predominates.

CHAPTER I.

THE GURHWAL FORESTS.

3. The Gurhwal forests resolve themselves into four main divisions commencing from the westward:—

- I.—The forests of Chandee.
- II.—The forests of Odeypore.
- III.—The forests of the Kotree Doon.
- IV.—The forests of the Patlee Doon.

I.—THE CHANDEE FORESTS.

4. The Chandee forests extend over an area of from 120 to 130 square miles, stretching from the Ganges to the Rewassum river—a distance in a direct line of about 12 miles. The geological structure here is mainly sandstone and drift boulders.

5. These forests may be said to have been completely worked out, as their proximity to the Ganges has rendered them easily accessible to the contractors and agents of the Roorkee Workshops and Public Works Department. But saul saplings and unsound trees are found scattered over a large portion of the tract, and in some places the former show considerable promise, though at present the young saul has not generally made as much head as could be wished with other trees, which occupy a large portion of the ground ; and it is a matter of consideration whether hereafter the growth of the saul may not be favored by the removal from the more promising portions of the forest of other descriptions of timber. This it is hoped may be effected through the demands of the Railway for fuel, which could conveniently be floated down the Ganges to the line. Only a few mature saul trees now remain, and these are confined to the higher and more inaccessible ridges on the north and east sides of the division.

6. At present dry wood for fuel and bamboos, which are floated down the Ganges, are the principal articles of export from these forests.

II.—THE FORESTS OF ODEYPORE.

7. This division extends from the Rewassum on the west to the Koh river on the east—a distance of about 16 miles. The soil is a dry sandy loam with outcrops of gravel and blue clayey state in the hills.

8. This division contains evidences of having formerly been highly populated and well cultivated, but there is a great want of water through all the lower portion of the forests. Only three tracts of saul are found here. The first extends along the Rewassum containing some mature trees, but was considerably worked by Captain Read, and now but little valuable timber remains in it. The second, along the Chowkeeghatta stream, contains also some mature trees as well as toon in the low moist valleys ; and the third is a young saul forest in the south-east corner of the division, and is about three square miles in extent. For the rest, bamboos grow extensively all over this division, and form a main article of export. The terminalias pentapperas and nauclea (bahera, sein, and huldoe) are also found on the lower plains along the southern boundary.

III.—FORESTS OF THE KOTREE DOON.

9. The Kotree Doon is in fact the valley of the Sunnyee river and its affluents. The Koh river forms its western boundary, and the ridges of the Patlee Doon its eastern one. The formation of the soil is sandstone and drift.

10. The whole of the Kotree Doon may be called a nearly pure saul forest, differing in value in different places, according to the character and quality of the soil and other natural circumstances.

11. In area the Kotree Doon is about 200 square miles ; within its limits there are few forests which have never been worked ; and where this has been the case, it will not be possible to remove any more trees until time has been given for the second class trees to come to maturity ; but there are still some forests (as those of Soowursote and Gireel Panee, Gangun, Kumayree, Loharkotee, and Silanee, which from being more inaccessible have escaped felling operations, and these still contain a considerable amount of fine timber. On the whole, the soil is perhaps not very favorable to the growth of really fine timber, and this fact, coupled with the effects of the frost, and forest fires, has rendered the young trees less clean in their bark, and more knotty and inferior in their heads to those in more favored localities. However, the second and third class trees are by no means of indifferent character, and the saplings show much promise. Since these forests have been rigidly protected, they have evidently made much progress, and the keeping out of fires and cattle will in a few years do much more for them.

12. There is a large trade in timber and minor forest produce from the Kotree Doon to Najeebabad, from which the Meerut and Bijnour Districts are supplied with these products. The former is furnished partly from the old logs lying in the forests which the traders are allowed to cut up and carry away on paying a Royalty, and partly by regular felling operations—the timber being collected to Depôt at Sunnyee and disposed of there.

IV.—THE PATLEE DOON FORESTS.

13. The Patlee Doon comprises the valley of the Ramgunga and of its affluents, and the ridges which run between their water-sheds. In area it is about 280 square miles, of which 200 are nearly pure saul forests. Its geological formation is composed of alluvial deposits and drift in the valleys and plateaus, and massive grey sandstone interspersed with blue shale on the ridges. The whole Doon has been a noble forest of saul, the lower and more accessible portions of which have been worked out; but in which enormous tracts of virgin forest still remain, from which under judicious treatment inexhaustible stores of timber may be drawn, as by degrees forest roads are completed through the valleys. Already excellent roads have been completed up through most of the principal valleys for the export of the forest produce, and indeed nothing has been left undone which good judgment and a thorough knowledge of the requirements of forest conservancy could suggest for the renovation of the forests.

14. The forests of the Patlee Doon may conveniently be considered in the following division:—

I.—The forests of the Timooria and its affluents.

II.—The forests of the Mondhal.

III.—The forests of the Ramgunga Valley, South Patlee Doon, and Sonah.

I.—THE FOREST OF THE TIMOORIA AND ITS AFFLUENTS.

15. This river, which has its source on the reverse side of the high ridges at the head of the Kotree Doon, and runs down with a south-eastern course of about 25 miles into the Ramgunga near Buxar, through its upper portion, bear the name of the Palein. It has for its affluents on the right bank the Khamsore and Monaltee, and on the left bank the Hulgudda and the Beetlead and Bahlead (inner and outer) nullahs. The whole bason comprised within this water-shed contains a noble saul forest.

16. The lower portions of this forest, especially along the right bank of the main stream, and along the plateaus and ravines near the exit of its various affluents, have been very considerably worked about ten years ago by the agents of the Gun Carriage Department, and by Captain Read and Mr. Finn. But I have no hesitation in saying that the effect produced has been to their great advantage, as too much timber was not taken from them. Since the forest has been rigidly shut up, the immense improvement of the second class trees will be at once apparent to the most casual observer, as compared with the condition of the same class of trees in those portions of the forest which have never been worked. As the trees in the upper portion of the ravines are far too thickly placed together, and evidently fail to increase in size in consequence, opportunities should be taken of any demand for moderate-sized timber to open the forests out more to the sun and light than they are at present. It is easy to observe how in such places the heads of the trees are bent out from the side of the ravines as if seeking for more light.

17. Lower down the valley towards the ramgunga River, all over the plateaus opposite the mouth of the Manaltee stream at Chawulchura, and along the ravines to the mouth of the Bahlead nullah, the forests have been far too heavily worked previous to Mr. Finn's time. There are here, however, many fine old trees, which though unsound have continued to shed their seed, and a large crop of all seedlings and young

trees is now springing up on all sides, some of which are already assuming noble proportions, and show the highest promise. On some of the plateaus, especially those which were formerly occupied by the old cattle stations, either on account of the nature of the soil, or injury done to the trees by the cattle owners before their removal from the forests, the show of young trees is not so good, but on the whole nothing can be more satisfactory than the present state of the young timber.

18. It is also most satisfactory to observe how, since these forests have been rigidly shut up, the whole surface of the ground is becoming thickly clothed everywhere with bamboos, by which the moisture is retained in the soil, the increase of other grasses prevented, the risk of fires materially diminished, and the young forests generally protected from harm, and their growth encouraged.

II.—THE FORESTS OF THE MONDHAL.

19. The Mondhal river takes its rise in the lower spurs of the Himalayas near the head of the Kotree Doon, and runs with an almost east course for about 30 miles into the Ramgunga above Surrup Doolee. It is divided from the Timooria and Ramgunga valleys by a high range of hills, over which there is a fair foot-road out of the valley of the Ramgunga.

20. The valley of the Mondhal itself is well cultivated, and possesses several decent villages, but the range of hills above alluded to is covered with fine saul forests on the sides which slope down to the river facing the north. These forests from their remote position have never been worked, and though in a few places they bear the trace of having been cleared for cultivation, yet since the felling of saul has been prohibited, they are even in such places fast recovering themselves; and as the villagers possess no cattle, no harm beyond the removal of the timber seems to have been done. There are here in consequence to be found an immense store of noble first-class saul, as well as an abundance of trees of every age and size. The good forests may be said to extend over about 15 miles in length, through all the lower portion of the valley below Janett on the slopes and plateaus facing the north, and on the opposite bank of the river over the last 5 miles. On the plateaus immediately above the river the trees have attained a very large size, but generally speaking they stand somewhat too thickly together, and would much improve if some of them were removed. But in order to effect this, and with a view to the sale of the wood, it will be necessary first to open a cart-road up the lower portion of the Mondhal valley into the valley of the Ramgunga, and this will be a work of considerable expense, as the gorges become very narrow and precipitous on both sides near the mouth of the river. The work will therefore in all probability have to be done by a little at a time as money can be spared for it; as the details of the working plan, which it is my intention to propose, will not necessitate the carrying on of operations for the removal of the large timber in this valley for a number of years to come. In this valley, however, I propose at once to go on with the regular survey, as it will be most important to have an accurate estimate of its contents, in order that we may know what reserve stock of timber we have in hand for future years, and may husband our resources accordingly. It should be mentioned that there is a large amount of fine toon in the valley which seems particularly well adapted to its growth.

III.—THE FORESTS IN THE VALLEY OF RAMGUNGA, THE SOUTH PATLEE DOON, AND SONAH.

21. All these forests, which are situated on the hills and plateaus sloping down into the Ramgunga, and its affluents the Sonah and Gouzhera nullah on the right bank, and the Myra Sote, Putter Panee, and Dharao stream on the left bank, being generally in the same condition, may be conveniently considered together. In one word, they may all be said to have been *felled in even to desolation* by Captain Read, as well as by Mr. Finn, and the native contractors who went before him. From this felling it is satisfactory to state that in most places they are now recovering themselves,

owing to the fact that the hollow* and the unsound trees were spared when these operations took place. These trees have continued to shed seed, and over most of the ground (thanks to the vigor with which saul reproduces itself whenever even moderate protection is afforded to it) young timber of every size is to be seen rapidly coming on, from the saplings of one year old to noble straight-grown trees of 2 or 3 feet in girth, and 60 or 80 feet in height. An exception to the above satisfactory state of things is seen, where in the lower valley near the river the felling of almost every tree has denuded the ground of all covering, so that the huge grass has been enabled to get a strong head, and has, by choking the surface of the soil, prevented the seed from germinating. That it is ready to do so is easily seen by the fact that wherever from any cause the growth of the grass has been hindered, a fine crop of young saul seedlings will be found coming up. I am not without hopes that if we are successful in keeping jungle fires out of the valley, the grass will in time wither, and the reproduction of these forests be yet effected. What they must have been in past ages is easily seen from the size and symmetry of the gigantic old trunks which have been left standing. At present the long grass gives cover to a number of wild elephants, but it is doubtful if the difficult nature of the ground would admit of their capture; and, as they seem to confine themselves to regular tracks, it is not apparent that they do any great damage to the young saul. The exclusion of cattle for the last 5 or 6 years has worked wonders, and it is to this point, and to the prevention of fire, that attention should principally be directed.

22. It has been said above that these forests have been worked to desolation, but perhaps even this does not give an adequate idea of the waste that has occurred, and the mischief that has been committed. Thousands of trees were felled which were never removed, nor was their removal possible; and a large revenue has been realized during the last few years by allowing passes to the people of the lower country, to cut up and to remove the dead timber on the payment of a Royalty. There is also a very large export of bamboos from hence to the plains below. It may be added that in several places along the Ramgunga valley there are fine patches of toon.

23. The Patlee Doon has lately been made accessible to carts by a good road constructed by the Forest Department through the lower range of hills near Kalagurh and leading into the Bijnour District. For facilitating the removal of the dead timber and minor forest produce this road will be of the greatest use, and will add considerably to the revenue of the valley.

24. Having now completed the Patlee Doon we pass on to

CHAPTER II.

THE KUMAON FORESTS.

The Kumaon forests may be conveniently divided as follows:—

- I.—The forests of the Kosillah river.
- II.—The Kumaon Iron Company's Grant (not Government).
- III.—The forests of the Nindhore and Serrara Garinner Ranges.
- IV.—The forests of the outer ranges and in the Bhabur.
- V.—The forests on the Sardah (Kuldoonga).

I.—THE FORESTS OF THE KOSILLAH RIVER.

25. In this section I have included all the tract of saul forest in Kumaon on both sides of the Kosillah north of Ramnuggur, between the Ramgunga on the west and the boundary of the Kumaon Iron Company's grant close the Dubka river on

* I measured one perfectly symmetrical though hollow tree on the banks of the Ramgunga 21 feet 9 inches in girth.

the east, including the hills which have their water-shed towards those rivers as well as into the Kosillah. In area it is about 400 square miles. Deposits of both lime and iron occur in this section, which otherwise in geological formation does not seem to differ from the rest of the Sub-Himalayan plateaus. A large portion of the above tract has been excessively worked by native contractors in former years, and felling operations have also been carried on in the forests by the Forest Department during the past three years, but nevertheless it still contains a fair proportion of unworked forests. These are situated on both sides of the Kosillah, the principal tract being the forests of Doorgadeb, Timlepanee, Koolbangadhera and Daudree, which are situated on the plateau between the Kosillah and Ramgunga, immediately below the main range of the Himalayas, and on the hills sloping down to the latter river Doorgadeb is the best of these, and is a noble forest, all the trees being straight and well grown and of noble appearance, with clean barks and round well-formed stems, and free from under-growth. A proportion of the trees however here, as elsewhere, are unsound. From 8,000 to 10,000 mature sound trees may no doubt be taken from these forests, without any injury to them. On the left bank of the Kosillah the forest of Koorya Khurruk contains about 1,000 mature trees fit for felling, and below it in the Kotah Bhabur, a considerable number of mature trees will also be found, though in somewhat inaccessible places. On the higher ridges of the southernmost forests on the right bank of the Kosillah also a few hundred mature trees are to be still found.

26. On the left bank of the Kosillah, east of Koorya Kurruk, are the forests of Bhoojakhet and Seroule. About 9,000 first class trees have been taken from these by the Forest Department during the past three years, and they are now entirely closed. I am of opinion that perfect discretion has been shown in the selection and felling of the trees here. In no case has the ground been too much denuded; there is an admirable show of thriving second class trees throughout; and it cannot be doubted that in every way the general condition of the forests has been bettered by the removal of the timber which has gone out of them. There need be no hesitation in asserting when the time shall arrive to work these forests again, as many more first class trees will be found ready for the axe.

27. In addition to the above, it is satisfactory to see some exceedingly fire and regular young forests springing up in this section. Among these, those of Amtoonolah and Chukur Nagul, east and west of the Doorgadeb plateau, are conspicuous; they are almost as regular in appearance as plantations, and contain trees up to 3 feet in girth and 50 to 60 feet in height. It is remarkable that the whole of the plateau on which these forests stand bears the mark of ancient cultivation, the trees springing up on the edge of the old fields. This is said to date from the time of the Chund Dynasty, above a century ago, and one mature forest of trees has already been removed to make way for the forests which are now growing up. The young forests of Deolee Chour above Mohan are also in the best possible condition.

28. The lower forests nearer the plains are not in such good order. On the plateaus and chours above the Sajgurree and Sungurree Sotes, on the right bank of the Kosillah, unsound trees of noble size show what the forests must have been, and a fair show of young trees growing up gives promise that there will be again good timber in those localities. Further south the Burra and Chota Panode and Chandnee Chour plateaus have been so extensively cleared in former years, that a mixed forest of conocarpus and other jungle trees has made head, and to a large extent supplanted the saul, though in some places the latter is making a good show and coming on well. The best hope for the renewal of these forests must be in the practicability of totally excluding fire from them during the next few years; for it is wonderful to observe the immense number of young saul seedlings which are now coming up on all sides, no doubt owing to the fact that the forest was not burned last year.

29. Immediately above the cultivated lands of the Bhabur, west of Ramnuggur, the forests may be said to have been worked out, and as they are required as grazing grounds for the cattle of the Bhabur villages, nothing more can be done except to protect the saul as a reserved tree from felling. There is a block of mixed jungle about 8 or 9 square miles in extent in the plains beyond Dhelah, seven miles west of Ramnuggur, in parts of which some fair young saul trees may be seen; but as a whole I have not much expectations from it in point of quality, though from its accessible position it is by no means without value.

30. East of the Kosillah, and stretching up to the Himalayas, is the Kotah Bhabur, a sort of elevated plateau like the Doon, but more broken. The scenery is exceedingly beautiful in parts of it, and it contains some excellent saul forests, which have been enough worked to require rest, but not too much to prevent a very fine store of timber being obtained from them when it comes to their turn to be worked. It would be well to leave them for 15 or 20 years; but I believe there will be no occasion to work them before that time. The second class and third class trees are very fine throughout this tract. In this tract there are several villages with cultivation near the hills, but their limits have been strictly defined, and they are not allowed to keep any buffaloes.

II.—THE FORESTS IN THE KUMAON IRON COMPANY'S GRANT.

31. This grant extends from the Munáar Gudderah, about one mile west of the Dubka, as far as the Bukra river, about half way between Kaladoongee and Huldwanee. The grant is bounded on the north by the Himalayas, and on the south (towards the Bhabur) by a line of pillars. In area it is about 400 square miles. As the forests in this grant have been given away, I did not examine them minutely. But from having enjoyed perfect rest and protection the young saul seemed to be springing up vigorously in all parts, while good second and third class trees, and in some places mature timber, is abundantly to be met with. The whole certainly forms a very valuable property.

III.—THE FORESTS OF THE NINDHORE AND SERRARAGAR.

32. These two rivers have their source in the lower ridges of the Himalayas, between Huldwanee and the Sardah, close to each other, but run out of the hills in opposite directions, the course of the Nindhore being nearly west for 17 or 18 miles, and that of the Serraragar south-east for about 12 miles till they reach the Bhabur, from which they are separated by high ranges of broken hills.

33. Both these rivers—not only as regard their main valley, and also the numerous ravines and sotes that appertain to them—are filled with a dense forest of nearly pure saul, slightly intermixed with cheer in the upper portion, and in some places with trees of the lower jungles. But the forests generally resemble so entirely those of the Palein and Mondhal that any particular description of them seems superfluous. Except in some of the lower portions, and on the side of the hills towards the Bhabur, they have never been touched by the hand of man. The trees generally are far too much crowded, and in consequence I think are not generally of very large size, though no doubt noble trees exist in many places over so large an area of forest. But it is absolutely necessary that a series of foot paths, which hereafter may be developed into forest roads, should be constructed through these valleys before even a proper or accurate examination of them can be made. At present they are simply an impenetrable thicket. I am quite sure that an enormous amount of timber might at any time be brought out of these forests to their extreme benefit, if only other considerations admitted of this being done. These conditions will be alluded to hereafter. There cannot be less than 40 square miles of virgin saul forest contained in the area of these valleys. The geological formation is massive sandstone, with drift boulders and gravel.

VI.—FORESTS OF THE OUTER RANGE AND IN THE BHABUR.

34. In this are included all the belts of saul which cover the plateaus and slopes of the hills, and which extend in many places far out into the Bhabur from Huldwanee in the west to the Sarda on the east. From their exposed position, as may be expected, every thing worth taking away from these forests has long ago been cut down, and except in the upper portions of the sotes or ravines, and high up on the ridges of the hills, mature trees do not exist anywhere: young forests however are springing up on all sides, which differ materially in quality in different localities. In some places where the soil is suitable, and other circumstances have favored the growth of the young trees, they are exceedingly fine, and show straight stems, clean barks, and fine heads. In other places where the soil is poor, but more especially where the numerous cattle stations formerly existed, and where in consequence the young trees suffered continually from being lopped, barked, and otherwise injured, and where they were more exposed to repeated fires, the trees are knotted, crooked, and with poor heads. The best forests are perhaps those west and north of Chorgalia (where the old unsound trees which still remain are exceedingly fine in size and appearance), and those situated on the flats and plateaus above the Jugboora and Colonia streams. Toon as well as sissou and khair is also coming on well in many places.

The main export, however, for some years will consist of minor forest produce and bamboos, of which a large quantity is carried away to the plains from these forests.

V.—SARDAH FORESTS.

35. About 8 miles above Baramdio around Kuldoonga, near where the Ludya empties itself into the Sardah, there is a fine block of virgin saul forest. North of the Poornagiree precipice the hills recede somewhat from the river, and from a series of plateaus and flats terminating in ravines, which run up into the higher ranges of hills, all of which (both along the Ludya and the Sardah, for a distance of 6 or 7 miles) are covered with saul; and from the favorable nature of the situation the trees have developed themselves here in a very remarkable degree. Taking it all in all, this is one of the finest forests in Kumaon, and it now may be said to be at its prime. There appear to be very few old or unsound trees in the forest—most of the full-grown ones being from 6 to 8 feet in girth, and 60 to 80 feet high, with younger ones of every age in abundance. It would seem advisable after the clearing out of the Doorgadeb block of forest to proceed next to work this one, so as to get the sound timber out before the trees begin to decay.

There is a precipice below Poornagiree which has hitherto prevented the export of timber along the river bank, and this no doubt has saved the forest from being worked; but the rocks here can easily be removed by blasting, as the difficulty extends for a short distance only. In the centre of the forest is the village of Kuldoonga, which has a large amount of cultivation round it. The presence of this village is no doubt objectionable, but its removal impossible. Its boundaries have been accurately defined by the Settlement Officer.

CHAPTER III.

TIMBER AND REVENUE STATEMENTS.

36. From the following tables the annual income and expenditure of these forests will be seen at a glance since they were made over to Colonel Ramsay, the principal sources of revenue being shown separately in the tables:—

Statement of the Yield of Timber and Revenue in the Forests of Garhwal and Kumaon.

Forests.	Year.	A I. PROCEEDS OF TIMBER SALE.		A II. SALE OF DRY WOOD REMOVED BY PURCHASERS.		REVENUE FROM SALE OF BAMBOOS.		Crazing dues.	Revenue from other sources.	Total Receipts.	Total Expenditure.
		Cubic feet.	Revenue.	Cubic feet.	Amount.	No.	Amount.				
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
		A.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
GARHWAL	1859-60,	11,98,000	2,50,939 13 8	...	...	...	...	...	58,881 1 2	3,04,820 14 10	2,56,809 2 6
	1860-61,	28,425	43,905 12 7	...	...	...	...	...	74,527 1 3	1,18,432 13 10	94,540 10 10
	1861-62,	70,000	1,88,382 12 8	...	...	...	...	...	14,102 12 1	2,02,485 8 5	80,133 0 0
	1862-63,	2,80,518	2,42,194 9 10	...	...	...	...	...	19,208 3 3	2,61,402 18 3	91,766 14 3
	1863-64,	801	17,355 14 5	...	...	...	...	...	16,307 12 0	32,663 10 5	87,586 10 1
	1864-65,	3,89,219	2,06,373 12 9	1,000	260 0 0	6,48,000	5,400 0 0	504 4 1	5,213 15 10	2,17,742 0 8	1,09,104 4 6
	1865-66,	2,756	1,85,149 8 2	50,631	12,657 14 0	13,93,090	45,453 5 7	144 9 10	3,870 0 0	2,47,075 5 7	81,717 0 5
	1866-67,	96,814	1,11,181 10 2	1,77,368	44,342 2 3	2,26,71,734	56,245 10 11	60 0 0	16,121 0 0	2,27,950 7 4	55,919 4 3
	1867-68,	63,333	75,138 0 0	1,12,865	28,216 5 8	2,28,69,641	56,810 10 5	...	16,630 0 0	1,76,795 0 1	52,488 0 0
	...		21,29,866	13,20,621 14 3	3,41,864	85,466 5 11	4,81,02,465	1,63,909 10 11	708 13 11	2,18,661 13 7	17,89,368 10 7	9,10,064 14 10
KUMAON	1859-60,	6,05,349	2,30,388 9 9	...	...	...	...	...	26,012 11 2	2,56,401 4 11	1,46,556 10 6
	1860-61,	3,73,523	18,131 3 0	...	...	...	...	...	51,313 10 9	69,444 13 9	98,163 12 5
	1861-62,	19,26,111	67,621 1 11	...	...	...	...	...	27,698 3 10	95,319 5 9	68,337 0 1
	1862-63,	2,85,081	1,11,689 2 7	...	...	...	...	...	28,727 14 5	1,35,417 1 0	1,00,929 12 1
	1863-64,	1,57,304	52,278 1 0	...	...	...	...	...	16,603 5 8	68,881 6 8	63,354 4 1
	1864-65,	2,11,435	2,44,888 15 7	...	...	...	...	...	39,904 4 9	2,84,793 4 4	1,03,630 13 6
	1865-66,	37,160	2,31,104 11 5	23,792	5,947 15 9	17,63,396	4,473 1 9	7,862 10 6	10,155 5 6	2,59,543 12 11	61,800 13 11
	1866-67,	82,945	57,060 15 0	1,20,555	30,138 8 3	30,22,376	8,258 4 11	9,809 12 2	52,291 3 10	1,57,558 12 2	86,024 0 4
	1867-68,	1,28,315	1,15,796 0 0	1,05,029	26,257 3 7	25,68,739	10,374 6 0	10,977 2 4	10,425 13 8	1,73,730 9 7	1,09,680 0 0
	...		20,74,723	11,28,968 13 3	2,49,376	62,343 11 7	73,54,511	23,005 12 8	28,649 9 0	2,56,132 9 7	15,01,090 7 1	8,35,477 2 11
...		42,04,589	24,49,580 10 5	5,91,240	1,47,810 1 6	5,54,56,976	1,86,915 7 7	29,358 6 11	4,76,794 7 2	32,90,459 1 8	17,43,542 1 9

A.—Includes a balance of Rs. 4,52,380 cubic feet from previous year.
 B.—Includes revenue from Captain Reid and Mr. Johnson's timber.

Balance in favor of the Forests in nine years,
 Rs. 16,46,916-16-11.

37. Having expressed myself strongly on another occasion against the collection in the Doon by kham tehseel of the revenue on minor forest produce, I feel bound to state that as far as I have been able to judge the same system has worked in Gurhwal and Kumaon in a perfectly satisfactory manner. The large revenue realized from this source, and the small charge on its collection (about 6 per cent.), sufficiently attests the truth of this statement. But the natural condition of the two divisions are very different. In Kumaon and Gurhwal almost every portion of the forests is readily accessible by excellent roads, so that it is more profitable to exporters to carry their bamboos and timber out of the forests along such tracts past the forest chowkees, and to pay a small duty on their export, than to smuggle them out over difficult and precipitous mountain-paths. But across the Ganges, although there is a fair road along the south side of the Sewalicks in the Doon forests generally, the system of roads (projected by the Commissioner of Meerut) has yet to be carried out. Moreover, in the Doon the forest boundaries are enormously multiplied by the intermixture of private grants, which add very greatly to the facilities of smuggling and to the difficulties of watching the forest. It would not, however, be fair to attribute the whole of this satisfactory result in Kumaon and Gurhwal to such causes as these, and no doubt much also is due to the praiseworthy vigilance and thorough knowledge of the country and people, which the Messrs. Thompson have brought to bear on this part of their duty. Nor would I omit the name of Moteeram Sah, the Banker of Nynee Tal, who has been of great service to the department in many ways, and to whom the whole of the responsibility connected with receiving the collections and remitting them to the Treasury has been entrusted for a small commission; and who, through his own good character, has no doubt greatly influenced the native subordinates of the Kham Tehseel Establishment for their good.

CHAPTER IV.

PRESENT CONDITION OF THE FORESTS.

38. The management of the Gurhwal and Kumaon forests was first taken in hand by Colonel Ramsay after the Mutiny. Previous to that period it is to be feared that but little consideration either for economy of the timber or the future welfare of the forests was shown by those to whom the responsibility of working them was entrusted. Felling of trees without permission was then first prohibited by Colonel Ramsay when he took charge, and Forest Officers were appointed. From that time conservancy has progressed with vigor. In 1861-62 the cultivation in the Patlee Doon was put a stop to by assigning land to the people below the hills in the Bhabur; next the cattle stations were broken up, and all herds of buffaloes removed from the forests. This operation occupied three years from 1862 to 1865, the cattle stations being removed from all the Gurhwal forests, and in Kumaon from all the forests above the main line of road. In meanwhile excellent roads were opened out, and the forests, especially those of Gurhwal, were made accessible from all sides: at the same time a regular system was instituted of working only certain forests, the remaining ones being kept rigidly shut up, and the selection and marking of all trees previous to felling being insisted on. The clearance also of the forests from old timber, which, after the operations of Captain Reid and the contractors who preceded him, lay scattered over all of the forests, was commenced, the wood being removed by native merchants on payment of a small Royalty which has brought in a handsome revenue now for several years, and has not yet entirely ceased. In 1867-68 forest fires were successfully excluded from all Gurhwal and from most of the Kumaon forests.

39. As regards their present condition, it will be seen from the preceding description that though in the years prior to the introduction of the present conservancy arrangements the more accessible forests have been heavily worked (in some places even to utter desolation, so that their reproduction can hardly be looked for), yet that many portions of them still exist where timber has never been felled at all: while in the

others, though felling may have been carried on, a considerable amount of trees can still be taken away without injury. In other places the trees are growing so closely together that they cannot develop themselves to their full size, and the removal of a portion of them is desirable for the benefit of the rest; while in almost every forest a large number of partially unsound trees is found, many of which will bear removal, and will yield a large amount of good wood.

40. Generally the second and third class trees are in most flourishing condition, and the entire rest which the forests have enjoyed since they were shut up has borne marked fruit in their improvement. This result is best seen in those forests which were partially but not too heavily worked in past years.

41. The growth of the young trees and saplings in almost every case is most satisfactory, and is a standing proof of the immense benefit that has been effected by the removal of the cattle and the exclusion of fires when one looks at thriving young trees of every size, from the smallest seedlings to the young giants of 50 or 60 feet in height, and two feet in girth, growing up with fine clean barks and straight stems, and all full of the highest promise, the mind is filled with good hope that future ages will see these valleys and plateaus covered with forests far greater in value to those that went before them, inasmuch as they will benefit by regular protection and conservancy, which their predecessors did not enjoy. Indeed, the virgin forests which actually exist, are by no means the best ones we have.

42. The only portion of the forests which can be looked on as forming an exception to the above are those in which, from being overworked, the grass has got to such a head that it chokes the ground entirely, and renders it impossible for the seed to germinate. It is very difficult to know how to act here, as in order to do any good the huge grass must be got rid of. It is to be hoped that if fires can be effectually excluded for a number of years it will wither and die, as there are in most cases still quite sufficient old trees on the ground to furnish seed, if only the grass could be removed and the ground cleared.

CHAPTER V.

FUTURE YIELD OF THE FORESTS IN TIMBER.

43. I think this should be divided into two parts, *viz.* :—

1st,—The yield from the regular annual fellings.

2nd,—The yield from conservancy operations.

44. The former must be carried out agreeably to a regular working plan drawn up with a view to the removal of a certain proportion of the mature sound timber every year, the latter will be the result of such operations as from time to time may be executed for opening out and improving the forests. I have now been in the habit of watching saul forests for about ten years, and the inspection of these Doons very much confirms the opinion to which my mind has for some years been tending—*viz.*, that both for the free germination of the seed, and the effectual reproduction of the forest, as well as for the welfare of the trees, and their progress afterwards, *saul* requires a considerable amount of sun and light; and that a saul forest will bear, and indeed repay (if it does not absolutely require), much more liberal felling than almost any other description of forest in India. Yet this felling must be carefully limited in such a degree that the grass and the scrub jungle should not get head instead of the young saul; for if it does, the latter will infallibly be choked and perish. It is impossible however to see any forest, even where heavy felling has been carried on, provided sufficient cover has been left to prevent the coarser descriptions of grass getting hold of the ground, where the growing trees of all classes do not show a marked improvement in their appearance over those in forests which have

never been touched. Moreover, for the actual free germination of the seed of the saul tree, it is absolutely necessary to open the ground to the light and sun—a fact which the most cursory examination of a saul forest will at once show.

45. In regard to the amount of felling which a saul forest will bear with safety, I believe that in almost every case every sound first class tree may be removed : for where the second and third class trees are abundant they protect each other ; and where this is not the case, we may be sure that the forests are old, and that from 20 to 50 per cent. of the trees are more or less unsound. The unsound trees are quite as good both for seed shedding and protective purposes as any others, and the proportion of them to be removed must depend on the ratio they bear in the forest to the sound ones. But every forest must be treated on its own merits ; and, indeed, there are hardly any two portions of the same forest which will bear exactly the same amount of working.

46. For the above reasons, as well as on account of the immense benefit which accrues to young saul from perfect rest, I am led to advocate a plan of working these : and, indeed, all saul forests, the basis of which should be the division of the forest into blocks, each of which should be worked in succession to the *full extent* it will bear with safety, after which it should be shut up for a full period so as to allow the second class trees to become first class. As from seven to ten rings may be generally counted in one inch of the radius of a well-grown saul tree, I am induced to think that this period may be estimated at from 30 to 40 years.

47. With a view to obtaining data to frame a working plan based on the above principles, I have directed an enumeration to be made by the Rangers and Patrols of all first class trees in the forests which have not yet been worked—the sound and unsound trees being counted separately. But the system of linear surveys, which is said to be well adapted to some forests, would not answer here, inasmuch as the unsoundness of the trees, which exists in a very different ratio over the forests, contributes so large a disturbing element to all calculations of the value of the timber, that the truth of any estimate based on them, would be considerably invalidated.

48. From the data thus obtained, a tentative working plan will be drawn up and submitted for the sanction of Government, and by it the annual yield of the forest in sound timber will be carefully ascertained and defined : but after the inspection I have made I believe I may safely commit myself to say that Colonel Ramsay's estimate of one lakh cubic feet per annum from the forests of both divisions may confidently be reckoned on, besides whatever is obtained by the removal of partially unsound trees and from thinnings. The regular survey of the forests will follow, and by it the estimate now obtained will be checked, and the working plan corrected accordingly.

49. With regard to the second head—*viz.*, the thinning of forests which are too closely packed,—this must be looked on rather as a conservancy operation than as a source of revenue. It must be borne in mind that the best trees will in almost every case be left standing, and that the sale of a large quantity of more or less indifferent wood in distant localities will not in all probability yield much profit. Moreover, it must be carried out absolutely under the personal inspection of the Forest Officer himself—every tree being selected entirely with a view to the effect which its removal will have on those which are left standing, and not on its value as a timber tree. It must be remembered, too, that the forests where these operations are mainly required, are those which from their inaccessibility have hitherto escaped the axe, and the making of roads must in every case precede the act of thinning out the trees. But I feel no hesitation in saying that if half the trees were cut down in the untouched portion of the Paloin forests, as well as in the Mondhal and Nindhore valleys, the remainder would benefit beyond all calculations by the operation.

CHAPTER VI.

FUTURE MANAGEMENT.

50. Under this head but little can be done except to mature and consolidate the sound system of conservancy which Colonel Ramsay has commenced, and with this view, in addition to the exclusion of fires and cattle which of course must be steadily persevered with, the following points would seem now to demand special attention.

1st.—The completion of a good and correct set of forest maps for the whole tract on a large scale.

2nd.—The framing of a regular working plan of the forest.

3rd.—The opening out and thinning of the virgin forests.

4th.—The gradual extension of the system of forest roads especially in Kumaon.

5th.—The compilation of a proper record of the State rights in the forests or “Register of the Forests.”

51. Arrangements have been already made for taking in hand the first two of these works, and both will be materially facilitated when the maps, which are now in the course of preparation by the Topographical Survey Department, are completed. The third and fourth points must necessarily be a work of time, as both of them will demand not only money, but also the personal supervision of well-trained officers, which cannot always be afforded, and both as stated above will probably depend in some degree in the possibility of finding a sale for a large amount of second-class timber.

52. In regard to the last point, it would seem most necessary that the compilation of a proper record of the rights of the State, as well as of the rights of the people, in reference to these valuable forests, should be no longer delayed. Rights so important, and property so valuable, must not be left to be dealt with by individual knowledge or caprice, and, moreover, it is highly desirable that they should be placed on a legally-defined footing. To this end then it is proposed to issue instructions for the preparation of a descriptive Register of the forests, showing all their boundaries, and noting such rights as it may be necessary to concede in regard to them. When this is completed and revised by myself it will be submitted to the Commissioner, in order that all points involving the rights and interests of the population of the Hills and Bhabur may be fully considered. When all these have been determined, the record shall be submitted to Government for sanction, with a view to the forests being declared State Forests under the Forest Act.

53. In conclusion, although anything in the shape of commendation in a public report would, as a rule, almost seem to savor of presumption when expressed in reference to an officer who is so much my senior, and who bears so high a character as Colonel Ramsay does, yet I trust that it may not be considered that I am trespassing beyond the proper bounds of duty, if, after a most minute and instructive examination of every part of these forests, which has occupied me for the whole of two months, I desire to place on record how strongly I have been impressed with the very perfect system of management that officer has instituted and carried out in them. It would be difficult to over-estimate the value of Colonel Ramsay's services to Government in these respects; indeed, it is I believe not too much to say that no officer who did not possess the local knowledge and influence, which Colonel Ramsay brought to bear on the work, could have effected so much in the same time. And after having been in the Forest Department myself for nearly nine years, and after having seen something of the system followed—not only by myself in the Central Provinces, also in the Madras Forests, in Bombay, and in the Punjab—I would desire to testify that perhaps in no forests in India has so much sound progress in forest conservancy been accomplished on so large a scale as has been effectually carried out in the saul forests of Gurhwal and

Kumaon. To Colonel Baugh—who has had charge of the conservancy arrangements, and to whom the delicate task was intrusted of dealing with the cattle owners who have been excluded from the forest, and who, in connection with the Settlement Officer, Mr. Beckett, completed the arrangements for suppressing unauthorized cultivation within the forest limits—every possible commendation is due for the tact and success, as well as for the thorough manner in which this has been carried out. The same is due to the Messrs. Thompson, but especially to Mr. R. Thompson, who has been in the forests since Colonel Ramsay took charge of them, and who possesses great local knowledge, as well as some scientific attainments, and a thorough experience in forest work in all its branches. Both of these officers have had charge of the timber arrangements, road works, and kham tehseel management, and both of them, but more especially Mr. R. Thompson, have done these works right well. I was glad also to observe that they were both well and kindly spoken of by the native population in the forests.

I have the honor to be,
SIR,
Your most obedient Servant,
G. PEARSON, MAJOR,
Conservator of Forests, N. W. P.

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