

No. 198F.

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

DATED NYNEE TAL, THE 29TH JUNE, 1869.

To

THE CONSERVATOR OF FORESTS,

*North-Western Provinces.*

**REPORT ON THE DEODAR FORESTS OF JOUNSAR BAWUR.**

*Conservator's No. 211A., dated the 12th May, 1869.*

ACKNOWLEDGES the above, and states that the report contains a full, clear, and highly interesting account of the forests in question. It shows that these forests are especially valuable, owing to the rapid growth of the deodar in them.

2. The wants of Chukrata may apparently be supplied in great part from the Bodya forests, before all the 1st class trees, which may be cut without injury to future production, are exhausted, and the remainder from the Mushuk forest. In the Kotee and other forests, it is no doubt necessary for their preservation to exclude cultivation, and the question of doing so should be carefully considered. The destruction of the beautiful silver fir forest above Kotee should be avoided, if possible; and it may be hoped that it will be rendered unnecessary by securing the complete reserve of the existing deodar forests. The forests about the Dharagad will afford ample stores of timber for the present, and admit of the market being well supplied for the next ten or twelve years.

3. The trans-Tonse tracts are shown to be highly valuable to the British Government for their forest reserves; and this fact will be communicated to the General Department of this Government, in order that it may have its due weight in the determination of the question now pending as to the proposal to relinquish the British territory on the right bank of the Tonse.

4. As to the measures to be taken for forest conservancy, His Honor the Lieutenant-Governor observes, that, in Jounsar Bawar, the *occupied* portions of the soil are settled in full proprietary right with the village

communities. In the remainder, the village communities have only a modified right ; the waste and forest lands within their respective boundaries they hold as against all strangers, but not as against Government ; the understanding being that Government can appropriate any portion of the same at its discretion ; but on condition that a sufficiency of waste land is allowed for grazing purposes to the village community, who have also a prescriptive right to the use of such wood as is required for domestic purposes. The Conservator has, His Honor believes, correctly stated that the people do not possess the right of disposing of timber to strangers.

5. The classification of forests should be, then—

I.—Government forests, (a.) closed.

” ” (b.) open ;

II.—Village forests.

I.—In order to the formation of a closed forest, it is necessary that the sole right be vested in Government ; and that if there be any other prescriptive rights, they be extinguished by compensation or otherwise. This, under ordinary circumstances, can be done by the assignment of an area of village or open forest to the several villages, sufficient to provide for their grazing, fuel, or timber requirements ; when the remainder may be declared closed and inviolable. The closed portion will then be marked off by permanent landmarks, and notification made that all encroachments on the same will be resisted and punished.

6. Something further is, however, wanted by Major Pearson in respect of the Bodya, Kotee, and Kyoloe Forests. These valuable tracts of timber are interspersed with old established villages, which render forest conservancy, in its complete and only effective form, impossible. The Conservator rightly says that such prescriptive settlements can only be removed by compensation ; and, under the circumstances, His Honor thinks that this must be done by voluntary bargain and negotiation, which should be conducted through a civil officer of the district. There is no detail as to the number or area of these occupied tracts, nor any estimate of the expenditure that would be required to eliminate the intruders. Until some estimate on these heads be given, it cannot be judged whether the inconvenience and hardship by eviction would be justified, and the cost of compensation repaid, by the public advantage anticipated from closing the forests. The subject will be referred for consideration to the General Department of this Government. If an officer of the Settlement Staff could be spared, it would, in His Honor's opinion, be desirable to depute him to determine these points, in communication with an officer of the Forest Department. Mr. Cornwall is said to be eminently qualified for the duty ; but before any determination is come to on this point, further report will be awaited in the Revenue Department. Meanwhile, it is admitted, with the Conservator, that it is extremely desirable to have these valuable forests in distinct and self-contained blocks, each thoroughly cleared of private rights of every kind.

7. II.—The open Government forests would be all other forests which it may not be expedient or possible at present to close. These will be open to grazing and fuel demands as heretofore; but the cutting of timber must be prohibited, except under sanction of the Forest Department, which might take a general form, by declaring certain classes of wood as free to be cut, no other trees being touched but by express permission. There is no occasion to require an annual application for the privilege of grazing; the rights of Government are well understood. These forests should also be distinctly marked off.

8. III.—The remaining forests would be at the disposal of the villagers; with this condition, that they are free to cut what is required for domestic uses, but not to sell nor dispose of any timber to strangers.

9. His Honor is of opinion that the above plan, by which the forest tracts defined as Nos. I. and II. will alone be marked off, is preferable to marking off the entire village forests. It would still be in the power of Government to add to the areas of Nos. I. and II, for good reasons, on condition that satisfactory provision was made for village requirements.

10. The rules proposed by the Conservator at the close of this report are just, and conformable to the rights and customs of the people; but His Honor considers that Major Pearson is mistaken in expecting that there will be little pressure for cultivating holdings in consequence of the Chukrata cantonment; on the contrary, His Honor anticipates a large increase, and desires that the Forest Department should make its arrangements in expectation of such pressure.

11. It is noted with satisfaction that the temporary cultivation (*kheel*) on the Kyoloe hill has been put a stop to for some years. It should continue to be carefully suppressed.

12. The necessity for the construction of roads, slides, &c., for facilitating transport of the produce from the forests cannot be doubted. It will be the business of the forest officers to carry out these works. Already a small grant has been made for constructing mule tracks during the present year from the Deobun forests, and it will be the duty of the Conservator year by year to bring forward a scheme of operations with this end; and to propose the requisite budget provision. An estimate should be framed as soon as practicable for forming the road described as passing by the Karama peak to the Yako forest.

13. The proposed order in which the forests are to be worked, seems to be that required by their present state; and the special arrangements for supply of wood to Chukrata are approved. On receipt of the estimate for the completion of the Simla road as far as the Tonse, which the Conservator has promised to furnish, it will be considered whether the Government of India should be asked to make a grant from the general funds of the State for the benefit of the residents of the

cantonment in facilitating supply of fuel, &c. ; or whether the cost should be borne by the Forest Department, and eventually recovered in the price of fuel.

By order, &c.,

C. J. HODGSON, Col., R.E.,

*Secy. to Govt., N. W. P., P. W. D.*

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No. 199F.

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

FROM

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

TO

COLONEL C. J. HODGSON, R.E.,  
*Secretary to Govt., N.-W. Provinces,*  
*Public Works Department, Allahabad.*

*Dated Camp, Jounsar, the 12th May, 1869.*

REPORT ON THE DEODAR FORESTS OF JOUNSAR BAWUR.

1. The two British pergunnahs of Jounsar Bawur are situated between the Native States under the Simla Agency and the Rajah of Gurhwal's country, along the lower spurs of the great range which separates the Jumna from the Tonse, and culminates in the peaks above Jumnootree. There is also a small tract west of the Tonse, between the Chachpore ridge and that river, containing some valuable forests, which belong in part to the British Government, and in part to the petty Chief of Taroche. The main features of the country are—1st, the principal backbone or ridge which runs up from the junction of the two rivers in a N.-N.-E. direction to Deobund, and thence on to the Jako Pass; after which, following the course of the Tonse, it bends more to the eastward, and is lost in the high peaks of Bunderpouch; and 2nd, the spurs which run down on either side of it to the two rivers. The western spurs, which run down to the Tonse from the ridge as far as the Jako Pass, mainly contain the forests which it is now proposed to describe. A sketch map is appended, for the better understanding of the report. Dr. Brandis himself made an inspection of some of these forests in 1863, and I am indebted to his report for much useful information regarding them.

2. The principal deodar forests in Jounsar Bawur are as follows :—

<i>On the Lokundee spur</i>	...	...	}	I. The Bodya Forest.
				II. " Mushuk "
				III. " Kotee "
<i>On the spur between the Bennargad and Chiligad</i>	...	...	}	IV. " Kyoloe "
				V. " Totwa "
<i>Round the head of the Dharagad</i>	...	...	}	VI. " Lokwa "
				VII. " Jako "
<i>On the Chejal spur</i>	...	...	}	VIII. " Chejal "
				IX. " Kotee and Basteel Forest.
<i>West of the Tonse</i>	...	...		X. " Mundhole "

Besides which, large forests of oak, firs, and scattered patches of deodar, fringe all the ridges and clothe the sides both of the main range and of the lateral spurs, which will be described in due order.

NOTE.—In this report the oaks and firs will be called by their common English or Native names, as being more generally understood; the botanical names of the principal trees being as follow :—

Oak	<i>Banj</i>	<i>Quercus</i>	<i>incana.</i>
"	<i>Moroo</i>	"	<i>dilatata.</i>
"	<i>Kurzoo</i>	"	<i>semicarpifolia.</i>
"	<i>Tilouge or Banees</i>	"	<i>annulata.</i>
Silver Fir	<i>Morinda</i>	<i>Picea</i>	<i>Webbiana.</i>
Spruce	<i>Rall</i>	<i>Abies</i>	<i>Smitheana.</i>
Cheel		<i>Pinus</i>	<i>excelsa.</i>
Cheer		"	<i>longifolia.</i>
Cyprus		<i>Cypressus</i>	<i>torolosa.</i>
Deodar		<i>Cedrus</i>	<i>deodar.</i>
Maple		<i>Acer.</i>	

Misplaced—  
 This table belongs to Maj. G. F. Pearson's report—No 211A of 1869.

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## CHAPTER I.—DESCRIPTION OF THE FORESTS.

## FORESTS OF THE DEOBUND HILL.

3. The Deobund hill is a prominent feature of the main range. The forests are important, as being situated close to the new cantonment of Chukrata, and from them the main supply of fuel and common building timber must be drawn. Only a few patches of deodar are found on the hill itself, chiefly scattered on the north-west side; but the south and east faces are well clothed with oak—chiefly *bánj* with *moroo*—which will need careful protection; and on the top of the hill there is a magnificent forests of *kurzoo* oaks. Below this, but near the summit, on the spurs which run down from the north-west and west flank, the spruce fir is found in great abundance, mixed with silver fir, which both show fair development. These forests, with proper care, should go far to supply the ordinary wants of the new cantonments; and the arrangements which have been made for this end will be detailed in the proper place in this report.

## FORESTS ON THE LOKUNDEE SPUR.

## I.—THE BODYA FORESTS.

4. This is a beautiful forest of nearly pure deodar, close by Lokundee ghât, about 8 miles nearly due west from Deobund, and only about 4 miles directly above the Tonse. It is situated in a compact bason or valley, like a horse-shoe, on the south-west end of the main spur. The northern semicircle is, properly speaking, known as Kananee, but with a view to simplicity of nomenclature, I propose to call it all Bodya.

5. The bason or valley in horizontal area may perhaps be about two miles in width by one in depth, but the numerous ravines and spurs which run down from the main ridge must give a much larger superficial area of forest. The rocks are limestone, and very precipitous, and the ravines are full of a rich deposit of decayed vegetable matter, in which the deodar seems to spring up with great vigor wherever it has a chance, and thousands upon thousands of young seedlings may be seen coming up, literally as thick as corn in a field. But, except in a few places where chance favors them, the seedlings are never permitted to come to maturity, as many hundreds of sheep from the neighboring villages come to graze here, and, by nibbling off the heads of the young shoots, have reduced them to the condition of furze bushes. But the natural growth of the deodar in this well protected bason is wonderful, and Doctor Brandis, who made several surveys here, gives about 70 years as the average age of a first-class tree which is certainly not too little, as I have counted myself many stumps, two feet in diameter, which show an age of only from 50 to 60 years.

6. From this forest all the trees for the Chukrata barracks have been taken. Up to the present time about 1,400 trees above 6 feet in girth have been felled; and about 400 more, which have been withered but not killed by girdling, which was altogether a mistake, remain to come down. With due regard to selection, this number would not have been too great for the forest to spare; and though it is not possible to see the present condition of the forest without regret, yet, where harm has been done, it is chiefly from taking trees from such places as had evidently been pretty well worked previous to the forest coming into Government charge. I have no reason, however, to think that when the forest can be finally closed, after the present operations are completed, it will not thoroughly recover itself. As long as the work is going on, and some hundred sawyers and coolies are encamped in and about the forest, it is impossible to do anything in the way of clearing it up and putting things to rights, and I must confess that at present its appearance is extremely pitious.

7. There are a great number of regularly terraced fields belonging to the village of Loharee, scattered in the ravines of this forest. I shall make a vigorous effort to obtain possession of these by compensation or purchase, as, if the forest were once in

sole possession of the department, I am sure, with a little aid in the way of sowing seed, the whole bason might be filled with such a forest of deodars as perhaps the whole of the Himalayas could not show.

## II.—THE MUSHUK FOREST.

8. / Mushuk is situated on the north or opposite side of the main Lokundee spur to Bodya. The ridge itself on that side is tolerably covered with scattered patches of deodar, intermingled with cypress on the higher ridges, and firs (chiefly spruce, mixed with some silver firs and *cheel*) lower down. There are also oaks and rhododendrons. Around the village of Mushuk itself there has no doubt been formerly a considerable deodar forest; but its contents have been largely cut down in past years, and sold for a trifling sum to the villagers, who come up for the wood from below. In no place can there be said to be a regular forest like Bodya. Eastward, towards Deobund, the forests get thicker, and numerous patches of deodar are found among the firs and oaks. All along, however, the spruce fir predominates, and forms the staple portion of the forest. / I purpose, after the Bodya timber is worked up, that the supplementary requirements of the Chukrata barracks be met from here. The trees will be carefully selected wherever they are available, a sufficient number being left in each patch or block for the purposes of seed. Were it possible, with regard to the wants of the numerous villages below in the valley, the whole of the north face of the spur above Mushuk should be made a close reserved forest, but I fear the necessities of providing some grazing ground for their sheep will prevent this being done. As the scarps in many places are exceedingly precipitous, the working of the forest, except along certain lines, would be difficult and expensive, so perhaps this is less to be regretted.

## III.—THE KOTEE FOREST.

9. / On the northern side of the main Lokundee spur there is a most lovely little forest, the nucleus of which is round a temple in a beautiful glen, about half-way between Lokundee ghât and Deobund, overlooking one of the feeders of the Bennargad. The growth of deodar is here perfectly extraordinary, and in two of the old stumps, which were of huge size, through imperfect, the rings showed that the trees in the 21 years of their life had attained a diameter of timber of 12 and 13 inches respectively. / In one case, five regularly formed consecutive rings measured *each* two-fifths of an inch in depth, five rings giving a radius of two inches. The whole of the little valley and hill above it must have been formerly an exquisite forest of pure deodar, but now fields have been cut in the forest in every direction, and the trees stand in bands or patches amongst the fields, stretching somewhat more compactly above them for a considerable distance. There are still probably a couple of thousand well-grown trees scattered about; and, as the growth of the younger trees is remarkably prolific, and the beautifully straight development of their stems even in Jounsar is remarkable, efforts must be made to obtain possession of at least some compact blocks of the forest, for I am sure that if the terraces were only ploughed up and strewn with deodar seed, the whole hill-side would in a few years be covered with a mass of magnificent young forest.

10. / Immediately above the deodars at Kotée, there is one of the finest and most noble forests of silver fir and spruce ~~that I have~~ seen anywhere. The side of the limestone hill, covered with a rich vegetable deposit, is somewhat steep, and the trees are all giants; and the forest underneath them being perfectly clear and free from undergrowth, presents a very noble appearance. / ~~Noticed~~ in a few places some young deodars (of which a very few old trees are mixed with the firs) springing up under the shade of the silver firs, to the supersession apparently of the proper offspring of the latter. / This led me to think whether it might be possible, with regard to the singularly favorable conditions of this locality for the growth of timber trees, to supplant the fir forest by a more valuable one of deodar, killing the former by gird-



ling them *by degrees* (for it would never pay to remove them as timber), so as to make room for the latter. It would be a sin to spoil so noble a forest, were it not that I do not well see how to get possession of very much of the cultivated portion of the forest below them.

#### IV.—THE KYOLOE FOREST.

11. / Returning to Deobund, and following the main ridge northwards to the Karama peak, deodar is found scattered here and there, sometimes in considerable quantities, especially on the west side of the range, and in the *khuds*, which are very precipitous, running down into the head streams of the Bennargad. After running for about six miles along the east side of the ridge, a steep path leads down through a forest of oaks and maple, with some firs, to a spur of the Karama peak, running down between the affluents of the Bennargad and Chiligad. On this spur is situated the village of Kanein, and around and above it is the fine deodar forest known as Kyoloe.

12. / Along the main range leading down to this spur, and on the grassy slopes which run up to the Karama peak from its base, some exceedingly noble deodar trees are to be seen,—trees measuring 15, 16, and even 17 feet in girth, and of proportionate height, being continually met with. These stand in clumps of five or six (more or less) in number, for the most part on little spurs or other places where a deeper deposit of earth remains than the steep slope of the hill-side usually admits of. Indeed, for the whole distance down to the village of Kanein, little else but deodar is to be seen, mixed with some *cheel*. / But here, as at Kotee, the village is almost in the midst of the deodar forest, and, except in a few favored places, cultivation and grazing have so usurped the place of the forest, that no young trees are to be seen coming up anywhere. Indeed, every inch of ground that is spared from the plough is burned for the sake of the sheep grazing. The forest covers the summit as well as both sides of the spur, the main portion of it, however, being on the northern slope; the whole of which, as well as a portion of the summit, I trust it may be possible, without interfering with village rights, to obtain possession of as a close reserve.

13. / *Colonel* estimated that above and around Kanein, including the slopes up to the Karama peak, there were altogether between 3,000 and 4,000 first class deodar trees, with about a like number of second class trees; but anything like a proper proportion of younger trees was altogether wanting. / I should mention that terrible destruction has been committed here for temporary cultivation (called here *kheel*), similar to the Dhyas and Bendries of Central India,—and several hundred dead deodar trunks (like dockyards) now disfigure the Kyoloe Hill. This wanton destruction has been entirely stopped during the last three or four years.

#### V. AND VI.—TOTWA AND LOKWA FORESTS.

14. / Crossing the Chiligad stream, and ascending by a very steep path the next main spur, which separates the Dharagad valley from that of the Chiligad, and the pergunnah of Jounsar from Bawur, the forests at the head of the Dharagad, known by the names of Totwa and Lokwa, are entered. These are by far the finest, most extensive, and most perfect of all the deodar forests in this District. / I should estimate the distance from the village of Lokwa, which is situated low down on the northern face of this spur, nearly opposite Chejal, round through the Totwa forest, and over the village of Lokhar to the Jako pass, as not less than eight miles, taking the ridge. But as in this distance there are eight main *khuds* or ravines, some of which have a depth of at least two miles, I cannot estimate the superficial area of forest contained in this space at less than 16 miles in length by 1 in depth. Taking the rates given in Dr. Brandis' survey (No. 15 of 12th June), viz., 1,083 for first class and 767 for second class trees, per acre, this would give about 10,000 first class deodars and 7,000 second class trees for these forests, but as his calculations were made on the Totwa forest, which has been very heavily worked, whereas Lokwa,

which covers full two-thirds of the area, has hardly been touched at all, I myself think that for the whole forest the number of first class trees might be doubled, and the second class raised by trebling them, making the numbers 20,000 and 21,000 respectively. But, except an accurate survey of the ground be obtainable, it is impossible to do more than make a guess, as even when the average number of trees per acre is known with tolerable correctness, it is very difficult to apply the figures to the total area so as to get satisfactory results. In one *khud* alone, in Lokan, I counted all together in one spot, in about four acres, between 200 and 250 (it is most difficult to count with exactness in such a place), all first class trees of 6 feet in girth or thereabouts, and upwards, and none of them under 100 feet in height, while many must have approached 200 feet. On the trees there was not a single branch for fifty feet from the ground; all by growing close together had cleared each other, and showed perfectly straight bales and clean timber. The rocks here are still limestone, covered with a rich vegetable deposit, and the sides of the *khuds* are very steep, and very hard work it is walking over them. The whole of this forest should be secured as a first class reserved forest. Some of the *khuds* are pure deodar; in others deodar is mixed with silver fir in large proportion, with some spruce; while in others again hardly any deodar is found: but nevertheless deodar is the main standard tree of the forest.

15. The upper portion of the Totwa forest extends well down into the *khuds* and ravines on the east side of the main range, and down the head of the stream known as the Riknalgad. Passing along the upper ridge, the trees are magnificent in appearance and size, and many of them are very old, with pleasant grassy slopes below them. These trees naturally attracted Dr. Brandis' attention, and he measured two of 11 feet in girth, and 115 and 135 feet in height respectively. There are many nearly as fine, but I am not sure that the average rate of growth in these forests is so rapid as in the forests of Bodya or Kyoloe, though some stumps show fair results. The trees that I counted averaged about 8 rings to one inch of radius, which agrees closely with Dr. Brandis' higher figure of 98 years for a first class tree. In the Bodya forest, as shown before, average of 5 rings to every inch of radius is by no means uncommon. There is a great absence of young trees all along the ridge, and on the grassy slopes below them, as they have no chance with the fires and sheep. In portions of the Lokwa Forest, however, the growth of young trees and saplings is magnificent.

#### VII.—THE JAKO FOREST.

16. West of the Jako pass there is a high mountain in the deep bay, on which there is a pure deodar forest of considerable extent. From the steepness of the sides of the hill, the trees are not as large as others, but it seemed to me that the timber was exceedingly firm and well-grown, and if it could be got down would be valuable. There is a magnificent view down the Ram Serai valley to the Junna, and across the high ridges to Bunderpouch, from the summit of this mountain. There is also an excellent view of the Forests, of Lokwa and Totwa, on the opposite side of the valley.

#### VIII.—THE CHEJAL FOREST.

17. Descending this ridge, we come upon the Chejal spur, which after dividing into two minor spurs, runs down into the Tonse, near its junction with the Pabur. Above Chejal there has been a fine deodar forest, but it has been horribly mutilated for *kheel* cultivation, and there are about 2,000 dead trees killed by fire now standing on the hill-side. Still there is a very considerable amount of good forest left, and much of the space that was cleared is again clothing itself with young deodars; a little care would enable it to do so entirely; and this I propose to have taken, as well as to make some endeavor to utilize the timber of the dead trees, which is still sound, by converting them into planks, and floating them down the Tonse. This work

must, however, perhaps stand over for the present. I should calculate that there are at least 3,000 first class trees (living) left in the Chejal forest.

18. Proceeding down the ridge towards the Tonse, we find that it separates itself into two minor spurs, on one of which is situated the village of Kotee, and on the other that of Busteel. The latter is the residence of the Wuzeer of Bawur, and hereditary high priest of the Onale temple, on the Tonse. These spurs possess two small but perfect forests of deodar, mixed in the upper portion with a good deal of exceedingly fine *cheel* (*excelsa*). These are numbered IX. in the list. The growth of timber in the Busteel forest is said by Dr. Brandis to be very satisfactory. I did not myself note it, but in that of Kotee, where we get on to a shaly soil—though the forest, from being a temple one, is excellently preserved—the growth is very slow indeed, and few of the trees are above 5 feet in girth. This is no doubt owing to the fact that the trees stand too close together, and have hindered each other in their growth, as well as to the greater poverty of the soil. Still nearly all of them are now useful timber trees, and I do not think they will grow much bigger, as they are all evidently considerably more than 100 years old. The forest is about 150 acres in extent, and may contain about 2,500 or 3,000 trees, all much of the same size. On the Busteel side there may be perhaps 2,000 available trees, but I had not time to examine the forest critically.

19. To recapitulate them, after deducting Bodya, which may be considered as worked out, I should estimate the contents of the Jounsar Bawar forests nearly as follows:—

			1st Class.	2nd Class.
I.—Bodya	...	...	...	...
II.—Mushuk	...	...	1,500	1,000
III.—Kotee	...	...	1,500	1,000
IV.—Kyoloe	...	...	3,000	3,500
V.—Lokwa	...	..	} 20,000	21,000
VI.—Totwa	...	...		
VII.—Jako	...	...	2,500	3,000
VIII.—Chejal	...	...	2,500	2,500
IX.—Kotee and Busteel	...	...	3,000	5,000
			Total	Total
			... 34,000	37,000

This may, I think, be taken as a moderate estimate, as Dr. Brandis estimated 40,000 first class trees, but he had not the same opportunity for a critical examination as I had, and in the absence of any certain statistics, I would prefer to be rather under than over the mark. There is no doubt that the whole country is most prolific of deodar, and if it were possible to carry out conservation thoroughly everywhere, it might be converted into one vast deodar forest.

20. Crossing the Tonse by the Jooler, on the Simla road below Kootee, and ascending to Mundhole, in the larger ravine above the bungalow, stretching up to the Byrach peak, there is a magnificent deodar forest, nearly pure, but mixed partly with silver fir. It contains many noble trees, some of them measuring from 15 to 16 feet in girth, and covers an area of full two miles in the *khud* and on the mountain side. It is also, as regards the natural reproduction of young deodar, one of the very first in value of all the Tonse forests. In addition to this, the lower portion of the same *khud* (the Chandneegad) is lined with a noble *cheer* forest, which extends in profusion up the Pabur as far as Sunsog—a distance of some 20 miles. It is altogether one of the finest *cheer* forests I have seen in the Himalayas, though some portions of it have been sadly mutilated by the operations of Soda Singh, a railway sleeper contractor, who seems to have made no attempt to remove his timber, but has left it to rot, partly in the river, and partly where it was cut. He probably failed in his attempts to float out the logs, as much from ill-devised and ill-timed operations, as from any inherent hindrance to floating in the river itself, which at full floods must certainly contain water enough

to carry down sleeper logs, if aided by gangs of men to push them off when struck on the rocks. Probably, however, for economy in saving labor of this sort, it would be preferable to cut sleepers up in the forest, if the Pabur *cheer* ever be used for that purpose. The question as to whether these forests are to be retained or given up to Taroché is now before Government. It will be a very great loss of most valuable property if they are allowed to pass from us.

21. I have not this year had time to explore the Deodar forests up the Pabur and to the head of the Tonse, or those in the Jumna valley, and in the valleys which drain into it. From Sunsog, however, I could see two fine deodar forests south of the Reigengurh, on the east side of the Pabur, with a temple near them, in one of which there were some stupendous trees. About thirty or forty miles up the Tonse, near Datmeer, there is, I believe, a considerable amount of deodar, quite workable. Again, near Shalna, on the Jumna, and Bunnal on the same river, and in the Ram Serai valley, on the east side of the Jako Pass, deodar is certainly to be found in workable places, but I have not yet had time to examine them.

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## CHAPTER II.—PROPOSED FUTURE ARRANGEMENTS FOR THE MANAGEMENT OF THE JOUNSAR FORESTS.

22. These may be divided into the following :—

1st,—Arrangements for getting possession of and marking off the best forests as reserves, and for their conservancy.

2nd,—Arrangements for making them accessible and getting the timber to market.

3rd,—Arrangements for a working plan for the forests.

4th,—Special arrangements for the conservancy of the Deobund hill and supply of timber to Chukrata.

5th,—Arrangements for providing for the wants of the people in wood.

1st. *As regards marking off the Reserved Forests.*—It is quite true that the State rights in the forests of Jounsar Bawur have been, with certain exceptions, reserved to Government in the “record of rights” of the settlement, but as this record contains a proviso “that wood is to be allowed to the people, and grazing for their sheep and cattle,” the difficulty is not entirely got over; because as long as the people can take wood or graze their cattle where they please, there can be no forest conservancy, and matters will practically remain as they are. Moreover, even if no proviso existed in the settlement paper, it would be necessary to provide for them, as being general requirements of the community.

23. It may be admitted that the right to grazing and wood does not concede that this right can be exercised *wherever the people please*, though heretofore such has been practically the case. There will be no difficulty regarding the wood; but as sheep exist in large numbers throughout both pergunnahs, and as in their grazing their natural habit leads them to wander over large tracts of country, while it is no easy task to exclude them from any place where they wish or have been accustomed to go, I am afraid we shall not have such an easy task with them. Any one who knows the difficulties that we have experienced from sheep breaking loose on the Welsh and Scotch mountains will appreciate this; keeping, then, in view these difficulties, I propose to meet the requirements of the forests, and at the same time of the people, by much the same plan as was pursued in the Central Provinces, *viz.*, by forming three descriptions of forests.

I.—The reserved or State forests.

II.—The village forests.

III.—Open forests belonging to the State.

The first class should be absolutely close forests, in which the right of felling all trees will rest absolutely with the Forest Department, and in which all grazing must be absolutely prohibited, and the firing of the grass prevented. Only the best deodar forests should be included in this class.

24. In the second class, every village should have a tract of waste and jungle set apart for its own use in proportion to its wants, in which the people should do exactly as they like, except that they should not be allowed to cut deodar or other reserved trees without permission (though the trees included in it would belong to themselves), and from which they should not be allowed to sell any wood at all. This last provision is necessary to prevent their turning their wood into money and then coming to us for more.

25. All the rest of the forest and waste should be included in the third class. In these third class forests the Government rights *should be reserved, but not enforced*, except where it might for special reasons be considered necessary to do so. In these forests the sheep must find grazing, and in my opinion no payment could be taken under the settlement rights for it from the people; but I think permission should be asked by them yearly for the privilege to graze, in order to show that the Government retains the right to withdraw or withhold it. This might be advisable in case it were necessary to take up land from these for first class forest reserves hereafter. In addition to this, it would be in the power of the Forest Department to allow certain trees of inferior value to be cut without permission in these forests.

26. But it will be seen from the preceding chapter that in several of the best deodar forests (especially in Bodya, Kotee, and Kyoloe) a large amount of regular cultivation exists in the forests. This cannot in any way be compared to the temporary clearances known as *kheel*; nor does the case here in any way resemble that of little villages which have been allowed to remain unreserved in certain parts of the Kumaon forests and in some of the Central Province forests, with manifest advantage; for in Jounsar large sums of money as well as much labor must have been expended on the terraces, which are regularly cultivated every year, and it was clearly the right of the people under the settlement to make those fields, whereas the people themselves live outside what it is proposed to make the forest limits, in their own villages; and yet (especially in Bodya) it would be most desirable to get these terraces into our possession, as the holding of fields in the centre of forests by the villagers is open to every possible objection, and in fact would render proper conservancy impossible. The only plan that I see for getting rid of them is by a money compensation. It has been proposed to make fields for the people elsewhere; but, no doubt, in making them in the forest the people have made the fields in the best place they could find. But as Chukrata becomes a large station, the people round the Deobund hill will cultivate less land, and do much more by earning money in other ways, and purchasing their food. As some of the most favorable deodar localities are cut up in this way, and it is most advisable to get entire possession of them, I recommend this as the only feasible plan.

27. But the whole of the above arrangements must be carried out in connection with the civil officers, and cannot be arranged by the forest officers alone. This is necessary, in order that the people should feel that full justice is done them; and that they have in fact some one to speak on their side. Moreover, it will require much discrimination and care to carry out the arrangements fairly; inasmuch as in forming the State forests of the first class some villages will practically suffer very much, while others will not be affected at all, especially in the matter of grazing, and great care must be taken that this is made up to them elsewhere. When the boundaries of the State and village forests are decided, they should be marked off by permanent pillars at once, and the observance of the boundaries duly enforced. Of course, whatever did not belong to one or the other class would be an "open State forest" of the third class.

28. *2nd. As regards making the Forests accessible.*—Dr. Brandis, at the end of his report, remarks :—“ The transport of timber.—The transport of the timber to a place of sale without undue expense is the great difficulty, as all the more valuable forests are situated at a considerable distance from the river. If this difficulty can be overcome, and if the unrestricted and wasteful cutting of deodar by the inhabitants and by parties from the lower parts of the district can be prevented, these forests will prove of great importance, on account of the good size and the rapid growth of the timber produced in them.”

29. In these words the real question as to the management of the Jounsar Bawur forests lies ; for at present not only the forests, but the country itself, is totally inaccessible ; for except along the old Simla road a pony cannot travel anywhere, and a great deal of unnecessary time and labor is unavoidably expended in getting from place to place. There can be no doubt as to the extreme value of the forests if the timber can be got to market for a reasonable cost. In the Bhagarutty forests it takes 86 years for a 2nd class tree to become 1st class, according to Dr. Brandis, while in Jounsar it takes from 16 to 19 years ; and my own observations entirely coincide with this.

30. I should recommend, then, that a system of roads be commenced in Jounsar, to be at first merely mule or pony tracks, which might be widened and improved as it became necessary to work certain forests. This will cost a considerable sum of money, and cannot be the work of one or two years, but must extend over several ; but when it is seen how much has been done in this way in the Kumaon and Gurhwal forests to make them accessible, there is no fear that the same cannot with proper management be accomplished here. These tracks should be made with a view eventually of being turned into graded roads, along which timber trucks could travel, but first regular grades must not be thought of. One track along the ridge, from Deobund by the Karama peak to the Jako Pass, with branches down the Lokundee spur, the Kanein spur, and the Dharagad to the Tonse, must be the main lines, and be first commenced on. These are absolutely required to enable the forest officer to get about the country, as at present so much valuable time is lost in crossing these trackless *khuds* and spurs. As the forests are worked, branch lines and slides down the hill-sides must be constructed to meet them, for it must be made a cardinal principle that the timber be moved *down to the river, and not upwards across the hill*, with the sole exception of the wood required for the Chukrata, which will be provided for separately. The next thing will be to get a boom across the Tonse, or probably across the Jumna, below its junction with that river ; but for this we must wait till we gain experience from our Ganges boom. It may be added, that when the country is opened up by roads, the condition of the people will greatly improve in all respects, and it is to be hoped the District Inspector of Schools will make an inroad into the country, for the villages are full of children, but not one in the whole pergunnah can read or write a word, for there is not a single school in the hills beyond Deobund ; and yet as a rule the children are exceedingly sharp and intelligent, and ready to converse, and are not at all *gauché* or shy. Next year I purpose, with the approval of Government, to enter a considerable sum in the Forest budget for roads in Jounsar.

31. *3rd. As to a working plan for the Forests.*—It will be seen that Bodya has been worked out to the greatest possible extent for Chukrata, and that still timber is required for the barracks. This I purpose taking from the scattered deodar patches in the Mushuk forest, on the north side of the Lokundee spur, as being the nearest to Chukrata, and therefore the least expensive to convey there. As all the wood has to be carried up hill on men's backs to Chukrata, this is a point of serious consideration. The Kyoloe and Kotee forests I should be inclined for the most part to leave alone, if we get possession of them, and *not to fell any tree until it is seen that the bare places begin to be well covered with young saplings*. It is in the forests at the head of the Dharagad that work must commence, and I think that here (if Dr. Brandis and my

own calculations be correct, and a road for timber be made down the Dharagad to the Tonse) that about 2,000 trees per annum might be safely felled for the next 10 or 12 years. By that time the first-named forests, as well as Bodya, would be recovering, and 4 or 5 years' felling might be found in them; by which time the Dharagad forests would be ready with a second crop. In all cases, however, the noble trees which stand along the ridges must be carefully spared.

32. *4th. As regards special arrangements for Chukrata.*—The Deobund forests are chiefly valuable from their proximity to the new cantonment. It is believed, that with proper arrangements, the supply of fuel and ordinary building-wood may suffice for the wants of the new cantonment; but no care must be spared to economize the available resources of the forests, and, by opening out roads and mule tracks, to bring into use the wood on the more distant ridges, while that in the immediate neighborhood of the cantonment is protected. To this end, the Simla road, which runs along the south side of the Deobund hill, should be completed as soon as possible, as far as the Lokundee ghât, or even to the Tonse, when mule tracks can be opened by the Forest Department from the various ridges to join it. Tracks must also be cut round the north side of the same hill by Kotee, and so along the ridge to Chukrata, so as to open all the forests on the other side of it.

The line works of the Public Works Department have been removed further off cantonments than they were at first, that the ravines nearest to the station may be made available under proper restrictions for residents to obtain their fuel from. As far as possible, every endeavor has been made to provide for the convenience of the cantonment and its residents, while the natural beauty of the hills and ravines will not be destroyed by the removal of all the trees on them. I believe that the requirements of the new station will necessitate that the Deobund hill be made a 3rd class forest, in which grazing will be permitted, but where wood cannot be cut except under proper restrictions.

33. *5th. Arrangements for providing for the wants of the people for wood.*—Until the last few years, the people both of the hills and the neighboring country below have been in the habit of cutting and carrying away deodar and whatever wood they pleased to a very large extent, and some of the forests—like Totwa and Mushuk—have been very heavily worked for this purpose, to the great profit of the neighboring zemindars. Those who came from below, however, had to pay something (though it was a trifle) to the head-man of the village, and on whose lands they cut the wood. By the terms of the settlement, the people of Jounsar Bawur are clearly entitled to wood according to their wants, but nothing is said about it being deodar. They will declare that they cannot use any other, but the same was said of teak in the Central Provinces; and the people have managed very well there without teak, since they have not been able to get it. I propose then—

1st,—That all people who have deodar in their village forests should of course get it, and that it should be given gratis also for their own wants to those who formerly had it in their forests, but from whom the forests have been taken away to form State reserves.

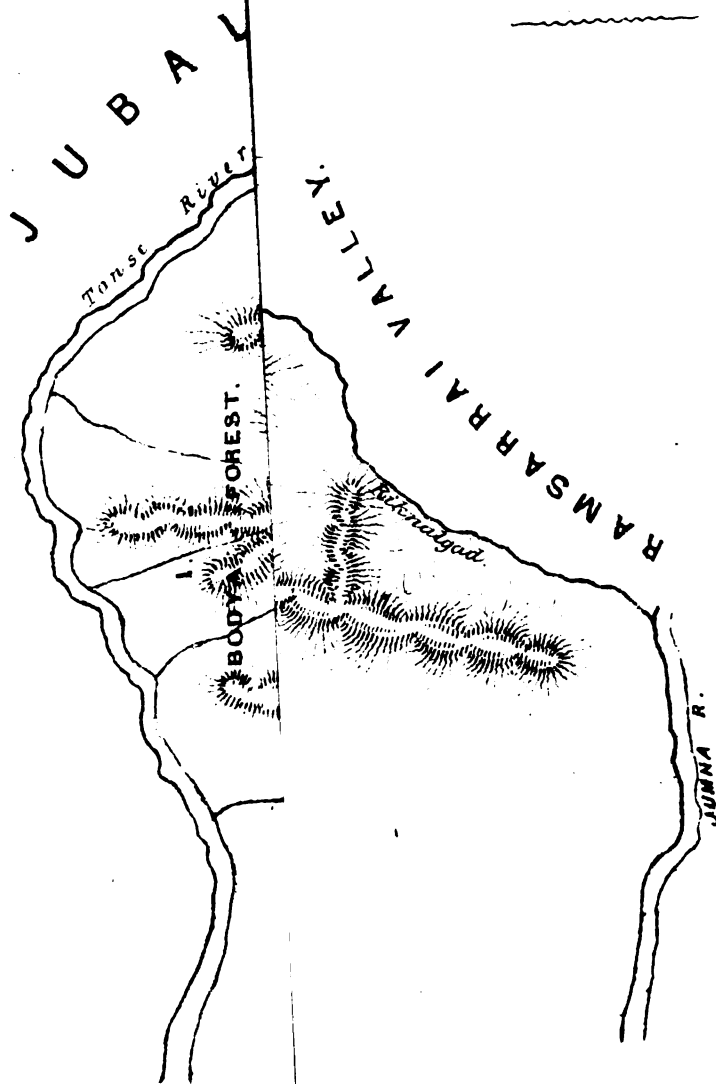
2nd,—That those who neither have deodar in their forests, nor ever had any, must use other wood, such as fir or oak, which they may have gratis; but if they require deodar, they must pay for it at the rate of one-fourth the average selling price of deodar in the Division. This was the rule in the Central Provinces with regard to teak, and worked well, as it checked its being used except when absolutely required.

3rd,—Artisans and timber-dealers of all sorts must pay the full price for deodar.

4th,—But no villager in Jounsar must sell wood of any sort without distinct permission from the forest officer, even though it be from his own village forest.

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

Sketch Map  
OF THE  
**DEODAR FORESTS**  
OF  
**JOUNSAR BAWUR.**





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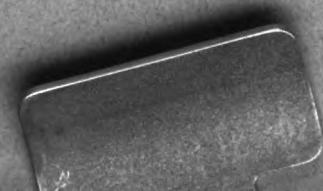




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