

Para.	Subject.	Page.
34	Revenue from forests likely to increase	89
35	Village wants taken into account	ib.
36	Area of private forests	ib.
37	Amount assessed on them	ib.
38	No rent-rates drawn up for the hill tract and Eastern Dún	ib.
39	The hill tract assessed at a uniform rate of 12 annas per acre	90
40	Assessment of the Eastern Dún village by village sanctioned by the Board	ib.
CHAPTER V.		
FINANCIAL RESULTS.		
1	Statement showing financial results in detail for each circle and for whole district	91
2	Rent rates cautiously applied	92
3	Goind land only assessed as manured	ib.
4	To assess manured lands opposed to proper principles of assessment	93
5	No land assessed highly on an anticipated rise of rents	ib.
6	Fallow land, how assessed	ib.
7	No culturable land assessed in anticipation of its being cultivated	ib.
8	The people divide soils into khadir and bangar only	ib.
9	The distinction between them	ib.
10	The assessment how worked out	ib.
11	No attempt on part of the zamindars to tamper with patwáris' papers, which on the whole are fairly accurate	94
12	Very few cases of outlay of capital on permanent improvements	ib.
13	Allowance made for improvement of soil in the Dehra plateau by careful cultivation	ib.
14	Increase in revenue and revenue rates	ib.
15	Rate on cultivation only slightly risen	ib.
16	Increase in the revenue justified by statistics	ib.
17	Waste land grants, fee-simple and revenue-free estates assessed for the purpose of computing cesses	ib.
18	Statement showing land revenue and cesses for all classes of estates under old and new settlements	ib.
19	Increases under new settlement	95
20	Mr. Rosa' remarks in regard to the adequacy of his assessment	ib.
21	The increase of revenue will not necessitate any enhancement of rents	ib.
22	Landlords unwilling to accept progressive jamas, which have therefore not been imposed	ib.
23	New assessments will come into force from 1st July, 1886, and sanction requested for 20 years, i. e., until 30th June, 1906	96
CHAPTER VI.		
SURVEY, MAPS, AND PREPARATION OF RECORDS.		
1	Cadastral survey carried out on Benares and Gorakhpur system	97
2	Survey of hill estates. Standards of measurements adopted	ib.
3	Survey commenced in November, 1883. Filling in of khasras and jamabandis	ib.
4	Testing by the Settlement Deputy Collector. Preparation and checking of khasras, jamabandis, and khewats	ib.
5	Number of copies required	98
6	Number of copies of maps received from Survey Office and number remaining	ib.
7	Delay in completion of survey	ib.
CHAPTER VII.		
WASTE-LAND GRANTS.		
1	First grants made in 1838-40	99
2	Conditions under which grants made. Form of warrant	ib.
3	Statement giving full details for all existing grants in the Western and Eastern Dún	101
4	Area of grants in Western Dún. Their re-assessment	103
5	Grants in the Eastern Dún	ib.
6	Abstract giving grant statistics for whole district	ib.
7	Fee-simple estates	104
8	Statement showing area, purchase-money, &c., of estates sold	ib.
9	Purchase of Kaulagir by Rája of Náhan must be excluded	ib.
10	Statement showing revenue-free lands	105
CHAPTER VIII.		
GRAZING RIGHTS.		
1	Grazing rights of villages. Disputes with Forest Department finally settled by Notification No. 702, dated 7th July, 1880, quoted	106
2	Notification No. 702, dated 7th July, 1880	ib.
3	Supplementary list drawn up by Mr. Ross	108
4	Grazing rates	ib.

Para.	Subject.	Page.
5	Roads not to be closed ...	108
6	Better relations beginning to prevail between the Forest Department and villagers,	109
7	Grazing fees levied in the Government Forests of the School Circle ...	ib.
8	Fees paid by residents of Dehra and Sahāranpur...	ib.
9	Fees payable by residents of other districts ...	ib.
10	<i>Bona fide</i> travellers' animals ...	ib.
11	Banjāras' and Kumbāras' cattle ...	ib.
12	Chamba and Kangra sheep and goats ...	110
13	Gūjars' buffaloes ...	ib.
14	Camels ...	ib.
15	Elephants ...	ib.
16	Dāk-horses and ponies ...	ib.
17	Special rules for cattle belonging to the residents of Dehra Dūn and Sahāranpur,	ib.
18-29	The rules quoted ...	ib.
30	The rules on the whole have worked well ...	112
CHAPTER IX.		
PATWĀRIS' CIRCLES.		
1	Proposed increase of number of patwāris to 43 ...	113
2	Statement showing revised circles proposed ...	ib.
3	Necessity for keeping maps and records accurately up to date ...	114
CHAPTER X.		
GENERAL REMARKS.		
1	Intimate knowledge of Dūn essential for the proper conduct of settlement ...	115
2	Mr. Ross specially qualified in every way for the task ...	ib.
3	Revision satisfactory to the people ...	ib.
4	Relations between landlord and tenant. The effect of kind rents considered, Mr. Moens' remarks ...	116
5	Future prospects of tenants ...	117
6	Future of Western Dūn mainly depends on tea ...	ib.
7	Waste-land and fee-simple grants ...	ib.
8	Value of Dūn forests not at first appreciated ...	ib.
9	Inadequate sums received by the State for the fee simple and waste land grants,	118
10	Decision to abandon the further prosecution of the drainage schemes for the Eastern Dūn a wise one ...	ib.
11	Forests more beneficial to the country than increased cultivation ...	119
12	Eastern Dūn now an important feeder of the Ganges. Cultivation in the midst of forests undesirable ...	ib.
13	Rights of shooting and fishing might be made a valuable source of forest revenue,	ib.
14	Wild animals a natural product of the forest and of considerable market value Large rents realized from shootings in England and Scotland compared with Dūn land-revenue ...	ib.
15	Right to shoot in State forests already leased out in France ...	120
16	Evils of indiscriminate shooting now allowed. Rapid extermination of game in the last decade ...	ib.
17	Object in making the above proposals. Advantages to Government of retaining the Eastern Dūn as forest and keeping the proprietary rights in its own hands.	ib.
CHAPTER XI.		
CASE-WORK.		
1	Statement showing the number of cases and appeals disposed of during the settle- ment operations ...	122
2	Ejectment cases ...	ib.
3	Suits for enhancement of rent ...	ib.
4	Suits for commutation of rent ...	ib.
5	Litigation small owing to good feeling between landlord and tenant ...	ib.
CHAPTER XII.		
COST OF SETTLEMENT.		
1	Statements showing details of cost for both Settlement and Survey Departments ...	122
2	Cost in excess of estimate ...	ib.
CHAPTER XIII.		
SUBORDINATES.		
1	Maulvi Nihal-ud-din, Deputy Collector ...	124
2	Munshi Barkat Ali, Deputy Collector ...	ib.
3	Raghunath Bhattacharya, Head-clerk ...	ib.
4	Settlement staff as a whole gave satisfaction ...	ib.

Para	Subject	Page
CHAPTER XIV.		
CONCLUSION		
A	INDEX A—Statement showing the revised assessment of cultivated land in the parganas of the Western and Eastern Duns ...	1-5
B	INDEX B—General summary statement of the area, in acres, &c., of each mahal in the district of Dehra Dun ...	1-13
C	INDEX C—Statement showing the land revenue payable by each revenue-paying mahal and waste land rent year by year for the term of the settlement from 1st July, 1856 to 30th June, 1906 ...	121-171
3	Map showing the Western and Eastern Duns ...	1
4	Ditto the different circles arranged for settlement purposes in the Western Duns ...	10
40	Ditto the Government forests in the district of Dehra Dun ...	17
50	Ditto the district roads ...	18
59-62	Ditto the Duns canals ...	18-17
84	Ditto the towns and markets ...	23

INTRODUCTION

1. THE aim of this report is to show, in accordance with the rules laid down by Government and the Board for the guidance of Settlement Officers, how the eighth revision of the land-revenue demand for the district of Dehra Dún has been carried out, to set forth the financial results, and to place on record the statistical information of various kinds which has been collected and worked out in the course of the settlement operations.

2. The actual work of settlement was performed by Mr. H. G. Ross, now Commissioner of Kumaun. Mr. Ross was from 11th November, 1869 to 12th November, 1880 Superintendent of the Dún, with the exception of the period from 10th February to 23rd November, 1876, when he was absent on furlough.

His transfer from the Dún to take up the duties of his new office in April, 1885 led to my being placed in charge of the settlement work remaining to be done, and so the task of writing the final report has fallen to me.

3. From a revenue point of view the Dún has small pretension to importance when compared with the larger districts in the plains. A single pargana in many district yields a larger land revenue than the entire district of Dehra Dún. The assessment of the settlement about to expire amounted to Rs. 31,693 only, excluding grants of waste lands on clearing leases at progressive rates of jama, the assessment on which comes to Rs. 7,264. The new assessment, also excluding waste-land grants, comes to Rs. 51,488. Including Jaunsár Báwar, the total land revenue of the district amounts to Rs. 91,347, or about $\frac{1}{23}$ rd of the revenue paid by Meerut and Aligarh and $\frac{1}{13}$ th of the revenue paid by Saháranpur, Muzaffarnagar, and Bulandshahr, the other districts of the Meerut Division. The present report has no concern with Jaunsár Báwar, which may be left altogether out of account. It is sufficient to mention here that Mr. Ross was placed on special duty to revise the Jaunsár Báwar assessment from 29th March to the 8th June, 1883, with the result that he reduced it from Rs. 26,171 to Rs. 24,171, and his proposals to this effect were sanctioned in G. O. No. ¹⁵⁸⁴/₁₋₉₈, dated 24th December, 1884. But setting revenue considerations aside, the Dún, from its unique characteristics of situation and scenery and its great climatic advantages, must always possess a peculiar interest of its own.

There are, indeed, no very difficult questions of revenue policy to be dealt with, or intricate problems of land tenures and rights to be solved. The work of assessment, owing to the smallness of the cultivated area and the good relations generally prevailing between proprietors and tenants, was comparatively easy. It was also much facilitated by the general confidence all classes felt in Mr. Ross, whom they had known for so many years, and by Mr. Ross' own intimate knowledge of the circumstances of almost every village and landholder in the Dún. The final report derives whatever importance it may possess not so much from the magnitude of the financial issues involved in the settlement as from the fact that it illustrates the progress and sets forth the present condition of a tract which has largely attracted European enterprise and capital in the past, while, if its natural advantages are turned to the best account, the Dún may yet have a great future in store for it. As a place of residence for Europeans it may be said to possess the potentiality of development in a greater degree than almost any other district of the provinces. It is on this account, and not because any material increase in land revenue is to be

expected from it, that the Dún, in spite of its small area and revenue, may fairly claim to rank high amongst the most interesting districts to be found in Upper India.

4. The circumstances which led to the revision of settlement being undertaken may perhaps be conveniently noticed here. The seventh settlement of the Dún was completed by Mr. C. A. Daniell—then Assistant Superintendent of the Dún and now Senior Member of the Board of Revenue—in 1866. By the orders of Government contained in Resolution No. 1245A., dated 14th June, 1873, the period for this settlement to run was fixed at 20 years commencing from 1st July, 1866, and consequently the term of the existing settlement expires on 30th June, 1886. The principles on which future land settlements were to be made, and also the grounds for determining whether expiring settlements should be revised or not, were laid down by the Government of India in Resolution No. $\frac{2}{144\ 150}$, dated 4th October, 1881, with which was circulated a memorandum by Mr E. Stack, C.S., upon current land-revenue settlements in the temporarily-settled parts of British India. This Resolution was forwarded by the Board to the Superintendent of the Dún for report with their No. $\frac{9}{1-26}$, dated 21st January, 1882, asking (1) whether revision of settlement, if effected, would result in an increase of revenue; (2) how it was recommended that the settlement should be effected, viz., on a resurvey and remeasurement or on existing records; (3) whether, even if there were no prospect of increase of revenue, a new settlement was recommended for the second of the two reasons given in para 2 of the Government of India Resolution, i. e., that special administrative reasons for a revision of settlement exist, such as the necessity for correcting inequality in the incidence of the land revenue, notwithstanding the absence of any prospect of financial advantage.

5. The report called for was forwarded by Mr. W. T. Church, then Superintendent of the Dún, in his No. $\frac{599}{1-17}$, dated 13th February, 1882, to the address of the Commissioner of the Meerut Division. Mr. Church gave statistics to show that there was every reason to believe that a very considerable enhancement of revenue might be effected in the Dún itself, while for Jaunsár Báwar he recommended that the present assessment should hold good for another 10 years. The revision of the assessment of Jaunsár Báwar was separately disposed of, as remarked above, and need not be further alluded to.

6. By para. 2 of G. O. No. 1906, Revenue Department, dated 19th October, 1882, the Board were again asked to express an opinion whether a revision of the assessment will, with reference to the conditions prescribed by the Government of India in Resolution No. $\frac{2}{144\ 150}$, dated 4th October, 1881, be necessary; and if so, whether a new survey, with the preparation of a new record-of-rights, must be undertaken, or whether the existing records, revised and amended by the present establishment for the maintenance of village records, will furnish trustworthy and sufficient materials for the revision of the assessment. In the event of a new survey and record-of-rights being required, the Board were consulted whether they should be carried out by the Revenue Survey Department, or by the district officer, or other officer of the Revenue Department deputed for the purpose.

7. Mr. Church replied in his No. $\frac{105}{1-3}$, dated 9th November, 1882, to the address of the Commissioner of the Division, that the assessment was susceptible of enhancement, probably to the extent even of being doubled, and that on financial grounds alone revision, therefore, appeared to be necessary. More detailed information on all points was called for in G. O. No. 472, dated 23rd February, 1883, and was given by Mr. Church in his No. $\frac{561}{1-3}$, dated 24th March, 1883, to the address of the Commissioner of the Division. It was there shown that a very substantial increase of revenue might certainly be secured, and that for administrative reasons new maps and a new record-of-rights were required—i. e., that a new survey was indispensable.

8. The outcome of this correspondence was that the proposals of the Local Government were submitted to the Government of India for sanction in the letter No. 1189, dated 18th May, 1883, and sanction to the revision of settlement being undertaken, together with a resurvey and preparation of a new record-of-rights, was communicated in the letter from the Secretary to the Government of India, Revenue and Agricultural Department, No. 657R., dated 21st June, 1883. The proposal to effect the Survey by the Settlement Department, and not through the Survey of India, was also approved.

9. By Notification No. 1828, dated 13th August, 1883, the Dún was declared to be brought under settlement, and by Notification No. 3979, dated 15th November, 1883, Mr. H. G. Ross was appointed to be Settlement Officer of the 2nd grade and posted to the Dehra Dún district. Mr. Ross assumed charge of his duties on the 25th October, 1883. Meanwhile, by Notification No. 1829, dated 13th August, 1883, Munshi Burkat Ali, Tahsildar of Dehra, was invested with powers, under sections 140-144 of Act XIX of 1873, for the determination and demarcation of boundaries, and commenced work on 24th August, 1883. By Notification No. 2064, dated 19th September, 1883, Maulvi Nihal-ud-din, Tahsildar of Tarabganj, in the Gonda district, was posted to the Dún as Officiating Deputy Collector for settlement work, but did not assume charge of his office until the 9th November, 1883.

10. Before taking up his duties as Settlement Officer, Mr. Ross had been for some months in consultation with the Commissioner, the Board, and the officers of the Survey Department as to how the survey should be carried out. Eventually a conference was held at Naini Tal in July, 1883, at which Mr. Carmichael (Senior Member of the Board), Mr. Mackintosh (Secretary of the Board), Mr. Ross (Settlement Officer), and Major Barron (Deputy Superintendent, Revenue Survey) were present. It was then decided that the cadastral survey should be adopted in preference to the revenue survey for the following reason:—When it was proposed to carry out the resurvey by the Settlement Department, it was supposed that the maps of Major Thuillier's survey, which were remarkably accurate and good and showed all village boundaries, could be utilized and the cadastral survey plotted into skeleton boundaries prepared from these maps.

The Survey Department stated that this was perfectly impossible, and that it was absolutely necessary to retrace all boundaries, &c. Under the circumstances, it would have been useless for the Settlement Department to have attempted the work, and it was decided to have a professional cadastral survey.

11. The survey was accordingly made over to Mr. W. A. Wilson, Surveyor in charge Dehra Dún Party, and work was commenced on 23rd November, 1883.

12. The demarcation of boundaries was completed for both the Western and Eastern Dúns on 31st January, 1884. The last maps and khasras for the Western Dún were received in the Settlement Office on 31st December, 1884, and for the Eastern Dún on 26th February, 1885.

13. The general principles to be followed in conducting the survey and the whole work of revision were settled at a conference held at Dehra on 25th and 26th February, 1884, at which Mr. Carmichael (Senior Member of the Board of Revenue), Mr. Mackintosh (Secretary to the Board), Mr. W. Lane (Commissioner of the Division), Major Steel (representing the Revenue Survey), and Mr. H. G. Ross (the Settlement Officer) were present. Matters were further discussed in April, 1884, when the Lieutenant-Governor visited Dehra.

14. Mr. Ross submitted his rent-rate report for the Western Dún in his No. $\frac{274}{1-35}$, dated 13th September, 1884, to the address of the Commissioner of the Division.

15. His proposals were verbally discussed with Mr. B. W. Colvin, Senior Member of the Board, who visited Dehra in the end of October, 1884. This led to a further report containing more detailed information on many points being submitted by Mr. Ross in his letter dated 13th November, 1884, through the Commissioner of the Division. Early in February, 1885, advantage was taken of the Lieutenant-Governor being in camp on the border of the Dún to examine and discuss Mr. Ross' proposals personally with him, and he thereby became fully acquainted with the views and wishes of Government on the various points to be considered in carrying out the actual work of assessment. Sanction to Mr. Ross' proposed rates was formally accorded in G. O. No. $\frac{322}{1-60}$, dated 19th February, 1885, and the assessments of all maháls, both in the Western and Eastern Dúns, were given out between 18th February and 3rd April, 1885. Mr. Ross made over charge of the office of Settlement Officer of the Dún on 6th April, 1885 (*vide* Notification No. $\frac{1129}{1-777}$ dated 22nd June, 1885), from which date up to the 31st March, 1886, the date on which settlement operations were declared to be closed by Notification No. $\frac{61}{0}$, dated 6th May, 1886, I remained in charge.

16. The delay in submitting the final report has been due to the large amount of statistical information to be worked out, for which only one English clerk was available. This has been already explained in my Nos. $\frac{447}{1-44}$, dated 4th February, 1886, and $\frac{613}{1-44}$, dated 19th March, 1886.

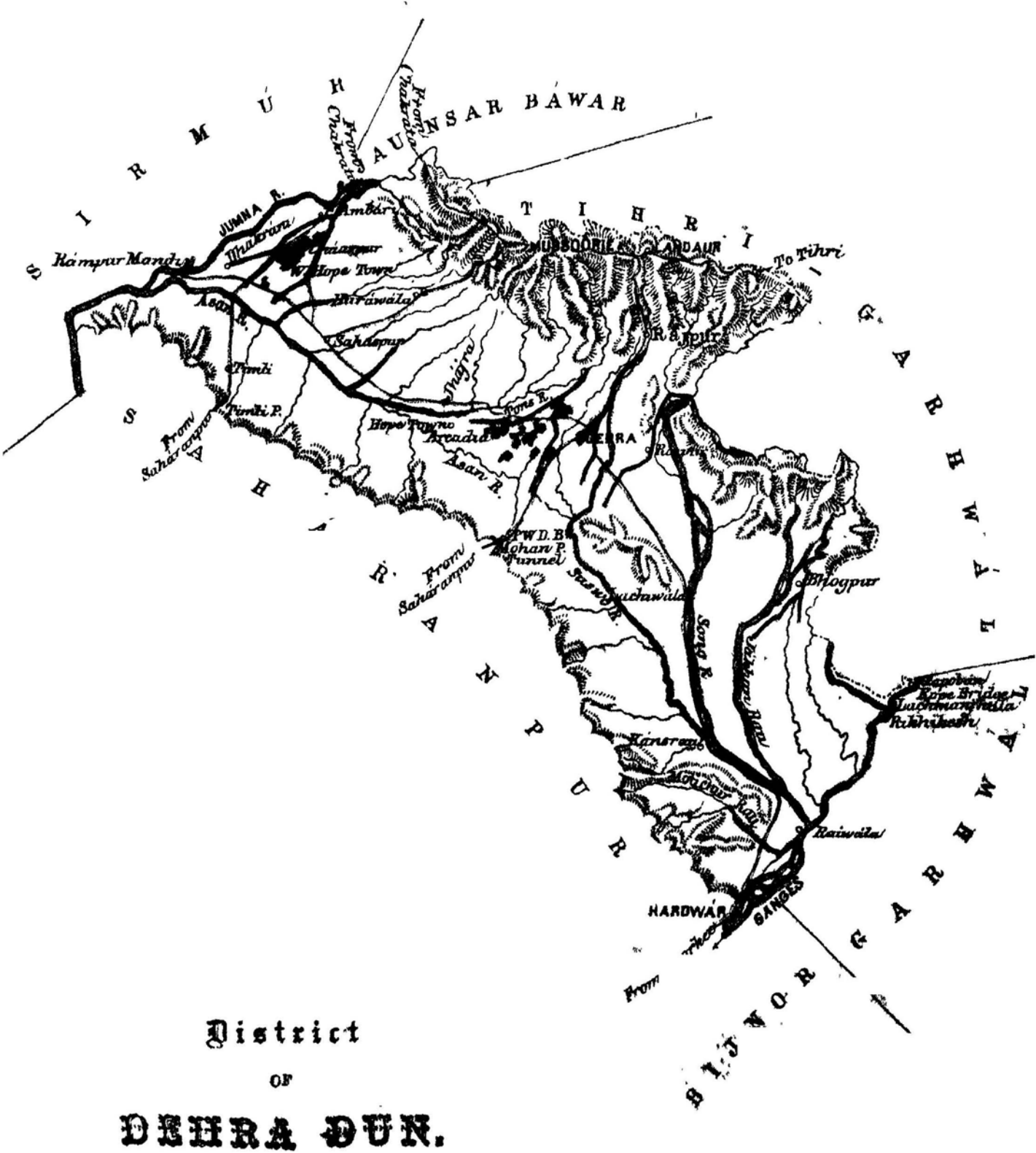
17. In his rent-rate reports Mr. Ross has given a general description of the whole district under several of the heads to be noticed in the final report. There must, therefore, be some repetition of the remarks he has made if, as seems desirable, the final report is to be fairly complete in itself. Practically there has only been one rent-rate report for the whole district, and hence there are no pargana reports to be summarized, as in other districts. I may further mention that a full general description of the Dún was given in the Board's No. 714, dated 2nd August, 1871, forwarding Mr. Daniell's reports for the orders of Government. Another is to be found in the Imperial Gazetteer. Very complete historical and statistical information regarding the district is given in the Dún Memoir, compiled by Mr. G. R. C. Williams, C.S., and published in 1874. A still more comprehensive account from a general point of view is given in Vols. X and XI of the Provincial Gazetteer, entitled *Himalayan Districts*. These volumes, published in 1882, were compiled by Mr. E. T. Atkinson, C.S., formerly in charge of the Provincial Gazetteer, and, as he explains in his preface, "are not intended to be solely a popular account of the districts which they describe, but to contain, first of all, a record of all facts of permanent scientific or economic value that have been gathered by me during my visits to Kumaun and the Dehra Dún, or which have been contributed by others."

I have not hesitated to avail myself freely of the above authorities in compiling the final report, and so far as matters of historical, scientific, and economic interest are concerned, must refer to them for a far more detailed account than the report itself contains.

Report drawn up in the order prescribed in the rules laid down for the guidance of Settlement Officers.

18. With these preliminary remarks I will now proceed to notice the various heads to be dealt with in the final report, following the order laid down in the rules prescribed for the guidance of Settlement Officers.

MAP showing WESTERN and EASTERN DUN
 PARA. 3 (PAGE 1.)



SCALE—ONE INCH = 8 MILES.
 0 2 4 6 8 10 Miles

DEHRA DUN
 Western Dun

FINAL SETTLEMENT REPORT

OF THE

DISTRICT OF DEHRA DUN.

CHAPTER I.

GENERAL DESCRIPTION.

(1)—*Boundaries and Areas.*

1. DEHRA DUN is the northern district of the Meerut Division, lying between 29° 57' to 30° 59' north latitude and 77° 37' to 78° 22' east longitude. It is bounded on the north by the outer ranges of the Himálayas forming part of Independent Garhwál; on the east by the river Ganges, with British and Independent Garhwál on the opposite bank, on the south by the Siwaliks, the crest of which forms the boundary between Saháranpur and Dehra; and on the west by the river Jumna, which divides the Dún from the independent native state of Sirmur or Nahan. Excluding the outlying hill pargana of Jaunsár Báwar, the length of the valley from east to west is 45 miles and its breadth varies from 15 to 20 miles, the Dún proper consisting of the southern slopes of the outer range of Himálayas, the northern slopes of the Siwaliks, and the valley between.

2. According to the latest provincial statement, received with Government Circular Order No. 64, Special (Revenue) Department, dated 15th October, 1880, the area of the Dún is 715 square miles and 52 acres, made up as follows:—

	Square miles.	Acres.	Total area in acres.
Government forests ...	277	506	177,786
Revenue-paying villages temporarily settled ...	277	390	177,670
Revenue-free ...	72	265	46,345
Waste-land grants ...	47	49	30,129
Waste land not yet given out in grants.	12	526	8,206
Area comprised in Gurkha and Body-Guard Cantonments ...	1	126	706
Landour Cantonments ...	1	408	1,048
Area of Mussooree municipality ...	23	342	15,062
Total ...	715	52	457,012

3. For administrative purposes the Dún is divided into two parganas or sub-divisions, called the Western and Eastern Dún, forming, however, only one tahsil. The boundary between these parganas is formed by the small streams of the Raspana, coming down from the Himálayas, and the Sukh Rao, rising in the Siwaliks, which meet as they flow into the Song and form a line almost due north and south across the valley. This line forms the watershed between the two great rivers, the Ganges and the Jumna: the streams rising on the east of the line flow into the Ganges, and those on the west into the Jumna. There are 505 villages and 452 maháls in all. Of these 259 maháls, including muáfis, &c., are in the Western and 193 in the Eastern Dún, the number of villages in each being 276 and 229 respectively.

4. The average size of each mahál in the Western Dún is 639·50 acres, and in the Eastern 458·45 acres, the average for the whole district being 562·27 acres. The average size of a mauza in the Western Dún is 600·11 acres, and in the Eastern Dún 386·51 acres, and for the whole district it is 503·25 acres. Both maháls and mauzas are considerably smaller than in the majority of districts in the plains.

5. The revenue of the expiring settlement was Rs. 31,693. The revenue, as revised in the present settlement, is Rs. 51,488. The increase is Rs. 19,795, or 62·46 per cent. The increase is not quite so great as was anticipated by Mr. Church. This is due to Mr. Ross having been enjoined to exercise caution in raising the revenue to the extent the existing assets might appear to warrant, more especially in regard to the assessment of private forests. Mr. Ross has known the Dún intimately for the last 15 years, and no one can be better qualified to judge as to its revenue-paying capabilities. He is confident that the new assessment, although it makes such a large increase in the demand, is a fair light assessment—fair to Government, and in no danger of being either oppressive to the people, or of retarding the prosperity of the Dún.

6. The area of each sub-division, with the old revenue, and the new revenue as fixed by Mr. Ross, is given below :—

Name of sub-division.	Area in acres.	Revenue.	
		Old.	New.
		Rs.	Rs.
Western Dún	165,631·47	24,603	40,014
Eastern Dún	88,511·84	7,090	11,474
Total of district ...	254,143·31	31,693	51,488

(2) — *Physical Features.*

7. The physical characteristics of the Dún are thus described in the Dún Memoir by Mr. Williams :—

Physical characteristics as described by Mr. Williams.

“The beauty of the region is proverbial and takes the visitor from the plains by surprise. It is well wooded, undulating, and intersected with streams, some of which have a perennial flow of water throughout the whole of their course.

“The ridges between are, except in places where shingle crops up, covered with rich mould, nourishing a luxuriant vegetation. The trees and shrubs have all the green freshness of European forests, whilst the mountains on the north and the hills on the south give a charming variety to the landscape. When describing the scenery the French traveller Jacquemont hesitates between Haiti and the overlands of Berne in the choice of an appropriate comparison for this lovely district. On the north-east the horizon is bounded by the lower or Mussooree range of the Himálaya, which, opposite to the town of Dehra, bends back and encloses a portion of the valley in an immense amphitheatre. The lower spurs of the chain are covered with dense forest ; the loftier crests are, except in shady clefts and gorges, comparatively bare, but often support the rhododendron and the oak (*Quercus incana*), besides other rare trees belonging to the temperate zone. Some of the peaks rise to a great height : the Great Trigonometrical Survey Office at Dehra is no less than 5,136 feet below the highest point of the sanitarium of Landour, being itself 2,323 feet above the level of the sea, and a few miles due east of Landour, on the road to Thiri, one peak attains an elevation of 8,565 feet.”

8. “Running parallel with the Himálaya, the Siwaliks slope gently into the Dún, having a softness of outline strongly contrasting with their abruptness on the side facing the plains. Owing to the elevation of the valley, they seem mere hillocks by comparison with the range in the background. They are clothed with a thick forest, chiefly composed of *sál* and *sain*, above which, on the higher crests, the pine (*Pinus longifolia*) frequently raises its head, indicating the proximity of a cooler climate.”

9. "The only insulated hill is Nawáda or Nagsidh, a slight eminence about five miles south-east of Dehra, where the Viceroys of the Garhwál Rájás had their residence in the olden time. It lies parallel to the Siwaliks and is unmistakably an offshoot from them."

Physical aspects as described in the Imperial Gazetteer.

10. In the Imperial Gazetteer the physical aspects of the Dún are described as follows:—

"The district of Dehra Dún consists of two distinct portions—the double valley of Dehra proper and the outlying mountain tract of Jaunsár Bawar. It projects northward from the alluvial uplands of the Doūb, like an irregular triangle, towards the sources of the Jumna (Jamuna) and the main range of the Himálayas. To the south, the Siwalik hills, a mass of Himálayan *débris*, shut off the district from the level and fertile plain below. Between these hills and the great mountain chain, whose farthest outliers they form, lie the two valleys known as the Eastern and Western Dúns; the former sloping down towards the stream of the Ganges, while the latter descends by wooded undulations to the bed of its principal confluent, the Jumna. The scenery of these mountain dales can hardly be surpassed for picturesque beauty, even among the lovely slopes of the massive chain to which they belong. The perennial streams nourish a fresh and luxuriant vegetation, whilst the romantic hills to the south, and the sterner mountains on the north, give an exquisite variety to the landscape. A connecting ridge, which runs from north to south between the two systems, forms the watershed of the great rivers and divides the Eastern from the Western Dún. The Ganges, passing between this district and Garhwál, pours rapidly over beds of boulder, through several channels, encircling jungle-clad islets, and debouches at length upon the plains at Hardwár. The Jumna sweeps round the whole south-western boundary and reaches the level uplands near Badshah Mahál, in the Sháhránpur district, an ancient hunting-seat of the Delhi Emperors. Their tributaries have little importance, except for artificial irrigation. When the district first passed under British rule, remains of ancient dams, tanks, and canals studded its surface, but these works had fallen completely out of use during the anarchic period of Sikh and Gurkha incursions. Our officers at once turned their attention to the restoration of the ancient channels or the construction of others; and a number of diminutive, but valuable, irrigation canals now traverse both valleys in every direction, spreading cultivation over all available portions of their rugged surface."

11. All writers who have described the Dún have waxed enthusiastic in praise of its beauties. The praise indeed is well merited, but its liberal bestowal, to some extent, is perhaps due to the many splendid views which every visitor sees on his way from the vantage points afforded by the hills and mountains by which it is enclosed. It cannot be said that the Dún, since its conquest by the British at any rate, has been doomed to blush unseen. All who enter from the plains by the Mohan Pass in the daytime find the green valley stretching right and left at their feet, with the Himálayas rising in the background, and on a clear day the white houses of Mussooree and Landour looking like mere specks in the distance. If escaping from the heat of the plains, a sense of relief is at once felt, and the favourable impression first created is far more likely to be increased than diminished by further and prolonged experience. In the Dún there is always a sensation of rest and tranquillity. At almost-every turn and winding of the steep hill road leading from Rájpur to Mussooree fresh beauties of scenery disclose themselves, as a wider and wider view of the valley is gradually obtained. When the summit is reached many of the houses in Mussooree and Landour, as well as some of the principal roads, including the Mall, command views of the Dún which can hardly be surpassed in any country of the world. In the rains especially a natural panorama on the grandest scale is often presented. The valley is covered with dense clouds of mist and rain, and at one time entirely lost to view. A few minutes after the clouds rise, as if by magic, and the whole valley, with its running streams, luxuriant vegetation and foliage of the richest tints, bursts into view, only, perhaps, to disappear into misty space

as suddenly again. On a clear day the Ganges and Jumna are distinctly visible, and even Rurki nestling in its clump of trees, far over the sawlike peaks of the Siwaliks, with the plains stretching in sea-like expanse beyond. With a good telescope Saháranpur and the railway bridge over the Jumna near Amballa can be made out. All visitors to Mussooree must look down on the Dún, almost, daily, either from their own houses or in their walks abroad. The general aspect of the Dún as a whole is perhaps better known than that of any other district in these provinces, and hence its beauties have attained a celebrity second only to Kashmir itself.

12. By common acceptation Dehra Dún is generally spoken and written of as 'The Dun.' The term 'Dún' is, however, a general one, and by no means limited to the valley forming the district of Dehra Dún. This valley, as already mentioned, is formed by the Himálayas on the north and the Siwaliks on the south, running parallel to each other at a distance of 10 to 15 miles, and forming a long narrow loop some 45 miles in length, at the ends of which the two ranges converge almost to a point, to form the narrow gorges through which the Ganges and Jumna debouch on to the plains beyond.

13. Incomparably the most striking physical features are the marvellous natural boundaries within which it is enclosed, i. e., the Himálaya mountains, the Siwalik hills, and the rivers Ganges and Jumna. The Himálayas and Siwaliks are always in view and can never be forgotten by the most casual visitor. The Ganges and the Jumna are not such conspicuous features in the landscape, and their rushing streams may only impress a close observer from their banks. But their names are as well known as the mountains from which they rise, and are inseparably connected with the history and religion of the peoples of India from the remotest times up to now. Of no other district in India can it be more truly said that the names of its boundaries are better known than the name of the district itself. At the risk of trespassing somewhat on the domain of scientific rather than revenue research, I will quote a few extracts from Mr. Atkinson's Gazetteer, to explain the place they occupy in physical geography, and the manner in which the Dún itself and other valleys kindred to it were generally formed.

14. In his opening chapter Mr. Atkinson discusses, in an exhaustive manner, the place the great mountain range known to Englishmen as the Himálaya should be deemed to occupy in systematic geography (i.e., viewing it in connection with the great Indo-Tibetan system, of which it is only a part), and reviews the different theories which have been advanced by the best authorities. Much has still to be cleared up before it can be authoritatively decided whether the line of snowy peaks, which from time immemorial have been known to India and Europe as the Himálayas, should be considered a true chain or merely spurs from the main water-parting. Summing up, Mr. Atkinson writes:—"The latest contribution to the physical geography is to be found in Mr. H. Blandford's *Manual* and Mr. W. Blandford's introduction to *The Manual of the Geology of India*. In the latter work, which may presumably be taken as giving Mr. W. Blandford's conclusions on the subject, he considers the Himálaya to form a curved belt of mountains, with their convexity to the southward, which mark the southern scarp of the Tibetan plateau as the Kuen Lun define the northern." Finally, Mr. Atkinson concludes:—"The great mountain chain lying between Tibet and the plains of India is generally known to the natives of India by the term *pahár* (mountain), to which they prefix the local name where such exists. The more educated give the name Himáchal (snowy range) or Himálaya (abode of snow) to the snow-covered ranges; whilst Europeans popularly include under the name Himálaya the entire mountainous region lying between the gorge of the Brahmaputra on the east and that of the Indus on the west, and between the upper valleys of the same rivers on the north and the plains of India on the south. A first glance at any good map will convince us of the general unity of the physical relations of the range within the limits commonly assigned to the Himálayas, whilst a closer examination will induce us to include much more. For our part we accept the

popular definition of the Himálaya as extending from the gorge of the Indus on the west to that of the Brahmaputra on the east, and from the upper courses of the main branches of those rivers on the north to the plains of India on the south, speaking of its connections beyond those limits as the western and eastern extensions respectively."

15. The Siwaliks (Sivawála belonging to Siva) and Dúns are thus described, after noticing the characteristics of the Bhábar and Taráí :—
 The Siwaliks. "Before entering into more detail regarding the Bhábar and Taráí, there is yet a third feature characteristic of the tract below the Himálava that must be noticed here as intimately connected with the other two, and this is the line of hills called the Siwalik or sub-Himálayan. These will be well known to palæontologists in connection with the rich collection of fossil mountain bones discovered in them by Dr. Falconer and Colonel Cautley. As a rule, they appear to rise abruptly, and without any intermediate undulating slope, from the apparently level surface of the flat country below to heights varying from a few hundred to three or four thousand feet. They are composed of sandstones and conglomerates, and the dip of the strata is usually towards the general mass of the mountains at a low angle. The form of disturbance of the strata is very regular, producing broad normal anti-clinal flexures, the axis-plane sloping towards the mountains. Towards the plains the slope has been weathered out, so that plainswards the Siwaliks exhibit a steep face from which rise the highest summits of the range, while a long gentle declivity slopes inwards and forms a longitudinal shallow valley by meeting the foot of the next line of hills. The latter, as a rule, run on a line parallel to the Siwaliks, but at a distance of from five to ten miles from them."

16. "The bottom of this longitudinal depression is, as may be supposed, by no means continuous. In some places it is cut through by the valleys. Formation of Dúns or passage of the streams that drain the interior of the mountains ; in others it is quite obliterated by the near approach to each other of the two ranges that flank it, and which usually form distinct lines. This is, moreover, a structural feature, and not due simply to denudation. In this country, between the Satlaj and the Káli, these valleys are called Dúns, and under Nepál, according to Hodgson, they are called Máris. They have been confounded by some writers with the Taráí, which, as we have seen, is quite distinct. The lower part of the Dúns generally appears to be covered with a deposit of boulders and gravel that slopes somewhat steeply from the Himálaya towards the Siwaliks, so that the whole bottom of the valley is considerably raised above the level of the plain without. In consequence of this elevation, the other hills when viewed from the interior of the valley, as from Masuri, present a very insignificant outline. The drainage of these valleys usually collects along their longitudinal axis and either falls into some of the larger streams that cross them, or less frequently finds an independent exit for itself into the plains by a sudden bend to the south through a break in the outer range. Owing to the considerable elevation of the Dúns above the plain, down to the level of which the drainage finds its way in a very short distance, the unconsolidated strata that form the floor of these valleys are constantly cut through to a great depth by watercourses. Consequently the surface, though often presenting an apparent level for several miles together, is frequently broken up into steppes, which, on the whole, are tolerably level, but at different heights, the one above the other. This phenomenon is not uncommon, and is constantly observed along the rivers that are eroding their banks. To the same causes also are to be attributed the practical impossibility of procuring water by means of wells in the Dúns, a difficulty which mainly arises from the thorough dessication of the gravelly soil by the deep drainage."

17. The term 'Dún' therefore simply means a valley at the foot of the Himá-
 Meaning and derivation of Dehra Dún. layas, bounded on the south by the Siwaliks, and of these valleys there are many. Mr. Williams says:—"It is uncertain whether Dehra is an old name, or, like Gurudwara (another name for it), one of modern

origin, meaning the resting-place of the Saint. In the latter case, the ordinary spelling must be wrong and the word ought to be written 'Dera.' " Lovers of the Dún will probably prefer to adopt the modern derivation in spite of the slight orthographical difficulty, and to regard its name as meaning 'the valley of rest,' which the old Saint, after several unsuccessful attempts to get himself recognised as the head of the Sikh faith in the Panjáb, certainly found it to be.

18. The geology of both the Himálayas and Siwaliks is learnedly discussed in *Geology of Himálayas and Siwaliks*, Chapter III, Vol. X, of Mr. Atkinson's *Gazetteer*. Mr. Atkinson notes the chapter was specially written for him by Mr. H. B. Medlicott, Superintendent of the Geological Survey of India. It will suffice to mention here Mr. Atkinson's conclusion, that the Siwaliks or sub-Himálayan range belong to a tertiary sandstone belt outside the Himalaya proper of geologists, while the Himálayas which are the northern boundary of the Dún belong to a belt of limestone and slate forming the outer range of the lower Himálaya. Mr. Medlicott, after considering the original characters of the Siwalik strata, describes the formation of Dúns as follows:—

19. "So far we have briefly considered the original characters of the Siwalik strata, it is necessary now to notice the features induced by disturbance. This has taken place on the grandest scale. On the right bank of the Ganges above Hardwár the gray sandstones of the middle group have a high southerly dip; and this rises gradually, through an enormous thickness of strata, to a nearly vertical underlie in the conglomerates at the outer edge of the range. A section of the same type is splendidly exposed in the gorge of the Satlaj above Bubhor, in the second range of the sub-Himálayan hills. There is much method in the form of these flexures; they very generally affect the form known as *normal*, *i. e.*, bends in which the dip is greater on one side of axis, and so called because of more common occurrence than the symmetrical flexure—when both dips are equal—or than the folded flexure, in which the strata on the side of the steeper dip have been pushed beyond the vertical, and so partially inverted. As an almost universal rule in this region, the steep side of these normal anticlinal flexures is turned from the mountains. From this there results the familiar conformation of the sub-Himálayan hills, presenting a scarped face to the plains and a long slope towards the interior valley. These Dúns, or at least the flat longitudinal valleys which are the typical Dúns, are thus structural features, not mere valleys of denudation; they rest upon the comparatively little disturbed strata in the hollow of the synclinal flexure. The range separating the Dún from the plains is formed by the anticlinal, the steep (outer) limb of which is generally broken up and denuded away. hence the south face of the range presents the scarped outcrop of the beds on the north side of the axis of flexure."

20. The sources of the Jumna and Ganges are thus described by Mr. Atkinson:—
 "If we carefully examine the great sea of mountains lying between the outer Himálaya and the snows, we shall find that the dominating ranges are spurs from the great groups of peaks, remarkable alike for their elevation and the position they fill as the boundaries of the several river-basins. On the west, the western boundary of the Jumna system is found in the elevated ridge that has its origin in the group of peaks crossed by the Shatul and Borenda passes. This ridge follows the left bank of the Satlaj in a south-west-ely direction to Hatu (10,700 feet), where it bifurcates: one branch continuing the normal direction to Biláspur, and the second proceeding in a south-easterly direction by Chor (12,081 feet), where it forms the water-parting between the Giri and the Pabar branch of the Tons. A second great ridge, descending from the Jamnotri groups, and marked by the Deoband (9,347 feet), Chakrata (7,300 feet), Chilmeri (7,160 feet), and Bairát (7,423 feet) peaks in British territory, separates the affluent of the Tons from those of the Jumna. The eastern boundary of the Jumna system is formed by a great ridge having its origin in the same group of peaks and which

joins the outer *Himálaya* near the *Sarkanda* peak to the end of *Mussoorie* (*Masuri*). The eastern boundary of the *Ganges* system is found in the great ridge descending in a south-westerly direction from the *Nanda Kot*, and which passes along the left bank of the *Pindar* to its junction with the *Alaknanda*, and thence along the left bank of the *Alaknanda* to *Deoprayag*. It admits of two great bifurcations: one at the head of the *Katgur* valley and one at the head of the *Lohab* valley. From the group of peaks at the head of the *Katgur* valley a branch passes in a south-easterly direction through *Binsar* and *Dol*, and along the right bank of the *Ludhiya* to *Barmdeo* on the *Sarda*, and from the head of the *Lohab* valley a branch runs south-by-east to *Gujargarh*, whence it passes almost due west to the *Ganges* at *Kharak* and *Chandi*. The tract to the south of these two arms is in shape a great obtuse-angled triangle, with its base towards the plains and its apex in the group of hills to the north of *Dwara Hát*. It forms the mountain basin of the *Western Ramganga*. The eastern boundary of this system forms the western boundary of the *Kali* system, of which the eastern boundary is found in a great ridge descending from the *Api* peak in *Doti* of *Nepál*. It is clear from the above brief description that it is the spurs from the snowy range that bound the river basins, and if we examine further the affluents of each system, we shall see that the ramifications from these spurs form the water-parting between each minor system."

21. "The principal affluents of the *Jumna* are the *Tons* and the *Giri*. The *Pábar*, Their principal affluents *Rupin*, and *Súpen* unite to form the *Tons* and are separated and feeders. from each other by transverse ridges descending from the great boundary ridge. United, they drain a delta-shaped basin having its apex at *Kalsi*. To the south-west the *Giri* drains a similarly shaped basin having its apex near *Kalsi*, and to the east the *Jumna* drains one having its apex at *Kalsi*. We find that the point of junction of the apices of these three delta basins lies within the *Siwaliks*, the outer range of geographers, and that the union of these three main affluents forms the *Jumna* of the plains. This basin, as well as the minor systems within it, is bounded by spurs from the great snowy range or transverse ridges descending from them. If we further examine the relations of the minor feeders of the three great constituents of the *Jumna* system, we see that, as a rule, they flow at right angles to their recipients, and that the affluents of these minor feeders obey a similar law. The ridge separating the *Tons* from the *Jumna* gives off feeders on the west of the *Tons* and on the east to the *Jumna* at right angles to its direction. From the western slope the *Dharagad*, *Binol*, *Shaula*, and *Manjgaon* streams flow to the *Tons*, and from the eastern slope the *Ralen*, *Kutni*, and *Silo* seek the *Jumna*. Each of these minor feeders is separated from the other by lateral spurs, descending usually from some peak or knot of peaks, and all, as the veins on a leaf seek the midrib, flow towards the mid depression and give it their moisture. The two great rivers that unite to form the *Ganges* are themselves the centres of subordinate systems. The *Bhágirathi* is divided from the *Bhilang* by a great ridge descending from the *Gangotri* group of peaks, whilst a second ridge having a similar origin separates the *Bhilang* from the *Mandakini*, an early affluent of the *Alaknanda*. The *Bhágirathi* unites with the *Bhilang* near *Tihri*, and the two rivers drain a delta-shaped tract having its apex at *Deoprayag*. The *Saraswati* and *Dhaul*, which form the head-waters of the *Alaknanda*, are separated from each other by a ridge of snowy peaks, and its more southern affluents, the *Nandakini* and the *Pindár*, are divided from each other by a great ridge descending from *Trisht*. The entire basin of the *Alaknanda* to its junction with the *Bhágirathi* at *Deoprayag* is thus a great delta-shaped tract, cut up by the minor feeders into subordinate systems that are founded by great ridges descending from the snowy range. Between *Deoprayag* and *Hardwar*, the *Ganges* receives from the east *Nayar* and the *Hinnal*, and from the west the *Suswa* that drains the *Dehra Dún*. All unite within the *Siwaliks* to form the *Ganges* of the plains."

22. In regard to the minerals to be found in the *Himalayas* and *Siwaliks* Mr. Williams says :—
 (The mineral kingdom.

"The mineral kingdom has not yet been thoroughly explored. The Siwaliks, however, contain carbonate of lime, selenite and pyrites. The minerals hitherto found in the Mussoorie range are calcareous tufa, frequently iron shot, calcareous sinter, white, brown and yellow calcareous spar in the primitive form, and sulphate of barytes, nodules of noble serpentine associated with hornblende, slate, glassy actynolite, and earthy gypsum."

23. "The Siwaliks are an alluvial formation of the newer tertiary or upper miocene period and are regarded as débris swept down from the Himálaya overlying an upheaved portion of the plains at the foot of the higher range. Their axis is parallel to that of the Himálaya. The strata of both chains have the same direction, from the N.-W. to the S. E. and agree generally in dip, being inclined towards the north at an angle of 30° more or less, except where faults occur. Dr. Falconer divides the Siwalik strata into two classes: 1st and lowermost, sandstone and conglomerate, containing sub-ordinate beds of clay; 2nd and uppermost, gravel. The sandstone is a whitish grey arenaceous rock with a fine quartz basis. Its consistency varies from extreme friability to crystalline hardness, according to the proportion of carbonate of lime cementing it together, but its leading characteristic is friability, so that it cannot be utilized to any extent for building purposes. The conglomerate consists of fragments of all the rocks entering into the composition of the higher range, *viz.*, quartz, greywacke, hornblende, limestone, &c., resting on a clayey and arenaceous basis. It alternates with the sandstone. The beds of clay occur in both, and modify their character according to circumstances: uppermost comes the gravel or shingle, which gradually develops from small pebbles, abundantly intermingled with sand where it is in contact with the sandstone, into boulders increasing in size as the proportion of sand decreases, until at length we find a deposit differing little from that seen at the bottom of the passes. The breadth of the inclined beds is from six to eight miles, and as their inclination is northward, while their abutment to the south is steep, the hills rise abruptly from the plains and slope gently into the Dún. Dr. Royle's apt illustration will render the general effect of their geological formation more intelligible. Let the reader imagine a series of parallel ridges in the form of right-angled triangles with bases resting on the passes, perpendiculars facing the S. W. and hypotenuses sloping towards the N. E. succeeding one another like the teeth of a saw. Looking from the north, we see the gradual hypotenusal inclination from the crest forming the southern boundary of the district; looking from the opposite side, we are confronted by the perpendicular walls of weather-worn precipices. The same general description applies to the outline of the Himálayas, though the peculiar effect is not so striking, because the firmer consistency of the strata render them less liable to that process of detrition strongly perceptible in the case of the lower sandstone hills, which, it may be added, contain rich stores of fossil remains popularly believed to be *exuvia* of Titans killed in the war between the gods and giants. The formation of the higher range is primary, chiefly consisting of limestone alternating with clay slate strata. Nearly half way down the hill, about two miles west of Mussoorie, below the Hatipaon peak, a bluish black slate is found, hard enough to be used for roofing houses, but it is generally soft and crumbling. About a quarter of a mile below Jharipani, large beds of primitive gypsum with earthy sulphate of lime occur. At Mussoorie limestone predominates; on the ridge stretching away from Landour N. N. E., clay slate alternating with beds of quartz sandstone. Dr. Falconer briefly describes the whole formation as consisting of 'vast strata of limestone, lying on clay slate, crowned by slate, greywacke or sandstone. Beyond the limestone tract, gneiss, clay slate, and other schistose rocks occur. Granite, so far as I know, is not found.'

24. "The remains of iron mines exist near the village of Katápáthar at the debonche of the Jumna from the mountains, but they have never yielded revenue to Government, although the people of the village used to work them from time to time."

¹ The iron mines near the village of Katápáthar.

25. "The hills, as we have seen, afford little or no stone that can be utilized in architecture, and the geological formation of the valley itself, a vast shingle bed, interspersed with sand, having a partial covering of loam, forbids the existence of *kankar*, the substitute for which in roads is stone metalling, procured by breaking up the boulders found in the mountain torrents."

26. Mr. Williams, in his Memoir, gives the following account of the rivers of the Dún :—

Mr. Williams' description of the rivers of the Dún.

"The Ganges, entering the Dún at Tapoban, 165 miles from its source, pours rapidly over beds of boulders, between steep banks, with an average descent of 23 feet per mile, through several channels encircling islands covered with thick jungle, and reaches Hardwár, 15 miles below, at an elevation of 1,024 feet above the level of the sea, with a discharge of 7,000 to 8,000 cubic feet per second in the dry season. The Jumna, sweeping round Bhadráj mountain, enters the valley 100 miles from its source, flows over a succession of rapids with a descent of about 19 feet per mile, likewise forming islands here and there in its passage, debouches upon the plains 21 miles away, some three miles above Bádsháhi Mahál, in the Saháranpur district, an old hunting seat of the kings of Delhi, with a discharge of 4,000 cubic feet per second in the dry weather. Its banks in general shelve much more gently than those of the Ganges. Their tributaries, although a marked feature in the varied landscape, and turned to good account for agricultural purposes, are geographically insignificant, being in the upper part of their course rather mountain torrents than rivers. Their direction is determined by the ridge connecting Rájpur with the Mohan pass Assarori. They are two in number, the Suswa and the Asan. These streams, rising near Bhim Tál, about half way between Dehra and Assarori, flow eastward and westward respectively, receiving the whole of the mountain drainage from both sides as they run along. The source of the Suswa is 2,148 feet above the level of the sea, and its fall to the Ganges 948. Six miles or so from that river it meets the Song, a stream rising in the heart of the mountains behind Kalanga, a hill, or rather spur of the Himálaya, celebrated in Indian history. After their confluence, the united rivers flow onward under the name of the minor tributary."

27. "The spring heads of the Asan are 2,121 feet above the sea, and the fall thence to the Jumna is 652 feet. It receives only one tributary worth noticing—the Tons, which rises in the southern slopes of the Mussoorie range west of Rájpur, and joins the Asan a few miles beyond Bhim Tál, but in the dry season has no water in the lower part of its course—a fact incidental to a phenomenon common to the Dún and the northern part of Saháranpur. Close under the hills the water lies near the surface, appearing either in isolated pools or rivulets, which, after flowing a short distance, then vanish. Beyond the line of disappearance, it can only be reached at extraordinary depths in the centre of the district."

28. Looking down from Mussoorie the shining white threads of the Asan (which, running parallel to the Himálayas and Siwaliks, bisects the length of the Western Dún), and its tributaries from the hills joining it at right angles are plainly visible on a clear day after rain for almost their entire length. Next to the Tons, the Nún and the Nimi are the most considerable streams.

29. In the Eastern Dún the river courses are more concealed from view by the denseness of the forests, except close under the hills. The Suswa is joined by the Rispána near Dehra, 14 miles further on by the Song, and eight miles after by the Jukhan. But there is no one main stream after junction. The different branches meet and diverge again and again. According to native nomenclature the Suswa and Song maintain separate courses till they finally reach the Ganges. The truth of this is confirmed by the fact that the mouth of the Song is some two miles higher up the stream than the mouth of the Suswa, and the natives look on the Song, being a snow-fed river, as the more important

stream of the two. The Eastern Dún is intersected with running streams in every direction, and the names Song, and Suswa, are applied to rather a network of streams constantly joining and separating than to any one main stream itself.

30. Though they appear fairly level from a distance, both the Eastern and Western Dúns are cut up by deep ravines on the Himálaya side and by stony ravines on the Siwalik side. In the rains the ravines contain running streams, but at other seasons they are mere dry stony beds. As a rule, the banks are covered with *sál* trees. Where cultivation exists it is on the plateaus between the ravines. The forest has to a great extent been cleared away from the Western Dún, though there are large patches still remaining. It is, however, comparatively open, free from swamps, and is now so healthy that Europeans can live in it the whole year round. The Eastern Dún is, after the first seven or eight miles from Dehra, almost one continuous mass of forest and jungle. There are numerous swamps, the most important of which are those known as Nakraunda, Jogiwala, Garhi, Gossainwala, Kálápani, and Khadri. The surface is everywhere oozing with water. Reeds and grasses of every kind grow in the utmost profusion. Impenetrable canebrakes, the favourite resort of the tiger and other wild animals in the hot weather, are met with in all directions. The forest is very varied both in character and density. In some parts it becomes a mere open jungle with a few low bushes and trees scattered here and there; in others there are wide expanses of grass plains with no trees at all. These serve as a grazing-ground for the numerous herds of cattle, and the grass, according to native custom, being burnt yearly, prevents the young tree growth from attaining any size.

Four divisions of the Western Dún for assessment purposes.

31. For assessment purposes Mr. Ross made four divisions of the Western Dún, the natural characteristics of which he describes as follows :—

32. The Western Dún is composed partly of hill, partly of valley land ; as these two divisions are so totally distinct, having no natural feature in common, they must be considered quite separately.

33. Taking the valley portion, it will be convenient for settlement purposes to divide it into three tracts or circles, according to the natural capabilities :—

A.

34. The plateau of land lying close to Dehra, bounded on the east by the Ris-pána, on the south by the Suswa and Asan, on the west by the Tons, and on the north by a line drawn across from the Tons to the Ris-pána skirting the south edge of the Body-guard Cantonment. This tract may be called the Dehra plateau and comprises :—

				Number of villages.	Area in acres.
Revenue-paying	...	...	...	41	13,703
Grant	...	...	...	5	255
Fee-simple	...	...	...	4	10,936
Revenue-free	...	...	...	7	2,769

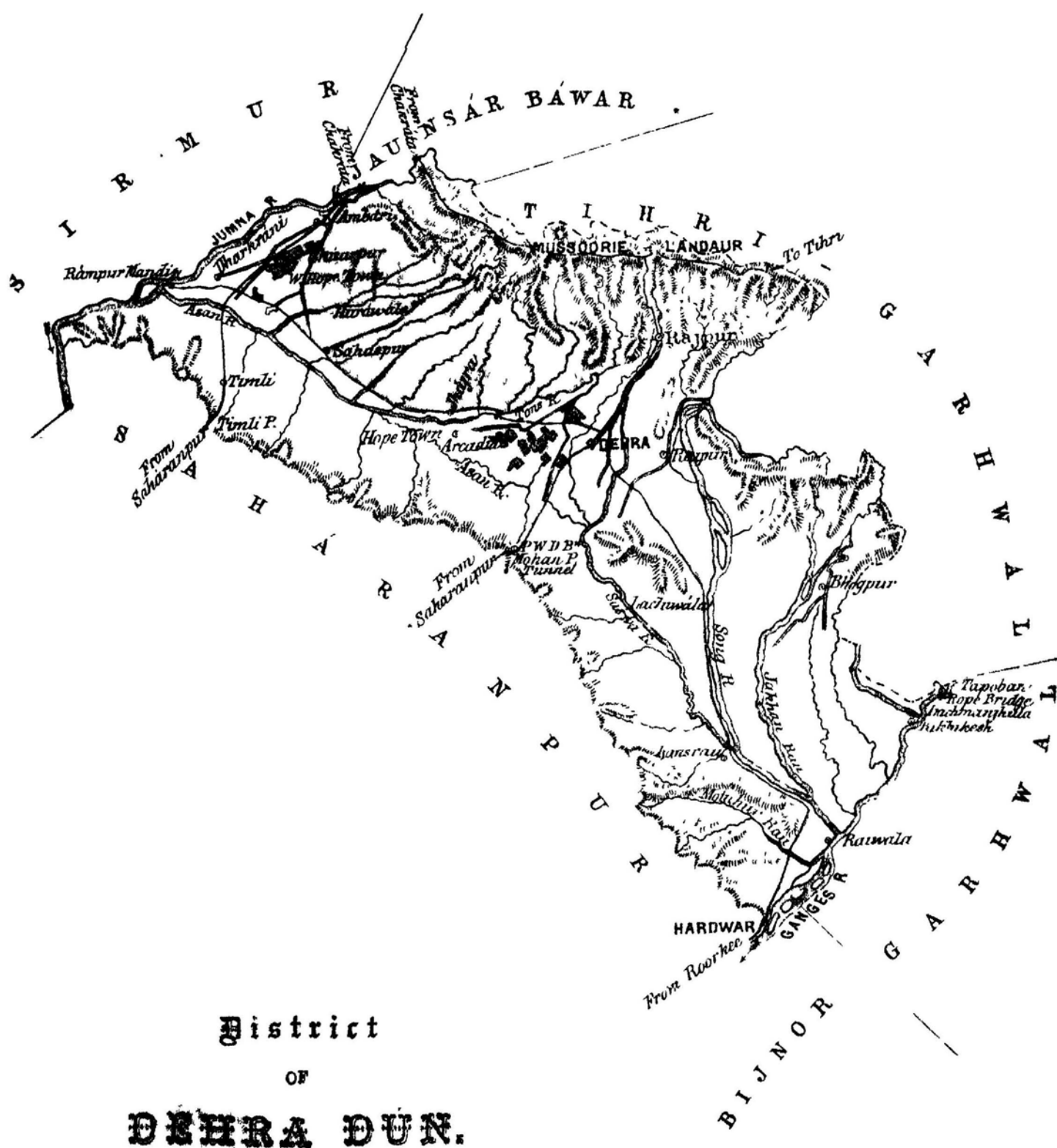
B.

35. The land on the Asan and Jumna south of the Dehra and Ambari road and north of the Siwalik Government forest ; also the land between the Jumna and the Ambari and Saháranpur road. This may be called the " river tract." It comprises :—

				Number of villages.	Area in acres.
Revenue-paying	...	...	...	49	23,649
Grant	...	...	...	15	16,062
Fee-simple	...	...	...	4	5,204
Revenue-free	...	...	...	...	...

MAP showing the different CIRCLES arranged for Settlement purposes in the WESTERN DUN.

PARA. 31 (PAGE 10).

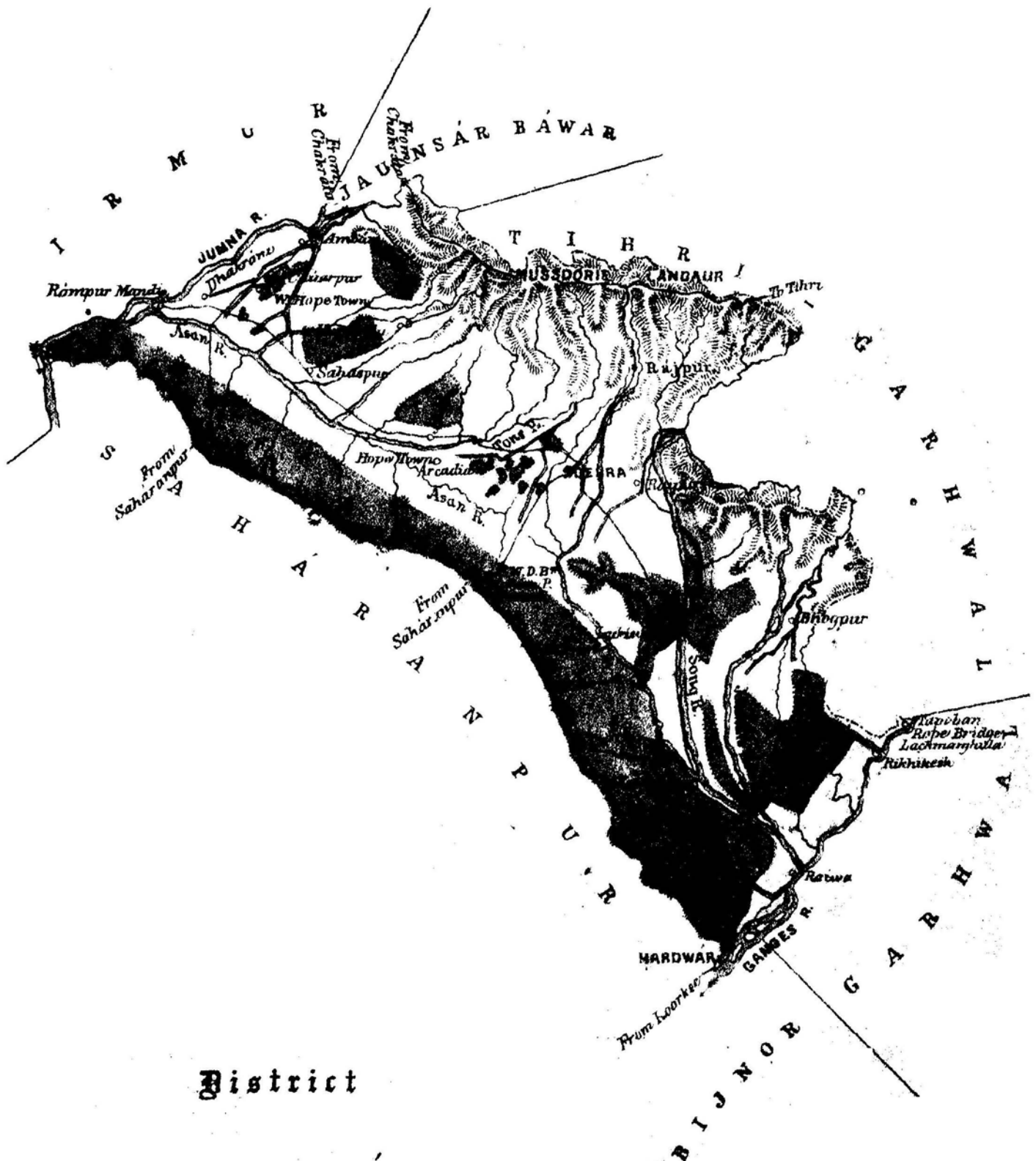


SCALE—ONE INCH = 6 MILES.

- Hill portion ☐
- Dehra Plateau ☐
- Submontane tract ☒

MAP showing the GOVERNMENT FORESTS in the DISTRICT of DEHRA DŪN.

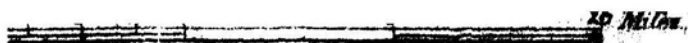
PARA. 40 (PAGE II.)



District

DEHRA DŪN.

SCALE—ONE INCH = 8 MILES.



C.

36. The whole of the country running along the foot of the hill from the Submontane tract; its boundaries and areas. Jumna to the Rispana and north and east of the Dehra and Ambari road. This may be called the "submontane tract." It comprises:—

			Number of villages.	Area in acres.
Revenue-paying	...	...	84	41,379
Grant	...	...	1	260
Fee-simple	...	...	5	5,024
Revenue free	...	...	2	39

37. The Dehra plateau contains the best land and the best cultivation in the Dún. The whole of it is irrigated by Government canals and it is intersected by good roads. It is in this tract that cultivation is brought to the highest pitch. Here is grown the best wheat. Here nearly all the sugarcane will be found, and here market garden produce, such as onions, tobacco, strawberries, &c., all grow in the greatest luxuriance. As a natural consequence, rents run higher here than anywhere else.

38. Next in order comes the "river tract." Along the Asan and Jumna there is a good deal of good rice land. The Katápáthar canal waters a large area of the eastern portion of the tract. There is a little good dry land, though as a rule it is poor. In this tract fair wheat is grown, good rice and a little sugarcane.

39. The worst of the three is the "submontane tract." With the exception of a few patches of rice land in the ravines, which are watered in a precarious manner from the hill streams, flourishing when the rains flourish, and failing when the rains fail, all the rest is dry, stony, and unprofitable, yielding rain crops only, which are good or bad as the rains are abundant or scanty.

Government forests; divisions and area.

40. Forests meet the eye everywhere when looking at the Dún, and a brief account of them is necessary.

The Government forests have been formed into a separate division called the Dehra Dún, divided as follows:—

Name of forest.					Area in acres on 31st March, 1885
WESTERN RANGE	Ambari	...	...	...	4,203
	Chandpur	...	...	...	2,225
	Dholkot	...	...	...	4,826
	Jumna	...	...	...	9,243
	Timli	...	...	...	19,704
	Sherpur	...	...	...	13,922
CENTRAL "	Chandrabani	...	...	...	7,289
	Ramgarh	...	...	...	10,482
	Bullawala	...	...	...	14,965
	Nagsidh	...	...	...	16,517
EASTERN "	Kanarao	...	...	...	20,340
	Motichur	...	...	...	22,102
EASTERN DÚN "	Malkot	...	...	...	5,641
	Thano	...	...	...	6,576
	Tirahi	...	...	...	18,086
	Salakot	...	...	...	495
Total area					177,222

41. Dr. Brandis, in his suggestions regarding the management of the forests to be found in the Forest School Circle, thus describes the Dún Forests:—"The Dehra Dún Division comprises the forests on the northern slopes of the Siwalik hills and those in the valley of the Dún. The aggregate area amounts to 177,222 acres.

Dr. Brandis' remarks on the Dehra Dún forests: chief kinds of trees found.

"With the exception of the low ground near the Song, Suswa, and Jákhan rivers in the Eastern Dún, these forests are chiefly stocked with sál, associated with other trees, of which the following may be noted :—On the hills and near their base bákli (*Anogeissus latifolia*), dhaura (*Lagerstræmia parviflora*) and sándan (*Eugenia dalbergioides*) are the chief associates of sál. Lower down, on the more level ground, these kinds are also found, but others are more characteristic of these localities, viz., haldu (*Adina cordifolia*), keim (*Nauclea parvifolia*), aonla (*Phyllanthus emblica*), bahera (*Terminalia bellerica*), kakar (*Garuga pinnata*), bhiláwa (*Semicarpus anacardium*), piaman (*Eugenia operculata*), siris (*Albizzia odoratissima*), pipal (*Ficus religiosa*), bargat (*Ficus bengalensis*), dháman (*Grewia vestita*), kachnár (*Bauhinia variegata*). On stiff clayey soil sain (*Terminalia tomentosa*), and near streams jaman (*Eugenia jambolana*) are common. Bamboo (*Dendrocalamus strictus*) is rare in the Dehra Dún forests, and it is chiefly found on the north slope of the Siwaliks in the Eastern Dún.

"The ridges and higher spurs of the Siwaliks are without sál. Here the chief trees are sáler (*Boswellia thurifera*) and khat-bhiláwa (*Buchanania latifolia*), which form an open and almost useless forest. On the low ground in the Dún, along the banks of the rivers and on islands, the forest contains khair (*Acacia catechu*) and sissoo (*Dalbergia sissoo*). Besides these descriptions of forests there are larger extents of mixed forest without sál in the level portion of the Dún, in which the same trees are found which are associated with sál below the hills; and in addition to them Dún siris (*Albizzia procera*), khair (*Albizzia stipulata*), and chilla (*Cassia tomentosa*) are found."

42. When we first acquired possession of the Dún there must have been a large area of sál forest fit for felling. But for many years no attention seems to have been paid to this very valuable acquisition, and the interests of the future were sacrificed by letting out the forests to contractors, who were allowed to fell and destroy as much as they pleased. Mr. Williams gives the early history of the Dún forests under our rule as follows :—

43. "Another much older source of revenue used to be the transit duties collected on every article of commerce going to or coming from the hills or plains. The net sum realized, after the payment of expenses, was under Rs. 10,000 in 1222 fasli and not quite Rs. 9,000 in 1223 fasli; the gross collections being Rs. 16,000 and Rs. 15,200 in each year respectively. The same goods had constantly to pay twice or three times over, owing to the injudicious allocation of the collecting stations."

44. "The consequent obstruction to commerce being great, and the income derived not large, Government abolished these duties in 1224 fasli. Mr. Moore soon afterwards represented that there were 106 estates in the Dún lying waste, yielding absolutely no income to Government, from which private individuals were making immense profits by appropriating the jungle produce. At least 50,000 pieces of timber were, he reckoned, being annually cut down and exported, without any acknowledgment of the right of Government to the forests. He therefore recommended the imposition of a cess on such exports."

45. "His views were approved of (30th January, 1819), and the duties being held under direct management produced during three years (1226-7-8 fasli) an average of some Rs. 4,000. In 1822 they were farmed to Surjan Negi for Rs. 5,000 a year, from 1229 fasli to 1232 fasli inclusive. In 1825 (28th October) they were farmed to various persons at a total of Rs. 8,500 a year, from 1233 fasli to 1237 fasli inclusive, with the exception of the Kheri pass, yielding from Rs. 150 to Rs. 200 a year, which was held *khdm.* In 1825-26 and 1826-27 balances of Rs. 1,487 and Rs. 2,701 accrued on account of the Kanerao pass. In the two last years of the settlement, the Kheri pass was farmed at the rate of only Rs. 91 a year (30th November, 1828) for three months; of Rs. 800 per annum for the remaining year and nine months (4th February, 1829).

46. "Major Young was justly of opinion that Mr. Shore had been too easy on the contractors, and thought the revenue from these customs was susceptible of a very great increase. He also noticed that the effect of competition among the farmers at the various passes had been to lower the rates sanctioned by Government, and therefore recommended the introduction of the rawana or pass system, except on the Ganges and Jumna gháts. But such excellent terms were offered at the next auction sale that the former arrangements seemed likely to be equally profitable, as well as simpler, if properly managed. The highest bids were :—

					Rs.
Jumna and Ganges gháts	...	...	...	...	6,425
The other passes	...	...	...	...	9,593
			Total	...	16,020

giving an increase of Rs. 7,220 over 1829-30. The duties were accordingly farmed at this rate for a period of three years, from 1830-31. This settlement expired on the 1st December, and another auction sale produced an annual income of Rs. 25,345 for three years longer, giving an annual increase of Rs. 9,325. Not having had direct access to the Dehra records after 1833, I owe the rest of my information on this subject to the kindness of Mr. Brereton, the present Officiating Deputy Conservator of Forests, Dehra Dún."

47. "From 1839 to 1844 the right of collecting the duties of the timber exports was farmed to Atmagir, Mohant, of Hardwár, for Rs. 33,500 a year. Every one continued to hack and hew away at the trees as he pleased, only paying certain dues to the farmer in the event of the wood being exported. The latter made his own arrangements to secure the collections at the different passes. Reckless waste was inevitable, and the fine sál forests began to disappear rapidly. The absence of conservancy was absolute. The district still abounded in fine trees, 100 or 200 years old and upwards. All these fell before the axe, and probably the rest would have gone with them had the roads been a little better. The consequences of this bad system are most perceptible in the Western Dún. In 1844 Mr. Vansittart, having ascertained that Atmagir was in the receipt of about Rs. 80,000 a year, discontinued the lease and kept the collections in his own hands. This arrangement lasted till the year 1855, when the Forest Department was established. In the interval, the revenue from this source varied from Rs. 80,000 to Rs. 1,00,000, an income dearly purchased, for the destruction was something incalculable."

48. Since the department have assumed charge matters have, of course, much improved. Conservancy is now strictly carried out. Many fine sál forests are springing up and forest revenue is steadily rising. For the year ending 31st March, 1885, the gross receipts of the Dehra Dún Division amounted to Rs. 81,797 under the following heads:—

					Rs.
Timber	...	...	...	...	49,494
Firewood and charcoal	...	...	...	...	7,288
Bamboos	...	...	...	...	8,158
Grazing dues and fodder grass	...	...	...	...	8,324
Minor produce, i.e., lime, hides, honey, wax, horns, &c.	...	...	...	...	8,407
Miscellaneous	...	...	...	...	126
			Total	...	81,797

The expenditure during the year on conservancy and works of improvements was Rs. 34,105, and that on establishment Rs. 22,262, total Rs. 56,367, the net surplus being Rs. 25,430. It is noteworthy that the area of the Dún forests, viz., 177,222 acres, is almost the same as the area of the revenue-paying villages, 177,670 acres; but the forest revenue is more than twice as large as the expiring land revenue, Rs. 31,693, and some Rs. 30,309 more than the land-revenue demand for

the next 20 years will be. Dr. Brandis wrote in 1879 that the present yield of the Dún forests was insignificant, and that under proper arrangements they might be made to yield much larger quantities of timber and a much larger revenue than they furnish at present. From this it would seem that forest in the Dún is more valuable than cultivation.

49. The village forests comprise an area of 79,664 acres, or 124·5 square miles. In them nearly all the trees mentioned as being found in the Government forests find a place. Some of the sál forest is especially fine and has brought in very large sums to its owners. Mr. Ross remarks that he knows of sales of forest by private parties during the period of this settlement to the value of Rs. 7,44,750, which would be more than the entire land revenue for the 20 years the settlement had to run. Formerly there were splendid mango groves in the Dún, and some are still remaining. Many, however, have been cut down to meet the demand for mango wood for tea-boxes, and it is to be feared can never be replaced in the present generation. Next to sál, sain, tún, sissu, chir and shisham are the most valuable trees. Tún grows with extreme rapidity in the moist climate of the Dún. It is one of the best shade-giving trees for roadside avenues, and its wood is useful for all domestic purposes. A really fine tún tree in Dehra will fetch as much as Rs. 60 at auction, and plantations of tún would probably pay well. Shisham hardly does so well as in the plains, but is found in great numbers in some of the islands and dry beds of the Song, ~~Sugwa~~, and Ganges. It is also a favourite tree with tea-planters on account of its supposed favourable effect on the tea-bush. In the Western Dún many plantations have had long avenues of shisham planted to keep out the hot west wind in summer. This unwelcome visitor from the plains was beginning to find an entrance with a disastrous result to the leaf-producing power of the tea-bush, the leaves of which shrivel up at once when exposed to its influence.

(3)—Communications.

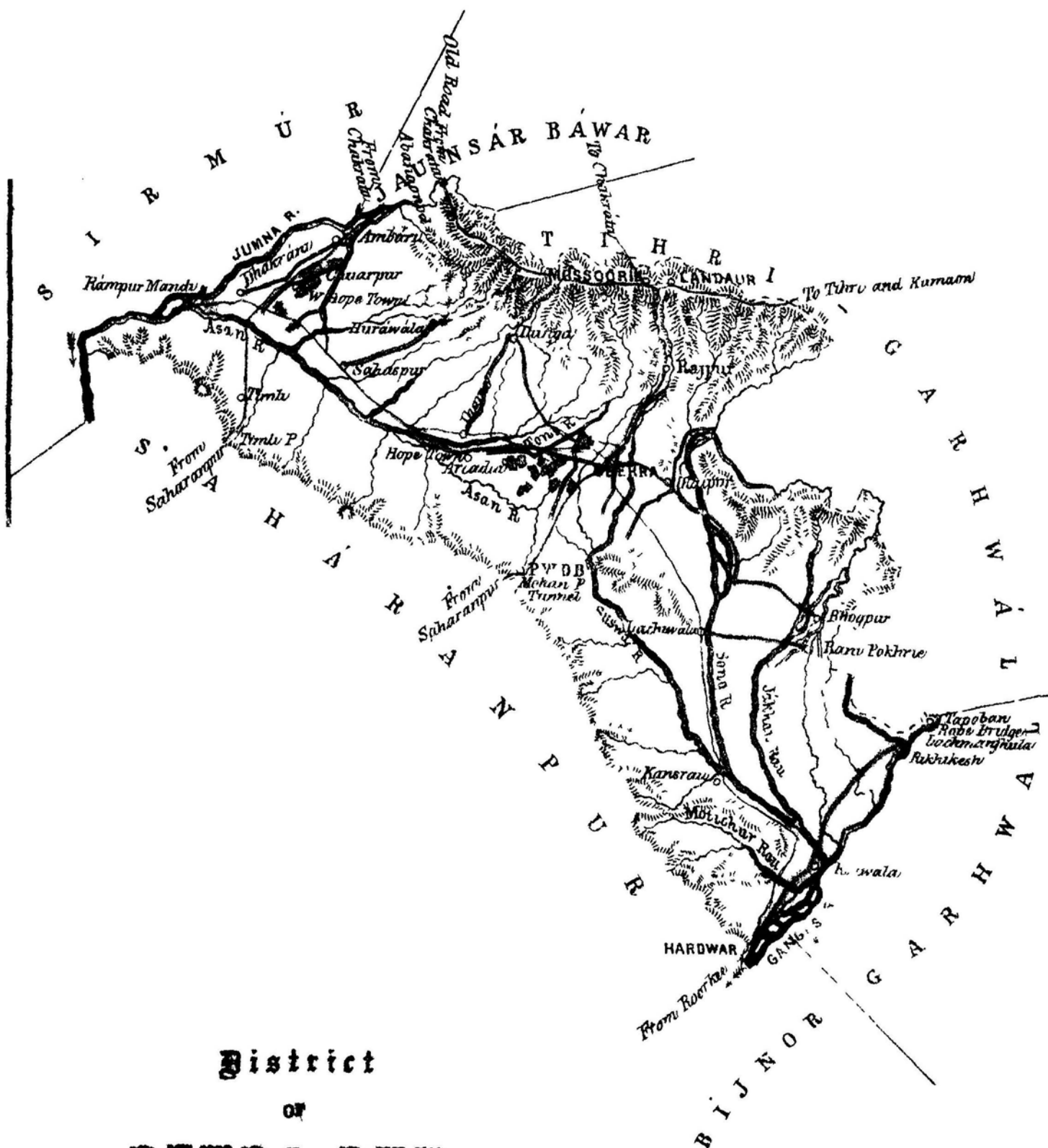
50. The Dún is very badly off for roads, and the want of improved communications is much felt. Two passes over the Siwaliks, viz., the Timli and Mohan passes over the Siwaliks. Mohan and the Timli, connect it directly with Saháranpur. There are other smaller passes open, but these are mere hill tracks and hardly used at all for general traffic. There are two first class roads, i.e., bridged and metalled throughout, in the district.

51. (1) *The Saháranpur-Rájpur Road.*—This is part of the old Meerut, Rurki, Saháranpur-Rájpur and Landour Military Road and enters the Dún by the Mohan pass. Its length in the district is 14 miles, and it is the great thoroughfare for nearly all the imports and exports, being the direct route to Mussoorie. At Assaroti, 6 miles from Dehra, a toll is levied, which brings in some Rs. 20,000 annually to Government. For the first part of the way to Dehra this road runs down a steep incline. Just before reaching Dehra the Bindal nadi is crossed, a dry river-bed except in the rains, when a rushing torrent comes down after an unusually heavy fall, and travellers are kept waiting for hours to cross. From Dehra to Rájpur there is a steady ascent the whole way, which is very trying to horses. Large sums have lately been spent in widening this road, and when the work is finished it will be much improved. At Rájpur carriages and carts stop. Visitors to Mussoorie and Landour continue their journey by the bridle-road, while their baggage and the goods traffic are brought up by coolies, mules, &c.

52. (2) *The Saháranpur-Chakráta road.*—This road was made for purely military purposes about the year 1873 to connect the new hill cantonment of Chakráta with the plains. It crosses the Siwaliks by the Timli pass, and has two fine bridges, over the Asan near Fatehpur and over the Jumna at Kalsi. This last was only built in 1878 to replace the former one, the ruined piers of which are still visible, which had been swept away by floods. From

MAP showing the DISTRICT ROADS.

PARA. 50 (PAGE 14.)



District OF DEHRA DUN.

SCALE—ONE INCH = 3 MILES.

REFERENCES.

I. Class Road, Red	...	...
Roads under District Boards	...	...
II. Class Roads, B. Sienna	...	...
III. Class Road, Yellow	...	...
IV. Class Road, Green	...	...

Kalsi the road winds by easy gradients right up to Chakráta itself, an elevation of 7,300 feet. Throughout its course, it is a marvel of engineering skill. Its construction must have cost immense sums. As Mr. Ross says, it is of little use for district purposes. From Kalsi to Chakráta there is hardly any traffic along it except twice a year, when the troops move up and down. Ordinary supplies are mostly taken up on pack-mules and ponies by the bridle-road, which is much shorter, carriage in this way being apparently found cheaper than by carts going the longer round.

53. The main road running the entire length of the district is the Hardwár-Rampur Mandi Road, which goes from Hardwár through Dehra on to the ferry across the Jumna. This is only a second class road, unmetalled and unbridged. A former bridge over the Suswa near Kansrao was swept away by floods and has not been rebuilt. Another bridge over the Tons near Jhajhra, about eight miles from Dehra, was also swept away, but is now being restored. The road from Hardwár is practically impassable during the rains, both from the Suswa being swollen with floods, and from the unhealthiness of the Eastern Dún. Next to a railway, the most pressing want of the district is to have this road bridged and metalled throughout, as has repeatedly been brought to the notice of Government. The difficulty of course is to find funds. The district road cess on account of the small land revenue has been altogether inadequate even to carry out the necessary repairs, and from a provincial point of view the road has not been regarded of such importance as to be carried out as a provincial work. The Hardwar road is joined by many village roads both from north and south. There are now 31 miles of third class and 70 miles of fourth class roads in the district maintained by the District Board, but the annual grants for their maintenance are very insufficient, and the fourth class roads are mere village tracks. The third class roads are the hill roads leading from Rájpur to Mussoorie and from Mussoorie to Chakráta and on to Simla. The Rájpur-Mussoorie Road has been much improved of late years. The steeper gradients have been reduced and new cuttings have been made, and the ascent is now much less trying to animals ridden or laden than it used to be. A diversion to cut off the three last steepes below Jharipani has been laid out, but its completion has had to be postponed till funds are forthcoming. The Chakráta road, after leaving Mussoorie, descends steadily down to the Jumna, which it crosses by a suspension bridge at the distance of 11 miles. It then goes up a steep ascent to Lakhwar, where there is a dák bungalow, and on by Nagthat and Chauranipani to Chakráta, the whole distance being 39 miles. At Nagthat there is a small road inspection bungalow, and at Chauranipani a new dák bungalow has lately been opened. The road is occasionally broken by landslips in the rains, but is generally in good order and can be ridden over throughout. An animal well accustomed to the hills is, however, desirable, as the khuds in many places are very steep, and railings are only put up here and there. Hill roads also lead up to Mussoorie from Horawala and Dunga in the Western Dún. These have recently been taken over by the District Board, but have hitherto been too much out of repair to be used for general traffic, and were unsafe to ride over. A good bridle-road from the Western Dún to Mussoorie would be a great boon to planters and others who live in that direction, as they now have to go the long round by Dehra and Rájpur.

54. Timber from the hills is floated down the Ganges and Jumna in large quantities, but in the proper sense of the term there are no navigable rivers.

55. There is a ferry across the Jumna at Rampur Mandi leading to the Nahan and Simla Road, and one at Gohri Ghát on the Ganges leading to Garhwál and the road along the foot of the hills skirting the Bijnor district. These are the only two ferries in the Dún. The Rampur Mandi ferry is leased annually for Rs. 400. The Gohri Ghát ferry is under the Garhwál authorities.

56. At one time the prospect of railway communication between Hardwár, Dehra and Rájpur seemed almost assured. The Dehra Dún Railway Association, with Mr. Hope as Secretary, was formed in 1889. Concessions were obtained from Government, the line the railway was to take surveyed, and plans and estimates prepared. At the last moment, however, the refusal of the Secretary of State to guarantee interest on the capital required prevented the scheme being floated in England. It consequently still remains in abeyance. Mr. Brunton, a well-known Civil Engineer in England, drew up plans and estimates for a light tramway from Saháranpur to Rájpur to be laid along the existing road. Messrs. Burn and Co. of Calcutta are also said to be contemplating an undertaking of this kind.

There can be no question the opening of railway communication would rapidly develop the resources of the Dún and benefit Mussoorie greatly. Mr. Hope's line through the Eastern Dún from Hardwár was to be on the same gauge as the Oudh and Rohilkhand Railway, and according to his estimates would require a capital outlay of from 35 to 40 lacs. Mr. Brunton's tramway would only cost some 16 or 20 lacs with rolling stock complete. From Saháranpur seems the natural line for traffic, and a tramway would probably meet all requirements, if the more ambitious scheme cannot be carried out. In any case, a line of some sort is very urgently required. The money spent on the Chakráta road would have sufficed to make a railway into the Dún and a road to Chakráta as well.

(4)—*Sources of Irrigation.*

57. Well irrigation is impossible in the Dún on account of the great depth of the water from the surface, due to the physical peculiarities already explained. A few wells for drinking purposes have been dug, and there are said to be 29 altogether in the district. None are used to irrigate crops. In Dehra itself there are five.

The most famous of these is a well built by Mr. Shore in the cutcherry compound, at a cost of no less than Rs. 11,000. The water here is 228 feet deep. Tradition says that Mr. Shore, on his first arrival, was told there were no wells in the Dún, and that to sink one was impossible. He replied he would show the possibility, and ordered the well which still bears his name to be sunk at once, regardless of the cost.

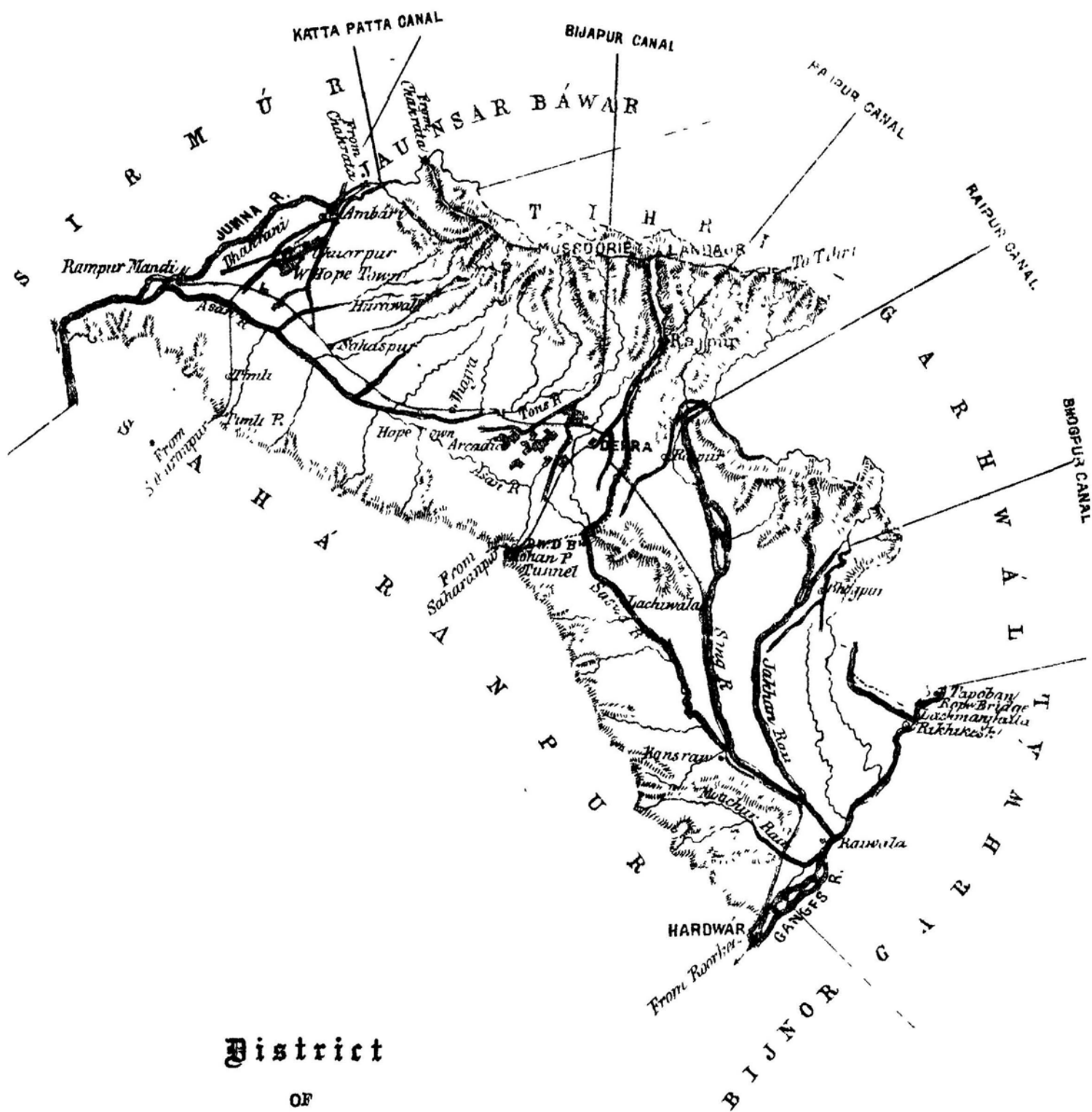
58. Irrigation, therefore, is solely from canals, either made by Government or constructed by the people themselves. Mr. Williams gives the origin of the Dún canals as follows:—"In the palmy days of the Dún, however, the people had recourse to irrigation, not only from dams and canals, but also from large tanks, the remains of which are to be found everywhere. The expediency of reviving these works of utility early arrested the attention of our officers. Among their advocates may be mentioned Mr. Calvert, Assistant Collector, who made the first settlement; Mr. Moore, Collector of Saháranpur, Mr. Shore, and Colonel Young, whose recommendations finally determined Government to move in the matter."

59. "At the end of 1837 Colonel (then Captain) Cautley was deputed to the Dún to make an estimate of the expense of opening a canal from the Tons under the village of Bijapur, intended to irrigate the triangular tract between that stream, the Asan and the Bindal ravine close to Dehra. He soon completed his task, and the works, commenced in October, 1839, were finished in a year."

60. "The next irrigation work undertaken was the restoration of an old canal of doubtful origin, called the Rájpur aqueduct, which had from time immemorial supplied the people of Dehra with drinking

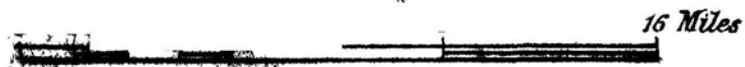
MAP showing the DŪN CANALS.

PARAS. 59-62 (PAGES 16 & 17.)



District
OF
DEHRA DUN.

SCALE—ONE INCH = 6 MILES.



water drawn from the head of the Rispana torrent at the foot of the Himálayas. This was commenced in the cold weather of 1841 and finished in the rains of 1844."

61. "The third was the Kátapáthar canal, leaving the Jumna, under the Himálayas, near a village of the same name, intended to irrigate the furthest extremity of the Western Dún between the Asan and the mountains. This watercourse, designed by Captain Cautley in 1840-41, was not constructed for several years afterwards."

62. "Since then the execution of two other similar works has been carried out; the one, the Kalanga canal, drawn from the upper part of the Song at the village of Raipur; and the other, the Jákhan canal, so called from a Himálayan torrent in the Eastern Dún, 15 miles from Dehra, whence it takes its rise near the village of Bhogpur."

63. The last irrigation report showed the following areas as irrigated by each canal and the revenue as follows:—

"These works consist of 67 miles of channel."

"Owing to a reduction in the suspense accounts the capital outlay was reduced by Rs. 490: it now amounts to Rs. 6,36,982."

64. "Table J. compares the direct revenue charges and net profit for the last three years:—

Table J.

	1882-83.				1883-84				1884-85.			
	Rs.				Rs.				Rs.			
Direct income	57,156	...	...	...	59,815	...	...	56,517
Expenditure	47,445	...	...	...	39,957	...	...	37,043
Net return	9,711	...	...	...	19,858	...	...	19,474
On a capital of	6,37,388	...	...	...	6,37,472	...	...	6,36,982
Or	1.52 per cent.	...	...	...	3.11 per cent.	...	...	3.05 per cent.

65. "Including indirect revenue, which amounted to Rs. 15,951, the net income was Rs. 35,425, or a return of 5.56 per cent. on the capital outlay."

"The expenditure shows a further decrease of nearly Rs. 3,000."

66. "Table L. compares the revenue by sub-heads during the past six years:—

Year.				Occupier's rate.	Owner's rate.	Plantation.	Water power.	Miscellaneous.	Total.
				Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1879-80	...	...	...	27,236	3,841	252	26,198	1,379	58,406
1880-81	...	...	...	25,896	2,791	499	21,702	1,095	54,483
1881-82	...	...	...	25,181	2,826	329	22,266	1,060	51,612
1882-83	...	...	...	27,365	3,049	461	23,570	2,711	57,156
1883-84	...	...	...	25,395	4,060	2,462	25,698	2,300	59,815
1884-85	...	...	...	23,308	3,472	207	26,933	2,697	56,517

"Water power and miscellaneous show slight increases, but all other sub-heads have decreased, the net result being a decrease of Rs. 3,299 in the gross direct revenue."

"The principal kharif and rabi areas and the occupiers' rate assessed during the past two years are compared below :—

						1883-84.		1884-85.	
						Area.	Occupiers' rate.	Area.	Occupiers' rate.
						Acres.	Rs.	Acres.	Rs.
Kharif	...	...	...	...	...	5,298	15,302	5,391	14,807
Rabi	...	...	...	...	...	8,983	10,093	7,162	8,501
						14,276	25,395	12,553	23,308

The kharif area shows a slight increase, but the rabi area shows a considerable decrease, the net result being a decrease of 1,723 acres. Occupier's rate also shows a corresponding decrease, amounting for the year to Rs. 2,087."

Duty obtained per cubic foot of supply on each canal compared

67. "The following table compares the duty obtained on cubic foot of supply on the several canals :—

Table M.

Canal.							Acres per cubic foot at head.	
							1883-84.	1884-85.
Bijapur	...	...	...	...	...	...	136	53
Rájpur	...	...	...	...	...	...	187	67
Katapattiar	...	...	...	...	...	...	73	31
Kalanga	...	...	...	...	...	...	85	50
Jakhan	...	...	...	...	...	...	79	34

Owing to the larger supplies available and the smaller area irrigated, the duty obtained on all the different canals is very much less than in the previous year."

68. "Table K. gives details of the revenue and charges compared with the previous year. There is again a marked reduction under all the principal heads of expenditure :—

Table K.

						1882-83.	1883-84.	1884-85.
Extensions and improvements	...	...	...	...	...	9,553	6,805	8,451
Maintenance and repairs	...	...	...	...	...	11,867	9,520	9,385
Establishment	...	...	...	...	...	20,846	18,264	14,412
Tools and plant	...	...	...	...	...	2,035	2,021	1,984
Refunds	...	...	...	...	...	193	364	199
Charges on account of owners' rate in civil department	...	...	...	...	...	2	10	...
Leave and pension allowance	...	...	...	...	...	41	133	316
						2,908	2,840	2,396
Total						47,445	39,957	37,043
Assessments						57,156	59,815	56,517

69. "The new system of leasing the mills has been in force during the year and has resulted in an increase of revenue of Rs. 1,235. It is too early, however, to state whether this increase will be permanent or not."

Rates levied for irrigation from the Dún canals.

70. The rates levied for irrigation from the Dún canals are :—

	Bijapur canal.	Rájpur, Katapáthar, and Kalanga canals	Jakhan canal.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
I.—Sugarcane ...	5 0 0 per year	5 0 0 per year	5 0 0 per year.
II.—Garden produce, 1st class rice, tobacco, and cotton.	3 0 0 per fasl	3 0 0 per fasl	2 4 0 per fasl.
III.—Indigo and cotton ...	2 4 0 ditto ...	2 4 0 ditto ..	2 4 0 ditto.
IV.—Second class rice, wheat, oats, and all other inferior crops.	1 4 0 ditto ..	0 12 0 ditto ..	0 12 0 ditto.
V.—Tea (special) ...	0 12 0 for each watering.	0 12 0 for each watering.	0 12 0 for each watering.

71. These canals, insignificant though they appear at first, are the greatest blessing to the district. In fact the people depend almost entirely on them for water for drinking and domestic purposes and for the cultivation of all the more valuable crops.

72. Mr. Ross remarks of them:—"The Kátapáthar canal is taken from the Jumna. This canal waters a large tract of very fertile country in the westernmost portions of the Western Dún. Three or four tea plantations are situated in this tract, but the canal water is not used by them, as it contains lime, which is inimical to the tea-bush."

"There is, then, a long blank until the Tons is reached; from this stream a canal is taken which waters the fine plateau of land to the south-west of Dehra, running to a point formed by the Asan and Tons."

"This is the most highly cultivated part of the district; here the best sugarcane and wheat crops are grown, and here also are a number of tea plantations."

"Further east is a canal taken out of the Rispana at Rájpur: it supplies Dehra with water for drinking and garden purposes, and, passing on, waters that portion of the plateau already referred to which lies south of Dehra."

"Beyond the Rispana, at Raipur, a canal is taken from the Song and flows through a country which is not at present well cultivated."

"The remaining canal is taken out of the Jakhan near Bhogpur, waters all Ránípokhari and Raynorpur and then flows into waste. The whole of the water in this canal would be brought into use if some forest land was given up."

"Besides these Government canals there are innumerable private canals or *guls*. Some of these have been made at great expense; others are mere channels of a few yards long, into which the water from a hill stream is diverted."

"In the valley portion of the Western Dún the Asan is used along its whole course both for rice and wheat. The Tons is used for rice. In the Eastern Dún the Rispana is used for rice lands to a small extent: so also is the Suswa behind the Nagsidh hills. The Song is utilized as far as Kansrao both for rice and wheat, and the Jakhan is used in the same manner throughout its whole course."

"Apart from these streams which are used in the valley, every village in the Himálayas possesses some land irrigated by channels taken from the mountain streams. In the hills these streams are perennial, some of them containing really a fine body of water; but as they reach the level of the Dún the whole of the water disappears, percolates through the gravelly soil, and does not show again until the main drainage channels of the Asan or Suswa are reached."

"These streams are used by the hillmen chiefly for rice lands, but in some cases, notably Bhatta and Kyarkuli, they are used for wheat too."

"As a rule, unirrigated hill land which does not come under the influence of snow yields no rabi crop."

"Most of the stony beds of streams that come down from the Siwaliks, if followed far enough into the hills, lead to water, but in much too small quantities to be of any use, except to supply drink to the deer and other inhabitants of the forest. In only one place (Karwapáni) is there a sufficient flow to lead a canal from, and this has been done."

73. Probably most of the water-supply available has been already utilized.

Available water-supply utilized. There are, however, still some fine streams coming down from the hills apparently running to waste, but perhaps they would not repay the cost of conducting them into the existing canals. Once these streams reach the Dún, they soon disappear beneath the surface and are lost for irrigating purposes.

74. The large income from water-power is striking. This represents the rents of the mills worked by the canals, at which the corn of the district is ground. Many villages have their own little mills (*gharátis*) which pay no tax, but at these corn is allowed to be ground for home consumption only and not for sale outside.

75. The canals are without doubt the making of the Dún. The immediate increase of revenue due to canals is put at Rs. 9,029, but this is a low estimate and merely shows the actual extra revenue imposed on the irrigated land. There are, however, other ways in which the canals benefit the district and add to the Government revenue, which cannot be taken into account for assessment purposes. Two instances may be cited. They carry down water to many parts in sufficient quantity for drinking, though not for irrigation, and so people are able to live on and cultivate land which would otherwise be left barren, as being too far off from drinking water. Again, a tenant obtaining three or four acres of canal-irrigated land will cultivate ten or twelve acres of dry land. But for the canal the whole would be left uncultivated.

No complaints have ever been made that the canal water impoverishes the soil. The ordinary complaints are on the part of the villagers that they get one watering and have to pay water-rates, though they cannot get the necessary second or third watering. On the part of the Canal Department the complaint is that the villagers are most wasteful, take more water than is necessary and let a great deal run off. The Dún land is very porous, and there nearly always is a gravelly subsoil, so that an acre of land in the Dún requires three or four times as much water to irrigate as an acre in the plains. Hence the importance of having pukka distributaries as far as possible to prevent the very great loss from percolation.

76. Water is very scarce in Dehra itself in the hot months. The canal is lowest when the demand is greatest. The distributaries are mostly dry, wide, roadside ditches, and the waste from percolation in these must be enormous. Just before leaving the Dún I proposed to Government that the present very low rates for watering gardens should be raised and pukka distributaries constructed. This would repay Government well and the people would be far better off for water. The irrigating power of all the canals would be very much increased if the great waste from percolation as soon as the water leaves the main channel could be avoided.

(5)—Rainfall.

77. Lying between two ranges of hills and itself densely wooded, the Dún is always blessed with an abundant rainfall. Any approach to a real drought is unknown within the memory of man. The average rainfall for the last 16 years has been 83·71 inches. The rainfall since 1870 is shown below—

	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884
Rainfall ...	91·67	118·50	93·84	66·80	95·39	81·89	81·39	41·67	83·63	75·36	64·29	95·29	66·85	62·77	85·58

Even in the year of great drought, 1877, the rainfall of the Dún was over 40 inches. The winter rains are generally copious, and through February, March, and April there are often frequent showers, till the hot weather sets in. The regular rains commence about the 16th or 17th of June and last till the middle of September, though sometimes they are prolonged into October.

(6)—*Climate.*

78. The climate of the Dún itself, as might be expected from its heavy rainfall, somewhat resembles the climate of Upper Bengal, in being
Chief characteristics.
 More favourable to Europeans than that of the plains.
 moister and less open to extremes of heat and cold than in the neighbouring districts of the plains. The chapter on meteorology in Mr. Atkinson's Gazetteer was written by Mr. S.

A Hill, Meteorological Reporter to Government, who has given a most interesting sketch of the climate of Upper India generally, and noticed the several elements of meteorological observation in the natural order of cause and effect, commencing with solar radiation and afterwards passing on to temperature, barometric pressure and winds, and the distribution of vapour and rain. A few of Mr. Hill's conclusions may be summarized here, modifying them slightly to suit the particular case of the Dún. The order of the three seasons in the plains of Upper India—the cold, the hot and the rainy—is followed in the Dún and also in the hills. After the close of the rains at the end of September or beginning of October the sky is serene and the atmosphere transparent. Owing to the absence of cloud and the rapidly diminishing proportion of water vapour, the air is very diathermanous—that is, permits the free passage of heat from the sun to the earth in the daytime, and in the calm nights that prevail at this season the radiation of heat into space goes on so rapidly that the earth's surface and the air resting on it become very cold before morning. The months of October and November are thus characterized not only by clear skies and calms, but by a great temperature range and heavy dews at night. These conditions prevail through the greater part of December and towards the end of that month, and in the beginning of January the exposed thermometer sometimes falls several degrees below freezing. About the end of December and in January and February, however, clouds often interfere with the free radiation of heat at night, and the daily range of temperature for these months is less on the average than that of November. Rain generally falls now, and the cloudy weather often lasts for some weeks. Local tradition says the winter rains do not finally clear until snow falls on Badraj, a large hill rising immediately above the Dún to the west of Mussoorie. When rain falls in the Dún snow often falls at Mussoorie and on the hills below. After a heavy fall of snow the view from the Dún is very beautiful. Except on the tops of the hills, however, the snow soon melts and in two or three days disappears. Mr. Williams mentions that in February, 1814, snow lay on the ground for two whole days at Dehra itself, but this was an extraordinary phenomenon. It seldom falls lower down than Jharipáni, the well-known resting-place between Rájpur and Mussoorie. In March and April the temperature rises rapidly, though the increasing heat is often tempered by thunderstorms. During May and the first half of June the temperature continues to increase, and as the rains approach the range of temperature diminishes and for the last few days before the rains set in the nights are sometimes insufferably hot and close. The hot winds which rage in the plains below were never felt in the Dún until the last few years, when the tea plantations in the Western Dún have suffered from their influence. Except at the time of greatest heat a cool breeze generally comes down from the hills at night. In the cold weather months also there is less air in motion than in the plains, and the keen cutting winds which are sometimes experienced there are unknown. The climate of the Dún, though said by some to be relaxing, is pleasant to live in. The heat sets in much later than in the plains, and never reaches the same intensity. There is almost an English spring, when the wild roses, which form the hedgerows of Dehra, bloom in profusion. The rains are by no means unpleasant. As a rule there is a good downfall once a day, and the air is always cool

and refreshing when moving rapidly through it. The Eastern Dún is of course feverish in the extreme, and is entirely deserted in the rainy season. Dehra itself is somewhat feverish in August and September, when the rains are drying up. But the inhabitants have themselves to blame to a great extent for this. The station is full of small compounds, which are allowed to remain crowded with low trees and to become choked with the rank vegetation and luxuriant vegetable growth of all kinds, which spring up with incredible rapidity if left unchecked. The result is that the free circulation of air is much impeded and dense masses of decaying undergrowth surround the dwelling-houses on all sides. Still the fever does not assume the deadly form it has in the plains, and, on the whole, the extremes of heat and cold being much less, the climate is decidedly more favourable for the health of Europeans.

79. Horses, especially imported English and Australian, do exceedingly well at Dehra. The carriage horses of the Viceroy and the horses of the Viceroy's Bodyguard have passed the hot weather at Dehra for many years past and always enjoy excellent health. Dehra is also a favourite resort for racing stables, who come here to escape the heat of the plains below, which tries thoroughbred horses severely. The improvement in their health at Dehra is very marked.

80. Cattle-breeding has been tried in the Dún, but the malaria is said to have proved fatal to success. The experiments were probably not, however, carried out very scientifically or comprehensively, as between the Dún and Mussoorie any desired altitude could be obtained, and the cattle easily sent up to higher ground during the malarious months beyond the reach of malaria.

81. Dehra is 2,323 feet above the level of the sea, which may be taken as the average height of the valley. Seven miles to Rájpur brings one to the foot of the Mussoorie hills, 2,997 feet above the sea-level. From Rájpur the distance by bridle-road to Mussoorie is about seven miles. The first half of the road is almost entirely ascent till the level of Jharipáur, 5,150 feet high, is reached. From here the road, though still winding higher and higher, does so by comparatively easy gradients until Mussoorie itself is reached. The height of the Mall is 6,599 feet. The highest points of the principal hills are Camel's Back, 7,029 feet; Vincent's Hill, 7,006 feet; Blucher's Hill, 7,167 feet; while the highest point of Landour is 7,533 feet above the sea level.

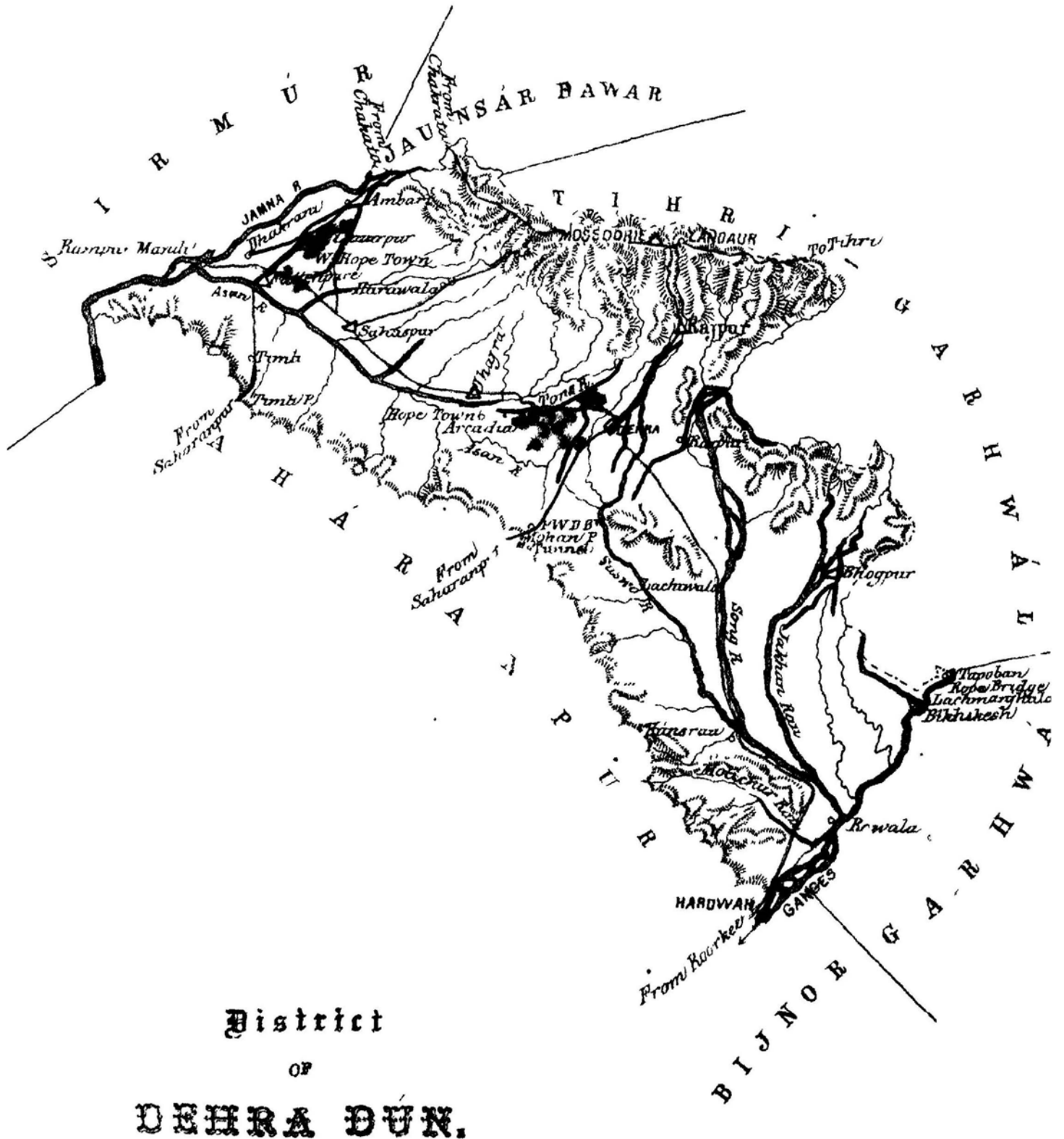
82. The climate of Mussoorie is singularly bracing and healthy. The station is wind-swept on almost every side, there being on the south a clear and unbroken expanse of air right to the Siwaliks and the plains beyond, and on the north a similar expanse to the distant hills of the next range. The mean monthly and annual temperature of Mussoorie is given below, as also the rainfall:—

Mean monthly and annual temperature of Mussoorie.

	Latitude N.	Longitude E.	Elevation in feet	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
MUSSOORIE	29° 24'	76° 11'	5,850	45° 6'	47° 6'	57° 2'	63° 5'	67° 6'	70° 6'	66° 4'	65° 3'	65° 2'	63° 0'	56° 6'	47° 0'	59° 6'

MAP showing the TOWNS and MARKETS.

PARA. 84 (PAGE 23.)



Banaars Shown &

Average monthly and annual rainfall of Mussoorie.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Mussoorie ..	6 74"	2 28"	1 19"	1 38"	5 72"	10 39"	21 18"	39 28"	8 30"	...	...	2 28"	98 74"

83. To the uninitiated it must seem a matter for surprise that European troops, especially the mounted branches, have never been located in the Dún. The climate is unquestionably far more healthy for the European than that of any station in the plains. Grass and forage are obtainable in abundance. In the case of sickness the hills can be reached in a single night's march, and the men be moved up and down without expense as often as occasion might require. In the more unhealthy months, hutting for the troops could be arranged for in the hills, if necessary. Further, the Dún in itself is a vast natural fortress admirably suited for military depôts, &c. It might be added that inexhaustible motive power is at hand in the waters of the Ganges and Jamna, if it could only be turned to account. As farther discoveries are made in electric science, and the difficulties attending the use of electricity as a motive power are overcome, this may yet be done. In the Western Dún, especially where the Jamna water is available, land suitable for cantonments could easily be found. Hitherto it cannot be said that Government has done much to turn the advantages offered by the Dún and Mussoorie as a dwelling-place for Europeans to account. This has been left almost entirely to private enterprise. The Government of the North-West Provinces has chosen Naini Tal for its summer head-quarters, and neither Dehra or Mussoorie are utilized in any way by the Local Government. The Survey Department has its chief office at Dehra, and two or more survey parties generally recess at Mussoorie in the summer months. The Forest School at Dehra has become a large and flourishing institution, but this is intended for the training of an efficient native forest staff rather than for Europeans. The Landour Convalescent Depôt was started in 1827, and about 300 invalids are sent up yearly. The Sirmur Battalion, now 2nd P. W. O. Gurkhas, has been stationed in the Dún since its first acquisition by the British, and a second battalion has just been raised. The General Commanding the Meerut Division as a rule spends a considerable portion of the hot weather at Mussoorie with his staff. But, on the whole, the unequalled climatic advantages for Europeans offered by the Dún and hills round Mussoorie seem to have escaped the notice of both the Supreme and Local Governments in the days when hill stations were first being built. So long ago as 1853 Sir George Campbell, in his "India as it might be," selected the Dún as the most fitting spot for the future capital of India.

(7)—Towns and Markets.

84. The only town of any importance in the district is Dehra itself, which at the census of 1881 had a population within municipal limits of 18,959. It is also the chief market of the district, and from here Mussoorie derives its supplies. Other petty local markets are Rypur, Fatehpur, Sahaspur, and Rikhikesh. Mr. Ross writes under this head:—"There are no towns except Dehra itself, and no large markets of any note. Grain and produce imported from the plains are sold in the Dehra bazár and to a small extent in the petty local markets. The scanty amount of produce of the district that is exported is sold in the fields. Banjaras and Kumhars take their bullocks and ponies from field to field and load from the threshing-floors, getting five seers per rupee more than they would in the bazár."

85. As already remarked, the Dún is not self-supporting. Grain is imported from the plains. The grain imported is almost entirely wheat and gram, the former for the food of the more well-to-do.

portion of the population and visitors, and the latter for the horses and cattle of regular inhabitants and visitors. The poorer classes amongst the people live almost entirely on the coarser grains produced in the *khair*.

86. The only grain that is exported is rice; there is always a surplus of this grain, which is taken to the plains on bullocks and ponies that have brought in *gúr*, salt, wheat, &c.

Export of rice.

87. Dehra is supposed to have been founded by the Sikh priest Gura Ram Rae, a lineal descendant of Nanak and great-grandson of Har Govind. In his youth he was made over as a hostage to the Muhammadan Court and became a favourite of Aurangzeb, who, about 1700, sent him to the Dŭn with letters of recommendation to the Rája of Garhwál. Eventually he settled at Dehra, built a temple there, which was endowed by the then Rája and his successor with seven villages, and being joined by numerous devotees, a flourishing town sprang up around. Old Dehra is said to have been on the Nagsidh hill, and this was entirely deserted in favour of the Dehra of the present day. The saint was credited with being able to die at pleasure and come to life again, but at last was found dead outright in his cell. The present Mahant, Naráyan Das, is the fifth in succession.

88. The Dehra of the present day is a long straggling collection of buildings from south to north, along the Saháranpur-Rájpur road, which runs through it and forms the principal street. The bulk of the town, including the Mahant's temple and house, is to the west of the road. The civil station of Dehra is to the north of the town, and extends two or three miles along the Rájpur road till the Bolyguard Lines are reached. The *tahsíl*, kutchery, jail, Viceroy's stables and race-course are to the east of the town. The cantonments of the Gurkha regiment were formerly just outside of the town, on the north. In 1869 they were moved to a fresh site to the north-west of the town, and their former parade-ground is now the chief open space of Dehra. In the south-east corner is the forest school, which has extensive grounds and gardens attached, the municipality having leased to it a considerable portion of the old cantonment land. The survey office is in a large compound to the north of the forest school.

Dehra is said to have one of the largest permanent European populations of any station in the North-Western Provinces. It has become a favourite resort for the small pensioner class, who, in considerable numbers, have settled down here to end their days. In spite of its very great natural advantages, Dehra is perhaps the most backward station in the provinces. The compounds are as a rule badly kept and used for growing cereals and other crops. There are no public gardens or institutions of any kind, and the income of the municipality, only about Rs. 12,000 per annum, is barely sufficient to meet the most necessary expenditure. Had Dehra become a large cantonment, it would probably, with Mussoorie so close at hand, have been the most favourite station in Upper India, combining the advantages of a hill climate with those of the ordinary plains station. Even as it is, fresh houses are constantly being built, and land and house property have increased very rapidly in value in the last twenty years. Dehra has no special trade or manufactures of its own. It is the chief grain mart of the district, and the surrounding villages buy here wheat, gram, barley, mandwa, maize, bajra, jawar, pulses, salt, ghi, spices, cloth, utensils, and other articles of everyday use.

89. There is no regular octroi to hamper trade either at Dehra or Mussoorie. The Assarori and Rájpur tolls. The tolls to be paid at Assarori and Rájpur perhaps come to much the same thing, except that goods are not subjected to the delay and inconvenience of being opened in transit to ascertain their nature. The Assarori toll is paid both coming and going. The Rájpur toll is paid when going up the hill only.

90. The great event of the year is the mela held on the fifth day after the great Hindu festival of the 'Holi' at the Mahant's temple, which lasts for about ten days. Thousands of Sikhs and devotees come from the Panjáb and other parts, and the Holi flag is raised with much solemnity amidst the prayers and offerings of the assembled crowds. The Mahant is supposed to entertain the faqirs and holy men who come, but reaps a large harvest from the offerings made, which are appropriated by him as the custodian of the shrine. At a large mela as many as 25 or 30,000 people may be present, but of late years the numbers of visitors have shown a decided tendency to decrease. From Dehra the majority go on to the great Hardwár Mela which takes place about a month later. During the week this lasts the Courts are closed and a general holi-day is observed. Hardwár is, however, a name of evil portent to the Dún. Whenever cholera breaks out at Hardwár, as it too frequently does, the returning pilgrims bring back the fatal disease with them, and Dehra has suffered from several outbreaks in this way, the last of which was in 1885.

91. The subjoined statements show the areas taken up for the new cantonments of the 2nd P. W. O. Gurkhas, the Bodyguard Lines, and the Viceroy's stables, respectively, together with the amount of compensation paid.

For the new Gurkha cantonment 553 acres 1 rood and 13 poles of land were appropriated under Act X of 1870 by Notification No. 181A., dated 5th February, 1870, and No. 47A., dated 6th April, 1876, from the villages shown in the statement below. The annual land revenue reduced was Rs. 202 and the cash compensation paid amounted to Rs. 30,089-4-6 :—

No.	Name of villages from which land has been taken up.	Area in acres taken up.				Reduction from annual jama	Cash compensation paid.
		Barren.	Culturable	Cultivated	Total.		
		A. r. p.	A. r. p.	A. r. p.	A. r. p.	Rs. a p.	Rs. a. p.
1	Pirhotwala, patti Bhani ...	19 2 36	14 1 15	81 3 11	115 3 22	39 0 0	7,790 0 7
	Patti Colonel Sahab ...	1 0 12	1 3 27	7 2 25	10 2 34	4 0 0	645 12 11
2	Garhi, patti Bhani ...	9 3 13	...	14 1 36	24 1 9	15 0 0	1,488 11 7
	Ditto Colonel Sahab, ...	...	...	2 3 39	2 3 39	3 0 0	340 1 11
3	Bijapur Hatli Barkla, patti Bhani.	16 1 17	...	55 0 12	71 1 29	24 0 0	4,537 0 8
	Patti Colonel Sahab ...	24 1 11	...	68 0 9	92 1 20	30 0 0	5,550 2 9
4	Bahadurpur ...	5 3 6	...	22 1 38	28 1 4	14 0 0	1,785 6 11
5	Chokhawala ...	50 2 17	19 3 22	72 2 5	143 0 4	73 0 0	7,866 2 6
6	Dubhalwala ...	13 0 27	7 3 3	43 1 17	64 1 12	...	95 12 9
	Total ...	140 3 19	44 0 2	368 1 32	553 1 13	202 0 0	30,089 4 6

92. Several sites have been inspected with a view to taking up another cantonment for the new battalion lately raised, but no definite selection has yet been made. Meanwhile the men are temporarily huddled on rising ground to the west of the Rájpur road about two miles to the north of the present cantonment.

93. The land taken up for the Bodyguard Lines formed the subject of prolonged litigation between Government and Musammát Munna Jan, alias Mrs. Marten, on one side, and Mr. A. Skinner on the other. Eventually, by Notification No. 1348B.R., dated 23rd August, 1880, 215 acres 3 roods and 14 poles were taken up under Act X of 1870 so as to secure an undisputed title. The reduction of land revenue to be made was Rs. 107, and the amount of cash compensation awarded was Rs. 24,091 9-5. The bulk of this sum had to be invested in promissory notes, as the owner of the land, Colonel Delane, was absent in England,

and no reply was received to the communications sent to him. Meanwhile Mrs. Marten alleged the land had been given her by Colonel Delane and was permitted to receive the interest of the notes. Colonel Delane now claims to have the notes made over to himself, and an interpleader suit has been filed by Government to relieve itself of all further responsibility in connection with them :—

Number	Name of villages from which land has been taken up.	Area in acres taken up.				Reduction from annual jama.	Cash compensation paid.
		Barren.	Culturable.	Cultivated.	Total.		
						Rs. a. p.	Rs. a. p.
1	Jakhan khalsa ...	10 3 34	...	120 3 8	131 3 2	65 0 0	19,298 11 3
2	Jakhan muafi ...	...	...	4 2 25	4 2 25	Revenue-free,	695 13 9
3	Hathi Barkalla ...	6 3 8	...	59 0 27	65 3 35	30 0 0	3,234 5 1
4	Koripur khas ...	3 2 6	...	4 0 18	7 2 24	6 0 0	272 11 4
5	Chak Adhaiwala ...	...	...	5 3 8	5 3 8	6 0 0	690 0 0
	Total ...	21 1 8	...	194 2 6	215 3 14	107 0 0	24,091 9 5

94. For the Viceroy's stables 4 acres and 4 poles, as shown in the statement, Land taken up for Viceroy's stables. were acquired by private purchase in 1881.* The reduction of revenue made was Rs. 5 and the price paid was Rs. 1,141-8-9. For this land no notification under Act X of 1870 was issued :—

Number	Name of villages from which land has been taken up.	Area in acres taken up.				Reduction from annual jama.	Cash compensation paid.
		Barren.	Culturable.	Cultivated.	Total.		
		A. r. p.	A. r. p.	A. r. p.	A. r. p.	Rs. a. p.	Rs. a. p.
1	Udiwala ...	...	...	3 1 6	3 1 6	5 0 0	1,141 8 9
2	Dalanwala ...	...	...	0 2 36	0 2 36	...	
	Total ...	...	...	4 0 4	4 0 4	...	1,141 8 9

95. Mussoorie, with the adjoining station of Landour, is situated on a series of peaks or hills of the lower Himalayas forming what is called the Mussoorie range. The chief of these are—
Hills of the Mussoorie range on which Mussoorie is situate.

	Height above sea.					
	Feet.					
Banog	7,432
Badraj	7,318
Cloud End	7,062
Hathipaon	7,088
Abbey Hill	7,092
Blucher's Hill	7,187
Vincent Hill	7,006
Camel's Back	7,029
Castle Hill	6,909
Landour	7,533

96. The first house, a small hut to serve as a shooting-box, is said to have been built on the Camel's Back by Mr. Shore and Captain Young in 1823.
First house built in 1823.

97. The Landour Convalescent Depot was started in 1827. Mussoorie as a hill station and hot-weather sanitarium rapidly came into favour with the general public, though, with the exception of the Survey Department, it has been little patronized by
Landour Convalescent Depot started in 1827. Rapid growth of Mussoorie since then.

Government officials. A full account of the rise and progress of the station, its chief features, buildings, public institutions, &c., is given in the local guide-books, of which there are several. The Mussoorie of to-day has a population of 3,106 in the cold-weather months, which in the season, i. e., from 15th April to 15th October, is estimated to rise to about 7,000. The numbers, of course, fluctuate yearly according to the number of visitors who come up. Fresh houses still continue to be built, and the total number now in the station is 482, of which 391 were occupied during 1885. The number of occupied houses has risen steadily of late years. The income of the municipality is a little over Rs. 30,000 per annum. The energy with which its affairs have been administered, and the many public improvements effected, are in striking contrast to the backward condition of Dehra, only 14 miles off.

98. The large sums annually spent in Mussoorie must unquestionably have greatly benefited the Dún. Garden produce, poultry, &c., find a ready sale there at remunerative prices. There is always a great demand for labour in the season, and the two Breweries alone employ several hundred men. Dehra is little more than a thriving agricultural village; but from Mussoorie the Dún has reaped the advantages, which any purely agricultural tract must, from having a flourishing town close at hand, where a ready market can be found for its produce, and all surplus labour can at once be absorbed.

99. From a revenue point of view Mussoorie is chiefly interesting on account of Mr. Wells' settlement, made in 1842, by which the limits of the station and rights of property within those limits were defined. The northern slopes of the hills on which Mussoorie is built belonged to the Tehri Rája. The first houses appear to have been built by settlers under direct agreement with the local zamindars, irrespective of whether the site was in Tehri or British territory. By Mr. Wells' settlement proprietors were confirmed in possession of their estates on payment of an annual rent, which, in most cases, was fixed at the amount hitherto paid to the zamindars. Up to this time the only record had been an old and loosely kept up register of estates in Hindi and Persian, purporting to give the area, boundaries, rent, and name of the proprietors of each. In many cases, however, it contained only the name of the proprietor and the rent paid, and in none did the boundaries agree with the area on the record. Mr. Wells laid down the boundaries of each estate and settled the rent to be paid for each, two-thirds of which was to go to the zamindars and one-third to the committee for local purposes. The Rája of Tehri and the Mahant of Dehra were also induced to agree to a similar arrangement for the land belonging to them, which was included within the boundaries of the settlement as determined by Mr. Wells. Besides the estates demarcated by Mr. Wells and recorded as in proprietary possession of their owners, a considerable area was comprised within the boundaries of the settlement, called 'unoccupied lands.' These were to allow for the future expansion of the settlement, the intention being that when any one required a fresh site for building, a portion of the unoccupied land should be put up to auction and sold to the highest bidder, subject to the payment of a ground-rent of five annas per acre. Until required for building purposes the villages to which the lands belonged were to have the right of grazing and collecting fuel on them. They have also, without any special sanction, cultivated scattered patches here and there, which have been assessed with Government revenue as if forming part of an ordinary revenue-paying mahál.

100. The following statement gives a list of villages owning land within municipal limits, showing the total area, the cultivated area, and the amount assessed on the cultivated area.

Statement showing for all villages owning lands within municipal limits the total and cultivated area and the assessment on the cultivated area.

Except in the cases of Jharipáni, Kyarkuli, Bhatta, and Chamasari, the cultivated areas are very small :—

No.	Name of village.	Total area in acres	Total cultivated area in acres.	Amount assessed on cultivated area	Remarks.
1	2	3	4	5	6
1	Binahār	123.77	12.50	1	Real jama.
2	Bhitari	242.15	...	...
3	Bhandargaon (part of Gopiwalā Man Singh.)	128.48	5.17	2	
4	Domgaon (part of Gopiwalā Fateh Singh Mahal Baijai Singh)	96.47	12.86	4	
5	Jharipam	334.56	36.90	20	
6	Kurkuli Bhatta	3,451.19	364.05	25	
7	Khalagaon (part of Gopiwalā Kalam Singh.)	194.02	.76	...	
8	Makreti	171.80	17.68	8	
9	Misras patti	517.81	...	...
10	Puckal (part of Gopiwalā Fateh Singh Mahal Jai Singh.)	7.00	...	...
11	Rikhault	504.86	...	...
12	Salangaon	22.60	...	...
	Total	5,794.66	370.11	60	
13	Chamasari (muāfi)	2,330.00	248.30	80	Nominal jama.
	GRAND TOTAL	8,124.66	618.41	140	

101. At Mr. Ross' suggestion the following clause has been added to the wajib-ul-arz of these villages :—

Clause inserted in the wajib-ul-arz in regard to unoccupied lands.

"In the portion of this village inside the Mussoorie municipal limits we have no rights except in the land actually cultivated at this present time. In the rest of the land we have no right to cultivate, except with permission of the municipal committee. In the forest land we have merely a right to graze our cattle and take fuel for our own household work. Whenever the land is taken up by the municipality, we shall be entitled to compensation for our cultivated land only; for the remainder we will be entitled to two-thirds of the land-rent collected by the municipality, the municipality keeping the remaining one-third."

This has been agreed to by all the zamindars concerned, except a few who claim to have had their land already assigned to them by the municipality, and that it is no longer 'unoccupied.' The question of the disposal of these unoccupied lands is one of considerable importance for the municipality. It is certainly desirable that no further unauthorized extension of cultivation should be allowed, and that the rights of the municipality should be carefully guarded in future. The small amount of revenue, viz., Rs. 60, assessed on the cultivated patches within municipal limits is credited to Government.

102. It may be mentioned that the total demand on account of the assessment fixed by Mr. Wells in 1842, and the ground rent of five annas per acre paid for the unoccupied lands since made over to the possession of private individuals, is Rs. 2,737; of this Rs. 1,127 is paid to the Rāja of Tihri, the Mahant of Dehra, and other zamindars, and the remainder is credited to municipal funds.

103. For many years botanical gardens were kept up by Government at Mussoorie in connection with the Sahāranpur Gardens. The site was, however, found to be altogether unsuitable, having a north aspect with no water-supply. The gardens were, therefore, practically useless for experimental purposes, and were sold to the municipality for Rs. 10,000 in 1883. New gardens have been formed at Arnigadh, somewhat lower down on a hillside to the south-east of Mussoorie, where a considerable amount of level land and a plentiful water-supply are available. These promise to be very successful, especially in regard to the growth of European vegetables and medicinal drugs, for which the temperature and situation are very favourable.

By Notification No 2040, dated 16th November, 1882, 38 acres 2 roods 17 poles of land were taken up under Act X of 1870 for the new gardens, compensation being paid as follows :—

	Rs.	a	p
For land to Mahant Narayan Das
„ occupancy rights to cultivators (Moti Ram, Khelaru, and others)
„ houses, &c., to ditto
„ canal ditto
„ civil suit expenses
Total

The culturable area is about 30 acres, almost the whole of which is irrigable from springs rising in the hills above.

104. Rájpur is a small town under Act XX of 1856 at the foot of the hills, with a population, according to the last census, of 3,293. It is simply a long bazár, with the houses on each side of the road. The provincial road ends here, and there are three or four hotels under European management for the accommodation of travellers to and from Mussoorie. A short distance off are the Robbers' Cave and the Sahasra Dhara, or thousand drippings, i.e., petrifying springs. Both are well-known picnic places.

105. Fatehpur and Sahaspur are small villages on the Dehra-Rámpur Mandi Road, distant 26 and 18 miles respectively from Dehra.

106. Rikhiresh is on the banks of the Ganges in the Eastern Dún. There are several temples there, and it is a regular halting-place for pilgrims on their way from Hardwár to the hill shrines of Badrinath, Kedarnath, Jumnotri, Gungotri, &c.

(8)—Population and Caste Distribution.

107. The population of the Dún according to the census taken on 17th February, 1881, was 98,953, made up as follows :—

	Total population.			Hindus.			Muhammadans.			Christians.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Eastern Dún	21,018	12,508	8,510	19,463	11,462	8,001	1,515	1,026	490	40	21	19
Mussoorie municipality ..	3,106	2,414	692	2,022	1,615	407	641	510	134	449	289	161
Dehra ditto	8,959	11,144	7,815	13,417	8,031	5,416	4,801	2,877	1,924	711	236	475
Landour cantonment	1,746	1,310	436	1,078	813	265	556	431	125	114	66	46
Dehra ditto	1,724	1,097	627	1,616	1,026	590	80	55	25	28	16	12
Rájpur town	3,293	2,049	1,244	2,604	1,648	956	618	362	256	71	39	32
Remainder of Western Dún.	49,107	28,063	21,044	41,037	23,364	17,673	7,587	4,441	3,146	480	256	225
Total, Western Dún	77,935	46,077	31,858	61,804	36,497	25,307	14,286	8,676	5,610	1,846	104	941
Grand Total for the district.	98,953	58,585	40,368	81,267	47,959	33,308	15,801	9,701	6,100	1,885	925	960

108. Judged by the standard of other districts the population is far from being dense, but it has unquestionably increased many fold under British rule. Mr. Williams writes—“A rough census taken immediately after the conquest set down the population at 17,000 or thereabouts. Another followed in the year 1823, giving—

Men	...	...	7,465	} Families	...	...	4,962
Boys	...	...	4,309		...	...	...
Women	...	...	6,133		...	...	8,153
Girls	...	...	2,011		...	...	...
...	...	...	241				
Total	...	...	20,179				

to whom Mr. Shore, writing in 1827, added 4,100 persons belonging to the Sirmur Battalion, besides 250 attached to the courts and jail, in all 24,529; without counting about 1,000 hillmen who come down every cold weather to seek employment, and as many more who come from the plains to cut bamboos and timber, or to make lime, &c., and for other mercantile purposes. He attributes the paucity of children to the slaughter of the adult males during the Gurkha invasion, and to the extensive practice of female infanticide, designed to save good-looking girls from falling into the hands of the invaders. Hence the district was full of old widows and young unmarried men under thirty years of age. The only place then approaching to anything like a town was Dehra, containing 518 houses and 2,126 inhabitants. Gurn Ram Rae had, says tradition, raised it from the rank of a village, whereas Jakhan and Nawáda, once flourishing towns, had degenerated into mere hamlets."

Census of 1847-48. 109. In 1847-48, from calculations made by Mr. A. Ross, the population is supposed to have been 32,083. No census was taken in 1853.

Census of 1865. 110. The census of 1865 gave a total population of 66,299, or 191 to each square mile. The large hill stations of Mussoorie and Landour were, however, omitted.

Census of 1872. 111. The census of 1872 gave a total population of, 76,413.

112. In 1881 the late census showed the population to be 98,953, of whom 58,585 were males and 40,368 females, there being about 65.5 females to 100 males. Comparing the returns of 1872 with those of 1881, there is an increase of 22,540, or 29.5 per cent. This is due to the general prosperity of the district under a light assessment, and to the large amount of labour imported by tea-planters, the Forest Department, &c. Mr. Ross says "the news that agriculturists could live comfortably by fair work, instead of eking out a miserable existence by slavery and toil, spread and drew in large numbers of people." The population is still, however, below the provincial average of 416 per square mile.

Density of population per square mile. 113. The density of the population per square mile of total and cultivated area is shown below:—

Comparative statement showing the density of population per square mile of the total and cultivated area separately for the Western and Eastern Dúns and for the whole district.

				Total area in square miles.	Cultivated area in square miles.	Population per square mile of total area.	Population per square mile of cul- tivated area.
Western Dún	Former	...	...	255.86	55.88	209	981.2
	Present	...	...	268.88	81.40	301.1	957.4
Eastern Dún	Former	...	...	120.10	19.00	113.7	715.8
	Present	...	...	138.30	29.10	152.0	722.3
Total district	Former	...	...	375.96	74.88	178.5	899
	Present	...	...	397.18	110.50	249.2	895.5

The density of population for the whole district, excluding Government forests, is thus 249.2 per square mile as compared with 178.5 at the last settlement, and for the cultivated area 895.5 per square mile as compared with 899. The growth in population has hardly kept pace with the growth in cultivated area. The Eastern Dún has only about half the population of the Western Dún in proportion to their total areas, but per square mile of cultivated area it is only 24.6 per cent. less.

Including the Government forests, the density per square mile of the total area falls to 138·4 as compared with the provincial average of 416 and 440·9 in the adjoining district of Saháranpur.

Division of population
into four broad classes.

114. Mr. Ross says :—"The population of the Dún may be divided into four broad classes :—

- (a) The hillmen, who have taken possession of the northern portion bordering the Himálayas. These are almost all Rajputs.
- (b) The plains men, who have come in from Muzaffarnagar, Saháranpur, Ambala, &c., and peopled the greater portion of the Western Dún. These are of all castes.
- (c) The Mehrahs, who are the aboriginal inhabitants and occupy all the unhealthy villages in the Eastern Dún where no one else can live. These are also Rajputs and are closely allied to the Baxis of the Rohilkhand taráí and Tharus of the Oudh taráí: they are clearly all one and the same race.
- (d) The daily labourers. These come and go, but as so many are employed on the tea plantations, they form no inconsiderable portion of the community. They are of the various castes from whom Leldars are drawn."

115. Mr. Williams gives the following sketch of the inhabitants of the Dún :—

Sketch of the inhabi-
tants of the Dún by
Mr. Williams.

"The two castes who take the lead, in numbers and influence, are Brahmans and Rajputs. Both are classified generally according to the broad division of highlanders and lowlanders. As a rule, the latter repudiate all connection with the former and always lose caste by intermarriage with them.

116. "The two principal subdivisions of the hill Brahmans are the Sarolé and Gíngaré. Both have almost altogether lost sight of strict caste obligations, if indeed they ever really observed them at all, and will eat any sort of flesh except beef. Still the former affect a superiority over the latter and will not take food from their hands, whereas even the Pamar Rajputs of the Garhwál Rájá's family will break bread prepared by the Sarolé, who fall in the social scale from intermarriage with their inferior brethren. These, on the contrary, not only intermarry with the meaner *soi-disant* Rajputs, but follow a practice abominable to the pure Hindu, marriage with widows, more particularly those of a deceased brother (*kuras*). This, be it observed, is the essential point of difference between the high caste and low caste code throughout these provinces. The Gíngaré, again, drink spirits freely, which the true Sarolé will not. Of the latter not more than ten or twenty families remain. The others are numerous."

117. "The hill Brahmans have a number of local nicknames, on no account to be confounded with names of *gôts*; such as Nautál, Dubhál, Dúngwal, Bughane, Unyal, Kukreti, Kále, Thaplyal, Ghilyal, Bakoi, Joshi, Ramwan, Siláni, Pujari, &c., &c.: some of these are applied to all indifferently, for instance, Nautál; but they chiefly belong to the Gíngaré."

118. "The Levites of the plains regard the hill Brahmans as the illegitimate offspring of the pure Brahmans. They then selves are for the most part Gaúr and Sárasut. The former will have nothing to do with those of the hills; the latter are not averse to intercourse with them and even eat the flesh of game. Both are diligent cultivators.

119. "The three principal tribes of Rajputs are Ránghars, Ráwats, and Bishts. Ránghars (a name sometimes improperly alleged to be inapplicable to true Rajputs) are the descendants of strangers of Pundir extraction from Saháranpur, who gained a footing in the Dún during the decline of the Garhwál Ráj. There are very few of them, and these are being gradually absorbed by intermarriage with the hill women, a thing destructive to the purity of their caste. Some live at Dharampúr, Maira, Kaunli, Haripur,

Rangharwala, Jhajra, Mithibheri, and Jassuwala (all in the Western Dūn) A branch of the Muhammadan Pundirs or Raos of Kheri, zila Sahāranpur, also settled near Nawāda and still exists there, while Muhammadan Chauhāns from Raipur, whose ancestors came in the same manner, live at Khushalpur and Majra, close to Sahaspur."

120. "The Rāwats are highlanders, though they pretend that 1,200 or 1,300 years ago their ancestors, coming from Sheorajpur, Rāwatpur, Masūnpur, and Chachendi, near Cawupore, took service with the Rāja of Almora. The former Rāja having died childless, his widow adopted a son of the Sheorajpur Rāja, who sent four of his relations with the boy to Kumaun. One of these, named Kour Jāmi Bhān, taking offence at something, left Almora and emigrated to Sinagar, where he gained favour in the eyes of the Garhwāl monarch. His descendants therefore prospered exceedingly, so that when in later days the legendary Ajba Kour and Rāni Karnawati took up their abode in the valley, as deputies of the reigning prince, and founded the old palace at Nawāda, they settled the Rāwats at Ajabpur, Karanpur, and Udiwāla, where alone they are to be found. This tribe intermarries with all the other hill Rajputs without losing caste, a fact clearly distinguishing them from the Ranghar Pundirs. Their *gôt* is 'Angrah.' "

121. "Mr. Traill calls them Rajis. He considers them to be aborigines, and adds that in his time they were, in Kumaun, reduced to about twenty families wandering about 'in the rude freedom of savage life' among the sub-Himalayan forests. According to him, they represented themselves to be descendants of an aboriginal prince of Kumaun who fled with his family to the jungle to escape the violence of a usurper, and the outcastes called Dōms or Dhōms are supposed to be their poor relations."

122. "Another class claiming superiority over the ordinary Pāhāri Rajputs, although belonging to the hills, is the Bisht. The word really appears to be a territorial title equivalent to the *Thokdoor* or *Talūkdār*. Negi, a term usually placed in juxtaposition with it and strongly resembling the name of Nāga, seems to be their true appellation, a fact striking in connection with the habitat of these *soi-disant* Rajputs, and the universally received tradition of a Scythian or "Chinese" supremacy in former ages."

123. "The other Pāhāri Rajputs may be generally included in the term Khasia, a name of which no satisfactory explanation has been hitherto offered, though it is familiar to everybody through the well-known "Kossya hills." They never wear the *janeu*, and their claims to relationship with the warrior class do not even rest upon a foundation of plausible tradition."

124. "There is one family of Rajputs at Sahaspur who call themselves Tūars."

125. "Next come the Gūjars; like the Pundirs, they immigrated from Sahāra-
raipur, as invaders, in the last century, and settled near the mouth of the Timli pass, then the great thoroughfare to and fro. They retain land at Timli, Kalyanpur, Sabhawala opposite Sahaspur. Tiparwala, Jatonswala, Shahpur, Dharmwala, and Partalpur Bharuwala and Mathronwala were formerly prosperous Gūjar villages. Now the community is there solely represented by an impoverished widow."

126. "Besides the Chauhāns of Khushalpur and Majra, there are other people likewise styling themselves Chauhāns, who have no right whatever to the name in spite of their pretensions to Rajput ancestry, known as Khāgi. This tribe is common throughout the Ganges *khādir* in the Sahāranpur and Muzaffarnagar districts, and it is exceedingly probable that they followed in the train of their betters, with whom they claim relationship."

127. "Another more interesting tribe of low caste is that of the Mehra, numerous in the Eastern Dūn and bearing a marked resemblance to the Bhoksās of Bijnor. The Mehra is a great eater of fish, and

drinker of spirits, whenever he can get either. He is of inferior intelligence and physique, and has few traditions except that his ancestors were Rajputs. It is more likely that they were the aboriginal inhabitants of the country. Raiwala, Kharak, Shampur, and Jogiwala may be indicated among their haunts. They are also to be found in the forest belt south of the Siwaliks, but are timid and averse to intercourse with strangers."

Heris.

128. "The same remarks apply to the Heris. They, however, are much less numerous."

Dhóms.

129. "A third similar community of outcastes is that of the Dhóms, a tribe common at the foot of the Himálayas. Mr. Traill describes them as black, with curly hair inclining to wool, and living in a state of almost universal slavery, probably arising from the fact that the Hindu settlers from the plains seized some of the aborigines and reduced them to bondage. Traces of the ancient régime still exist, and to this day the Dhóms are hewers of wood and drawers of water. Can they be the troglodytes noticed by Hamilton?"

Muhammadans.

130. "The Muhammadan element in the population is very slight. Most of the Muhammadans are chance visitors from the plains. As to conversions, they have secured few proselytes, except among the wretched Dhóms, and even these prefer Christianity to Islám. So late as 1827 there was not a single mosque in the whole valley. Now, however, there are some at Dehra and Rájpur for example."

Table showing the different castes and the number of each.

131. "In the last census returns the list of castes and the numbers of each are given as below :—

Serial No.	Caste.	Population.	Percentage.	Serial No.	Caste.	Population.	Percentage.
1	Ahírs ...	1,912	1.93	28	Kahar ...	4,473	4.72
2	Brahmans ...	7,816	7.90	29	Kachhi ...	333	.32
3	Baniya ...	1,829	1.84	30	Kalsi (Kalwar) ...	997	1.01
4	Bhat ...	249	.25	31	Kurmi ...	1,164	1.17
5	Barhai ...	1,912	1.93	32	Kumbhars ...	1,329	1.34
6	Bharbhunja ...	333	.32	33	Khatik ...	83	.08
7	Banjara ...	1,247	1.25	34	Koli ...	914	.92
8	Bajgi ...	166	.17	35	Kurel ...	242	.25
9	Bansphor ...	83	.08	36	Kori ...	2,162	2.18
10	Bilwar ...	249	.25	37	Lohar ...	1,413	1.43
11	Bhangi ...	1,912	1.93	38	Lonia ...	83	.08
12	Chhupi ...	166	.17	39	Lodh ...	2,930	2.96
13	Chamar ...	14,219	14.35	40	Mali ...	831	.84
14	Darzi ...	83	.08	41	Morai ...	665	.67
15	Dhobi ...	748	.73	42	Mochi ...	83	.08
16	Dom ...	6,506	6.57	43	Odhi ...	81	.08
17	Goshain ...	21	.02	44	Pasi ...	971	1.00
18	Gújars ...	529	.50	45	Rajput ...	18,626	18.82
19	Gadaria ...	1,080	1.09	46	Sonar ...	349	.35
20	Gharati ...	83	.08	47	Tamoli ...	83	.08
21	Nai ...	748	.73	48	Teli ...	252	.26
22	Heri ...	83	.08	49	Total Hindus ...	81,152	81.83
23	Ját ...	166	.17	50	Jains ...	115	.11
24	Jogi ...	333	.32	51	Christians ...	1,885	1.90
25	Kayasth ...	163	.16	52	Muhammadans ..	15,801	15.97
26	Khatrí ...	249	.25				
27	Kambo ...	166	.17		Total ...	98,953	99.87

Rajputs are most numerous. Muhammadans, as a whole, come next, and then Chamars and Brahmans next.

(9)—*Proprietary and Cultivating classes, with the Area owned or held by each class.*

132. The statement below shows the distribution of property amongst the chief landowning castes in each pargana and in the whole district :—

The chief landowning castes.

	Western Dún.		Eastern Dún.		Total for district.	
	Area in acres.	Per cent.	Area in acres.	Per cent.	Area in acres.	Per cent.
Europeans ...	8,540	7.43	7,536	12	16,076	9.05
Brahmans ...	22,972	20.00	21,354	34	44,326	24.95
Rajputs ...	53,986	47.00	21,982	35	75,968	42.76
Baniyas ...	7,544	6.57	6,903	11	14,452	8.13
Goshains ...	2,297	2.00	1,884	3	4,181	2.35
Kayeths ...						
Kalals ...						
Khattiris ...						
Barhai ...						
Lohar ...						
Lodhas ...						
Malis ...						
Gadarias ...	16,080	14.00	1,886	3	17,966	10.11
Banjaras ...						
Gujars ...						
Nais ...						
Sonars ...						
Kurmis ...						
Kolis ...						
Chamars ...						
Musalmans ...	3,445	3.00	1,256	2	4,701	2.65
Grand Total ...	114,864	100	62,806	100	177,670	100

133. In both parganas Rajputs are by far the largest proprietors, owning nearly half of the revenue-paying area of the district. The Brahmans come next with nearly a fourth.

European grantees and companies own also some of the largest estates in both the Eastern and Western Dúns. Fakirs or Goshains own a considerable area, which is mostly revenue-free.

134. The following statement shows the area held by cultivators of different castes : —

Serial No.	Castes of cultivators.	WESTERN DÚN.								EASTERN DÚN.							
		Resident.				Non-resident.				Resident.				Non-resident.			
		Number of cultivators.	Per cent.	Area in acres.	Per cent.	Number of cultivators.	Per cent.	Area in acres.	Per cent.	Number of cultivators.	Per cent.	Area in acres.	Per cent.	Number of cultivators.	Per cent.	Area in acres.	Per cent.
1	Ahir ...	264	3.02	638	1.91	59	2.75	254	3.72	57	1.51	165	1.40	22	1.60	41	.05
2	Brahmin ...	670	8.06	2,944	8.73	290	13.50	691	8.73	582	15.38	1,657	15.90	323	23.70	755	19.22
3	Baniyas ...	190	2.24	383	1.15	44	2.30	184	2.29	90	2.38	56	.54	21	1.53	30	.76
4	Bhat ...	61	.70	261	.78	5	.23	21	.26	4	.11	16	.15	2	.14	13	.34
5	Barhai ...	238	2.53	818	2.45	41	1.87	78	.90	62	1.64	98	.95	39	2.86	108	2.76
6	Banjara and Bilwai ...	290	3.36	2,340	7.02	101	4.71	747	9.36	40	1.06	86	.83	13	.95	122	3.12
7	Bengali ...	6	.07	3	...	1	.04	2	.03	...	...	...	...	...	...	...	...
8	Bhaugi ...	87	.89	102	.30	4	.19	7	.09	16	.49	27	.26	...	...	...	...
9	Chamar ...	1,143	13.36	3,090	9.17	199	9.28	600	7.60	318	8.41	713	6.85	74	5.43	222	5.62
10	Dhuna ...	38	.44	68	.17	13	.60	17	.21	...	...	...	...	...	...	...	...
11	Dhobi ...	82	.92	202	.60	6	.28	32	.40	11	.29	...	...	1	.06	...	...
12	Dom and Bajgi ...	96	1.14	482	1.28	16	.75	36	.45	14	.37	13	.12	2	.14	6	.16
13	Europeans ...	47	.46	363	1.09	15	.70	223	2.82	4	.11	255	2.44	6	.43	117	2.98
14	Fakir, Jogi, and Sadhu ...	146	1.69	621	1.86	36	1.67	119	1.40	29	.76	60	.51	8	.58	27	.69
15	Guthas ...	15	.17	43	.13	...	...	...	...	26	.69	68	.65	9	.14	4	.11
16	Nais (Hojjam) ...	103	1.26	193	.58	11	.50	22	.29	47	1.19	78	.76	11	.80	21	.55
17	Julahas ...	120	1.39	340	1.02	49	2.28	138	1.75	33	.87	56	.56	74	5.42	127	3.26
18	Kayeth ...	10	.12	38	.11	...	...	...	...	...	...	...	...	...	...	...	...
19	Khattiri ...	18	.24	62	.19	3	.14	4	.19	14	.37	13	.12	4	.29	3	.09
20	Kalal ...	109	1.26	413	1.24	13	.60	69	.85	98	2.59	119	1.15	18	1.31	54	1.38
21	Kahars and Kurmis ...	295	3.43	667	2.00	64	2.98	196	2.47	48	1.26	109	1.06	4	.28	23	.60
22	Kumhars ...	94	1.09	131	.39	10	.47	24	.30	22	.58	7	.07	...	...	...	...
23	Lohars ...	270	3.23	733	2.20	49	2.28	120	1.52	169	4.47	280	2.70	36	3.55	81	1.05
24	Lodhs ...	280	3.31	1,545	4.68	48	2.24	121	1.52	111	2.93	246	2.37	33	2.42	70	1.79
25	Mais and Morains ...	154	1.78	573	1.72	18	.84	31	.39	57	1.51	206	1.99	13	.94	85	2.15
26	Muhammadas ...	291	3.38	783	2.35	42	1.95	246	3.12	41	1.08	102	.99	6	.43	6	.16
27	Native Christians ...	57	.69	775	2.33	36	1.67	797	9.98	...	...	...	...	...	...	...	...
28	Poddars ...	2	.02	8	.02	...	...	...	...	...	...	...	...	...	...	...	...
29	Ranghars Rajputa Thakurs Maheras	1,984	23.50	9,024	28.77	682	31.79	1,896	24.01	1,581	41.78	5,457	52.30	600	44.02	1,339	48.69
30	Rangrez ...	6	.07	14	.04	15	.60	28	.35	...	...	...	...	...	...	...	...
31	Sonars ...	18	.24	37	.11	5	.23	7	.09	10	.27	4	.04	1	.06	1	.03
32	Telis ...	629	7.28	2,340	7.02	181	8.39	562	7.10	67	1.77	103	1.00	34	1.74	80	2.08
33	Others ...	786	9.09	2,916	8.64	85	3.97	650	8.23	234	6.20	429	4.13	30	2.19	59	1.50
	Total ...	8,619	100	33,486	100	2,141	100	7,981	100	3,785	100	10,488	100	1,367	100	3,924	100

135. Non-resident cultivators are those who live in one village and cultivate land in

Resident and non-resident tenants, the areas held by them, and the size of their holdings.

another, a very common practice in the Dún. In the Western Dún there are 8,619 resident cultivators, holding 33,585 acres, or an average of 3·88 acres each, and 2,141 non-resident cultivators, holding 7,921 acres, or an average of 3·70 acres each. In the Eastern Dún there are 3,785 resident cultivators, holding 10,425 acres, or an average of 2·75 acres each, and 1,367 non-resident cultivators, holding 3,994 acres, or an average of 2·92 acres each. For the district the total number of resident cultivators is 12,404, and of non-resident 3,508, holding areas of 43,910 and 11,915 acres respectively. The average area held by each resident cultivator for the district is 3·54 acres, and by each non-resident cultivator 3·40 acres. The average area of each holding is 3·5 acres. Rajputs are the most numerous class of tenants in both parganas. Chamars come next in the Western Dún and Brahmans in the Eastern. A few Gurkha pensioners from the regiment have settled in the Dún, and in the Western Dún there is a small native Christian colony at Choharpur (Annfield grant).

(10)—Tenures.

Classification of revenue paying estates

136. There are in the whole district 378 revenue-paying estates which may be classified as follows:—

	Western Dún.			Eastern Dún.			Total		
	No.	Area.	Revenue.	No.	Area.	Revenue.	No.	Area.	Revenue.
		Acres.	Rs.		Acres.	Rs.		Acres.	Rs.
Single zamindari	83	52,914·57	11,511	59	13,552·62	2,653	142	66,467·19	14,164
Joint ditto	69	29,924·31	11,532	78	28,873·99	5,100	147	58,798·30	16,632
Perfect partition	23	9,233·77	4,854	18	5,764·51	1,741	41	14,998·28	6,595
Imperfect ditto	26	16,854·25	10,417	11	3,705·20	1,180	37	20,559·45	11,597
Bhayachára	5	5,937·36	1,700	6	10,909·23	800	11	16,846·59	2,500
Total	206	1,14,664·25	40,014	172	62,805·55	11,474	378	1,77,469·80	51,488

There are, besides the revenue-paying estates, 32 waste-land grants held on clearing leases with progressive jamas; 16 fee-simple grants under Lord Canning's rules, and 26 perpetual muafi villages either given by the Gurkha and Garhwál Raj before the British acquisition as endowments to temples, or by the Government to the families of the military officers who fell at Delhi during the mutiny of 1857 for good services.

Description of tenures by Mr. A. Ross.

137. The tenures of the Dún were thus described by Mr. A. Ross in his report and little change has since taken place.

“The tenures of the Dún present but few peculiarities. They do not differ materially from those prevailing in other parts of the country, while they are marked by the ordinary diversities apparent in the tenures of the neighbouring hills and plains. The ancestors of the present Rajputs, Kaláls, Ranghars, Gújars, &c., inhabiting the villages of the southern or lower parts of the Dún brought with them and naturalized the village constitutions with which they were familiar, while the emigrants from the hills transplanted and established in the semi-mountainous tracts of the district the village constitutions under which they had lived in their own country. Hence, in the former class of villages, the prevailing tenures are found to be pure zamindári, hissadári, pattidári, and imperfect pattidári tenures of the ordinary type, none of them present any instances of the pure bhayachára tenure properly so called. In the villages of hill origin, on the other hand, the tenures of the more recently established villages are found to be pure zamindari, while those of the older villages,

although many of them were of a broken character, present all the peculiarities which mark the constitutions of those curious taluks, or clusters of several villages, so general in the neighbouring hills, which are cultivated by a numerous community of zamindars, all enjoying separate and independent proprietary right, but at the same time all bound together by joint responsibility for the revenue assessed on the whole mahál. These tenures, except that they are found in maháls in which two distinct species of proprietary right exist, would be instances of pure bhayachára tenures of the plains, and may be so regarded with reference to each of the component villages separately."

138. The zamindári tenure greatly preponderates, 69·9 per cent. of the whole area, paying 62·4 per cent. of the total land revenue, being held in this way.

139. There are few very large proprietors. The largest landowner is Chaudhri Shib Rám, who owns nine estates with an area of 11,518 acres, paying Rs. 1,170 as revenue. Next comes Náyan Singh of Sahaspur, owning five estates with an area of 3,691 acres, paying Rs. 630 as revenue. Twenty-four zamindárs own 89 estates between them with an area of 28,477 acres and a revenue of Rs 8,666 ; 39 maháls, paying a revenue of Rs. 2,892, belong to single proprietors ; 119, paying a revenue of Rs. 15,716, belong to small bodies of shareholders from two to five in number ; 117 maháls, paying Rs. 22,414, are owned by proprietary bodies of more than five sharers.

140. The following statement shows the average amount of revenue paid by each proprietor and the average amount of land held by him in the Eastern and Western Dún and for the whole district :—

Pargana.	Average revenue paid by each proprietor.	Average of area to each proprietor.		
		Total area.	Assessable area.	Cultivated area.
	Rs.	Acres.	Acres.	Acres.
Western Dún	46 83	124 60	70 83	39·28
Eastern Dún	21·34	25·43	27·86	13 55
Total for district	30 07	107 46	51·79	27·7

141. The estates are larger in the Western than in the Eastern Dún, and the amount of revenue paid by each proprietor more than double. The district is, however, essentially one of small properties.

(11)—General Condition of the People.

142. Under British rule the Dún has made rapid strides in prosperity, and there are probably few districts in India where the people, as a whole, are better off, or where the struggle for existence is less keen. First and foremost this may be ascribed to the fact that the Dún has always been lightly assessed, and has never suffered materially from drought or the vicissitudes of the seasons. Land being plentiful and tenants always in request, the best of relations have uniformly prevailed between landlord and tenant. In his notes for the final report Mr. Ross, speaking of the general condition of the tenantry, wrote:—"Most settlement reports teem with complaints about the harsh manner in which landlords treat their tenants, the bad feeling existing between them, and the fraudulent devices practiced by each side to get the better of the other, nearly always resulting in loss to the tenant. In the Dún there has as yet been nothing of the kind. The zamindárs and tenants live on the happiest terms ; disputes about the appraisement and weighment of grain are unheard of, complaints

about illegal exaction, harassment by delaying appraisement of crops, &c., are unknown."

143. "This is due, without doubt, in a great measure, to the more simple nature of the people and to the fairness of the late assessment. The abundance of land and tenants at a premium. landlords were not ground down by heavy assessment, and so they had not to grind their tenants."

"But it is due in a still greater measure to the abundance of land. Tenants are at a premium. If not well treated on one estate they go to another. The loss to them is little or nothing. Their houses consist of thatch roofs and mud walls, or, as a rule, mere *tatti* walls. The zamindár supplies the grass and wood free of charge and often advances a little towards erection. For the first year or two no rent is paid by newly-located tenants. When the zamindár begins to demand rent, the tenant, if unable to, refuses to pay. If pressed, he absconds and seeks a fresh holding, which he has no difficulty in getting. He loses little by the change. Virgin soil bears better crops than used-up land. As a rule, it is no great hardship to a tenant to move from one village to another. It is the zamindár who suffers the loss. His rents are not paid. He must see his land remain untilled, or go to the expense and trouble of locating fresh tenants. The result is, zamindárs know perfectly that it is to their own interest to treat their tenants well and to show them every possible consideration."

Rise in value of land and forest produce after last settlement. 144. In his rent-rate report Mr. Ross remarks under this head:—

"The general condition of the people is good; there was a great rise in the value of land and all property shortly after the present settlement."

"As up to that time there had been no great demand for wood or forest produce, waste-lands, whether grass or forest, were lightly assessed. Soon after the settlement, probably in a great measure due to more efficient forest conservancy, the prices of timber and wood of all sorts rose enormously. Zamindárs who had been meaning their lot at being saddled with large areas of forest land found suddenly that they had therein a mine of wealth."

Sales of timber from private forests and large sums realized thereby 145. "The right of cutting in private forests was sold in several instances for Rs 15,000, 20,000, and 30,000."

"I have authentic records of sales of wood by private parties to the value of upwards of six lakhs of rupees during the term of the present settlement. At the same time a large amount of money was thrown into the district by tea-planters; the cultivation of sugarcane was doubled, trebled and quadrupled, and there was a ready sale for the gúr."

"All this money coming in on the top of a fairly light assessment naturally added to the well-being of the whole community."

146. "There have been no famines or droughts to ruin the people and kill off their cattle. So it may be said that since the last settlement the whole period has been one of unclouded prosperity. Notwithstanding this undoubted prosperity—prosperity in which all classes of people have shared, from the richest Maháján to the poorest labourer, the people are much in debt, due entirely to their own extravagant habits and their fondness for intoxicating liquors."

147. The Dún is what is commonly called a backward district, but so far as the comfort and well-being of all classes is concerned, it is a matter for regret rather than otherwise that more districts are not in the same state of backwardness. The zamindárs have prospered owing to the ample margin of jungle and forest left them, which has turned out most profitable. The cultivators have been masters of the situation so far, have never suffered from serious failure of crops, and at all times there has been an abundant demand for labour, irrespective of their own fields, on the tea plantations, at Mussoorie, and in the