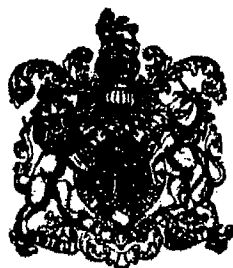


THE  
FINAL REPORT  
ON THE  
Settlement Operations  
OF THE  
Saharanpur District  
United Provinces.

BY  
D. L. DRAKE-BROCKMAN, Esq., I.C.S.,  
*Settlement Officer.*

1917-1920 A.D.

सत्यमेव जयते



ALLAHABAD:  
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS, UNITED PROVINCES.

1921

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# ORDERS OF GOVERNMENT.

No. 2039.

## RESOLUTION.

REVENUE DEPARTMENT.

*Dated Allahabad, the 21st November, 1921.*

READ—

Final settlement report of the Saharanpur district by Mr. D. L. Drake-Brockman, forwarded with the Board of Revenue's letter no. 651/I--2000/30, dated the 7th September, 1921.

OBSERVATIONS.—The Saharanpur district forms the most northerly portion of the Jumna-Ganges doab. Two-thirds of it is composed of the ordinary *bangar* or upland and the remainder divided between the *ghar* or tract which lies nearest to the hills and the *khadir* of the two rivers and their distributaries. The *ghar* occupies a somewhat larger area than the *khadir* and is similar to the latter in its demand for very little, if any, irrigation.

2. Facilities for irrigation are, on the whole, excellent. The district is commanded by the main Ganges and Eastern Jumna canals and the figures show that irrigation, both from canals and wells, has increased largely, the former by 50 per cent. Very recently a massive masonry embankment has been thrown across the Ganges and the district will, in future, be assured of protection from drought even more complete than at present.

3. The district is mainly one of small proprietors and though the area under proprietary cultivation is appreciably less than at last settlement it is still large. The chief cultivating castes are, on the whole, industrious above the average and there is a tendency towards improvement amongst cultivators, who in the past have acquired the reputation of being indifferent agriculturists. सत्यमेव जयते

4. Grain rents are common over an appreciable area which is however only half that of the grain-rented area at the last settlement. The decrease is particularly marked in the *bangar* and it is evident that collections in kind are becoming increasingly unpopular, particularly amongst absentee landholders. The area under protected rights shows hardly any change. Rents however have gone up considerably since the last settlement, occupancy rents having increased by about 50 per cent., while non-occupancy rents are on an average double what they were 30 years ago.

5. The soil-classification of the last settlement was found to be too general and unrepresentative of the relative values of soils. A combined natural and conventional classification has been adopted and the present demarcation of soils has been carried out with much care and accuracy.

6. The population figures for 1911 show a density per square mile of cultivated area of 746. There will, in all probability, have been a further fall during recent years and it may safely be said that there is, in view of the natural fertility of the district, little if any pressure on the soil. On the whole the condition of the proprietors is one of prosperity and this is particularly the case amongst cultivating castes. The prevalence of high prices have brought in their train increased income to those who depend on land for a living and though against this may

be set off the larger sums that have now to be expended on labourers and cattle, the balance of gain is nevertheless appreciably in the cultivators favour. Enquiries made into the area of holdings of different classes of tenants show that occupancy tenants cultivate on an average as much as nine acres, while in the case of non-occupancy tenants the figures work out to an average of five acres. They point to the existence of a large number of holdings of an economic size.

7. Settlement operations were commenced in October, 1917 and occupied a little over three years. There is a resulting increase of revenue of nearly 6 lakhs, or 39·2 per cent. on the former demand. This is 4·2 per cent. higher than the forecast which estimated that revenue would be assessed at an average percentage of 45·5 of the assets. The new revenue however is in fact only 44·9 per cent. of the assets and these have been calculated with caution and after making all possible allowances.

8. The Government is accordingly pleased to confirm the settlement for the periods indicated in the following table :—

Pargana.	Settlement to expire on—	Period.	Pargana.	Settlement to expire on—	Period.
Teoband ... Nagal ... Rampur ...	} 30th June, 1948.	28 years.	Sultanpur ... Nakur ... Sarsawa ... Gangoh ...	} 30th June, 1949.	29 years.
Haraura ... Saharanpur... Manglaur (ban- gar.) Fyzabad ... Muzaffarabad			Rurki ... Manglaur ... ( <i>khadir</i> .) Bhagwanpur Jwalapur ...		
	} 30th June, 1949.	29 years.		} 30th June, 1950.	30 years.

9. His Excellency desires to convey the thanks of Government to Mr. Drake-Brockman, Settlement Officer, for the ability and care with which he has discharged the duties that devolved upon him. He has much pleasure in endorsing the encomium passed by the Board on the work of Pandit Brij Chand Sharma, Assistant Settlement Officer, and the other gentlemen who were associated in carrying through this settlement. The thanks of Government are also due to Messrs. Harrison and Fremantle for the care and efficiency with which they supervised the settlement.

ORDERED.—Ordered that a copy of the above resolution be forwarded to the Board of Revenue, United Provinces, for the information of the Board.

Ordered also that the resolution be published in the *United Provinces Government Gazette*.

By order of the Governor in Council,

G. B. F. MUIR,

*Secretary to Government, United Provinces.*

FROM

C. L. ALEXANDER, Esq., I.C.S.,

SECRETARY TO THE BOARD OF REVENUE,

UNITED PROVINCES,

TO

THE SECRETARY TO GOVERNMENT,

UNITED PROVINCES, REVENUE DEPARTMENT.

*Dated Allahabad, the 12th August, 1921.*

SIR,

I am directed to submit for the orders of Government Mr. D. L. Drake-Brockman's final report on the settlement of the Saharanpur district, together with a copy of the Board's review on it written by Mr. S. H. Fremantle, late Junior Member, under whose supervision as Commissioner of the Meerut division the assessments of the district were completed. The present Commissioner (Mr. Pert) was in charge of the division only towards the close of the operations, hence he was relieved by the Board of the duty of writing the review.

2. I am also to draw the special attention of Government to the table in paragraph 57 of the report and to paragraph 22 of the Board's review of it. The percentage of enhancement of revenue which was sanctioned for the district was 35 per cent. (G. G. O. no. 174-339-2, dated the 6th March, 1916), but in spite of generous allowances for proprietary cultivation, great leniency in estimating the assets, and the low percentage of the assets taken as the revenue, the actual percentage of enhancement for the district as a whole, including revenue-free and revenue-assigned mahals and miscellaneous plots, as well as alluvial mahals, actually amounts to 39.2 per cent. According to paragraph 86 of the Manual of Government Orders it is necessary to obtain the sanction of the Government of India to the proposals, but in view of the fact that under the Government of India Act (XXXVIII of 1920) the power of the Local Government in regard to the settlement of revenue has been enlarged, the Board doubt whether this rule is still binding. If it is, the sanction of the Government of India may be obtained.

I have the honour to be,

SIR,

Your most obedient servant,

C. L. ALEXANDER,

*Secretary.*

## REVIEW OF SAHARANPUR SETTLEMENT REPORT.

1. Mr. Drake-Brockman was appointed Settlement Officer in October, 1917. For the first season he worked single-handed, but in 1918-19 and 1919-20 he was assisted by Pandit Brij Chand Sharma. Inspection was finished in the latter year, and in November, 1920, the Settlement Officer left the district leaving his assistant to complete the miscellaneous work still remaining.

Mr. Harrison as Settlement Commissioner and Member of the Board supervised the operations till he went on leave in March, 1920. The work was completed under the supervision of the present Junior Member as Commissioner of Meerut.

2. *Descriptive.*—Saharanpur district is a section of the Jumna-Ganges Doab, these rivers forming its western and eastern boundaries, while the northern boundary is formed by the Siwalik range of hills. From these natural features the district falls naturally into three divisions:—First the *ghar* or tract which lies nearest to the hills, second the *khadir* which lies in the valleys of the two rivers and their tributaries, and third the *bangar* or upland. Each of these tracts and its characteristics have been very minutely described by the Settlement Officer, and it is unnecessary to repeat the description here. The *bangar* forms nearly two-thirds of the whole, and of the remainder the *ghar* is somewhat larger than the *khadir*. The district is one noted for its fertility. The rainfall is both larger and more certain than in most plains districts, and this is especially so in the north owing to the proximity of the Siwaliks. The soil is damp and retentive of moisture and generally easily worked, and as will be seen later facilities for irrigation are considerable.

3. *Industries markets and communications.*—The district is almost purely agricultural, there being no manufactures and no important market towns except Saharanpur, Deoband and Rurki. It is fairly well served by railways, the main line of the North-Western Railway passing through the centre of the tract and being joined at Saharanpur by the Oudh and Rohilkhand Railway running east and by the Saharanpur-Shahdara Light Railway which has been built since last settlement and opens up the western portion of the district. Road communications are fair and are being improved. The roads connecting Saharanpur with Umbala and with the south-western tahsil Nakur have recently been metalled. The Muzaffarnagar road via Deoband is soon to be taken up and also the road from Rurki to Hardwar.

4. *Population.*—As in other districts of this division the census of 1901 showed a rise, but that of 1911 some fall in population, and the present census has shown a further fall, mainly owing to the disastrous influenza epidemic of 1918, of no less than 108,000. Taking the figures of 1911 the density per square mile of cultivated area was 746 only as compared with 838 for Bulandshahr, while the density per square mile of the total area is 541. These figures, now to be further reduced, are certainly not high for a district of this fertility and denote absence of pressure on the soil.

5. *Irrigation.*—The main Ganges and Eastern Jumna canals take off from the two great rivers on the northern border of this district and do a considerable amount of irrigation within it. There has been some development in irrigation from these canals since last settlement, especially on the Deoband branch of the Ganges canal which had at last settlement only been recently completed, by the opening of new outlets and more economic use of water. A permanent weir was built across the Jumna some years ago and during the last year a massive masonry embankment has been thrown across the Ganges superseding the old arrangement of temporary *bandhs* which were constructed each year after the rains. The effect of the permanent embankment will be that water will be available as it never has been yet in the month of October, and this will be of enormous value in years of

partial failure of the rains. The comparative figures of irrigable area of the present and past settlement are deprived of their full value by a change in the method of preparation, but it is clear from the material set forth in paragraph 23 of the report that irrigation both from canals and wells has increased largely, the former by some 50 per cent. The figures in paragraph 26 show that of the canal-irrigated area about 55 per cent. is thoroughly irrigated receiving water two years at least out of six. Excluding *ghar* and *khadir* which have little need for irrigation the upland area which is not benefitted by the canal is about equal in area to that which is benefitted. About 18 per cent. of its area is irrigable from *pakka* wells and a further 7 per cent. is estimated to receive water from *kachcha* wells. In many places neither *pakka* nor *kachcha* wells can be built and there would seem to be scope for the construction of tube wells.

6. *Crops*.—The most important *kharif* grain in the north of the district is rice and in the south *juar*, while in the *rabi* wheat is the most important crop in all tracts covering nearly all the land which is not double-cropped. Comparison with last settlement is difficult because the figures of that period are for a single year only and the crops sown depend largely on seasonal conditions, but it is clear that both the double-cropped area and that under sugarcane and wheat have largely increased, while cotton seems to have remained stationary. Sugarcane in the year of survey occupied the high proportion of 7·4 per cent. of the total cultivated area.

7. *Proprietors*.—The district is one of small proprietors. The 14 largest proprietors shown in appendix III pay less than 2 lakhs of revenue between them. Most of the area is owned by *mahajans* of all degrees, who are mostly non-resident, or by Gujars, Rajputs, Muhammadans, Tagas and Brahmans who all cultivate largely. Jats, Sainis, Garas, Kolis and Ahirs are other castes who have considerable areas of cultivation and the table in paragraph 18 of the report shows that all the castes named above except Mahajans, Brahmans and Muhammadans (*i.e.*, those belonging to castes which have no Hindu counterparts), keep in their own hands from 37 to 62 per cent. of the area they own. The figures given in appendix II of losses and gains since last settlement are not quite what one would expect. They show Tagas and Brahmans as extending and Muhammadans and Rajputs as maintaining their ground, while *mahajans* have gained at the expense of the more industrious agricultural castes—Jats, Gujars, Sainis, Sadhs. It is strange indeed if with the large profits which agriculture has been reaping of late years cultivating proprietors have lost ground in comparison with non-cultivating proprietors. But paragraph 173 of Mr. Porter's settlement report of 1891 shows that this is an old tendency which was in full operation before his settlement and it has probably been checked during the current settlement. The information given in paragraph 33 and in appendix VI shows that though the area cultivated by proprietors is still large, it is considerably less than it was at last settlement having fallen by nearly 32,000 acres, which is 1,086 acres more than the area in which ex-proprietary rights have been decreed since last settlement. This area is about 4 per cent. of the whole holdings area.

8. *Cultivators*.—An account of the principal cultivating castes is given in paragraph 21. On the whole it is clear that they are somewhat above the average in skill and industry and in particular localities there is a very large preponderance of good cultivators.

9. *Rental system*.—The rental system of the district is described in paragraph 31 of the report. Grain rents still survive over fairly large areas (9 per cent. of the total holdings area as compared with 18·5 at last settlement), specially in the *khadir* where some villages are entirely grain-rented, rent being taken by *kankut* or estimate of the produce. In such tracts *zabti* or cash rents are charged for sugarcane, cotton and *chari*, and these rates have been generally increased since last settlement, while the grain rate varying from one-half downward has remained constant since it automatically gives the zamindar his full share of the benefit of increased prices. *Zabti* rents being not true cash



rents since they apply only if particular crops are grown are properly treated as grain rents for purposes of assessment. The *jinspher* system by which the tenant engages to pay a certain quantity of a specified grain, usually wheat, is so far as I know peculiar to this district. Such rents have also been treated as grain rents and commutation to occupancy tenants has been allowed at rates somewhat exceeding the valuation by standard rates.

10. *Holdings area*.—This is distributed as follows :—

Ex-proprietary .. .. .	4.0 per cent.
Occupancy .. .. .	21.8 „
Non-occupancy .. .. .	37.7 „
<i>Sir</i> .. .. .	20.8 „
<i>Khudkash</i> .. .. .	13.1 „
Rent-free, .. .. .	2.6 „

Thus occupancy tenants hold little more than one-third of the tenants land while ex-proprietary tenants hold one-sixteenth, the remaining area, about 60 per cent. of the whole, being unprotected. The only large change since last settlement is the conversion of *sir* into ex-proprietary land. The percentage of occupancy land to the whole holdings area has hardly changed at all. The state of things is not quite so bad as it looks, since in the *ghar* and *khadir* where in many places competition is for tenants and not for land the proportion of land occupied by non-occupancy tenants is greater than in the *bangar*, but even in the latter the unprotected area is 55 per cent. of the whole. But of the 60 per cent. of the whole area held by non-occupancy tenants about one-fourth or 16 per cent. of the whole is held under seven year leases. The Settlement Officer has made careful enquiries into the average area of holdings of different classes of tenants, and as appears from paragraph 33 finds that of occupancy tenants to be as much as 9 acres. This is a substantial holding and enables the tenant to grow not only the valuable commercial crops—sugar, cotton and oil-seeds, but also a surplus of wheat for export to other parts of the country. The average area of non-occupancy holdings too is found to be as much as 5 acres, so that there must be quite a number of such holdings of an economic size.

11. *Rise in Prices*.—The report does not contain any material for a comparison of prices of agricultural staples with those prevailing at last settlement, but the matter has been considered as regards wheat in the rent-rate report of the Faizabad pargana, and I take from it the following conclusions :—

Average price, 1896-94	..	..	seers. chhatanks.		per rupee. *
			15	10	
„ 1895-99	..	..	13	13	„
„ 1900-04	..	..	15	10	„
„ 1905-13	..	..	11	11	„
„ 1915-17	..	..	9	1	„

The figures show a steady rise, except for the third period, and there was of course a further increase after 1917 owing to the war and the droughts of 1918 and 1920. There are signs now that a fall has begun and the future depends largely on the policy adopted by Government regarding exports. In deciding what allowance to make for instability in the case of non-occupancy rents which have been increased in sympathy with present prices, the Settlement Officer has adopted a conservative estimate in holding that “ 13 seers per rupee is a safe price to reckon on ” in choosing this figure he has taken the average market price in the period 1905-13 to be 12 seers and allowed one seer as a margin. So much is clear that in the first 25 years of this settlement before the war began to take effect wheat prices rose by one-third (from 16 seers to 12 seers), that there was a further large rise during the war to 6 seers, and that it is doubtful whether there will ever be any considerable fall from this war figure.

12. *Rise of rents*.—It is curious to note from paragraph 173 of Mr. Porter's settlement report how recent has been the growth of competition rents.

\* Last settlement report gives the average price for the decade 1881-90 as 13 seers 14 chhatanks and of 1890 only as 17 seers 12 chhatanks.

n this district. He says:—" In Mr. Thornton's time the cultivator was generally the landlord himself. Such surplus land as the landlord could not cultivate was made over to a tenant who paid in addition to the Government demand\* one seer per

\* In good land one-half, in poor land as low as one-third of the produce.

† This was known as the landlord's *sirnia*; the term is now used to denote dues payable to the landlord in addition to rent.

‡ 1867.

maund as the landlord's share† and another seer as village expenses (*malba*).

This primitive simplicity could hardly be long maintained, and in Mr. Wynne's time ‡ in estates which had been bought

up by money-lenders competition rents had begun to appear. In other estates, however, there " was hardly any distinction between the rent-paying tenant and the revenue-paying proprietor;" and in many cases the rent which the tenant paid was often no more than the Government demand on the land. There are still a number of estates belonging to cultivating communities in which a certain amount

§ Usually known as *hasb-i-khwat*, i.e., at revenue rates

of land is held on these terms§ or confessed favoured rents, but as a rule the

old equality of landlord and tenant has given way to competition." But even at Mr. Porter's settlement there was little difference between occupancy and non-occupancy rents. As given in his report the average of the former was Rs. 3.5|| and of the latter Rs. 4.3 per acre. The corresponding figures now are Rs. 5.0 and Rs. 8.5 respectively. That is to say the average occupancy rent has risen nearly 50 per cent, while the non-occupancy rent has very nearly doubled.

13. *Settlement circles*.—The Settlement Officer has given an account and criticism at somewhat disproportionate length of the methods and results of the last two preceding settlements. It is certainly the case, as a perusal of many of the detailed assessment statements would show, that in Mr. Porter's settlement the instructions then in force by which, after rejection of all recorded rents which are considered fraudulent, inadequate or excessive, villages were put into classes according to the rents paid, resulted in an uneven assessment. The only sound basis for classification of villages into circles is topographical. This is the system adopted by Mr. Drake-Brockman. Small groups of similar villages were first formed and two or more of them were subsequently combined to form one settlement circle.

14. *Soil classification*.—The importance of working close to the soil was not appreciated at the former settlement when there was very little adjustment of rents to be done. Accordingly the present Settlement Officer had little to guide him when he proceeded to the accurate classification of soils which a modern settlement requires. He has explained in paragraphs 45 and 46 the system adopted and given the reasons why so many soils were required. The classification is certainly not too minute in the individual village and the introduction of so many soils is due to the necessity, with an adjustment of rents in view, of marking off at the inspection of a village any tract different in character or level from the rest, though it may often be found later that there is no difference in the rent paid for it and the standard rent for two or more soils may be the same. The main principle has been to distinguish (as *goind*) the land round the village site only if markedly superior, to divide the remainder into five classes (*jungle* 1 to 5) according to quality and to recognise no difference in physical soils except in the case of *dakar* (clay land in depressions growing rice). In villages which lay fully or partly in the *khadir* tract *khadir* soils (*khadir* 1 to 5 and *khadir dakar* 1 and 2) were substituted for *jungle*. *Khadir* soils were as a rule found to be about 2 annas in the rupee below the corresponding upland soils in quality. Most of the soils had to be further sub-divided into irrigated and dry, and the result is that the Settlement Officer was evidently so alarmed by the number of soils which eventually appeared that he omitted to include with his report any statement showing the soils adopted in each circle and the rates attached to them. This is very necessary

|| The statement in paragraph 32 gives Rs. 4.4 as the average rate paid by occupancy tenants whose rents have not been enhanced since last settlement. Presumably Rs. 4.4 is the average rate paid after enhancements made at last settlement.

information to have on record in a more convenient and accessible form than the pargana assessment reports, and I have directed that it should be added as appendix X to the report. Much care and labour was expended in the field on the classification by the Settlement Officer and Assistant Settlement Officer and I have only two criticisms to make regarding it. First that owing to doubt to the difficulty of getting cultivators together the inspecting officer's estimate of the relative value of different soils in a village was not sufficiently checked by enquiry among the villagers themselves, and secondly that the circle rates based on the soils were not determined in a shape easily reducible to *bigha* rates. Since six *kachcha bighas* go to the acre, this could have been secured by making each circle rate a multiple of 3 and the advantage would be that the settlement rate for each field would be understood by the people and known in the village itself. The Settlement Officer was in favour of this modification, but it did not meet with Mr. Harrison's approval.

15. *Standard or circle rates.*—The process of determining standard rates has been described in paragraphs 49 and 50 of the report. This has been done in this as in other contemporary settlements by the use of unit values. The method is shortly this. The first step is to determine the relative value of soils, which is done by (1) local enquiries, (2) extraction of information regarding rents paid on single-soil holdings. One soil *jungle* 1 wet (or in *khadir* tracts *khadir* 1) is then taken as the standard soil and given the value of 100. The rents paid by non-occupancy tenants in different villages of the circle were then reduced to this unit and the unit values so formed arranged in a list, the prevailing unit value being taken as the normal non-occupancy unit for the circle. This was discounted for instability of rents as shown by short collections and rendered probable by increase of prices (a portion of which is certainly temporary) due to the war, and again 25 per cent. was reduced to provide a stable occupancy standard of rental. This last reduction has been justified by Mr. Harrison in paragraph 21 of his review of the Bulandshahr settlement report. Shortly the reduction is required first to ensure real stability of tenure for occupancy tenants (for fixity of tenure without fair rents is of little use), and secondly to prevent large and sudden enhancements in their rents. After these reductions the unit so obtained was compared with the unit values for the circle\* of the different classes of occupancy tenants shown in the statement given in paragraph 32 of the report, that is to say, (1) old tenants whose rents have not been enhanced since settlement, (2) old tenants whose rents have been enhanced, (3) new occupancy tenants whose period is over 20 years, (4) new occupancy tenants whose period is over 12 years. The two last classes were of course recorded as occupancy for the first time at the settlement, but in the case of (3) the rents cannot have varied for the last eight years and may be said therefore to have stood the test of time. They afford generally a fair standard for the determination of a stable occupancy rental and, as the statement in paragraph 51 of the report and an examination of the rent-rate reports of the various parganas show, the circle rates ultimately framed bear a very close approximation to this standard. But before the unit of a circle was finally determined two other points required and received consideration: first, the unit of old occupancy tenants—for large and sudden enhancements in their rents had to be avoided—and secondly, the unit already adopted for other circles of similar quality in other parganas. It is not the least merit of the system of unit values that it provides a convenient standard for comparison of the quality of assessment circles of different parganas of the same or different districts. When once the unit of a circle is determined the standard circle rates are derived from it by applying the relative soil values. It remains with the assistance of these rates to calculate the assets for the purpose of assessment.

16. *Village rates.*—But before making use of the circle rates for assessment purposes it is necessary to see that they apply properly to the individual village. However carefully circles may be formed, some difference in quality between

different villages is inevitable, and when one finds, as is frequently the case, a difference of 25 or 30 per cent. between the unit values, and therefore of the standard rates, of adjoining circles it is clear that for villages on the border land the circle rates will frequently require modification in the upward or downward direction. The Settlement Officer has recognised this fact and has therefore in each village considered the unit paid by different classes of tenants in the village and in similar neighbouring villages and compared them with the circle unit. The result is that the rates have been modified wherever necessary and rates suitable to the particular circumstances of the village determined.

17. *Assets. Rents.* (a) *Exproprietary.*—These rents are by law to be based on non-occupancy rents with 25 per cent. deduction. They have accordingly been treated generally in the same way as non-occupancy rents and the deduction then allowed. It is true that this process as pointed out by the Settlement Officer leaves them generally at a higher level than occupancy rents and that the position is not satisfactory. The new draft of the Agra Tenancy Act provides that exproprietary rents shall be 2 annas in the rupee below those of occupancy tenants and if this is passed into law the difficulty will be solved.

(b) *Occupancy rents.*—These have usually been taken at the valuation by circle rates, modified if necessary in accordance with paragraph 16. Rather more than one-fourth of the rents are paid by new occupancy tenants. Most of these have been left untouched by enhancement, while in some cases abatements have been granted for the reasons set forth in paragraph 58 of the report and for assessment purposes some allowances for instability and possible abatements have had to be made. With regard to the remaining three-fourths the valuation by circle rates, modified if necessary, has been adopted, except in cases where the enhancement of rents would be above one-third, and in that case a deduction on the full rates has been allowed to moderate the enhancement. The net result is that occupancy land has been valued at a sum Rs. 40,000 in excess of the recorded rental. In the case of some two-fifths of the area the *zamindars* have applied for enhancement and actually obtained it to the amount of Rs. 92,000. It is clear therefore that the occupancy area has been most leniently valued and as a matter of fact in many *mahals* occupied wholly or chiefly by occupancy tenants the increase in the revenue assessed has been more than recovered already by the *zamindar* in the increase in the occupancy rental.

(c) *Non-occupancy rents.*—The recorded rents (*khalsa* only) are Rs. 21,74,552. The valuation by circle rates is Rs. 13,25,805 and the amount accepted is Rs. 18,04,184. It was primarily based on the record of collections—a safe enough ground since they are hardly ever overstated, but in dealing with different *mahals* in the same village or adjoining villages of similar quality it was necessary in order to secure equality in the assessment as pointed out by the Settlement Officer to substitute for the existing rents a certain percentage above the valuation by circle (or modified) rates to be fixed for the village or group of villages. It is frequently found that non-occupancy rents fluctuate greatly from year to year and *mahal* to *mahal* and the recorded collections for a few years past are in many cases not a fair basis for a thirty years' settlement.

18. *Grain rents.*—The valuation of the grain-rented holdings area (74,834 acres) by circle rates was Rs. 3,48,203. In assessing some 1,500 acres out of 5,000 uncultivated were left unassessed and the remaining 73,300 acres assessed at Rs. 3,36,711, just below the valuation by circle rates. The resulting rate is Rs. 4.6 only. The average recorded collections from grain rents for the last 12 years which are certainly not overstated average Rs. 5.5 per acre. This average of course is based partly on the prices of recent years which are too high to form a sound basis of assessment, but on the other hand it does not include the returns of *sabti* land which has been treated as cash-rented in past years, and if treated as grain-rented would have raised the figure considerably. From the information in the rent-rate reports it would appear that grain-rented land on the whole is

inferior to cash-rented, though not greatly so. The circle rates at which it is generally valued are however rates in computing which recorded collections from grain-rented land were taken into consideration and are moreover fixed on the basis of the rents which occupancy tenants can be reasonably called on to pay while most (80 per cent.) of the area still under grain rents is non-occupancy. The average rate at which grain-rented land is valued is as stated above Rs. 4.6, whereas that at which non-occupancy cash-rented land has been taken is Rs. 7.1. These considerations are sufficient to show that the valuation of grain rents has been kept at a studiously moderate figure.

19. *Assets*.—Of the other items which go to make up the assessable assets it is not necessary to say much. *Sir* and *khudkasht* lands have been valued at the circle or modified rates and 25 per cent. deduction has been generally allowed on all *sir* not sublet and on genuine *khudkasht*. I have in some cases where there is only one or a few sharers and the *khudkasht* area is large considered it unnecessary to give the full deduction where this would involve a reduction in revenue. The total deduction allowed is no less than Rs. 3,39,182 and it amounts to 21.4 per cent. of the full valuation for such land. As to rent-free and unrented lands the Settlement Officer in his paragraph 52 (c) has explained what they are and how they have been treated. Additions for land temporarily out of cultivation as explained in the next paragraph also come under this head. For *sayar* the total amount added is very moderate—Rs. 18,664 only, and assessment has been strictly confined to natural products in accordance with the rules.

20. *Assessed area*.—The aggregate assessment statements show since last settlement a considerable fall in cultivation from 841,202 acres to 816,233 acres. The area was below normal in the year of survey in the Rurki tahsil because it coincided with a year of drought and influenza and the average of the five previous years was some 12,000 acres higher. Still there is a considerable fall since last settlement for which the Settlement Officer accounts in paragraph 22 of his report. The chief causes are two, first destruction of good soil by torrents in the *ghar* and second deterioration of portions of the Ganges *khadir* by oversaturation, to meet which a systematic drainage scheme is recommended. The holdings area in the year of survey was 855,632 acres and the area assessed was 837,564 acres or midway between the holdings and cultivated area. Usually new fallow included in holdings was valued while groves and old fallow were omitted; but on the one hand grain-rented land found to be uncultivated, even if new fallow, was generally omitted from the valuation, while in some villages in order to secure an even distribution over the constituent mahals some of which had been neglected by their owners it was found necessary to take into consideration all the culturable area. But this was only done in special cases and the area assessed is 25,000 acres below the actual cultivated area *plus* new fallow. It is therefore certainly a safe area to adopt for assessment purposes.

21. *Deductions for improvements*.—The greater portion of the district is either irrigated from the canals or does not require irrigation. Hence the scope for land improvement is comparatively small. Full allowances were given for new wells and embankments on the principles stated by the Settlement Officer.

22. *The new revenue*.—The total net assets as calculated by the Settlement Officer are for permanent mahals Rs. 44,31,928, for alluvial mahals Rs. 1,45,308, and for revenue-assigned and revenue-free mahals Rs. 1,18,059, or a total of Rs. 46,95,295. This exceeds by Rs. 1,37,295 the Rs. 45,58,000 at which the assets were estimated in the forecast submitted to the Government of India in 1915. On this it was estimated that revenue at an average percentage of 45.5 per cent. would be assessed, making a total sum of 20½ lakhs. As a matter of fact the average proportion taken has been slightly lower (44.9 per cent.), and the result is a new revenue of Rs. 21,09,918 yielding an average enhancement of 39 per cent. on the previous demand. In these figures the nominal revenue assessed on revenue-free estates (generally at 50 per cent., there being no cause for leniency) is included and

also the revenue of alluvial mahals which secure a small decrease of revenue. The net result on estates settled for 30 years is an increase of 41 per cent. on the existing *jama*. The enhancement is considerable, but the new revenue is but 44.9 per cent. of the assets calculated with extreme caution and after making all possible allowances. And where the enhancement is great it has been moderated by progressive steps. The amount postponed for 5 years is over one and a half *lakhs*, while Rs 64,000 have been postponed for 10 years. The Settlement Officer states that rents have already risen largely since the records were attested, and in fact the last *tahsil* was taken up in 1326 *Fasli*, before the very high prices which began in 1918 had had time to affect rents. The assessment may be said with fair accuracy to be based on two considerations: first, in the case of some cash-rented areas on the collections of past years, second in the case of all other areas on the circle rates. In the former case the collections have been accepted only after making some allowance for the high prices prevailing after 1913, and in the second case the basis of circle rates is a wheat price of 13 seers which it is most improbable will ever again be reached. These facts are, I think, conclusive as to the caution with which the assets have been calculated and the assessment made.

23. *Alluvial and short-term settlements.*—The opportunity of settlement was taken to consider the history and condition of the large number of *mahals* hitherto classed as alluvial, and it was found possible to settle many for 30 years and to grant conditional long-term settlements under the alluvial rules to many more. This will provide considerable relief to the revenue staff. In 17 villages in the *khadir* where there is deterioration from the causes described in paragraph 8 of the report as the future cannot be foreseen short-term settlements for 5 or 10 years have been proposed for sanction.

24. *Subsidiary operations.*—The settlement was accompanied by a revision of records. The field maps were carefully corrected, clean traces made and copies printed off at Rurki. The record corrected according to the new map was attested by an Assistant Record Officer at a convenient place in the vicinity of the village and no efforts were spared to get it correct. A large number of disputes were brought to a head and decided as appears from Appendix VIII attached to the report. The proceedings for the settlement of occupancy and grain rents have been described by the Settlement Officer in paragraph 58 (b) of his report. There is no doubt that the procedure adopted by him of issuing printed notices to tenants of the proposed modification of their rents giving them an opportunity to object tends greatly to the public convenience and it may be commended to the notice of future Settlement Officers. Proposals for the revision of *patwaris'* circles have been made and the *pargana* handbooks, *pargana* books and registers have been as usual prepared. These records have been specially devised for enabling a watch to be kept over the agricultural progress of villages, *parganas* and the district as whole, but their existence is but little known and therefore little use is made of them. It is for this reason that I mention them here.

25. *Distribution of revenue.*—This is one of the subsidiary operations which I treat separately because of its importance. At last settlement there was little difference between the assets, as calculated, of land held by tenants. The difference between occupancy and non-occupancy rents and between the latter and the rate used for application to *sir* and *khudkasht* land was small. Hence as stated in paragraph 58(a) of the report distribution was then usually done on shares and rent-receiving proprietors paid no more revenue than cultivating proprietors. At the present settlement there has been a great change. The growth of competition rents in non-occupancy land, the valuation of proprietary cultivation at the rate determined for occupancy land and the liberal deduction allowed for *sir* and *khudkasht* have caused a wide divergence between the assessment of land cultivated by proprietor and of land cultivated by non-occupancy tenant. The result is that the revenue assessed per acre is much higher in those mahals which are cultivated by non-occupancy tenants than in those cultivated by their owners. And it would

be illogical not to carry on the distinction to those cases where there has not been perfect partition and both cultivating and non-cultivating proprietors hold land in the same mahal. Thus distribution of revenue within the *mahal* has now to be made on the assets and cultivating proprietors get the full benefit of the lenient treatment which has been meted out to their lands. Since this means that in certain cases they will secure a reduction while non-cultivating proprietors whose lands are highly rented have to pay a considerable enhancement, the latter may feel some sense of grievance; but this can seldom be reasonable, since if the rents are high full allowance for instability has been made, while if they are moderate the assessment has been made at less than half assets.

26. *Final*.—It remains now only to recommend that the revised assessment of the Saharanpur district be confirmed for the following periods which were approved by the Government in their no. 2965/I—417, dated the 15th October, 1920.

Pargana.	Settlement to expire on—	Period.	Pargana.	Settlement to expire on—	Period.
Deoband ..	30th June, 1948	28 years	Sultanpur ..	30th June, 1949	29 years.
Nagal ..			Nakur ..		
Rampur ..			Sarsawa ..		
Haraura ..			Gangoh ..		
Saharanpur ..	30th June, 1949	29 years	Burki ... ..	30th June, 1950	30 years.
Manglaur ( <i>bangar</i> ) ..			Manglaur ( <i>khadir</i> ) ..		
Faizabad ..			Bhagwanpur ..		
Muzaffarabad ..			Jwalapur ..		

Mr. D. L. Drake-Brockman is to be congratulated on a very sound and thorough piece of work carried through with dispatch and at a very low cost to the State—not more in fact than 70 per cent. of the extra yearly revenue which will be realised. Pandit Brij Chand Sharma, Assistant Settlement Officer, took a full share of the work during the last 2 years and did it carefully and well. A word of recognition is also due to the Assistant Record Officers who bore the burden and heat of revision and attestation of records.

S. H. FREMANTLE,

*Junior Member, Board of Revenue,  
United Provinces.*

*Dated the 19th April, 1921.*



सत्यमेव जयते



# Final report of the Settlement of district Saharanpur.

## PART I.

### PAST AND PRESENT CONDITIONS OF THE TRACT.

1. The Saharanpur district is the most northerly district of the Doab. On the north it is bounded by the Siwaliks; on the west generally by the Jumna river; on the east by the Ganges; and on the south by the Muzaffarnagar district, with which the boundary is conventional. The actual water parting of the Siwaliks forms the northern boundary, but all the hilly portion below it, and, in the centre, a considerable area at the foot of the latter, as well as the hilly outliers near Sakrauda and other villages in parganas Bhagwanpur and Rurki, are covered with reserved forest. In respect of the Ganges the deep stream rule operates. The set of this river has now been for many years into the Bijnor bank which is high and abrupt; and it seems unlikely that its course will change; even if it does, the river will probably never deposit any alluvium, as the slope of the bed is steep and the scour of the flood water considerable. Still the district might possibly lose an indefinite tract of boulder strewn or grass-grown waste by a change in the deep stream. In respect of the Jumna the deep stream rule only operates in that portion which separates the district from the district of Karnal in the Punjab, that is in parganas Nakur and Gangoh. Along the border of the Ambala district and the small independent states of Nahan and Kalsia the boundary line is a fixed one and does not depend on the vagaries of the river. Portions of Saharanpur villages lie beyond the actual deep stream and similarly portions of Ambala villages lie to the east of it. Those boundaries in so far as they affect the Ambala district were all finally settled by mutual agreement at the verification of records preceding last settlement, and no dispute has since arisen in respect of them except in the village of Daryapur Pipli, pargana Sultanpur. This has been settled at the present revision and the maps of the villages concerned emended. As for the independent states, no dispute has ever arisen in respect of Nahan; but one arose with the Kalsia State which concerned the villages of Abutalipur Garh and Shahzadpur in pargana Faizabad. This has been settled by me in consultation with the Kalsia State authorities in the present year after prolonged correspondence, though unfortunately the advent of the rainy season and the flooding of the Jumna prevented actual measurements being made on the spot to complete the arrangements. These will be carried out as soon as possible in the ensuing cold weather. It is the custom now to transfer bodily to the Karnal district all the maps and records of the villages or portions thereof which by any vagary of the deep stream are cut off from this district. The names of the estates which are wholly lost are, however, kept on the roll in this district in view of a possible retransfer, a peppercorn demand being put upon them. The same is done by the Karnal authorities when the position is reversed. Thus the total area of the district necessarily varies from year to year but at the time of verification it amounted to 11,65,506 acres or 1,821 square miles. The area of reserved forest (including the detached blocks known as the Pathri and Bishunpur Majhara reserves in pargana Jwalapur) is given as 1,88,433 or 295 square miles. In addition to this, five villages lying in the extreme north-east corner of the district up the Hardwar gorge, namely, Kharkheri, Bhopatwala Kalan, Bhopatwala Khurd, Chak Bhopatwala and Haripur Khurd were transferred in 1906 and 1917 from the Dehra Dun district to Saharanpur for administrative convenience in connection with the extension and improvement of Hardwar town. The records of these villages have under the orders of the Board been revised but not so their revenues, the current agreements which were taken in 1904 having not yet expired. The areas of these villages are given as 675 acres, so that the total area of the district as constituted at present is 11,66,181 acres or 1,822 square miles, comprised in 1991 *mauzas* plus the area of forest, a grand total of 13,54,614 acres or 2,117

square miles \* The engagements of a number of jungle grants in the north of the district and of all the alluvial mahals had not expired when Mr. Porter made his settlement. Mr. Porter's figures sometimes do and sometimes do not include the statistics of those mauzas or mahals which were subsequently settled by various district officers at various times. In order to avoid the possibility of any confusion, I desire to state at the outset that, unless the contrary is stated, the figures given for "last settlement" in this report will include those for those grants and mahals as they stood in 1890-91; and that those for the "present settlement" will exclude the statistics of the villages transferred during the currency of settlement from the Dehra Dun district, the revenues of which have not been revised by me.

2. The district is divided for administrative purposes into four tahsils and 15 parganas, of which the Rurki tahsil is considerably the largest, actually the largest pargana being Bhagwanpur. Next comes tahsil Saharanpur, then Nakur and last of all Deoband, the degree of development and productivity being roughly in inverse ratio to the size. All the tahsils except Deoband possess considerable variety of natural feature. This in turn affects the distribution of population and the system of agriculture; and although the dividing line is not always easily drawn, we may say that the district falls fairly accurately into three distinct tracts (1) the *ghar*, (2) the *khadar*, (3) the upland proper or *Bangar*. The first two may be subdivided into (a) canal irrigated, (b) non-canal irrigated. For assessment purposes a large number of circles were formed and I have allotted these for purposes of description as follows:—

<i>Ghar</i>	.. (1) Irrigated ..	III Faizabad; group D. Rurki; II, III and IV Jwalapur.
	(2) Dry ..	I, II, IV, V, Faizabad; II, III, IV, V, VI, Muzaffarabad; I, II, Bhagwanpur; I, VII, Rurki; I, Jwalapur.
<i>Khadar</i>	.. ..	III, IV, VI, VII, VIII, Sultanpur; V, Nakur; VI, Faizabad; III, Bhagwanpur; VI, VIII, Rurki; VI, VII, VIII IX, Jwalapur; X, XI, Manglaur <i>khadar</i> .
<i>Bangar</i>	.. (1) Canal irrigated ..	I, Sultanpur; I, II, Nakur; the whole of pargana Saharanpur; VII, Rampur; III, V, Deoband; II, Nagal; I, II, Manglaur <i>Bangar</i> : Group I Muzaffarabad.
	(2) Non-canal irrigated ..	II, V, Sultanpur; III, IV, Nakur; Haraura pargana, the whole; I, IV, VI, Nagal; IV, Deoband; III, IV, Manglaur <i>Bangar</i> ; V, Rurki; V, Jwalapur; I, (excluding group I) Muzaffarabad.

The *Ghar*.

3. The Siwaliks which bound the district on the north extend in an unbroken line from the Ganges to the Jumna, a distance of about 46 miles, in a north-westerly direction. The greatest elevations occur in the north-west, the highest peak being that of Amsot near the Jumna with a recorded height of 3,140 feet. The range has an extremely serrated outline, and the main ridge which separates the district from Dehra Dun is in places hardly more than a knife edge, almost entirely devoid of vegetation except for stunted *chir* trees and *bhubar* grass. From this ridge transverse spurs, equally bare, run out southwards, forming valleys which collect the drainage of the surrounding slopes and concentrate them into a single torrent bed. These torrent beds, locally known as *raos*, are dry for most of the year and carry off the drainage either individually or after a junction with some other torrent to the Jumna and the Ganges. A forest road generally known as the Hardwar line runs along the foot of the hills and the contours show that the heights here, starting with about 1,050 feet near Jwalapur, gradually rise to nearly 1,500 feet at Dholkhand and Mohand and then gradually fall again with variations to about 1,100 feet at Khara in the valley of the Jumna. It might be expected that all the *raos* west of the high points at Dholkhand and Mohand would set in a south-westerly direction to the Jumna, but as a matter of fact they do not do so, though they start as if they would. The inequalities along the base of the hills are considerable and spurs or modified spurs keep running out from them. As often as not the *raos* emerge from the hills at the highest points and

\* Note.—The areas of the city of Saharanpur, known as Sawad Saharanpur, of Hardwar town proper and of the Government Remount Dépôt at Saharanpur are not included in any *mausa* nor are the areas anywhere separately given. They cover roughly, however, 3,000 acres between them, which ought to be added to the total.

project themselves on to the open country with the result that you can never be certain what line they will take. This may be and probably was initially determined by the last oscillation of their courses within the rocky area of the hills, but until they have curved out for themselves a more or less defined bed in the alluvium which covers the boulder bed with increasing thickness as the level falls and encounter obstacles that keep them in a regular trend they may take any line. As things stand at present the well-known Kaluwala hill in pargana Muzaffarabad seems to be the land mark which with the high upland lying between the Sahansra and Shahjahanpur *raos* divides the Ganges and Jumna water systems, all *raos* to the west finding their way to the Jumna and all to the east to the Ganges, those in upland between running due southwards and ultimately also joining the Jumna beyond the confines of the district. The Shahjahanpur *rao* starting thus with a westerly trend is ultimately diverted westwards and develops into the Solani river. It has gradually carried out for itself a well-defined valley, flanked on the south by a generally abrupt cliff which marks the upland proper, and it hugs the foot of this for many miles till it finally merges into the Ganges *khadar* and loses itself in swamps. On the north the country consists, in the centre, in the Bhagwanpur and Rurki parganas, of a rugged outlier and a number of spurs, for the most part covered with forest and more or less continuous with the high land that slopes down from the foot of the Siwaliks. To the west centre the conditions are those of the ordinary *ghar*, viz. a steepish slope without uplands. Frequent *raos* emanating either from the Siwaliks or rising in the outliers themselves through which they have scored out valleys of varying width drain and denude the tract and add their volume to that of the Solani. To the east in pargana Jwalapur there are again no outliers but just a steady slope into the *khadar*, with only two *raos* in it, the Pathri and Rani *raos*, which, thanks mainly to the Ganges canal, have failed to develop torrent beds and merely project themselves over the country, forming an indefinite area of swamp and jungle out of which ultimately start minor streams. The central upland in Muzaffarabad consists of a much broken upland which is deeply scored with ravines and is being rendered progressively unculturable. This falls abruptly away into the ordinary level upland of the district and is traversed by two *raos*, the Nagdeo and the Chahicha, the former of which ultimately merges into the Hindan river, while the latter, after an independent course of some 25 miles, joins it a little east of Saharanpur city.

4. The western *ghar* in its present state differs from the eastern in that there are no outliers in it. But for a portion of its course at least the Maskara river, starting in the Siwaliks as the Sahansra *rao*, forms a rough counterpart to the Solani. There is reason to believe that the counterpart was at one time much more exact than it is now, and that there was along the valley of this river a definite *khadar* which has been filled up by some cataclysmic change. As it stands, however, the western *ghar* is just a rapidly sloping tract, scored with a number of *raos* whose waters are either caught by the Maskara or find their way ultimately into the Buddhi Jumna. A distinct ridge runs down this tract, roughly along the alignment of the Chakrata provincial road, the drainage to the east finding its way into the Maskara and that to the west directly into the Buddhi. The natural changes which have taken place in this tract, however, seem to have been profound even in near historic times. According to Captain (afterwards Sir Proby) Cautley who was responsible for the alignment of the Eastern Jumna Canal as we now know it, the broad torrent now known as the Gang *rao* did not even extend as far as the bed of the old Doab Canal but merely projected its waters over the surface of the country as the Rani and Pathri *raos* do at the present day. The old Doab Canal is variously attributed to the famous engineer general of Shahjahan, Alimardan Khan, or some lesser light unknown to fame in the reign of Mohammad Shah, and it is unlikely that its engineers would have been able in the then state of hydraulic knowledge to negotiate such a formidable torrent as

the Gang *rao* now is : and as water is said to have been taken down the canal as late as the time of Zabita Khan, its existing conditions may be said to be recent. Even when Captain Cautley reconstructed this canal, the Raipur *rao* was small enough to be taken into the canal, though it has since been found necessary to provide it with an escape and regulators. The country to the north as well as that along the alignment of the canal was at that time a jungle and its subsequent reafforestation seems to have been primarily responsible for the widening, deepening and destructiveness of the *raos* in general. The Gang *rao* which gathers into itself the waters of several other torrents is now also provided with an escape and regulators but the somewhat unexpected result of this interference with the natural drainage has been to cause it to gradually silt up its bed for some distance northwards and in the year 1916 it all but cut round the long training works that control it in the direction of Sherullahpur, cut across the Chakrata road and found a way into the canal near Raipur. It is a question now whether aqueducts should not be provided for the canal both on the Gang *rao* and the Maskara so as to allow these streams to scour out their own channels and if this plan ultimately materialises further considerable changes in the features of the country may be expected.

5. The soil of the *ghar* is a porous sandy loam overlying a bed of boulders ; the latter are prominent near the hills but gradually disappear below the surface. The sand is derived from the detritus of the Siwalik sand stones, while the boulders come from the boulder strata of varying thickness which run through the sand stone. The peculiar constitution of these hills can be well seen in the Timli and Mohand passes, and their origin is somewhat a mystery. In the elevated outliers of the western *ghar* and in pargana Muzaffarabad there is, however, considerable depth of soil, mixed usually with pebbles and small boulders, of a type that approximates much more closely to the soil of the *bangar*, and it may be that the upland proper once extended to the foot of the hills, at any rate between the Sahansra *rao* and Salempur Mahdud in Rurki. Water which is generally to be found in the *sots* at the base of the hills then disappears and does not reappear within measureable distance of the surface until the level falls to something in the nature of a *khudar*. In the western *ghar* especially, it can only be tapped at an enormous depth, and there are only 7 wells in the whole of the *ghar* proper of Faizabad pargana, 2 of which are in the *rao* beds and about 100 feet deep while 3 others, in Mirzapur, Qasimpur and Sherpur Pilon, are about 150 feet deep. In parganas Muzaffarabad, Bhagwanpur and Rurki conditions are not much better though water, of course, comes closer to the surface when you get into the valley of the Solani or Maskara. The peculiar conditions of the water supply compel the inhabitants to live either along the foot of the hills, where they can get water for themselves and their cattle from the hill *sots* or in the neighbourhood of a stream like the Buddhi Jumna, or to cluster round the wells, all of which have been sunk by well-to-do zamindars in the near past, 3 of them by the Powell family. Similar difficulties of water supply exist in the northern portion of circle II, (group J. A.) in Faizabad pargana along the Jumna river. It can readily be imagined that this unequal distribution of population exercises a profound effect on the agricultural conditions of the tract. Not only is it impossible to convey manure from the homesteads to long distances, but the necessity of carrying out water for both man and beast during the ploughing, sowing and harvesting seasons entails extra labour, expense and physical exhaustion. By two o'clock in the day both men and cattle are usually compelled to leave off work and return to their villages for rest, food and drink. Furthermore, owing to the proximity of the forests, damage by wild animals is continuous and severe, and in order to save the crops elaborate fencing and watching are necessary, the latter of which is obviously not always practicable, though the former is habitually carried out. Again throughout the *ghar*, except where it has been absolutely cleared away as in western Faizabad, the *dhak* tree grows luxuriantly and is definitely preserved

because it harbours the lac insect which brings in a substantial *siwai* income to the landholders. Over large areas the cultivation consists of irregular fields interspersed with these trees in greater or less profusion. Naturally then much of the cultivation is of an indifferent quality. Irrigation is non-existent. Lastly, the earth being sandy and inconsistent is unsuitable either for bricks or tiles, and the majority of the houses are wattle huts with thatched roofs. These lend an air of impermanence to them, as well as rendering them insecure as regards fire.

6. But with all its disadvantages, the *ghar* has advantages which are not to be despised. In the first place the tract receives a more plentiful and more consistent rainfall than those to the south. There are no exact statistics, but as the average rainfall at Nayashahr in Faizabad is some 47 inches and at Hardwar on the east nearly 50 inches, as against the 38 of Saharanpur and the 37 of Rurki, it is reasonable to conclude that on the average the *ghar* gets some 10 inches of rain more than the centre of the district and some 15 more than the south between Deoband and Nakur which each get about 33. Part of this excess is undoubtedly due to hot weather storms which pass along the Siwaliks; and when these storms are frequent the cultivators are able to put down cotton in the month of May (locally known as *chaiti*) a crop for which the *ghar* is to some extent famous. Whether as the result of this greater rainfall or of its intrinsic porosity the soil of the *ghar* has the reputation of being remarkably "*thanda*" a word, the exact significance of which is doubtful. Nor is the soil itself apparently agriculturally as light as its texture would lead an observer to think. A certain amount of sugarcane is grown in it without irrigation and the area double cropped is large. Of course the conditions are unsuitable for rice and the first crop on double cropped land here is maize, the area of which has considerably extended since last settlement. The importance of maize in the popular dietary and economy has been discussed in my rent rate report on pargana Faizabad and need not be further elaborated here. There is much worthless land it is true in the *ghar*, especially in the broken uplands. But the ordinary sloping soil, even when intermixed with boulders, is not such bad stuff as it seems, while in the *khadars* and river valleys of the eastern *ghar* there is much that is distinctly good. Lastly, grazing for cattle and thatching for houses are plentiful, near at hand and cheap.

7. A very large portion of the *ghar* was at the time of the British occupation over-grown with jungle and uninhabited. Whether it was ever previously under cultivation or not is doubtful. The Pundir Rajputs of Jwalapur, Salempur and Sakrauda to the east; of Khajawar and Jasmaur in the centre; and the Chauhan of Raipur, in most cases converts to Islam, to the west seem to have had or claimed undefined proprietary rights in it. These were, in some cases, recognised by the British authorities and have been perpetuated by means of *malikana* payments which persist to the present day. Systematic clearing leases were however given out by the British Government to grantees and although many of these failed to fulfil the conditions of the grants still considerable progress was made. With the transference of the grants to speculators and well-to-do bankers the progress in the past 50 years has been more rapid and practically the whole of the *ghar* has now been cleared and brought under cultivation. This clearance has been of doubtful benefit to the country as a whole as it has undoubtedly led to extensive denudation and increased the destructiveness of the *raos*. The evil is particularly prominent in the high upland of pargana Muzaffarabad, where much soil has been rendered unculturable and I believe this part of the *ghar* would be more valuable now if it were reafforested. As a result however of these arrangements practically the whole of the *ghar* is in the hands of large absentee landholders and Mahajans. The cultivating population, in the centre and east at any rate, consists largely of Banjaras who seem to have settled here first in order to take up jungle contracts; and of low castes such as Heris and Chamaras who eke out their earnings from cultivation by working at grass and wood extraction in the forests. The western *ghar*, however, seems to be agriculturally better developed and here are found in considerable numbers the better agricultural castes such as Malis, Garas and Gujars.

*The khadar.*

8. The *khadar* consists of the lowlands that flank the Jumna on one side and the Ganges on the other, as well of the lowlands of the Maskara, Solani and Ratmau. It is not altogether easy to determine where the *khadar* begins. In the Solani valley it is well enough defined. But to the east of this it may generally be said to commence at a line drawn from the village of Belra in pargana Rurki along the north of the Pathri forest down to Sultanpur in pargana Jwalapur. On its southern and western sides this *khadar* is bounded by a well marked high bank of *bangar* which is traceable from Fatehpur in pargana Muzaffarabad right through parganas Bhagwanpur, Rurki and Manglaur. On the north it gently shelves through an indeterminate tract of *semi-bangar* into the *ghar*. Though possessing villages of considerable fertility and excellence, the eastern *khadar* generally is characterised by stiff lowlying soil, sluggish and tortuous drainage channels, shallow swamps foul with rank weeds and grasses, over-saturation with consequence *reh* infection and insufficient population. The tract between the Banganga and the Ganges and the extreme south-west of pargana Jwalapur and south-east of Manglaur lie somewhat higher and are better than the rest but the central portion south and west of the Pathri reserve and the Solani valley up to the upland cliff in pargana Manglaur are at the present time in a deteriorated state. This tract is nominally drained by the Pathri, Pirkhar, Hadwaha and Begam *khalas*. In the decade succeeding last settlement it seems to have been in a flourishing condition, but about the year 1319 *fasli* for some reason which I have not been able to ascertain exactly a period of depression set in which has continued since and large areas have been thrown out of cultivation, necessitating the proposal in a number of villages of short term settlements and in others a considerable adjustment of areas in order to obtain a safe basis for a long term settlement. The evils of over-saturation have been increased by the ravages of wild animals from the Pathri reserve whose depredations have extended as cultivation has receded; and the luxuriant growth of high swamp grasses in the Solani *khadar* of pargana Manglaur now harbours innumerable pig and antelope which will make the work of reclamation most difficult. The whole of this tract requires systematic drainage. The old Landhaura drain, with its subsidiary cuts, has not been cleared out for many years and has ceased to be of any practical use. The Pathri sphere of saturation has never been tackled. The loss of revenue to Government in this area has been considerable; but if short term settlements are sanctioned, some at least of any outlay on drainage works would be quickly recouped while the full harvest would be reaped at the next revision. Over-saturation in this locality is partly due to the super-passages of the Pathri and Rani *raos* over the Ganges Canal in so far as these passages have prevented the *raos* from carving out their own beds and forming efficient channels for themselves. The containing embankments originally built for the Pathri *rao* have burst owing to the silting up of the channel between and the damage has now extended as far north as the village of Santarshah. In my opinion the canal authorities cannot morally disclaim entire responsibility for the present state of affairs, though they may legally, and both on general and financial grounds, I think, the work of drainage should be taken in hand by the state. Mr. Porter's remarks in paragraph 32 of his final settlement report may be referred to in this connection and they are still substantially true. Further east some of the *khadar* of pargana Jwalapur suffered about the year 1910 from a disastrous flood due to the Ganges river bursting a protective *bandh* across the mouth of the Begam *nala*. The flood poured down this till the narrow drainage line carving out a broad torrent bed and overlaying a large area in the villages of Mustafabad, the two Nasirpurs and a number of others to the south with sand till it petered out into the Banganga. Recovery has hitherto been slow and will take many years before it is complete owing to the deep deposit of sand and the damage done to growing crops by wild animals. Here, too, short term settlements in some cases have had to be proposed.

9. The Jumna *khadar* starts in the south of pargana Faizabad which has many points of resemblance with pargana Jwalpur. Here, too, the dividing line is not easy to define but may be said to lie generally between the villages of Randaul and Nanauli. The *bangar* cliff first makes its appearance in the former village and can be traced from there through the whole of the Nakur tahsil. Usually it is not of sufficient abruptness to be unculturable and in places it becomes double, if it does not almost disappear, forming a sort of *semi-khadar* bays, as for example between Chilkana and Sarsawa in pargana Sultanpur and at Aghiana in pargana Nakur. The land at the foot of the cliff is generally lowlying and contains either rice swamps or shallow marshes, possibly old back-washes of the Jumna, and several minor streams arise from these. The northernmost portion lying within the confines of pargana Faizabad and in the north of Sultanpur was at one time an extensive swamp very imperfectly drained by what is known as the Gang *rao*. The bed of this stream can still be traced in a tortuous channel which unites with the Maskara below the village of Nathmalpur and is now entirely silted up. The systematic drainage which I have advocated in connection with the Ganges *khadar* was undertaken in this tract in the sixties of last century and was carried out by making a straight cut for the Gang *rao* directly into the Buddhi Jumna below Todarpur Ranghar, and constructing a number of drainage channels from the saturated area through the comparative higher lying land round the village of Bahadura into the Maskara. These so far relieved the surface moisture that an extensive area in several villages has during the currency of settlement come under cultivation over and above what had already come under cultivation at last settlement. In these villages there has been a large increase in revenue and this would have been greater but for fear of putting too large an enhancement on the old occupancy tenants, a concession in which assumption areas had necessarily to share. The Maskara *nala* which finds its way into the Buddhi Jumna (in the lower reaches of its course generally known as the Sapolia) to the south-west of Dumjhera always contains water in this portion of its course as does also the Gang *rao* and both streams are liable to freshets when water is ejected from the canal. Its valley in this locality is a broad and swampy one and at some time it seems to have joined the Sapolia directly between the villages of Dudhgarh and Nirayanpur Gujar, a course which it subsequently deserted for the present one below Dumjhera, leaving a large horse-shoe swamp. I am informed that in the present year it returned to this bed as a result of the heavy and persistent rains of July and August. If this is so, the features of this portion of the Sultanpur *khadar* must have been considerably altered since I inspected them. The southern portion of Sultanpur consists of a *semi-khadar* bay bounded on the west by the road from Chilkana to Sarsawa and in the east by another distinct bank over which there is a drop into the *khadar* proper. In the lowlands below the road a shallow *khala* called the Buddhi rises and there is a large swampy area overgrown with grass along its banks. A similar stream, also known as the Buddhi, possibly, however, a subsidiary flood channel of the Jumna, rises in the village of Binakheri below the high bank on the west and the railway authorities have been compelled to throw out a long protecting *bandh* from the railway to prevent the Jumna flood water above the railway bridge from getting into it. The two unite close under Sarsawa and henceforth this stream forms the main drainage line of the central *khadar* until it joins the Jumna due west of Nakur town. The southern portion of the *khadar* is drained by the Saindli which also collects some of the water from the uplands above, and a smaller stream called the Khikri in the extreme south of pargana Gangoh. From Sarsawa to the southern boundary of the district, the *khadar* may be said to be a succession of parallel strips, first a lowlying belt of *dakar* soil growing rice with sugarcane along the edges, then a higherlying belt of typical *khadar*, that is a light greyish coloured loam, usually productive but occasionally degenerating into sandy *bhur*. Numerous depressions, apparently old *sots*, appear in which fine sugarcane is produced but the water level is high and saturation

constantly finds expression in the efflorescence of *reh*. Lastly, in the immediate neighbourhood of the river, there is a final strip consisting mostly of sandy waste covered with tamarisk jungle. The *khadar* is best developed in pargana Sultanpur and less so in parganas Sarsawa and Nakur. In Gangoh, partly perhaps because it is narrower, there is considerably more waste and saturation and greater liability to flooding. There is a little irrigation in the *khadar* but ordinarily it is not needed; cultivation naturally fluctuates a good deal and population is not plentiful. The only seasons in which it really does well are those in which the uplands suffer, viz., in years of drought; and in the season 1918-19 when I inspected it, it was only unusually heavy winter rains for which the rest of the district had been praying, that dashed to the ground the hopes of a bumper *rabi* harvest. Sugarcane and rice are the great *kharif* staples of the *khadar* proper as they alone will endure an excess of moisture. In the *rabi* barley does better than wheat, and a good quantity of oats is grown. But, though called *khadar*, much of the land lies high enough to grow all ordinary crops and its peculiarities are not entirely observable from crop returns. In the last year or two there has been quite a phenomenal increase in the area of sugarcane in the Ganges *khadar* and even cotton has come into vogue.

10. Both the Ganges and the Jumna throw out branches into the *khadar* which are curiously similar in character. These are known as the Banganga and Buddhi Jumna or Sapolia. Both are narrow channels between well-defined banks, and while the Banganga is occasionally liable to flooding from the Ganges, all danger of similar action in the Buddhi Jumna has been prevented by the construction of the works on the Eastern Jumna Canal. Ordinarily both streams are dry in their upper courses. Lower down soakage is responsible for the existence of a stream, which in the case of the Buddhi Jumna is reinforced by freshets from the canal either derived direct or from the Gang *rao*.

#### The bangar.

11. The *bangar* which occupies the greater part of the district stretching from the *ghar* to the southern border and from the high bank which bounds the *khadar* of the Ganges to that which bounds the *khadar* of the Jumna, is the ordinary *doab* upland. It is on the whole uniform but necessarily differs to some extent in characteristics. The portion which in pargana Muzaffarabad adjoins the *ghar* shares in some of the characteristics of that tract and both it and the belt of country along the Nagdeo and Hindan rivers has the reputation like the *ghar* of being extremely "*thanda*" and is the most highly esteemed (and highly rented) unirrigated tract in the district. The higherlying portions of all parganas and especially parganas Bhagwanpur and Rurki consist of a lightish loam and the surface undulates, shallow rice swamps forming in the depressions out of which issue a number of minor streams. As the level falls to the south of parganas Manglaur, Deoband, Rampur and Gangoh, patches of *usar* or *kallar* waste make their appearance, a sure sign of interrupted drainage. The minor streams which rise in these parganas are the Sila, the Kali *nadi* which has two branches, the Dhamaula, and the Pandohi on the north; the Saindli, Katah, Kirsani, Umri and Imiliya *khalas* on the south. Full descriptions of these have been given in the various rent rate reports and need not be repeated. Down the east centre runs the Hindan, which after it has been joined by the Nagdeo contains a perennial supply of water. The Hindan is a big enough river by the time it reaches tahsil Deoband to cause some deterioration along its banks and to necessitate the creation of alluvial mabals. The Kali *nadi* in both its branches and more so after their junction causes similar, though less serious, deterioration; and the same remarks apply to the other *khalas* but only in the extremes of their courses. Two peculiarities in the eastern and western sides of the *bangar* alone deserve mention. In pargana Manglaur and the extreme east of Deoband there are some ridges of sand, parallel to and usually near the course of the Sila, of which the origin is obscure. In the west, in tahsil Nakur, there is a number of tortuous swamps in which the Katah rises and three large marshes, the Sikri, Kumharhera and Andauli



*jhils*. The origin of these too is very obscure as it is very unlikely that the Jumna river could ever have formed them. They must date from some geological period when the whole upper *doab* was in a transition stage. They form, however, a distinctive feature of this tahsil and taken in conjunction with the *khadar* cause it to be the most favoured sporting ground of the district. The soil of the *bangar* consists of a productive loam of varying texture known as *rausli* thinning on the slopes of a rise or degenerating into *bhur* on the tops and on the river banks. In the *dahars* or depressions the consistency increases and the soil becomes a tenacious clay, which is usually known as *dakar*. *Rausli* grow all kinds of crops, *bhur* usually only *kharif* or indifferent *rabi*, while *dakar* is devoted to rice, though where it is not too lowlying and irrigation is available it is capable of growing *rabi* also and is usually double cropped. Of the *bangar*, practically the whole of parganas Saharanpur and Rampur are irrigated from the Eastern Jumna Canal which extends its water also to the east of tahsil Nakur and the extreme west of pargana Deoband. Most of pargana Manglaur and a fraction of Deoband get water from the Ganges Canal, while southern Nagal and eastern Deoband are now watered by the Deoband branch of that canal. Parganas Haraura, Bhagwanpur, Rurki and north central Manglaur, northern and western Nagal, central Deoband and the whole of the rest of the Nakur tahsil are without canal irrigation, and where irrigation is practised depend wholly on wells.

12. The district contains several towns and places of importance, but absolutely no manufactures are carried on in it. Saharanpur city is a big town of 62,850 inhabitants. It sucks in the trade of the greater part of the district from the Siwaliks on the north as far as Nakur and Rampur in the south and Haraura on the east. The trade is mainly in wheat, *gur*, tobacco, vegetables and fruits (of which there is a considerable export), cotton and jungle produce. There is one large ginning mill in the city; and as for jungle produce the exports are mainly of *bhabar* grass, contracts for which have been taken by a paper-making factory in Bengal. Wheat and *gur* are brought in from the outlying villages; but for tobacco, vegetables and fruit, the suburban area is mainly responsible. The land in the immediate vicinity of the city is lowlying, rich and highly manured with city refuse, in which a regular business is carried on. Much of it is thrice cropped. The climate is suitable to exotic trees and plants and very early in its history the East India Company established a botanical garden here. These gardens are still maintained and contain many such trees; but are at the present time mainly reserved for the production of vegetable seeds and to a less extent of ornamental plants and fruit trees. The seeds are, I understand, largely exported to East Africa. The Dhamaula river and its swampy affluent the Paundohi used at one time to cause considerable damage by flooding but were aligned and embanked by Messrs. Harrington and Jenkinson in the decade 1870-1880, and under the shadow of these embankments much land has been brought to a high state of cultivation. The suitability of the climate and the extension of canal irrigation seem to have early stimulated the planting of fruit gardens and a large acreage is covered with *baghs* of grafted mangoes, guavas, pomegranates, peaches, plums and *lichis*. The prohibition of canal irrigation within a certain radius of the city in 1909, on the ground that it caused or increased malaria, gave a considerable set-back to the fruit industry especially to the north of the city, from which it has not yet recovered and probably never will because wells cannot form a satisfactory substitute in such large areas for the canal. Even the botanical gardens have been compelled to resort to tube wells or pumping from the Dhamaula. The suburban area is distributed over a number of mauzas called *darahs*; and though of unequal quality the cultivation in these is, as a whole, exceedingly fine, rents rising as high as Rs. 50 or more per acre. The civil station and the Government Remount Depôt, which has accommodation nominally for 2,000 horses and often has to accommodate many more, lie to the east of the city in the angle formed by the Dehra road and the Oudh

Towns, markets, industries.

and Rohilkhand Railway, while the district courts and offices lie along the Rampur road to the south-east. The city is not one of great antiquity nor does it contain any ancient buildings of note, but it was so often harried by Sikh, Maratha and Rohilla marauders that this is scarcely surprising. The district jail is located in an old fort near the Dhamaula which is said to have been built by or under the inspiration of the Marathas during their brief occupation of the upper *doab*. No fairs of any economic importance are held in the city or near it. Rurki seems to have been an insignificant village, not even giving its name to a pargana until the construction of the Ganges Canal and the foundation of the foundry and the Thomason Engineering College brought it into prominence and encouraged the settlement of the large miscellaneous population which always follows in the train of big establishments. It is now also the headquarters of the 1st K. G. O. Sappers and Miners and of a battery of field artillery, usually of the howitzer class. Possibly an aviation station will be located here also in the near future. Rurki is a market town of fair though minor importance, while Lakhsar in the *khadir* to the east has little or no trade and is important mainly as a junction for the Hardwar line. Rurki had at the last census 13,850 inhabitants. Next to Saharanpur, the place of greatest importance in Deoband. It attracts to itself the export trade of a large tract of surrounding country and the railway station is usually stacked high with sacks of grain and *gur* awaiting transshipment to Karachi. Many rich traders and bankers reside here and the place is popularly believed to contain any thing from 1,000 to 1,500 '*khathis*' of 500 maunds capacity for the storage of grain. One of the few fairs held in the district is celebrated at the Devi Kund close by, but it has only a religious importance. On the academic side, Deoband has the distinction of being the seat of an Arabic theological college to which scholars come from distant parts of India and even Mesopotamia for religious instruction. The buildings are not yet completed, but are being gradually constructed as funds permit. The town is administered under the Municipalities Act and contains a population of 18,614 souls. The celebrated town of Hardwar, which along with its suburb Kankhal to the south and the large quasi-agricultural village of Jwalapur, some 2 miles to the south-west, forms one administrative union under the Municipalities Act with a combined population of 28,682 souls, is a famous place of pilgrimage and inhabited either by well-to-do Hindus who have retired from active life or religious ascetics and Mahants. There are several well-known *akharas* here administered by committees who are important from our point of view only in that they have in recent years acquired considerable landed property especially in pargana Jwalapur. Jwalapur town is largely inhabited by Pundir Rajputs converted to Islam who still hold either directly or as superior proprietors a large tract of country to the west and south and once, no doubt, held much more. The tradition is that Mayapur (between Hardwar and Kankhal) was once the seat of a powerful Raja one of whose sons was converted, while the others remained Hindus. In what circumstances they came to shift their headquarters to Jwalapur does not transpire; but at the present time the Musalman branch is found along the *ghar* scattered in settlements stretching from Jwalapur to Khaj nawar while the Hindu branch has taken up its abode to the south at Jaurasi, Rurki and other places. There is no trade at Hardwar beyond a little in bamboos and wood: but advantage is taken of the occurrence of the *kumbh* and *adh kumbh melas* which are patronised by numerous pilgrims from distant parts of India (but in decreasing numbers it is said) to carry on something in the nature of a fair. The only places which deserve mention in it are the *Har-ki-pairi* pool, where all pilgrims seek to bath, and the *Bhimgoda* tank below the hills a little to the north.

municipalities

13. There are several smaller towns in the district which are administered under the Town Areas Act such as Gangoh (11,373), Manglaur (9,282), Rampur (6,899), Ambahta (4,524), Nakur (4,136), Nanauta (3,942), Sarsawa (3,499), Titron (2,741), Chilkana (2,726), Jabrahara (2,147), Lakhnauti (2,128) and Bhagwanpur

(1,982) but beyond containing many substantial masonry mansions, signs of a past greatness, and being the home of some well-to-do landholders and a few traders or, as in the case of Gangoh and Ambatta, having some religious associations, they are of no importance in the economy of the district. There are some large and a few very large villages such as Sakranda, Islamnagar, Behat, Khajnawar, and so on, but they are merely overgrown agricultural estates. The only two fairs of economic importance other than those already mentioned are those held at the Piran Kaliar shrine in pargana Rurki—one of the three best known Mohammadan shrines in northern India, but again more of a religious than economic character; and that held at the Kasumri Devi shrine in the north-west corner of pargana Muzaffarabad in the month of October. A considerable number of hill men resort to this and bring with them for sale mainly walnuts and coarse blankets. The trade of the south-western portion of the district finds its way to the bigger markets in the north west of the Muzaffarnagar district. Communications are, on the whole, good, have improved since last settlement, but are by no means perfect. The Oudh and Rohilkhand branch line to Hardwar has now been extended to Dehra Dun, and a small two foot six inch feeder railway has been constructed from Saharanpur to Delhi Shahdara which opens up the Rampur pargana and to some extent the Nakur tahsil. It is not, however, till you get beyond Rampur town that this line seems to tap the grain resources of the country so far as export is concerned. The roads to Nakur and Ambala have now been metalled, in the latter case as far as the Jumna river over which the old railway bridge affords a crossing, and there is now through metalled communication between Saharanpur and Ambala though by a circuitous route. A new unmetalled road has been made from Behat up to the Kasumri Devi shrine; and a pious Musalman has metalled at his own expense the right canal bank from Rurki to Piran Kaliar. All other roads and railways remain the same as at last settlement and need not be described in detail again. Many of them are very imperfect lines of communication. It is a matter for surprise that neither the Government nor public spirited private gentlemen have ever undertaken the construction of a decent if not a metalled road to Hardwar. The western *ghar* has no lines of communication at all except village tracks and the central *ghar* is in an equally bad plight. The *khaddars* are even worse off, but with innumerable soft spots and *khallas* to cross it is difficult to see how anything worth doing could be done except at an expense in bridging which would be out of all proportion to the advantage gained. Still much would be secured if *kacha* roads were driven through or existing tracks raised and improved with stone causeways or Irish bridges at the crossings of the streams. A road driven up the centre of pargana Saharanpur so as to tap the rich country along the Nagdeo and the semi *ghar* below Muzaffarnagar would probably be the immediately most useful road that could be made.

14. The total population of the district at the last enumeration in 1911 numbered 986,359 souls with an average density of 746·12 persons per square mile of cultivated and 541·66 of total area. It was distributed as follows :—

Population.

Males.	Females.	Hindus.		Musalmans.		Others.	
		Male.	Female.	Male.	Female.	Male.	Female.
5,41,091	4,45,268	3,50,151	2,88,203	1,79,846	1,49,248	11,094	7,817

The changes since 1872 may be seen from below :—

1872.	1881.	1891.	1901.
8,84,018	9,79,588	10,01,870	10,45,930

Population reached its zenith in 1901 and then fell and the only parganas which showed an increase in 1911 were Faizabad, Jwalapur and Rurki—perhaps the result of immigration from the tracts to the south in the case of the first, and of a

temporary influx of pilgrims in the case of the last two. In Muzaffarabad and Manglaur *khadar* the decrease was at the same time small. There is grave reason to suspect that as a result of the severe influenza epidemic of 1918-19 there will be a further decrease when the census comes to be taken next year.

A table showing the distribution over the tracts into which we have divided the district for descriptive purposes is given below :—

Tract.		1901.		1911.	
		Density per square mile of total area.	Density per square mile of cultivated area.	Density per square mile of total area.	Density per square mile of cultivated area.
Upland	Canal irrigated ..	591.28	735.94	584.80	727.25
	Others ..	570.28	733.76	492.54	633.74
Ghar ..	Canal irrigated ..	648.78	908.27	644.28	902.07
	Dry ..	578.61	550.94	579.79	928.78
	Khadar ..	537.15	576.93	567.68	828.65
Total ..		574.04	790.72	541.66	746.11

The above are calculated on the average cultivated area of the past 12 years.

The canal irrigated portion of the *ghar* is the most and the non-canal irrigated portion of the *bangar* the least densely populated. Cultivation is at a low level at present in the *khadar*; and the figures are not altogether a trustworthy guide.

Castes.

15. The numerically strongest caste is that of Chamars who numbered 202,097 persons. Next come Gujars (Hindu 50,607 and Musalmans 18,094); Rajputs (Hindus 35,182 and Musalmans 19,076); Kahars (called also Dhimars or Jhimwars 45,288); Garas 43,466; Jalahas (Hindus 7,064 and Musalmans 37,730); Brahmans 37,959, Malis 36,664, who if Sainis (21,926) are added, would move up to third place, and Baniyas 25,119. Of other castes, Tagas 16,823 (both Hindu and Musalman) Jhojhas 13,409 and Jats 13,430 need alone be mentioned. As most of the Hindu castes have their Musalman counterparts, it is clear that the Mohamadan element in the agricultural population is a strong one; and that even when the persons in possession of the land are not themselves agricultural tribesmen, the existence of so many labourers in the shape of Chamars ensures fairly plentiful field labour and good husbandry.

Proprietary castes.

16. The 1991 towns and villages of the district are at present divided into 5,685 mahals, whose constitution and distribution by tracts will be found below :—

Tenure,	Bangar canal irrigated.		Bangar non-canal irrigated.		Ghar canal irrigated.		Ghar dry.		Khadar.		Total.		Resident.	Absentee.	
	Number of mahals.	Area.	Number of mahals.	Area.	Number of mahals.	Area.	Number of mahals.	Area.	Number of mahals.	Area.	Number of mahals.	Area.			
No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	No.
Single Zamindari ..	149	21,494	171	31,677	19	10,419	117	34,410	170	46,784	626	1,44,784	89	526	
Joint Zamindari ..	256	26,337	337	44,913	16	3,495	230	54,372	286	42,544	1,125	1,71,561	2,908	3,719	
Perfect Pattidari ..	143	20,459	228	33,741	29	8,396	119	20,444	100	15,855	624	98,845	5,635	6,158	
Imperfect Pattidari	143	38,583	171	54,611	20	5,631	68	31,413	132	41,095	534	1,71,033	8,078	13,804	
Dhaiyachara.	1,149	2,12,122	1,000	1,93,597	43	9,412	183	47,440	399	74,070	2,774	5,36,941	62,837	45,402	
Miscellaneous property including revenue free and Government plots	*1	16,868	..	11,715	..	3,208	†1	6,576	..	3,955	2	42,342	5,256	3,344	
Total ..	1,846	3,35,598	1,907	3,70,454	127	40,561	718	1,94,655	1,087	2,24,303	5,683	11,55,596	84,853	72,953	

\* 1 Mahal of Waqf.

† 1 of Government property.

Sub-division has not proceeded so far as in many districts but is on the increase. The emergent tenure is *bhaiyachara* ; and it might be supposed from this that the district was one chiefly of petty proprietors. This is true to some extent but not nearly to the extent which the figures would lead one to suppose. In the first place, many of the *bhaiyachara* estates are only so in name:—they have once been *bhaiyachara* but have passed by alienations to bankers and others and are for all practical purposes zamindari. Partly as the result of alienations and partly as the result of purchases of grants, Mahajans now hold as much as 3,17,483 acres or 27·2 per cent of the whole district, and their possessions are likely to increase as time goes on. Most however of this area seems to have come into their hands prior to last settlement, and although a considerable area has changed hands in the past 30 years, it does not seem to have passed to any great extent to this class of person. Of other proprietary castes the chief are Gujars and Rajputs. Among the Gujars are included the estates of the titular Rana of Landhaura and his relatives of Mundlana, Jhabrahera and other places which lie mainly in the Burki tahsil. But apart from these the Gujars form numerous cultivating communities, especially in the Deoband and Nakur tahsils. Among the Rajputs are included the Musalman Rajputs of the *ghar*, both of the Pundir and Chauhan clans, who can scarcely be called cultivating communities, though some of them might be correctly described as such. Both they and the Hindu branch for the most part form such communities chiefly, like the Gujars, in the Deoband and Nakur tahsils where at one time they held practically the whole of the old Katah pargana. The Rajputs of the western *ghar* are converted Chauhans, a class which is found in large numbers in the Ambala district, but all the other Rajputs are almost without exception Pundirs, whether Musalman or Hindu. They seem to have spread over this district in the direction of Hardwar from Pundri, their original settlement in the Karnal district, and to have exercised an overlordship if not actual proprietary possession in an extensive tract of country to the north and west. The titular head of the Hindu branch is the Rana of Jasmaur in pargana Muzaffarabad who now holds only the remnant of a once extensive *ilaga*, and even that is in the clutches of a money lender. After these come Musalmans other than Rajputs including some large landed proprietors, whether Pathans, Sheikhs, Saiyids, Moghals or Pirzadas. The Musalman landholders, with a few exceptions, are as usual cruelly subdivided and are to be found mostly in the bigger centres such as Gangoh, Ambahta, Islamnagar, Rampur, etc., where no doubt they were settled as garrisons in the days of the Moghal empire. Many of them, thanks to this subdivision, have been compelled to seek their fortunes abroad and have supplied many excellent servants to the state. Fifth on the list are Tagas, mainly Hindus, who are all clustered in cultivating communities and are for the most part husbandmen of a good class. Tagas are followed by Jats, including Kolis, practically all in the Deoband tahsil and Manglaur pargana, Brahmans, Garas, Europeans represented by the Powell family, Faqirs mostly in the shape of the Hardwar Akharas, and Chauhans (non-Rajputs). There are also some communities of Ahirs, Rorhs, Kalals, Saiids and Sadhs who are essentially agriculturalists.

17. Details of the areas held by the chief landowning castes will be found in the appendix (II) for both the past and present settlements, but a rough measure of the extent to which the cultivating communities now cultivate their own land may be gained from the figures of the holdings areas. Altogether

Proprietary cultivation:

2,89,344 acres or 34 per cent. of the holding area were in the year of verification cultivated by proprietors themselves as below :—

Serial no.	Caste.	Total area held by each caste.	Total holdings area held by each caste.	Area of sir and Khud. kasht.	Percentage of 5 on 4.	Percentage of 5 on 3.	Remarks.
1	2	3	4	5	6	7	8
1	Gujars .. { Hindu .. Musalman }	.. 2,05,387	1,55,396 86,667	71,388 11,071	45·9 30·2	} 40·2	
2	Rajputs .. { Hindu .. Musalman }	.. 1,89,188	96,295 83,472	58,430 16,724	55·5 50·0		
3	Malis and Sainis, { Hindu .. Musalman }	.. 8,101	80,222 1,169	4,096 216	5·1 18·5	} 53·2	
4	Garas .. ..	34,877	79,988	20,937	26·2	60·0	
5	Tagas .. { Hindu .. Musalman }	.. 49,939	44,341 5,031	28,852 2,047	65·1 40·7	} 61·9	
6	Kolis .. ..	8,870	19,894	5,262	39·3	59·3	
7	Jats .. ..	81,508	32,481	15,639	48·1	49·6	
8	Brahmans .. ..	37,076	26,848	7,958	29·6	21·5	
9	Ahirs .. ..	7,752	9,638	4,361	45·2	56·3	
10	Jhojhas .. ..	6,818	11,934	2,618	21·9	38·4	
11	Others .. ..	5,85,990	2,28,035	44,725	19·6	7·6	
	Total .. ..	11,65,506	8,54,909	2,59,244	33·8	24·8	

There are no figures for last settlement with which to compare these but by deducting the areas held by non-cultivating castes and making rough deductions among Gujars, Rajputs and others, we may say that roughly 25 per cent. of the land is still actually cultivated by proprietary communities.

18. A list of the largest individual landholders will also be found in the appendix (III) ; some of them are closely connected and the majority are wealthy men residing in Saharanpur. Of the Hindus the chief are Rai Bahadur Lala Joti Pershad and his two brothers of Jagadhri in Ambala ; Lala Jambu Prasad, Hulas Rai and Janeshar Das, all Jaini Agarwals, of Saharanpur ; the Agarwals of Kota in Haraura ; and the Landhaura Gujars. Among Musalmans may be mentioned Khan Bahadur Naim Khan of Kailashpur, Pathan ; Shah Zahid Husain and his relatives, Pirzadas of Behat, and Qazi Saiyid Abdul Ghani of Manglaur. Of others, the Powell family alone deserve mention. Their property is now considerably sub-divided, and some of the members live in Dehra Dun or Mussoorie, in which district they also own land. The family holds scattered estates in the Faizabad, Gangoh, Rampur, Deoband and Saharanpur parganas but chiefly in pargana Faizabad, where an ancestor of theirs successfully maintained in court against the Rajputs of Raipur his title to the proprietary rights of several large villages subject, however, to the payment of *malikana*. The family developed the property energetically and has three of the seven wells of the western *ghar* to its credit ; while in the neighbourhood of Saharanpur it laid down many fruit gardens which enjoy a well-deserved reputation for excellence to the present day.

19. In this connection it may be noted that the number of estates in which allowances are payable to expropriators is considerable. Most of these payments date from the time of Mr. Thornton, who went into the question thoroughly. Proprietary rights were claimed by the Rajputs of Jwalapur, Salempur Mahdud, Garh,

Jaurasi, Rurki and Paniala, all in pargana Rurki, in 137 villages, in only 43 of which, however, were they admitted. In the remaining 94 their claims were disallowed but they were secured a *malikana* generally of 5, occasionally of 10, per cent.

In addition to these, there are some allowances which are payable by the grantees of waste lands to the old owners and the payments made by the Powell family to the Rajputs of Raipur seem to be of this class. These *malikana* rights are all duly recorded in special *malikana khewats* and have, in some cases, been alienated to outsiders. In a few they have lapsed or been successfully contested in courts and disappeared. At the present time, the distribution of these allowances including some of a miscellaneous nature is as follows :—

Name of pargana.	Number of villages.	Number of mahals.	Remarks.
Rampur .. .. .	2	2	
Saharanpur .. .. .	*3	*8	* In two villages there is one <i>khata</i> of <i>malikana</i> .
Faizabad .. .. .	16	18	
Muzaffarabad .. .. .	†1	†1	† One <i>khata</i> only.
Haraura .. .. .	†1	†1	† Ditto.
Sarsawa .. .. .	1	1	
Gangoh .. .. .	6	6	
Rurki .. .. .	73	167	
Bhagwanpur .. .. .	14	29	
Jwalapur .. .. .	†35	†71	† In Jwalapur <i>khas malikana</i> is paid on 222 bighas and ten biswas only.
Manglaur .. .. .	4	9	
Total .. .. .	156	313	

In the event of non-payment, the parties have to seek their remedy in the appropriate court, and the Collector is, in no way, responsible for payment. But its existence has had to be recognised in assessment, and in fixing the revenue demands, we have generally taken a sufficiently low percentage of the assets to make the whole recoverable *jama* including *malikana* equal to an ordinary demand.

20. There is a number of estates in which the revenue is assigned, either in perpetuity or conditionally, or wholly remitted. Of the revenue assignments the most important is the endowment of the shrine of the famous Musalman saint, Shah Abu Mali, at Ambahta in pargana Nakur which consists of 14 whole estates and portions of 8 others. The endowment is now recorded in the name of the *Sajjada nashins* as the result of litigation, and the income cannot or ought not to be expended for any private purposes. Similar in character is the endowment of the shrine of Shah Ala-ud-din at Piran Kaliar in pargana Rurki which consists of that village and a fraction of another. But here, in spite of litigation, the property has become practically private property and has been even to some extent alienated to outsiders. Little of the income seems now to find its way to the shrine itself. The *khewats* and assessments of the assigned estates have caused considerable confusion and difficulty, especially in the Nakur tahsil, owing to alienations by the zamindars to the assignees or *vice versa* but matters have, I trust, been now all set right. The revenue free estates call for no special remark. There is a host of petty revenue free plots in the old *gasbas* of Rampur, Nanauta, Deoband and Gangoh and around Saharanpur city, for which separate records have to be kept up.

Revenue free or  
revenue assigned es-  
tates.

**Cultivating castes.**

21. The extent to and tenures in which the land was held by the principal cultivating castes at the time of verification will be found in the appendix (IV). Gujar preponderate in every tahsil except Deoband where Rajputs and tahsil Rurki where Sainis run them close. Gujar are cultivators of an indifferent order as a whole, but they have undoubtedly much improved, and in some villages of pargana Gangoh where they were once considered to be incorrigible thieves and outlaws they seem to have turned over a new leaf so completely that they now rank among the most industrious of the inhabitants. Much the same may be said of the Rajputs but neither they nor the Gujar of the old Katah pargana have yet lost the reputation for lawlessness and cattle theft they possessed as late as the days of Mr. Wynne and several of their villages are still proclaimed. Rajputs seem to be much more subdivided than Gujar; and at the same time to furnish a good many more recruits to the army. The Gujar of this district do not seem to take kindly to such service. The Garas rank with the Sainis (including Malis, Kachis and perhaps a few Kurmis). Jhojhas and Jats as the most industrious and skilful agriculturalists of the district. These castes are comparatively scarce in Deoband where their place seems to be taken by Tagas, who are husbandmen of a high order as a whole. The Chamars are rather field labourers than agriculturalists but the area they hold is probably large rather because they are so numerous than because they really hold much land. The Brahmins are, for the most part, only cultivators in name. The Chauhans of the *ghar*, however, (who are not Rajputs) are fairly good cultivators as also are the Kahars (called here generally Jhinwars or Dhimars) Ahirs, Rorhs and Kambohs. On the whole the district is fairly well off in the character of its cultivating body, and some portions of it are particularly so. More detailed information on the subject must be sought from the various rent rate reports. Although until the quality of the land held by each is known nothing can be said absolutely for certain, yet the areas held by these castes as tenants is sufficiently large to reduce inequalities to a minimum. With the exception of Chamars who seem to be regarded as fair subjects for *loot* everywhere and generally pay high rents for poor land, it is significant that the best cultivating castes such as Jats, Garas, Malis, Jhojhas and Tagas pay the highest rates of rent. The apparent exception of Kolis and Musahman Malis is due to the fact that the first are largely co-sharers cultivating in one another's pattis while the latter hold as a rule exceptionally good land round the city and other favoured localities.

**Cultivation.**

22. Of the whole area of district 136,274 acres or 12 per cent were classed in the year of verification as unculturable, and 171,043 acres or 15 per cent as culturable, including culturable waste, old fallow and new fallow. The cultivated area amounted to 816,233 acres or 70 per cent. It will serve no useful purpose to compare the figures by tracts, such information, if wanted, being available in the various rent rate reports. The remainder was revenue free or classed as under groves. As for the cultivated area in general, apart from any losses caused by diluvion which is continuous along the large rivers, though it may, from time to time, be made good in the southern part of the Nakur tahsil and in the interior alluvial mahals by alluvium, the figure is a low one for several reasons. In the first place the season of 1326 fasli when the records of parganas Jwalapur, Rurki and Manglaur *khadar* were prepared was not only a bad one but coincided with the great influenza epidemic. Even where the population did not succumb to it, considerable areas were left unsown because the people were unable through sickness to sow the fields. Secondly special causes have been at work in the Ganges *khadar* to reduce the area. In the first place there is the damage caused by the Begam *nala* flood of 1910 in pargana Jwalapur, the nature and effects of which have already been mentioned. Again further to the west there is the depression which set in about the year 1319 fasli in the south eastern portion of pargana Rurki, the west centre of Jwalapur and the west of the Manglaur *khadar*, as the result of oversaturation. A similar depression followed by a more or less complete recovery seems to have occurred here before



during the currency of settlement and there is reason to hope that the same may occur again. But at the present moment a considerable number of villages in these tracts are in a much deteriorated state, population has deserted them, cultivation has fallen and the damages of wild animals has so much increased, that the action and reaction of the forces at work will make recovery difficult. Lastly, in the *ghar*, destruction by the *raos* and by *darars* has been steady during the currency of settlement and will probably be progressive. Thus in any case the cultivated area is likely to be below what it was at last settlement and below the average for the special reasons given. For assessment purposes actually an area of 823,278 acres has been accepted.

23. Irrigation is derived from the Ganges and Eastern Jumna Canals, wells and minor sources, such as *jhils*, rivers and streams. The last are not of much importance. The average area irrigated from all sources in any one year is as follows :—

	Canal. Acres.	Wells. Acres.	Other sources. Acres.	Total. Acres.
Average of 5 years after last settlement	78,134	24,198	3,058	105,390
Average of 5 years preceding year of verification) .. ..	128,057	37,867	4,650	170,574

But for purposes of assessment, the figures for any one year cannot obviously be accepted. We have to obtain, owing to the system of rotation and seasonal fluctuations, the irrigable area rather than that actually irrigated. As irrigation in this district is a constant factor and regularly used if not actually abused, and there having been no seasonal fluctuations to affect the figures in the years preceding verification, I first took the period of four years preceding and including the year of verification, and later, in order to cover a possible 3 years' sugarcane rotation, six years. A field was held to be irrigated if it had been actually irrigated at least *twice* within this period. Irrigation, however, from non-masonry wells whose number fluctuates and whose location changes, was disregarded—irrigability from such wells being provided for by consideration at soil classification. At last settlement, all fields found at verification to be actually irrigated and all fields recorded as irrigated in any of the three years preceding verification from whatever source were taken as "wet." Mr. Porter recognises that this led to over-statement and that his figures give rather the area "artificially protected against drought" than the strictly irrigable area. There is no doubt that his figures were an over-statement, even in canal irrigated areas. Though, through realignment of channels, changes in outlets, economics in the use of water and so forth, the area of canal irrigation has considerably changed, yet it is clear from the figures irrigated in any one year that the area has increased. Nevertheless even canal irrigation in some villages was over-stated and there are not many in which the area now recorded as irrigable is not less than it was at last settlement. The area irrigated from masonry wells has increased, but *pari passu* with this the average area irrigated from non-masonry wells has diminished, partly as the result of their replacement by masonry wells. Comparisons between past and present figures, therefore, are impracticable, but I give them below for what they are worth :—

Tracts.				Canal.	Wells.	Other sources.	Total irrigated area.
Ghar. Upland.	{ Canal irrigated ..	{ Former settlement ..	1,35,940	10,631	2,629	1,49,200	
		{ Present ..	1,40,504	4,069	2,471	1,47,044	
	{ Other ..	{ Former ..	2,296	71,989	6,374	80,059	
		{ Present ..	1,941	40,535	3,568	52,044	
	{ Irrigated ..	{ Former ..	10,533	41	..	10,574	
		{ Present ..	14,374	..	..	14,374	
	{ Dry ..	{ Former ..	280	207	103	540	
		{ Present ..	151	36	225	412	
	{ Khadar ..	{ Former ..	66	9,396	656	10,118	
		{ Present ..	124	3,417	1,655	5,186	
{ Total ..	{ Former ..	1,49,065	91,664	9,782	2,50,491		
	{ Present ..	1,57,084	64,057	7,919	2,19,060		

Irrigation.

24. The Eastern Jumna Canal, which is the old Doab Canal realigned and straightened by means of falls, originally obtained its supply of water direct from the Jumna, in which every year temporary spurs and gabions were constructed in order to force water down the Buddhi Jumna at Faizabad. The canal proper took off the Buddhi Jumna at Naushahr. This has been altered now, a weir having been built across the river at Tajewala above which both the Eastern and Western Jumna Canals take out. A straight cut has been made from this point to the Buddhi Jumna just above Naushahr, and the supply which is limited to one-third only of the total discharge of the river is admitted into this cut by means of a regulator, the whole works being under the control of the Punjab authorities. From Naushahr to Behat the canal runs through its own cutting, taking into itself and ejecting by means of regulators the waters of the Raipur and Gang *raos*. Below Behat it utilises the bed of the Maskara for a short distance and at Akalsia definitely enters the *bangar*. In pargana Faizabad it throws off the Alampur distributary and Gandewar and Sultanpur minors which irrigate a considerable area to the south. After passing Akalsia it throws off successive distributaries which with their minors irrigate the greater part of the Saharanpur and Rampur parganas, the extreme west of Deoband, three villages in the south-west corner of Muzaffarabad and the eastern strip of all four parganas of the Nakur tahsil. These distributaries are in order the Nagla, Randaul, Babail, Pilkhani, Sarkari, Tharauli, Meghchappar, Chidbana, Nalhera, Reri, Islamnagar, Hangauli, Kallarpur, Sahjod and Tikraul. A large number of drainage cuts have been from time to time constructed to relieve the marshes and depressions and over-saturation resulting from irrigation and the abuse thereof and are under the control of the canal authorities. No profitable purpose would be served by enumerating these: but it may be said generally that they have, on the whole, achieved their purpose and that the area under the influence of this canal, as well as others only remotely connected with it such as the Dhaulapra and Kambarhera *jhils*, are effectively drained.

25. The Ganges Canal takes off the river at Hardwar, and only in the present year has the old arrangement of temporary *bandhs* in the bed of the river to direct the water been superseded by a massive masonry embankment. The river is canalised past the town of Hardwar and enters its own cutting at Mayapur. It then runs due west across the lines of drainage, negotiating the Rani and Pathri *raos* by means of superpassages, to Dhanauri where it enters the upland round Piran Kaliar. At Dhanauri it receives into itself the waters of the Ratmau and some minor *raos* which have been trained into it and ejects them by means of a regulator. The canal is carried across the Solani *khadar* by means of a massive aqueduct and then enters the *bangar*. Between Mayapur and the Pathri *rao* several minors take off the navigation channel of the canal which afford irrigation to the north of pargana Jwalapur and a few villages in pargana Rurki, but no other irrigation is done until we reach Asifnagar, the first fall on it, close to the border of pargana Manglaur. A couple of villages in pargana Bhagwanpur manage to secure irrigation from the Deoband branch of the canal which takes off at Asifnagar, but otherwise irrigation from the main canal is confined in this district to pargana Manglaur and a few villages in the extreme south-east of pargana Deoband beyond the Sila. Other irrigation is all derived from the Deoband branch which was only constructed after the famine of 1877. This is carried across the Kali *nadi* a few miles north of Deoband town by a large aqueduct and curves round west of that place to pass away into the Muzaffargarh district. It irrigates the southern third of pargana Nagal and the east and centre of pargana Deoband, including the Kali Sila *doab*. Irrigation was not fully developed from this canal at last settlement and has been considerably extended since. Pargana Manglaur does not lie so low as pargana Rampur, but still all over-saturation here has now been effectively dealt with by means of cuts in connection with the canal.

26. Wells are either masonry lined or unlined but protected with twisted *arkhar* and cotton stalks or occasionally with wooden blocks, or shallow *dhenkul*

wells. The subsoil over a great part of the district seems unsuited to wells and in many places they cannot be built. Nor have tubes been more successful. This is true of the north of Haraura and of southern Bhagwanpur and Rurki. In the south of Haraura, however, and more so in the north centre and west of pargana Nagal conditions seem to improve, though complaints of the impracticable subsoil are still heard. The well irrigated area *par excellence* is the central upland of the Nakur tahsil from Sarsawa to Gangoh. But whereas east of the Hindan river water is generally raised by the leather bucket, west of the Hindan this is seldom seen, its place being taken by the Persian wheel or *harat*. The reason for the difference seems to be the difference in the subsoil which is so sandy that the critical discharge of the well becomes exceedingly low and any attempt to take water out of it more rapidly than is done by the endless chain of buckets is followed almost inevitably by a collapse of the cylinder. The contraption is sufficiently well known not to require description, and is used indifferently on masonry and non-masonry wells. Its general efficiency which is low has been increased in some cases by the substitution of iron cog wheels and metal buckets for the usual unsymmetrical wood work and earthen pots. A *harat* well commands an area of some 7 or 8 acres but from a good *charsa* well, thanks to the comparative nearness of the water, water is taken surprisingly long distances and a perimeter of as much as 100 *kachcha bighas* =  $16\frac{1}{2}$  acres can be commanded, though nothing like this area, of course, will be irrigated. On an average some ten or twelve acres will be normally protected, and in the case of non-masonry wells except in special localities only half this or less. It is rare to find a *charsa* well being worked by more than one bucket or to see permanent supports on it. Usually a forked branch is erected for the purpose of irrigation and taken away to be stored when the season is over. The number of masonry wells at work in the year of verification is given as 5,014, of which 1921 are recorded as new. The number of earthen wells was 2,125. The area irrigable from masonry wells according to our calculations is 54,057 acres, which gives 10·6 acres per well. If we take pargana Sabaranpur and the whole of tahsil Nakur as the *harat* area we get an average of 11·3 acres per well and this leaves an average of only 8·5 for *charsa* wells. The highest number of non-masonry wells ever recorded was 3,823 in 1315 fasli; and the quinquennial average is 2,499. Other sources include streams, tanks, ponds and *jhils* as there are no reservoirs. The most interesting form of minor irrigation is that practised by throwing a small mud embankment across the Pathri, hadwaha and similar streams in the Manglaur *khadar* and diverting the water into the fields along the fall of level. This seems to have come into operation since last settlement as no such irrigation was recorded then in any village.

Taking irrigation as a whole the proportion to cultivation works out at 26·0 per cent. as follows :—

Tracts.				Cultivated area.	Irrigable area.	Percentage.
Upland	..	{ Canal irrigated	.. ..	2,64,428	1,47,044	55·6
		{ Other	.. ..	2,84,651	52,044	18·3
Ghar	..	{ Canal irrigated	.. ..	27,107	14,374	53·0
		{ Dry	.. ..	1,19,042	412	0·4
		<i>Khadar</i>	.. ..	1,27,005	5,186	4·0
Total .. ..				8,16,233	2,19,060	26·0

The dry *ghar* and *khadar* need not be considered, so that in the canal irrigated tracts about 55 per cent. of the area may be said to be thoroughly irrigated; and of the well irrigated portions over 18 per cent. on liberal estimate which would be increased to about 25 per cent. if the irrigable area from non-masonry wells were included.

## System of Agriculture.

27. The system of agriculture presents no peculiar features. As a whole it is of a high order, most careful where irrigation is available, less so in the unprotected tracts, inferior in the *khadar* and submontane tract for obvious reasons, and superior round the city and certain other big towns. There are, of course, exceptions everywhere. There is an idea prevalent that the Saharanpur district together with the other districts of the upper *doab* were from very early times in a high state of development, and in Mughal times formed what has been called the "granary of the empire." There are good grounds for believing that this was very far from being the case and that the three *doab* districts were in fact inferior in their development at that time to the districts of Bihar and the eastern portion of this province if not also of Oudh. In fact the pre-eminent position which the districts of the upper *doab* now hold probably dates from comparatively recent times and certainly from after the advent of the British administration, being the result of the development of canal irrigation and land communications, the establishment of peaceful conditions, and of the comparatively smaller density of population which is a feature (hitherto unexplained) of the western portion of the plains of Upper India. Irrigation and the opening up of a comparatively favoured submontane tracts have enormously increased the volume of produce which is now much in excess of the needs of the inhabitants; while the improvement in communications has made this excess available to less favoured parts and at the same time encouraged the growth of what may be called the commercial crops *par excellence*; namely sugarcane, cotton and wheat. Inferior millets are now comparatively scarce, the area which in the east is devoted to *juar* as a food grain being here devoted to fodder crops in the *khari* and twice cropped in the *rabi* or its place taken by maize, cotton and rice. The twice cropped area is extensive and is steadily increasing; for the five years preceding verification it amounted to 2,30,497 acres or nearly 22 per cent. of the cropped area.

28. The present condition of the district in respect of harvests, based on the figures for the five years immediately preceding verification, and distributed over the natural tracts into which we have divided the district will be seen from the attached table:—

				<i>Kharif.</i>	<i>Rabi.</i>	<i>Zaid.</i>	<i>Dofasti.</i>	Net cropped.
Upland	..	Canal irrigated	.. ..	1,57,678	1,86,890	1,609	76,314	2,69,863
		Other	.. ..	1,59,266	1,81,801	1,505	59,023	2,83,552
<i>Ghar</i>	..	Canal irrigated	.. ..	19,609	20,203	262	11,442	28,632
		Dry	.. ..	77,141	83,927	265	40,263	1,21,070
		<i>Khadar</i>	.. ..	79,973	94,406	724	43,455	1,31,648
Total				4,98,667	5,67,230	4,365	2,30,497	8,34,765

In the *bangar*, the *rabi* considerably exceeds the *khari* but the difference is less marked in the dry *ghar* and the *khadar*, and almost disappears in the irrigated *ghar*. The *zaid* area is nowhere important, though it is considerable round the city; while the area cropped more than once varies from 28 per cent. in the irrigated *ghar* to 17 per cent. in the well irrigated *bangar*. Both in the dry and the irrigated *ghar* as well as in the *khadar* the proportion is in excess of the average and the reason is that double cropping is extensively resorted to in the rice lands of the second, while most of the cotton and maize lands of the other two are put under *rabi* in the same year. The percentages occupied by these crops are given in the next paragraph and these figures indicate why these tracts are so much more valuable than they would at first sight appear to be. The present condition of the district can be compared with the past from the figures given in the appendix (V);

and from these it will be seen that there has been a steady drift in the direction of *rabi* as compared with *khari* and in the growth of *dopalsi*.

29. Details of the chief crops grown by tracts are also given in the appendix V. Briefly in the *khari* the first place is taken by *juar chari* (22 per cent) closely followed by rice (21 per cent.), *bajra* and maize (12 per cent) sugarcane (10 per cent) and cotton (9 per cent.) But the proportions differ much over the tracts. In the canal irrigated upland the proportion of rice rises to 33 and falls to less than 6 in the dry *ghar*; while that of *juar chari* is as high as 27 per cent. in the well irrigated *bangar* and elsewhere does not go below 16 per cent. On the other hand, the proportion of maize is as high as 27 per cent. in the dry *ghar*, and 23 per cent. in the *khadar* and is only 3 per cent. in the canal irrigated upland. The dry *ghar* also holds the first place for cotton with 18 per cent. and even the *khadar* has 11 per cent.; while the canal irrigated upland has only 4 per cent. and the well irrigated upland 7 per cent. The position is more or less reversed as regards sugarcane, the proportion being 15 per cent. in the canal irrigated *bangar* and falling to 4 per cent in the dry *ghar* but remaining the same in the well irrigated *bangar*. The sugarcane area in the *khadar* is, at present on the average slightly less than the cotton, but the former seems to be coming on again.

Crops.

In the *rabi* far away the most important crop is *wheat*, whether alone or in combination. It occupies 66 per cent. of the cropped area, the proportion being pretty constant throughout the upland and *khadar*, but falling to 60 per cent. in the dry and 56 per cent. in the irrigated *ghar*. Next to wheat comes *gram* sometimes alone and sometimes in combination with other crops, the proportion being 21 per cent. over the whole district, and varying from 31 per cent. in the dry *ghar* to 11 per cent. in the *khadar*. The preponderance in the *ghar* and deficiency in the *khadar* is natural, but the prevalence of this crop elsewhere is due to the growing custom of double cropping in rice land. The place of *gram* in the *khadar* is taken to some extent by barley or barley mixed with *gram*, the proportion being 14 per cent. of the *rabi* cropped area as against the district average of 7 and the upland average of 5 per cent.

30. A table in the appendix (VI) too long for reproduction here shows how the cultivated area was held at the time of verification and compares this with the state of affairs at last settlement. At the present time, 68.5 per cent. of the area is held by tenants of various sorts and 33.9 per cent is cultivated by the proprietors themselves (in so far as it is not sublet), the remainder being held free of rent or without rent determined or by rent free grantees. Something has already been said about the proportion of proprietary cultivation; and we will now turn our attention to the tenant area which is held partly on cash and partly on grain rents. The question of rents is left for subsequent treatment.

Cultivating tenu

Taking grain and cash together 6.3 per cent. of the tenants holdings area is in the hands of expropriators, 34.3 per cent. in that of occupancy tenants as such, and the remainder is held by tenants at will. Expropriatory rights were not well understood for many years after their first legal recognition and were allowed to lapse in many cases in consequence. Though the growth of them therefore is probably not as large as the figures would indicate still the very large increase that has taken place is an index of the extent of the alienations that are continually going on among the cultivating communities. This expropriatory land is often the best cultivated land of the village; and many cases occur in which the vendors or mortgagors are induced to relinquish their expropriatory rights in them. But for such transactions the area would probably be greater. It is common to find expropriatory land bearing an extremely high (nominal) rental. But in such cases it is not a true rental except where some court has, to save itself trouble or through ignorance, accepted the patwari's estimate of the all round letting value of land in the village or mahal and applied it to the area in dispute irrespective of the soils comprising the holding. It is a common practice, especially apparently in the Nakur tahsil, for the expropriatory land to be saddled with

sums, masquerading as rent, consisting of whatever is due to the mortgagee after deduction of the rental and other income derived from the share under mortgage, including interest and sometimes, where the mortgage is for a term, repayment of capital. In numerous cases such rents have had to be rejected *in toto* for assessment purposes.

In common with those of other districts of the Meerut Division the landholders of Saharanpur have always strenuously resisted the acquisition of occupancy rights. This division was the focus of most of the original opposition to the present Tenancy Act; and the hostility has not abated since. It is not surprising, therefore, to find that of the whole rented area only 34·3 per cent. is now in the hands of statutory tenants. The area has actually slightly decreased since last settlement over the district as a whole. Some landholders, as for example, the Powells, have never allowed these rights to accrue among their tenants; and while there are exceptions, generally it may be said that such recent examples as have occurred have been the result of compromises or of agreements by the tenants to pay a full or more than full competition rental—a procedure which is likely to make the grant of statutory rights illusory. For obvious reasons, the percentage of both exproprietary and occupancy land is materially higher in the *bangar* than in either the *ghar* or the *khadar* and to the same reasons is probably to be attributed the slight increase that has taken place in that area in those tracts, an increase which is counterbalanced by a decrease in the *bangar*. *Pari passu*, however, with the construction of occupancy rights the zamindars have increasingly availed themselves of the provisions of the Act to grant seven years' leases, and the average area held by such leaseholders during the past five years has been 85,771 acres. It may be said, therefore, that in 56 per cent. of the tenant area the occupiers enjoy complete or partial protection from arbitrary enhancement or ejectment. Including land held on seven years' leases, 59 per cent. of the tenants-held area is in the hands of non-occupancy tenants pure and simple of which nothing more need be said.

The unrented area contains exproprietary land on which no rent had yet been determined, other land which has been held for over and under twelve years but has escaped assessment of rent for any reason, rent free grants and land held on service tenure. Taken together it amounts to 2·6 per cent. and needs no further description.

ental system.

31. Rents are taken in cash or kind; but the proportion of kind has steadily fallen and now amounts to only 3·1 per cent. of the area held by exproprietary and occupancy tenants and 11·2 per cent. of that held by non-occupancy tenants, a total of 14·3 per cent.\* A considerable amount of commutation was done at last settlement; and during the currency further inroads have been made on this area. As may be imagined these rents are rapidly tending to disappear in the *bangar* and while steadily decreasing prevail and tend to persist over fairly large areas in the *khadar* and the *ghar*, especially the *khadar*, where the proportion rises as high as 30 per cent. of the rented area. As a general rule absentee landholders, especially the Vaishis, dislike grain rents owing to the opportunities of fraud inherent in the system and the uncertainty of the returns. They have therefore largely commuted their rents. On the other hand, cases are not wanting where the reverse process has taken place, the best example being that of the Pirzadas of Behat. The system has some obvious advantages from the landlords' point of view especially when prices are bounding up as such rents automatically provide for enhancements; and the relief of some of the Pirzada estates from a load of debt is in no small measure due to them. But from the cultivators' point of view and the general welfare of the state, there is little to be said for them in settled and populous tracts as they confer on the landholders a means of leverage which is a constant source of harassment to the tenant and, even if not abused, of discouragement to good husbandry. Usually the grain rate is half the produce on *kankut*; but in the Muzaffarabad pargana it is often somewhat less and occasionally

\* NOTE.—These figures are not quite accurate, as there is a little grain rented land in the unrented area, but it is not of much consequence.

occupancy tenants enjoy a lower rate than non-occupancy. In the Rurki tahsil the rate normally falls to one-third and is often lower still. This brings opposite evils in its train ; for if a *nisfi* grain rate in an improving tract enables a landlord to take an unnecessarily large proportion of the produce or, if negotiations for commutation are mooted, to stand out for a cash rent that corresponds more or less to his highest income from grain or by ringing the changes on both systems to keep cash rents at a very high level, a low customary grain rate operates in favour of the tenants and enables him to keep down cash rents. This has undoubtedly happened in the Jwalapur *khadar*, a tract which has in recent years advanced considerably in prosperity. For if pressed the tenant can at once exercise his option to revert to grain on the customary low rate. Moreover, the line which improvement generally takes exercises a considerable influence on the result. This may be said to be the substitution of sugarcane and cotton for other staples ; and by custom as well as for obvious reasons, *zabti* or cash rates are changed when these crops (and *chari*) are grown. Hence landlords have in recent years striven, and with success, to raise the customary *zabti* rates and these have in places now reached a high figure and one of which I may remark incidentally it is not admissible under the present rules to take any cognizance for assessment purposes. For further remarks on the subject reference may be made to the rent-rate-reports on parganas Faizabad and Jwalapur. One satisfactory feature of the system as practised in Saharanpur is that none of the deductions which are found in many districts seem to be made from the tenants' share under *kankut* ; while the system of *batai* is so rare as to be almost unknown. If the system of *kankut* or *batai* is inherently bad, what shall be said of the system of *jinspher* which is in operation over considerable portions of the Nakur tahsil, several villages in pargana Rampur, and scattered areas elsewhere, in all 14,160 acres ? Under this system, the tenant stipulates to pay a certain quantity of a specified grain, usually wheat, occasionally rice or both together, or if he cannot provide the grain to pay the cash value thereof. Presumably he has to buy it at current rates. The amount of grain payable always seems to be pretty high : and as under *kankut*, little or no difference is made between occupancy and non-occupancy tenants. The system is a favourite one especially with petty Muhammadan co-sharers who thereby professedly secure their food supply for the year, or as much of it as they can, out of their tenants and become independent of market fluctuations and no feasible method of commutation will reconcile them to its abandonment.

32. All grain, *jinspher* and *zabti* areas have been separated from the cash areas at this settlement and their rents kept distinct from cash rents proper. The latter are generally *bilmuqta* or lump rents, though under our soil-classification a considerable area is contained in holdings of a single soil. These cash rents are generally determined at an all-round rate on a *kacchha bigha* basis (almost exactly one-sixth of an acre) ; and the tenant understands his rent best when it is explained to him in *kacchha bighas*. It is however clear enough that this all-round rate is arrived at by roughly comparing the rate on the component areas, though it is unlikely that these are worked out anything like so elaborately as on our soil areas. Rents to judge from single-soil holdings generally run high in poor soils, and not infrequently low in superior soils ; and the bulk of the rent of a holding seems to be really paid out of the better part of the holding, especially if this is irrigated and the rest light precarious land. At any rate the poorer lands seem to have generally much appreciated in value in recent years, perhaps owing to competition resulting from the needs of a growing population. Though the classification of tenants adopted for the analysis of rentals is not an ideal one for showing the growth of rents during the currency of settlements, still some idea of the development may be obtained from the attached figures, which give the incidence paid by tenants of various standing.

Tenure.	Bangar canal irrigated.			Bangar non-canal irrigated.			Ghar canal irrigated.			Ghar dry.			Khadar.			Total.		
	Area.	Rent.	Incidence.	Area.	Rent.	Incidence.	Area.	Rent.	Incidence.	Area.	Rent.	Incidence.	Area.	Rent.	Incidence.	Area.	Rent.	Incidence.
	Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.		Rs.	Rs.	
O.O.U.E.	15,860	82,024	4.2	14,504	60,561	4.2	1,573	6,965	4.4	9,473	36,255	3.8	6,222	22,695	3.7	47,633	2,08,522	4.4
O.O.E ..	24,695	1,41,422	5.7	26,977	1,38,649	5.1	3,711	19,501	5.9	10,542	43,772	4.2	12,711	56,598	4.6	78,637	3,99,943	5.1
Over 20 years.	9,262	57,693	6.2	11,655	58,812	4.9	602	3,638	6.0	4,169	19,849	4.7	4,085	18,781	4.6	29,773	1,56,771	5.0
Over 12 years.	4,321	32,702	7.4	5,065	27,426	5.4	99	694	7.0	2,000	10,450	5.2	2,522	12,514	5.0	14,007	53,783	6.0
Total ..	54,138	3,13,841	5.8	58,201	2,83,445	4.7	5,985	30,816	5.2	26,184	1,10,326	4.2	25,540	1,10,588	4.3	1,70,050	8,49,022	5.0
Non-occupancy.	77,226	7,90,115	10.2	87,031	6,80,879	7.8	9,770	97,929	10.2	50,16	3,59,955	7.2	37,030	2,81,094	7.6	2,61,278	22,09,902	8.5

Condition of the people.

33. It can readily be imagined that in a district so favourably situated the response of agriculture to outside influences is prompt. The enormous demand created as the result of the war for bread, sugar, and cloth has had its natural result in further stimulating the sowing of wheat, sugarcane, and cotton and though the settlement statistics were compiled somewhat too early for the full effects to be seen, they begin to be evident from the returns of the Jwalapur and Rurki parganas the records of which were prepared in the year 1326 fasli (1918-19). Not only has the increase in the sugarcane area been here phenomenally large, but even cotton has begun to make its appearance in some tracts of the *khadar* where it was practically unknown before. Moreover, the response to high prices has been immediately reflected in the rents, many of which have now, as has been seen, reached a high figure. Evidence accumulated since the rent rolls were verified indicate that as leases have fallen in there has been a further rise. A feeling of optimism seems to prevail among both landholders and tenants that the present high prices will continue for a period of at least ten years and when even a *chari* crop can bring in from Rs. 12 to 15 a *kacha bigha*, it is not surprising that rents are bounding up or that there is great competition for land. The prosperity brought by high prices is to some extent set off by the higher wages which have to be paid for labour (not particularly plentiful at the best of times and to some extent reduced by recruitment during the war, though very essential in tracts such as this where the holdings tend to run to a large size) and the high prices which have now to be paid for plough-cattle and good milch-kine. In both these respects the cultivator has been undeniably hard hit; but the balance of gain has undoubtedly been on his side. My general impression is that the cultivating proprietors are prosperous and well-to-do. Conditions necessarily differ according to the extent of the subdivision that has taken place, Rajputs, Garas and Musalmans generally suffering most from this cause. On the other hand, Gujars, who preponderate, seem to be particularly well off, and would be more so if they were more industrious. The occupancy tenant appears to be even more prosperous than the cultivating proprietor. In some cases he overlaps the latter but is scarcer; while even the non-occupancy tenants are as a whole in a sound economic condition and seem to be able (doubtless on account of their agricultural origin) to make up by skill and industry in husbandry what they lose by fragmentation and subdivision. With inevitable exceptions the cultivating body of proprietors and tenants possess comfortable houses, an increasing number of which are being rebuilt of masonry, decent clothes, a sufficiency of good cattle and a multiplicity of carts. The last, in the absence of cheap labour, are a necessity in the district, seem to be increasing in number and to bring in to numbers of their owners a not inconsiderable volume of earnings. Lastly, there are good grounds for believing that the absorption of silver in recent years has been considerable.



Some curious facts in connection with the changes that have come over the cultivating body are brought to light by a comparison of the present figures with those prepared by Mr. Vans Agnew between 1859 and 1862. Reliable statistics however relating to the size of holdings are notoriously difficult to obtain and it is necessary at the outset to enter a caution that the results must be accepted as only approximate and illustrative of tendencies rather than as an accurate picture of the facts. If we take the details of population given in the census returns of occupations in 1911 and the figures of the holdings area of the year of verification, we find that the size of the average holding is 6·5 acres. This figure is however almost certainly an overstatement. I attempted to have a return prepared, by all those patwaris who were in a position from long tenure of their appointments to be sufficiently well acquainted with the facts, of the number of actual cultivators, including those whose names did not appear in the records such as brothers, cousins, etc., together with the actual area cultivated by them both within and without their villages. For three tahsils this gave an average holding of 4·4 acres. This in its turn was almost certainly an understatement; for a careful comparison of the number of dependants recorded against actual cultivators as returned at the census and as returned by the patwaris indicated pretty clearly that some of those who were recorded as dependants at the census were taken by the patwaris to be holders. In the result it would appear that the census figures of actual holders should be increased by between 20 and 25 per cent. and the average holding reduced to about five acres per cultivator with rather less than two dependants giving rather less than two acres per head. In this connection however it must be remembered that the figures for the year of verification are below par; and that in the cultivating body are included a certain number of allotment holders. Both these factors would tend to decrease the size of the average holding, which may probably with sufficient confidence be accepted as about five and a half acres. The details however are more interesting.

According to the figures given by Mr. Vans Agnew which like our own must be accepted with reservations, the comparative position of cultivating proprietors, occupancy tenants (called by him hereditary cultivators and corresponding to our occupancy and exproprietary tenants) and non-occupancy tenants in terms of holdings is as follows:—

				Cultivating proprie- tors.	Occupancy and exproprie- tary ten- ants.	Non-occu- pancy tenants.	Average.
				1	2	3	4
				Acres.	Acres.	Acres.	Acres.
Mr. Thornton's settlement	1830--38	..	..	16·5	10·6	7·5	·12
1860--62	..	..	..	9·5	7·5	5·8	7·6
Present settlement	..	..	..	8·4	11·32	4·6	6·5

Unfortunately there is no material for Mr. Porter's settlement. As regards the present figure for occupancy tenants it is based on the census returns and is without doubt an overstatement because many cultivators who at a revision of records would become occupancy were not actually counted as such at census. On whatever basis however the figure is adjusted, it remains considerably in excess of that given by Mr. Vans Agnew in 1860--62, and confirms my personal impression given above that the occupancy tenant of this district in spite of the growth of population is as a whole very well off and rather better off than the cultivating proprietor. This feature suggests some interesting speculations regarding the future status of this person and possible modifications in tenancy legislation as

regards him which it is not my province to discuss here. But the steady diminution in the area held by the cultivating proprietor, though no doubt to some extent inevitable, does not seem to be altogether wholesome. If we adjust the census figures on the basis of the estimate mentioned above, viz., that the number of actual holders is some 20 to 25 per cent. below the mark, his position is even worse (as a whole) than what it appears to be, for his average holding falls then to about 7 acres. Thus at the very best he is, in terms of holdings, rather worse off than the occupancy tenant; at the worst, considerably worse off. In view of what has been said before and the general trend of economic forces, the non-occupancy holding is pretty certain to tend towards a minimum. But that the process has not hitherto been particularly marked in this district will be seen from the following comparative table which summarises in the most complete and accurate form that I have been able to work out from the materials the position of the three classes of which the cultivating body is composed :—

Holders.	Percentage of the cultivating body.			Percentage of area held.			Average holding.	
	1860—62.	Now.	Difference.	1860—62.	Now.	Difference	1860—62.	Now.
							Acres.	Acres.
Cultivating proprietors {	40	30	—25%	50	34	—32%	9·5	7
Occupancy and ex-proprietary tenants. {	22	20	—9%	20	27	+35%	7·2	9
Non-occupancy tenants {	38	50	+32%	30	39	+27%	5·8	5

In 1860-62 cultivating proprietors representing approximately 40 per cent. of the cultivating body held approximately 50 per cent. of the cultivated area, as compared with 22 per cent. of occupancy tenants holding 20 per cent. and 38 per cent. of tenants at will holding 30 per cent. Now cultivating proprietors representing only 30 per cent. of the cultivating body hold only 34 per cent. of the holdings area, while 20 per cent. of occupancy and exproprietary tenants hold 27 per cent. of the area and 50 per cent. of tenants-at-will hold 39 per cent. The figure for occupancy tenants is no doubt inflated by the area held by ex-proprietors who may to some extent recover their *sir*; but even then it is clear that the general status of the occupancy tenants in terms of holdings has much improved and in this area is included many new occupancy holdings of small size. On the contrary in the area held by cultivating proprietors is included a certain amount of *sir* held by absentees. This makes the position of the old occupancy tenants more and those of the existing cultivating ancestral proprietors even less favourable. If we consider however how much irrigation alone has been developed in the interval since 1860 we may, I think, safely say that as a whole the average holding of to-day is intrinsically as valuable as the larger average holding of 1860-62. If to this be added the extension of the area of what I have called the commercial crops; the substitution of better for poorer varieties such as Pusa No. 12 for *desi* wheat, ponda, for country cane, and *basmati* for indifferent qualities of rice to mention only some; the growth of double cropping; and, lastly, the enormous increase in the value of the produce grown, the conclusion is irresistible that the cultivator of the Saharanpur district is in a vastly superior position to-day to what he was 50 years ago; and we can understand why the district is able to take its place among those tracts which may be called "the granary of the Empire" with far greater accuracy now than in the restricted sense in the days of the Great Mughal.

## PART II.

## FISCAL HISTORY.

34. The lands comprising the present district were among those formally ceded to the British by the treaty of Sirji Anjan gaum (30th, December 1803), and a succession of settlements were made by the collectors of the district, namely, Messrs, Guthrie, Dumbleton and Chamberlain. It would serve no useful purpose to describe these in detail. The area which was under assessment then differs much from that under assessment now owing to lapses or confiscations of revenue-free grants, extensions of cultivation in the *ghar*, and so forth; while the principles on which they were conducted differ widely from those in vogue now and a description of them will be found in Mr. Porter's final settlement report and the Gazetteer. The first regular settlement was conducted under the famous Regulation IX of 1833 and was carried out by several officers, but is justly associated with the name of Mr. E. Thornton, who settled a large part of the district himself and revised the work of his predecessors or coadjutors in a considerable portion of the remainder. He was engaged in this work from 1836 to 1839, but the proceedings were concluded or the records completed by Mr. M. P. Edgeworth in 1841. The methods pursued in assessment were complicated and various and are described in the publications mentioned above and need not be recapitulated either. But the chief points to note are that the system adopted of assessing the *jamas* made some attempt to arrive at a correct estimate of the capabilities of each estate by a reference to the relative values of the soil areas, that the proprietary rights of those who claimed them were investigated and recorded and the *jama* distributed accordingly; and that all revenue-free grants were carefully enquired into and regularised or resumed. The *jama* assessed at 66 per cent. of the estimated assets, as finally sanctioned, amounted to Rs. 10,93,946 and the settlement was sanctioned for a period of 20 years, expiring on the 1st July, 1857. Early settlements.

35. The work of remeasurement and of the preparation for the new records was begun in 1854, interrupted by the Mutiny and completed in 1858, most of the work already done before the catastrophe came having fortunately been preserved. A survey by plane-table on the Punjab system took the place of the older survey by chain; and sufficient testimony to the accuracy of the work is furnished by the statements of Messrs. Wynne, Robertson, and Vans Agnew and by the fact that the maps prepared then, with the necessary corrections, are substantially those in use at the present day. The work of assessment was entrusted to Mr. Vans Agnew, but for the reasons detailed in the Board's letter to Government no. 975, dated 18th August, 1871, his proposals were not accepted nor was his final report ever printed. Mr. Vans Agnew used a great variety of information in framing his assessments, but none of them were very satisfactory and apparently he did not have any great confidence himself in the results as he revised his own assessments in some cases more than once without any very definite reasons. But the chief fault found with his work was that he omitted to frame any standard rent or revenue rates, so that there was neither means of checking inequalities in adjacent villages nor machinery for testing the adequacy or otherwise of the assessments. Accordingly, Messrs. Robertson, Wynne and Daniell were deputed to revise them. Mr. Daniell was transferred before he had completed the work of any pargana. Mr. Robertson revised the assessments of the Saharanpur tahsil, but died before he had submitted any report, and this had to be written by his successor, Mr. Webster; while Mr. Wynne completed the work in the other three tahsils. Operations were carried on generally according to the famous "Saharanpur rules," as subsequently modified in the "Gorakhpur rules," which Mr. Vans Agnew was supposed to have followed but did not. Both Messrs. Robertson and Wynne formed topographical circles but otherwise their methods were widely different. Mr. Robertson accepted the soil-classification recorded in the papers (presumably by *amins*) as correct and divided the soils into six classes; *misan* wet and dry, *rausli dakar* (which The settlement of 1867

he treated as of equal value) wet and dry, and *bhuda* wet and dry. Soil-rates for these classes were arrived at by striking an average of the rates derived from (1) cash rents, (2) estimates of the average value of the average produce, and (3) village rent-rolls including, where rents were paid in kind, the value of the landlords' share of the crops for the year. It is not quite clear how he was able to derive any information from (1), rents being mostly *bilmuqta*; (2) was likely to be unreliable for obvious reasons, and (3) not too accurate. But he seems to have been compelled to discard his rates in many cases and to assume an all-round rate for assessment per assessable acre. Lastly, while his rates for irrigated land were based on the recorded irrigation, he actually took as his irrigated area the land irrigated in the year of inspection.

Mr. Wynne found that the recorded statistics of irrigation were out of date and the recorded soil-classification was wrong and discarded both. In parts of the district he merely noted the inaccuracies: in parts he formally corrected them. He then proceeded to work out six different percentages and to prepare six gradation lists of the villages in each circle in order of merit. The final place of each village was determined by the addition of the serial numbers of the places held by it in each list. As a matter of fact he never used the figures thus obtained, but worked out an average rate per acre from the total cash-rented area, omitting apparently both favoured rents and *zabti* rents. This he accepted as his standard rate. He then framed a gradation list of the villages according to his own opinion of their capabilities derived at inspection, and having selected his average village or villages, raised or lowered his average rate for the other villages according to the place held by them in the gradation list and to the extent suggested thereby. Additions were made for new fallow at two-thirds the rate and such old fallow as exceeded one-tenth of the cultivated area at one-third the rate on the cultivated area. Lastly, if the final incidence on the total assessed area in any estate was found not to correspond with the position of the estate in the gradation list, the total assets were altered so as to give the requisite incidence. These summary alterations, however, though numerous were, as a rule, of small amount. Mr. Vans Agnew undoubtedly began his work under great difficulties. Owing to confiscations for rebellion and the absconding of cultivators from fear of punishment and, later, fear of famine, the records prepared between 1854 and 1858 had become in many cases out of date and inaccurate; and the work of correcting them dragged on with the work of assessment till 1867 by the name of which year the settlement is now generally known, that being nominally the year of verification. The total revenue demand assessed was Rs. 11,38,580 excluding Rs. 3,057 on revenue assigned estates and differed little as a whole from that proposed by Mr. Thornton or by Mr. Vans Agnew, (Rs. 11,29,442), but it is not quite clear whether the latter sum includes the revenue of assigned estates or not. It must be remembered however that the percentage of the assets taken by the State had been reduced from 66 to 50 per cent since Mr. Thornton's settlement. This fact alone would be likely to make the revised assessments easy: but judged by modern standards too they proved fair on the whole and worked satisfactorily. A few reductions had to be made, and during the currency of settlement a number of grants fell in and were regularly settled by the district staff. As a result of these and similar changes, the demand stood in 1889-90, when the term of settlement was about to expire, at Rs. 11,82,861. In addition to this owing to developments of irrigation, the landholders were paying on the average Rs. 8,921 in owner's rate—a very inadequate sum in some parganas for the reasons given in paragraph 99 of Mr. Porter's final report.

36. The current settlement, which has now been revised, was carried out by Mr. (afterwards Sir Leslie) Porter who worked in the district from November, 1887 to August, 1890. For two years of the period he was assisted by Mr. F. W. Brownrigg who assessed parganas Nagal, Deoband, Manglaur, and Haraura. He worked independently and the Settlement Officer did not review his assessments. Consequently,

there was some difference in the procedure of the two officers in matters of detail in which uniformity was desirable. The settlement was to be carried out on the basis of the existing maps and records after correction and verification and the work of map-correction was as usual started some time in advance of the regular operations of settlement and before the Settlement Officer was appointed to the district. It commenced in 1885 under the superintendence of qanungos, but seems to have been carried on in a desultory and most inadequate manner, with the result that when Mr. Porter took charge he found that the maps, with a few exceptions, were hopelessly inaccurate, and that very little progress had been made with verification of the records. The maps had therefore to be first thoroughly re-corrected; and as the records could not be revised until this had been done, the inspection of the first tahsil (Nakur) had to be made without the aid of verified rent-rolls or other statistics. The same thing happened in the next year, owing to the decision to appoint an assistant in the second year of the revision instead of the third as originally sanctioned, so that the assessing officers all along were ahead of the work of verification and were severely handicapped thereby. According to the rules then in force, the Settlement Officer was required (1) to group villages into assessment circles and (2) to select a general standard rate for each class of soil in the circle, which should correspond as closely as possible with the rent recorded as actually paid. No difficulty was found as regards the first. In the Nakur tahsil circles were formed on the topographical system, but in the other tahsils they were formed either on the basis of the similarity of the recorded rents and incidences, or where recorded rents were unreliable for any reason, according to the Settlement Officer's judgement of their merits. As regards soil rates, Mr. Porter states that he was unable to find any such in existence, rents being either lump rents on holdings or fixed by an all-round rate. He succeeded however in deducing in tahsil Nakur different rates for canal-irrigated land and other lands and divided his soils accordingly. The rates for canal-irrigated land in canal-irrigated circles were extended by order of the Board to all wet land and finally in such circles the land was classified into wet and dry only; while in non-canal-irrigated circles there was simply an all-round rate for all land, whether wet or dry. In tahsil Deoband the soils were simply divided into wet and dry, as in the canal-irrigated circles of tahsil Nakur. Considerable correspondence had taken place regarding the procedure followed in tahsil Nakur and general dissatisfaction was felt with the principles on which the settlement was being conducted. Finally, the Board insisted on a greater differentiation of soils, with the result that in tahsils Saharanpur and Rurki a more detailed classification was adopted and soil-rates were worked out thereon from the recorded rentals. So far as they went the soil rates framed by Mr. Porter seem to have been elaborated with care and after the exclusion of fraudulent and non-genuine rentals; but Mr. Brownrigg included *zabti* rent in his totals. This practice was likely to disturb the results and both officers seem to have regarded the *zabti* area as a part of the cash-rented area for purposes of comparison. Even now however no reclassification of soils was made, the soil entries of the previous settlement, which Mr. Porter says he found to be general fairly accurate, being followed. *Misan* was discarded entirely and separate rates were framed only for *rausli dakar*, wet and dry, and *bhuda*, wet and dry. Lastly, no distinction seems to have been made between occupancy and non-occupancy rents, though it must be admitted that there was at that time no very great difference between them. As for irrigated areas, these were obtained by taking as irrigated all fields found at verification to be actually irrigated and all fields recorded as irrigated in the village papers in any of the three years preceding verification.

37. On this portion of the settlement work we may, I think, justifiably pass the following criticisms: where topographical circles were framed, they were generally sound and in conformity with the natural and rental features of the country. Where the other systems were adopted the circle formation became a crazy patch-work of villages, many of which had little in common and in some

cases nothing at all-except an all-round rental incidence. The soil-classification, if you lump over 90 per cent of the district into one class, is likely to be "fairly correct," but it was hopelessly insufficiently detailed even if further subdivided into wet and dry. You are in fact only one stage removed from an all-round rate. Lastly, as regards irrigation, the method pursued was likely to, and did, lead to overstatement and took no account of intermittent or *kacha* well irrigation. The real reason why Mr. Porter could not find any soil-rates was that he did not classify his soils. Had he done so, he would have found, as we have found, a not inconsiderable area of single-soil holdings from which rates might have been deductible. It is quite likely however that this area would not have been so large then as it is now owing to the fact that holdings were not so subdivided, and it is true that there was no recognised or recorded rate of rent for any soils in the sense of village *bigha* rates, any more than there is now. The assessable assets of the villages were obtained by what was usually called a "correction" of the rent rolls. This process of which in practice the most important part was the method of valuation of assumption areas could be carried out in a variety of ways as detailed in the assessment rules then in force. As a matter of fact it was carried out in the vast majority of cases either by applying the tenants' cash incidence or by applying the standard rates or the tenants' cash incidence of another approximately similar village. In very few instances were any allowances made for difference in quality or inferiority and precariousness of such-lands.

38. In reporting on the settlement, the Board though satisfied that the soil-rates, such as they were, represented fair rates were much troubled regarding their applicability to assumption areas in general. Excluding *zabti*, the tenants' cash area amounted to something well under 40 per cent of the holdings area, leaving over 60 per cent of the land to be valued on some sort of estimate. The adequacy or the reverse of these estimates necessarily depended on the quality of the soil in such holdings. The Board found that the Settlement Officer's assertion that proprietary cultivation was generally of the same quality as tenants' cash land was justified, but in respect of grain-rented land they found that this was not the case, except in the Nakur tahsil, and that such land was apparently of inferior quality in the Saharanpur and Rurki tahsils. Had Mr. Porter however emphasised more in his report the inferiority of the *ghar* and *khadar*, of which these two tahsils possess large areas, the Board would probably have not been so worried. Anyhow, as much of this land, especially in the *ghar*, must have been recorded as *bhuda*, the general lowness of the incidence on grain-rent lands, which was the Board's criterion, would have been explicable. As a matter of fact grain-rent lands at the present day are very little inferior even as a whole to other lands. Sir allowances which are now ungrudgingly, if not lavishly, given, were doled out sparingly and strictly, especially in the parganas first assessed; and even at most were by rule restricted to 15 per cent. They were however made good to some extent by taking a lower percentage of the assets than 50 per cent where the proprietors were numerous or in bad circumstances. In 473 mahals a demand of less than 45 per cent of the assets was proposed, partly for this reason and partly for others, such as precariousness of crops and rental, the inclusion of *zabti* rents in the accepted rental, full areas, and so forth, and even occasionally for improvements. Otherwise no allowances were made even for wells, whether to be extended to the tenants or enjoyed directly by the landholders. Lastly, in 100 mahals partial rejections of the recorded rental were made on the ground of the inadequacy of occupancy rentals; and a somewhat lenient addition was made for sayar receipts. Mr. Porter's settlement did not extend to certain jungle grants, 36 in number, or the alluvial mahals, the terms of which had not expired, though maps, records and settlement statistics were prepared for all of them and in the case of the alluvial mahals provisional *jamas* were also assessed. The assessments were found to be generally moderate and judicious. The total sum sanctioned in the permanent

mahals was Rs. 14,32,427, showing an increase over the expiring demand as it stood in 1889-90 of Rs. 3,04,413, or 26·9 per cent., or Rs. 2,91,816 and 25·6 per cent., if owner's rate is included in the expiring demand. Including the existing revenue in the jungle grants and the sanctioned revenue of the alluvial mahals as soon as they had come under revision, the total demand on the district amounted to Rs. 15,15,366. With the re-settlement of grants and changes in the revenue of the alluvial mahals the revenue stood in 1919-20, the last year of the expiring demand, at Rs. 15,27,066 plus Rs. 3,645 owner's rate.

39. Instances can be found where Mr. Porter does not seem to have fully realised that he had caught villages on the top of their form, especially in the *khadar*, and consequently somewhat over-assessed them. There are others in which his judgement as regards their capabilities, with all allowances for changed conditions, seems to have been considerably at fault. This appears to have been particularly the case in villages where there were no cash rents to furnish a criterion. But nothing has occurred during the currency of the settlement to suggest that the verdict passed in the Board's review that the inspections were careful and the demand moderate was an over-sanguine one; the demands have always, except in rare instances, been collected without resort to coercive processes and though a large area of the district has changed hands the price has risen at private sale from Rs. 59·42 per acre in the first decade to Rs. 118·60 in the last, or 69·72 times the land revenue, the corresponding figures for sale by order of court being Rs. 19·29 and Rs. 46·52 per acre. Land has therefore roughly doubled in value on the average since 1900. Moreover, the figures for the areas formerly and now held by the various land-holding castes show clearly that the land has passed from one cultivating community to another or changed hands between members of the same communities. Reference for this must be made to the various rent-rate reports. Lastly, the district is seldom affected by seasonal scarcities and practically never by drought. During the currency of settlement only on two occasions, viz., 1315 (1907-08) and 1326 fasli (1919-20) had any relief to be given. On the former occasion Rs. 65,463 and on the latter Rs. 47,118 had to be suspended in the *kharij*, of which only Rs. 5,592 and Rs. 1,822 were remitted, all in 1315 fasli. Parganas Haraura and Bhagwanpur seem to suffer most and after them the three southern parganas of tahsil Nakur. Since 1900 the steady rise in prices, the improvements in irrigation and communication that have taken place and extensions of cultivation have had the natural effect of making moderation more moderate still, while the rent-rolls of many villages where there has been a response to the recent phenomenal increase in prices of all articles of consumption since the outbreak of the Great War make the existing revenue exceedingly low, occasionally a mere bagatelle.

### PART III.

#### THE PRESENT SETTLEMENT.

40. The revision of settlement was decided on in G. O. no. 247/1, dated the 7th December, 1915, and endorsed by the Government of India in their no. 484/I—417, dated the 14th March, 1916. The customary estimate made of the assets indicated that there would be an enhancement of the current demand at half assets by about 6½ lakhs, or 42 per cent., but in sanctioning the revision the Local Government expressed a desire that it should not exceed 35 per cent. This was accepted by the Government of India. The unsatisfactory condition of the maps which had already undergone one correction since the survey of 1854-58, was emphasised by the Director of Land Records and the Board, and also that no traverse survey had ever been carried out in the district. But the Government finally decided against re-survey mainly on the ground of expense. Map-correction was accordingly started in advance of the appointment of a Settlement Officer in the season 1916-17, under the supervision of the district staff. Early in 1917 an Assistant Record officer was

appointed to start the work of verification and shortly after a second was added. The programme first laid down contemplated the appointment of both a Settlement and an Assistant Settlement officer for the first two years, the Deoband tahsil, together with parganas Saharanpur, Haraura, and Manglaur Bangar being taken up in the first, and the Nakur tahsil, together with parganas Faizabad, Muzaffarabad and Bhagwanpur in the second; and parganas Rurki, Jwalapur, and Manglaur khadar being left for the Settlement Officer to assess single-handed in the third year. Owing to the shortage of officers on account of the war, the appointment of an Assistant Settlement Officer in the first year was found to be impossible and the programme was changed. The Settlement Officer was directed to do as much as he could in the first year and then redistribute the remaining work over the last two years. Owing to the delays inseparable from getting under way, it was ultimately found impossible for him to inspect more than the three parganas of the Deoband tahsil in the first year, and finally the programme worked out as follows :—

Tahsil and parganas.			Total area.	Year of verification.	Year of inspection and assessment.	By whom inspected.
Deoband ..	{ Nagal ..	..	77,338	1324 Fasli }	1917-18	Settlement Officer.
	{ Deoband ..	..	85,991			
	{ Rampur ..	..	81,959			
Saharanpur	{ Saharanpur ..	..	78,008	Do. ..	1918-19	Ditto.
	{ Haraura ..	..	67,565	Do. ..	1918-19	A. S. O.
	{ Faizabad ..	..	76,294	1325 Fasli ..	1918-19	S. O.
	{ Muzaffarabad ..	..	83,925	Do. ..	1918-19	Ditto.
Rurki ..	{ Manglaur Bangar ..	..	57,466	1324 Fasli ..	1918-19	A. S. O.
	{ " Khadar ..	..	20,230	1326 ..	1919-20	S. O.
	{ Bhagwanpur ..	..	98,917	1325 ..	1919-20	A. S. O.
	{ Jwalapur ..	..	96,087	1326 ..	1919-20	S. O.
	{ Rurki ..	..	79,181	Do. ..	1919-20	A. S. O.
Nakur ..	{ Sultanpur ..	..	56,724	1325 Fasli ..	1918-19	S. O. and A. S. O.
	{ Sarsawa ..	..	60,842	Do. ..		A. S. O.
	{ Nakur ..	..	65,810	Do. ..		
	{ Gangoh ..	..	79,189	Do. ..		Ditto.

41. Map-correction work which was taken over from the collector by me on appointment was carried out under the supervision of the sadr and supervisor qanungos aided by a number of qanungo candidates in tahsils Deoband, Saharanpur, and Rurki, but in tahsil Nakur the services of an outside inspector had to be called in, with not altogether satisfactory results. It was recognised that twice-corrected maps based on an untraversed survey were not likely to be altogether accurate, and in such circumstances the question of areas in cultivated land became one of first importance. Under the general rules in force, the recorded areas of field, the external boundaries of which had not changed since last settlement, were accepted as correct, unless challenged by either zamindars or tenants; while fields of which the external boundaries had changed or which had undergone internal alteration by sub-division or in any way were remeasured. The old measurements had been made by taking the lengths of the sides and striking an average of north and south and east and west, but new measurements were made by the more accurate method of perpendiculars and diagonals. About 50 per cent. of the numbers seem to have required re-measurement and the general result thereof was a slight decrease in area which shows that the old method tends to slightly overstate the area. Soon after taking over charge, I had complete re-measurements made of all fields on the new system in selected villages, to see if this over-statement was material. There were differences in the individual villages, in some the new area turning out to be more and in others less than the old to varying extents. But on the whole the difference was found to be a decrease of only between five and six per cent. an amount which is not likely to affect the assessment in any circumstances, still less in these days of liberal deductions and allowances. My personal experience of the maps is that they are accurate representations of the fields and features of the villages and the test shows that the areas are substantially correct. In the circumstances the decision that a



re-survey was unnecessary was certainly justified on the ground that the expense would have been out of all proportion to the result gained. A few villages, five in number, had to be completely re-surveyed, owing to the fact that the features of the ground had much changed: and the alluvial mahals were of course all more or less completely re-surveyed in the year of inspection. Fresh clean traces were made of the corrected maps and re-surveys and these were sent for reproduction to the Thomason College at Rurki, where the requisite number of copies on cloth or paper were printed off. A considerable number were sold to the zamindars who filed requests for copies.

42. The work of verification was well in advance of that of inspection and in the majority of instances new figures were available for the inspecting officers. On the whole, the state of the records, except in the circles of incompetent patwaris, was good. But, as usual, these, especially the *khewats* of the *qasbas*, such as Deoband, Rampur, Nanauta, Gangoh, Manglaur, etc., and certain other large villages such as Sakrauda, were in a very bad condition, and he would be a bold man who would say even now, after all the trouble that has been taken over them, that they are correct. This state of affairs is mainly the result of sub-division among and alienations by Muhammadan communities. The effort to keep up a correct division of shares in *sikhs* had been given up by the patwaris, and little help seems to be accorded them by their superior officers at mutation. Numbers of recorded co-sharers were not to be found and it was difficult to say whether they were alive or where they were. In many cases their shares had become so small that they had ceased to take any interest in them and did not turn up for attestation. The attesting officers had usually to make out the *khewats* practically *de novo* with their own hands. The work in most of these big townships or villages is beyond the competence of a single patwari, and the present method of division of work between two or more is one which is bound to lead to confusion and mistakes. At the time of map correction it becomes almost hopeless to carry on the work satisfactorily. The patwaris moreover spend much of their time in the courts giving evidence in the innumerable disputes that arise over matters not strictly connected with their duties, and this makes great inroads on their capacity for work. The problem is a very difficult one and it is unfortunately not easy to see what more satisfactory arrangements can be made. The matter is under consideration and proposals will be sent up in connection with the re-allocation of circles.

43. As for the work of assessment proper, it will be convenient to treat it under the following heads:—

- (1) Areas.
- (2) Soil classification.
- (3) Evolution of standard rates.
- (4) Rents—
  - (a) Ex-proprietary.
  - (b) Occupancy.
  - (c) Non-occupancy.
- (5) Assumption areas—
  - (a) *Sir* and *khudkasht*.
  - (b) Grain rent areas.
  - (c) Others.
- (6) Deductions.
- (7) *Sayar*

44. *Areas*.—One of the most difficult problems in assessment was the area to be assessed. It did not ordinarily arise in the *bangar*, but in the *ghar* and *khadar* it often caused much trouble, especially where the poorness of the season 1326 F. had added complications. Something has already been said on this matter in the first part of this report and we need not go over the ground again. Ordinarily, unculturable land included in holdings has not been taken into consideration, and as a rule old fallow has similarly been excluded. But in the Bhagwanpur and Rurki *ghar* in particular we were compelled to make considerable additions for land

temporarily thrown out of cultivation in order to obtain a fair basis for a 30-year settlement; and the same applies to parts of the *khadar*. In some villages the problem proved insoluble and we were compelled to propose short term settlements. A list of these villages is given in the appendix. As the *quasi* permanent deterioration in these villages is recent, the best period for comparison to take is the quinquennium immediately preceding verification and the result is as follows :—

Description.	Number of villages and mahals.	Area at last settlement.	Average area for five years preceding attestation.	Area at present settlement.	Area. actually assessed.
		Rs.	Rs.	Rs.	Rs.
1. Permanent mahals assessed for 30 years.	1750 5185	7,78,652	7,67,249	7,72,423	7,90,214
2. Permanent mahals assessed for less than 30 years.	15 31	5,323	2,854	2,028	2,856
3. Conditional long-term settlement (alluvial.)	75 162	11,761	10,414	9,831	9,830
4. Quinquennially settled (alluvial.)	141 221	31,158	27,994	18,031	20,378

It is not possible to say more on this subject here, as each case had to be treated on its individual merits. The areas taken have been in most cases accepted by the Board and with these remarks I must leave the subject.

45. *Soil-classification*.—The soil-classification of last settlement was, after examination, entirely discarded. It was too general to be of any use and certainly did not represent the relative values of the soils. Instead of a classification by natural soils a combined natural and conventional classification was adopted, fields being classified according to their natural quality and natural or artificial advantages. The broad distinction between land growing only rice and land growing all other crops or rice as well as other crops, corresponding to the natural distinction between *rausli*, *bhuda*, and *dakar* however was maintained. Four classes of ordinary upland soil, one of superior soil, and two classes of *dakar* were as a rule kept. In the Deoband tahsil which was first inspected by me, I named the first *Manjha* I, *Manjha* II, *Har* I, and *Har* II, following the nomenclature used in the settlement of the Allahabad district. But the distinction of *Manjha* and *Har* not being a locally recognised one I afterwards dropped these names and substituted therefor the indeterminate word "jungle." It may be explained here that the cultivator of the district invariably refers to the lands of his village as "jungle" and *dahar*, the latter being the low-lying rice growing portions. Except in certain favoured localities a definite area of highly manured and cultivated land, gaining an increased value from proximity to the site, is rarely found or recognised, though where this occurs it is generally known as "*Goen*." The village sites are usually perched on an eminence of some sort or on the edge of broken ground: and in both cases owing to the natural characteristics of the land the soil is generally if anything *bhuda*. In the favoured localities such as the *gasbas* of Deoband, Manglaur and Rurki, and above all, Saharanpur city, a number of other classes had to be introduced to express the varieties of what I have called the super soils, as it was found impossible to fit them in the scheme otherwise, but these may be regarded as exceptions. *Manjha* and *har* soils differ in no respect from the corresponding classes of jungle, and may be included in them. Later a fifth class of *har* III or *jungle* V was added to express utter rubbish on the banks of rivers or below the hills: and the great class of *jungle* II was subdivided in *jungle* 2 plus an *djungle* 2 minus. I originally intended that the plus and minus signs should rather be danger signals for assessment to show that such soil was in the particular villages rather above or below the average than that they should be regarded as distinct soils, but it was found easier in

practice to work out separate rates for them and in the assessment statements their areas have been separately shown with separate valuations. As a general rule, the distinctions adopted may be taken to be as follows :—

<i>Goind</i> or <i>Khadar Goind</i> .			(Where demarcated) superior soil near a village site and gaining increased value thereby.
Jungle	...	I	} Superior soil, wherever situated.
<i>Manjha</i>	...	I	
<i>Khadar</i>	...	I	
Jungle	...	II	} Good average soil.
<i>Manjha</i>	...	II	
<i>Khadar</i>	...	II	
Jungle	...	III	} Below average soil.
<i>Har</i> ...	...	I	
<i>Khadar</i>	...	III	
Jungle	...	IV	} Inferior soil.
<i>Har</i> ...	...	II	
<i>Khadar</i>	...	IV	
Jungle	...	V	} Very poor soil.
<i>Har</i> ...	...	III	
<i>Khadar</i>	...	V	
<i>Dakar</i>	...	I	} Good rice land growing transplanted rice (called here usually <i>moongi</i> ) frequently but intermittedly <i>dofasli</i> .
or <i>Khadar Dakar</i>	...	I	
<i>Dakar</i>	...	II	} Inferior rice land growing usually broadcast rice, never or seldom <i>dofasli</i> , or <i>reh</i> infected or inferior for any other reason.
or <i>Khadar Dakar</i>	...	II	

The distinctions in *dakar* hold good for the Deoband and Nakur tahsils, as well as the *khadar* and the pargana of Manglaur. But in the northern *bangar* and in the *ghar* (where however there is little rice land of any sort) the distinction is not important as the *dakars* are shallow, the rice is usually broadcast and the absence of facilities for irrigation render the likelihood of double cropping remote. In these tracts the whole\* rice area is usually *dakar* I. *Dakar* land which is so favoured that it is habitually twice cropped or grows sugarcane as for instance round the edges of depressions usually goes into some class of *jungle* or *manjha*, owing to its greater relative value as will be explained later.

Lastly, purely alluvially formed soil in the beds of rivers and streams or close thereto has been called *kachar* 46.

After inspecting the Sultanpur pargana the late Settlement Commissioner was impressed with the necessity of distinguishing *khadar* areas from ordinary upland, especially in the villages which lay partly in both tracts. Accordingly in compliance with his orders, all *khadar* soils were divided up into corresponding classes of *khadar* instead of *jungle*, with the result that mixed villages have a double set of rates for *bangar* (jungle) and *khadar*. The distinction is of little importance except in mixed villages and might have been provided for, I think, by a relative classification under some head of an indeterminate word like *jungle*. Moreover, it was often a matter of some difficulty to decide what should be called *bangar* and what *khadar*. The general principle I adopted was to call *khadar* all land in the definitely *khadar* tracts which was subject to or showed signs of recent (in the geological sense) fluvial action of any sort, including oversaturation or swamping by minor streams. The Assistant Settlement Officer went rather further and demarcated as such practically all land lying in valleys or locally (and indefinitely) referred to as *khadar*. A lack of uniformity in such a matter is inevitable, as so much depends on the personal equation, but no harm is likely to be done so long as consistency is observed over definite tracts. The main objection to the separate demarcation of these areas is that it results in an enormous hierarchy of soils, the classes of which become too numerous to express rental differences: and this is the main object of soil classification. Rates therefore necessarily overlapped in some cases. As a general rule it may be said that *khadar* soils have a rental value which is 10 or 12 per cent. below that of

the corresponding *bangar* classes, but this does not invariably follow, for occasionally the *khadar* soils are the best lands in the village. In purely *khadar* villages of course the soils might equally well have been demarcated jungle. As they have been demarcated on the same principles as jungle soils I have included them in the scheme given above. But it may be noted that in the Deoband tahsil the distinction was not observed and the *khadar* area is there generally covered by the soils denominated *kachar*.

47. In addition to all this the soils were further subdivided into irrigated and dry, the areas of irrigation being obtained in the manner previously explained. The distinction however was of no value in respect of *goind* nor in classes below jungle 3 nor in *dakar* 2 either generally or because there was little or no irrigation in them, and was not maintained; while in the *khadar* there is either no irrigation or if there is its influence is negligible. Even apart from the question of *khadar*, the soil-classification might be criticised as unnecessarily elaborate. But I do not think it was so and in spite of efforts to the contrary, I never found myself able to reduce the number of classes. Moreover, elaboration in this respect is never likely to do any harm, and at the present day in view of the work of determination of rent that is thrown on a Settlement Officer is becoming a necessity. It is becoming increasingly difficult even to work out an assessment without first ascertaining the effect the valuations are going to have on the tenants' areas, while with the rapid subdivision of holdings an accurate and minute subdivision of soils becomes of importance to the cultivator; and as it is very rare to find a holding that contains the whole gamut of soils, while many contain only one or two and those frequently the poorest, the nearer you can work down to them with rates the better.

48. The preliminary work of soil-classification was carried out by experienced *amins*, many of whom had worked with me before in Allahabad; but I never accepted their work until I had patiently plodded round every village on foot and seen personally map in hand every *chak* demarcated by them. With the assistance of the *patwaris* and such of the cultivators as could be got together, the relative values of the soils were then worked out and the preliminary *chaks* finally determined. I insisted on the Assistant Settlement Officer following the same system, and I think I may claim that the work has been done with extreme laboriousness and care and with as great accuracy as is attainable in such a matter.

I give in the appendix (VII) a table showing the areas occupied by each soil from which the present state of the cultivated area may be estimated.

49. At the time of soil-classification rough values were assumed for each class of soil to work on, in annas, per rupee, jungle I being usually taken as 16 annas, jungle II, 12 annas; jungle III, 8 annas; jungle IV, annas 6 and jungle V, annas 4 or under and so on, but the actual value given to each soil was not definitely determined until the soil-areas had been worked out and checked with the recorded rents. The cash tenants' area was divided up into six classes, namely old occupancy tenants whose rents had never been enhanced since settlement old occupancy tenants whose rents had been enhanced at some time or other, tenants who had held for over 20 years, tenants who had held for over 12 years, non-occupancy tenants of under 12 years' standing, and sub-tenants. This division is obviously not necessarily an ideal one for any district and may not be so even for any one tract. But I could not find a better one out of the material and accordingly stuck to it. For each of these classes separate soil areas were prepared for both single soil (these showing areas and rents in the various soils,) and mixed holdings. Normally the enhanced and over 20 years tenants' area might have furnished a sufficient and safe basis for standard rates; but it was found that even when taken together the area of the two was comparatively small, while the non-occupancy area alone amounted as a whole to about two-thirds of the tenants' cash area. When reinforced by the sub-tenant area the two together were so overwhelmingly the largest portion of the rented area, that they appeared alone likely to furnish a sufficiently broad basis for conclusions. Moreover being modern competition rents they were likely to give a

better idea of the relative values. I accordingly decided to work downwards from these rents. Incidences being struck in the various soils of the single soil-holdings, the area of which is considerable, the relative values given thereby were compared with the values assumed at the time of soil-classification; and after careful elimination of inadequate, excessive or other irregular rents for which purpose all the individual village statements were examined, the relative soil-values were finally determined. Instead however of working in annas, the system adopted at soil classification because it is best understood by the people, these values were more conveniently taken in hundreds, J. 1 wet being taken as =100 in irrigated circles and J.1 dry in unirrigated circles. Multiply the soil area by the soil values, add the results together and then divide them into the recorded rent and the result is the price per soil-unit in terms of one hundredths of J. 1 wet or J. 1 dry. *Bilmuqta* rents were then split up if necessary by multiplying the price per unit by the soil value. This gives a rate for the soil in question, the portion of the lump rent allotable to any soil being the area of that soil multiplied by this rate. The total result can then be compared with the actual rent or with that of the single soil and mixed holdings combined. The villages in any circle were then put in a gradation list according to the price per unit, generally called for short "the unit" in non-occupancy areas, and the whole totalled. These village non-occupancy units were subjected to a further analysis, and those with excessive or inadequate units eliminated. The range of units which gave the largest areas within usually 15 points, sometimes more but never exceeding 30, was then, unless there was anything to the contrary, taken as the normal range and the combined unit of the whole as the normal unit of the circle.

50. The next step was to decide how far this unit was to be discounted in order to obtain a "standard" unit, that is, a unit which would give safe standard rates for the valuation of occupancy land and so of assumption areas. As a general rule a safe standard rate was considered by us to be 25 per cent. or thereabouts below a safe non-occupancy unit, this figure representing roughly the indulgence which an occupancy tenant might reasonably expect to enjoy in consideration of his status and which would prevent him from falling into arrears and possibly ultimately suffering ejectment in consequence. But rents having moved unequally for various reasons and having latterly at least been influenced by the high prices prevailing as a result of the war, the non-occupancy normal unit could not be accepted as a safe one and future possible contingencies in a long-term settlement had to be allowed for. For this purpose, the returns of past demands and collections were critically examined to see to what extent they displayed unrealisability and instability and as usual a percentage struck. In addition to this the average rise in prices during the period of settlement (a factor of increasing importance as the years of verification become later) was worked out. For more details of this matter, I must refer to the rent rate report of pargana Faizabad; but the general conclusion may be stated here. It was that the verified non-occupancy rents might be some 30 per cent. above a safe standard; and that the 12-year average was about  $18\frac{1}{2}$  per cent. above, which for facility of calculation was taken as 20 per cent. The normal unit reduced by these amounts and then further reduced by 25 per cent. to obtain the safe occupancy unit, gave tentative units which were then compared with the actual units of all the classes of occupancy tenants. These furnished criteria by which the adequacy, inadequacy or excess of the allowance could be judged, the units of these classes being worked out and analysed in just the same as the non-occupancy units had been. The process was thus elaborate and not always easy: but gave results which were likely to be as near fair as it is possible to get. The standard rates were of course mere multiples of the selected standard unit by the soil values. I should myself have preferred to reduce these rates to the nearest equivalent of a *kachcha bigha* rate, the universally recognised unit of rental value in this district, but this did not meet with Mr. Harrison's approval so the matter was left.

51. *Rents.*—(a) *Ex-proprietary.*—These are lumped together with the occupancy rents in the assessment statements but the area deserves more attention than it usually gets. Those rents are, as I have said in a previous paragraph, most irregular in many cases not rents at all. Where they are below valuations at standard rates we have always brought them up to such valuations, but this does not represent a strictly legal valuation. For under the law the laudholder is entitled to demand a rent which should be four annas in the rupee less than that ordinarily paid by non-occupancy tenants. But in numerous cases we have simply had to discard them as not rents at all and in many cases to allow a liberal discount on them if a rough calculation showed that they exceeded the legal limit. Normally as the law stands, ex-proprietary rents will exceed occupancy rents; and I think it is a pity that they are lumped with the latter.

(b) *Occupancy.*—These rents vary from grossly inadequate among old un-enhanced tenants to excessive among new occupancy tenants. They include some favoured rents also. There is usually a well-marked gradation in the various classes into which we have divided them compared with valuations at standard rates. The variations are as follows :—

				Area.	Recorded rent.	Valuation.	Percentage of difference.
					Rs.	Rs.	
Old occupancy unenhanced	..	..	..	47,683	2,08,522	2,82,814	+26·0
Ditto enhanced	..	..	..	78,687	3,99,943	4,46,023	+11·5
Over 20 years	..	..	..	29,773	1,56,771	1,53,954	—1·8
Over 12 years	..	..	..	14,007	83,783	69,258	—17·3

At the time of assessment we have had the rents of the various classes before us and have brought up the rents of the old tenants to valuations or some modification thereof. It is obvious that the excess of the new occupancy tenants' rents may, in any particular village, mask the lowness of the old. Frequent allowances for instability have had to be given for excessive new occupancy rents or in order to provide for possible abatements. On the other hand numerous instances have occurred in which we have had to moderate the enhancements on the old tenants in order to prevent a sudden and severe increase and, as a general rule, we have taken only 33½ per cent. over the whole as fair. In individual holdings which have long enjoyed a low rent, the enhancement even at standard rates involves a large rise which the instalments allowed by the law barely even palliate. In this connection I may note a point which has arisen and causes considerable dissatisfaction. The Settlement Officer is allowed to take into consideration in assessment any enhancement of rent immediately claimable. Where such exist, progressions in revenue are not permissible. On the other hand, though there is a discretion vested in the court when determining rent not to allow progressions of rent, still their disallowance would obviously be inequitable and might possibly lead to great hardship. A rent which does not become payable in full till the fifth year may entail some hardship on the landholder and in such cases the granting of progressions of revenue should be permissible. As it is however the percentage of 33½ per cent. which we have taken as immediately claimable practically allows for this and the cases in which the landlords' assets are not made good immediately or almost immediately must be few, while the large discounts made now-a-days on non-occupancy rentals and the low percentage of assets taken must make any case of hardship unlikely. As a whole the occupancy (including ex-proprietary) area has a recorded rent of Rs. 10,37,666 on 1,99,803 acres. We have accepted as assessable 193,833 acres and valued it at Rs. 10,78,093 an incidence of 5·7 per acre. In the various tracts the figures are as follows :—

( *Khalsa mahals only.* )

Tract.	Recorded.			Accepted.			Soil Units per acre.
	Area.	Rent.	Inci- dence.	Area.	Rent.	Inci- dence.	
		Rs.					
Up-land. { Canal irrigated ..	64,761	8,88,965	6.0	63,235	4,02,890	6.4	12.4
Up-land. { Other ..	73,428	8,75,361	5.1	71,846	3,80,790	5.3	11.2
Ghar. { Canal irrigated ..	6,560	34,594	5.3	6,381	39,514	6.2	7.6
Ghar. { Dry ..	26,328	1,11,119	4.2	25,077	1,18,848	4.7	7.1
Khadar ..	28,727	1,27,627	4.4	27,294	1,36,051	5.0	8.6
Total ..	199,804	10,37,668	5.2	193,893	10,78,098	5.7	10.6

(c) *Non-occupancy area*—These rents as a whole rule high though there are a few mahals in which they are inadequate and have had to be rejected. They have consequently required extensive discount before they could be accepted for assessment purposes on the ground of instability. This discount has gone as high as 45 per cent. In the parganas first assessed we usually discounted the actual rents by the percentage of unrealizability worked out for the circle on the principles already explained, or some modification thereof to suit the local circumstances, but as these rents vary considerably between *khata* and *kahta* even in the same mahal, this system gave rise to some trouble and inequality in distribution. Accordingly, in the parganas later assessed, we generally took in these rents a certain percentage above the valuations at standard rates (or some modification thereof). This gives more reliable results. The general fairness of the settlement depends to a not inconsiderable extent on the treatment of the non-occupancy rents. The method by which they were utilized as the basis of the standard rates has already been described. Of a total of Rs. 21,74,552 recorded on 256,859 acres we have accepted only Rs. 18,04,184 on 253,066 acres, as below :—

( *Khalsa mahals only.* )

Tract.	Recorded.			Accepted.			Soil Units per acre.
	Area.	Rent.	Inci- dence.	Area.	Rent.	Inci- dence.	
	Acres.	Rs.		Acres.	Rs.		
Upland .. { Canal irrigated ..	75,211	7,71,243	10.3	73,801	6,35,959	8.6	12.5
Upland .. { Other ..	84,750	6,66,949	7.9	83,314	5,59,471	6.7	10.7
Ghar .. { Canal irrigated ..	9,707	97,929	10.0	9,700	74,402	7.7	7.0
Ghar .. { Dry ..	50,079	3,57,813	7.1	49,778	2,97,244	6.0	6.9
Khadar ..	37,052	2,80,618	7.6	36,473	2,37,088	6.5	8.2
Total ..	256,859	21,74,552	8.4	253,066	18,04,184	7.1	10.0

52. *Assumption areas.* (a) *Sir and khudkasht.*—These have been practically always valued at standard rates or modified rates. With an elaborate and detailed soil classification such as we have worked on, no better system of valuation is likely to be found. The land is of much the same value as occupancy land and contains 12.2 units per acre on the soil classification in the case of *sir* and of 10.8 units in the case of *khudkasht*.

(b) *Grain rent areas.*—These, though much reduced in area, still persist in the form of *kankut* mainly in the *ghar* and *khadir*. The first pargana in which the area was large enough to warrant a separate consideration was pargana Faizabad. I must refer to the rent-rate report on that pargana for a more detailed description of the arguments by which the past returns of grain rented areas were

utilized in the evolution of standard rates. The net result was that the valuation of these areas at standard rates was sanctioned by the Board. In the Rurki tahsil the grain rate generally falls to one-third as against one-half in the Saharanpur and Nakur tahsils; and in the Jwalapur *khadar* there are tracts in which practically the whole of the area is grain-rented. The grain rent returns were utilized in the framing of standard rates in the same way there and a description will be found in the rent-rate report on that pargana. When standard rates were based both on cash rented and grain rented returns these rates obviously became applicable to grain rent areas; but where cash rents had, as in Jwalapur, shown a tendency to rise above the apparent rent obtained from the customary grain rate in vogue a suitable deduction had to be made from the valuations and this of course had also to be done wherever the grain rate in a village fell below the customary rate, as it not infrequently did. As a whole it may be said that grain rent areas have been valued at standard rates with modifications to suit local circumstances. Such land is little inferior to other land. Its extent, and valuation is shown below:—

(*Khalsa mahals only.*)

	Upland.		Ghar.		Khadar.	Total.
	Canal irrigated.	Other.	Canal irrigated.	Dry.		
Recorded area .. ..	7,739	14,951	4,182	22,892	27,703	76,267 14,160
Accepted area .. ..	7,472	13,753	4,144	21,947	25,984	73,300 14,160
Valuation .. ..	51,080	64,727	19,284	92,140	1,09,480	3,36,711 88,866
Units per acre .. ..	12.0	9.2	5.9	6.5	7.8	7.8 8.3

In the above the area of *zabti* and *jinspher*, the former of which of course varies in extent from year to year, is shown as a denominator.

In the Nakur tahsil, some villages of pargana Rampur and occasional villages elsewhere where the *jinspher* system is in vogue, the problem was somewhat different. Obviously a rent which is taken in and at a fixed quantity of a specified grain has more affinity with a cash than a grain rent, and with the present high prices whose rents when computed at current rates rule very high. The existing assessment rules do not specifically cover such rents and I was in favour of the valuation of *jinspher* areas at a special set of rates which represented a safe commutation rental. The safe commutation rate accepted by us (vide Faizabad report) was 13 seers wheat per rupee. But the Settlement Commissioner considered that this could not be done under the existing rules and that this area must be treated like other assumption areas. This meant a valuation at standard rates. We were however allowed to value this portion of the area at standard rates (or rates selected as suitable for the villages), if necessary enhanced 25 per cent., that being the maximum amount of variation in standard rates permissible under the rules (vide paragraph 13 of the covering note on the rent-rate report of parganas Sarsawa, Nakur and Gangoh). As a matter of fact, the Assistant Settlement Officer, in whose scheme of work most of this area fell, usually restricted himself to valuing the occupancy portion at standard rates and only increasing the non-occupancy portion by 25 per cent. I would submit that there is nothing in the rules to warrant a differentiation between occupancy and no-occupancy assumption areas; and it is more than doubtful whether it is wise, however appropriate it may be in theory. I anticipated that there would be some difficulty in commutation: and I may be permitted to point out that not only has the commutation of these rents been most strenuously resisted, but, even where the landholder has bowed to the inevitable, he has demanded nothing short of the cash value of the grain he is entitled to receive and which indeed in many villages he is entitled to



receive if for any reason the tenant cannot deliver the particular grain under contract. His invariable argument is "give me the grain itself; if I do not get it I shall have to buy it in the bazar at current rates." (Many of these *jinspher* areas belong to small men.) As the rental at present prices works out to a sum considerably in excess of an ordinary non-occupancy cash rent it is not surprising that he is the very reverse of pleased at a commutation even at rates enhanced 25 per cent. still less at rates enhanced  $12\frac{1}{2}$  per cent. to 15 per cent. as suggested by the Settlement Commissioner. And if the argument is used that present prices are phenomenal and cannot last the landholder very pertinently retorts that the tenant is entitled to sue for an abatement of rent if, and when, prices fall. The fact remains that whatever method of commutation is employed (unless the actual immediate money equivalent of the grain at bazar prices is given) the landlords' income will be much reduced; and in fairness to him I do not think the conclusion can well be resisted that at a minimum he should get a commutation at whatever may be considered a *safe* price for the grain. The problem is a good deal simplified by the grain in question practically always being wheat. I anticipate that some appeals in this matter will be pushed up to the Board. The valuation to be applied to these areas for assessment purposes obviously hinges on the commutation question; and if it is ultimately held that the landlord is entitled to a cash rental somewhat on the lines I have suggested there obviously will have been some sacrifice of revenue. I cannot now separate the *jinspher* area from other grain rented areas over the whole tract but one village in the Rampur pargana which is wholly *jinspher* will give some idea of what I mean.

Village.	Area.	Amount of grain.	Value in 1916.	Value in 1919.	Valuation for assessment purposes.
	Acres.	Maunds.	Rs.	Rs.	Rs.
Nain Khera ..	399	4,437	5,668	8,875	4,175

(c) *Other assumption areas.*—In so far as these include additions which have been made for land temporarily out of cultivation, they have already been dealt with to some extent. Here it may be stated that such additions have been made almost invariably at the standard rates or modified rates for the poorest soils in the village on the assumption that it is these soils which fall first out of cultivation. In so far as they contain land held on service tenure they have been valued at half rates in order to encourage the zamindars to treat the village servants with leniency. The remainder consists of areas on which rent for some reason or other has never been determined. Sometimes this is exproprietary land and the valuation has been usually made at standard rates. The rest consists of odd areas, frequently extensions of cultivation or encroachments made by tenants unknown to the zamindars. Where such land is non-occupancy, viz., less than 12 years' standing, the Assistant Settlement Officer has usually, and I have myself occasionally, valued them at the same rate as other non-occupancy land, viz., at 25 per cent. or so above standard (or modified) rates. The details are given below:—

(*Khalsa mahals only.*)

Tract.	Area recorded.	Area accepted.	Valuation.	Incidence.	Units.
			Rs		
Upland { Canal irrigated ..	7,688	6,849	34,187	5.0	13.0
Upland { Other ..	7,512	7,428	30,012	4.0	10.9
Ghar { Canal irrigated ..	446	767	3,209	4.2	6.9
Ghar { Dry ..	2,266	5,046	16,090	3.2	7.2
Khadar ..	3,744	5,034	19,268	3.8	8.0
Total ..	21,856	25,134	1,02,766	4.1	10.3

53. *Deductions.*—Liberal allowances have been made for *sir* and *khudkasht*, and practically all proprietary communities have received the full 25 per cent. permissible. It has however usually not been given on sublet *sir* or *khudkasht* in excess of the 12 year average where such is considerable; and in estimating the extent of the sublet *sir* past areas have been taken into account as subletting is frequently concealed at attestation. Where the individual holdings have appeared large for the number of recorded co-sharers and where the proprietary cultivation is that of absentee well-to-do landlords the percentage of allowance has been reduced somewhat. As a whole it amounts to Rs. 3,39,182 out of an accepted valuation of Rs. 15,89,423 or 21.4 per cent. Proprietary allowances were very sparingly given at last settlement and the concession at this revision has in a few cases resulted in a substantial reduction of the current demand. This at first sight seems unnecessary leniency, but it is desirable that uniformity of treatment should be accorded to all proprietors who are similarly circumstanced. In the well-irrigated tracts allowances have been made for all new masonry wells built by tenants at the difference between irrigated and dry rates on a roughly computed area of irrigation namely about 7 or 8 acres for *harat* wells and 10 acres for *chara* wells. This will be passed on to the tenants through the medium of enhancement suits. In the case of wells built by landholders a lump deduction has been made, calculated on the estimated expenditure. Claims for a few other improvements were put in, such as drainage works and embankments or settlements of cultivators but little direct allowance was found necessary for these though some indirect allowance was given by taking a lower percentage of the assets. The actual direct amount allowed was Rs. 16,339 as follows:—

(*Khalsa mahals only.*)

Tract.						Amount.
						Rs.
Upland	..	..	Canal irrigated	..	..	1,775
			Other	..	..	12,823
Ghar	..	..	Canal irrigated	..	..	..
			Dry	..	..	20
			Khadar	..	..	1,721
Total					..	16,339

54. *Sayar.*—The recorded sayar includes a number of miscellaneous items which varies greatly from year to year but on which income from fruits figures largely. Groves of fruit trees grown expressly for their fruit were all separately demarcated as "*turshaw*" and valued either at a special rate for *turshaw* land or at some soil rate. This land is usually included in holdings as *khudkasht*. It is, as might be expected, most common round the city and the big towns and only in a few villages. In a few cases I valued at soil rates or at a "prairie" value viz. J. 3 dry, groves of trees not primarily grown for fruit where the income however from fruit is persistent and large. The Board definitely disallowed this in the assessment of the large township of Sultanpur but unless opinions have changed this area, in the circumstances stated, would appear to be assessable (vide para. 36 of the Board's review of Mr. Porter's settlement report). Other income is derived from the sale of thatching grass, wood and lac and as may be imagined is most frequent in the *ghar*, and to a less extent in the *khadar*. There is also a little income from grazing in the *khadar*. Certain of the stricter Jaini landholders have recently ceased giving leases for lac but the Board ruled that the income from this source should be assessed. The lac insect pullulates on the *dhak* trees which abound in the *ghar* which are definitely preserved for this very reason. The total amount accepted is Rs. 18,654.

55. *Revenue.*—The total assets accepted for assessment in the <sup>permanent</sup>alluvial mahals worked out to Rs.  $\frac{44,31,928}{1,45,308}$  on an area of  $\frac{793,073}{80,208}$  acres. On this a revenue of Rs.  $\frac{19,88,633-14}{65,332-2}$  was proposed at  $\frac{44.9}{45.0}$  per cent.

In accordance with the wishes of Government the percentage has been kept low. In estates in which the proprietors are numerous and poor the percentage has averaged about 43, and in estates owned by well-to-do landlords about 46. In very rare instances and then only for special reasons has 50 per cent. or over 50 per cent. of the assets been taken.

56. *Alluvial mahals.*—There is a large number of so called alluvial mahals. Some of those existing have been abolished by us; in others the boundaries have been altered; while a few new ones have been created. These mahals exist on some *raos*, along the larger rivers and on some of the minor streams. Both the Ganges and the Jumna are in this district merely exaggerated *raos* until we reach in the case of the latter practically the boundaries of pargana Sarsawa. They therefore destroy rather than deposit silt. In most of pargana Sultanpur however the Jumna and in the southern half of pargana Jwalapur the Ganges cause a considerable amount of fluvial action which it is advisable to allow for by the formation of short term settlements, and the same is the case with the Hindan in tahsil Deoband. The Solani and Ratmau streams indulge occasionally in strange vagaries; and after a consideration of the local conditions we decided on a retention of most of the existing alluvial mahals. The matter is not altogether free from difficulty and opinions on the subject differ; but these mahals are as a rule unpopular with the zamindars, several of whom have petitioned for their abolition and expressed their willingness to pay any sum that may be assessed provided that a long term settlement is given. Accordingly after the submission of the assessments I further investigated the whole matter in the light of the past figures, and submitted definite proposals to the Commissioner. These proposals resulted in the retention of only 221 quinquennially settled mahals out of 512 previously existing. In 162 others conditional long term settlements were given. The remainder have been abolished.

57. *Revenue assigned and revenue free.*—There is a considerable number of mahals or portions of mahals of which the revenue is assigned, the most important grant being that of the shrine of Shah Abu Mali at Ambahta in pargana Nakur. These have been assessed like ordinary revenue paying villages and the demand on them amounts to Rs. 27,546-2-9 compared with a current demand of Rs. 20,014-7-0.

There are 21 revenue free estates and a host of revenue free plots which have been assessed at 50 per cent. of the assets. These plots are numerous round the city and the towns of Deoband, Rampur, Nanauta and Gangoh. Many of them were not assessed or escaped assessment at last settlement. The sanctioned demand now amounts to Rs. 28,405-14-0 as against an expiring demand of Rs. 15,441-14-0. In accordance with the standing orders of Government plots assessed to a revenue of less than Rs. 10 will be exempted from the payment of cesses.

The grand total of revenue assessed now amounts to the following sum:—

Description.	Expiring demand.	Average owner's rate.	Total.	Proposed demand (sanctioned).	Percentage of increase.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Permanent estates settled for 30 years .. ..	14,01,535 1 8	3,645 7 4	14,05,180 9 0	19,83,590 14 0	+41.2
Permanent estates settled for less than 30 years .. ..	7,300 0 0	..	7,300 0 0	5,043 0 0	-30.9
Non-permanent (alluvial) estates ..	67,363 11 3	..	67,363 11 3	65,332 2 0	-3.0
Revenue assigned estates and plots	20,014 7 0	..	20,014 7 0	27,546 2 9	+37.6
Revenue-free estates and plots ..	15,441 14 0	..	15,441 14 0	28,405 4 1	+83.9
Total ..	15,11,655 1 11	3,645 7 4	15,15,300 9 3	21,09,918 0 10	+39.2

The net result is an increase of Rs. 5,94,618-11-7 or 37·8 per cent. on the demand as it stood in the last year before revision.

58. *Subsidiary Operations.*—(a) *Distribution*.—With assets worked out in the way we now work them, practically the only method which secures to the various *khatadars* a just proportion of the assessed demand and the concessions allowed for proprietary deductions, etc., is a distribution on the calculated assets based on soil areas and this method has been invariably followed except in rare cases or where the co-sharers themselves desired some other. At last settlement the difference being occupancy and non-occupancy rents being as a whole small and few allowances being given, distribution seems to have been done usually on shares. This method may have been suitable at the time, but as rents have developed and alienations proceeded it has naturally involved profound inequalities, and my impression is that the current distribution fails now to express anything like a fair apportionment of the demand though the current *jamas* are at the present time so low that the inequalities are not much felt. It is pleasurable to note that the *khatadars* have as a whole recognized the justness of the new distribution though some, and they are fairly numerous, on whom a large enhancement has fallen have naturally bickered. These are of course the purchasers who live on rents and carry on little or no *khudkasht*. But I do not think any other method would be as equitable.

(b) *Enhancements, Abatements and Commutations.*—The landholders have as a whole readily availed themselves of the opportunity to get their occupancy rents enhanced and altogether 5,067 cases have been filed. A large number of applications for abatements have also been filed by the tenants, and a fair number of applications for commutation. Many of the applications both of enhancement and abatement have been merely otiose, the former especially in so far as they related to the rents of new occupancy tenants and the latter in so far as they were mere counterblasts to the zamindars' applications. Something has already been said on this subject in various parts of this report. These proceedings have resulted in an enhancement of existing rents from Rs. 4,17,182 to Rs. 5,09,467 or 22·1 per cent. These figures include cases in which enhancements were refused and those in which, though enhancements were claimed, an abatement for specified reasons was actually given and *vice versa* for cases where abatements were claimed. Some landholders have as usual deliberately refrained from filing applications till the last possible moment either through slackness or more usually under the mistaken impression that if they filed them earlier it would affect the revenue assessed. As for commutation it must be remembered that the area now left of grain rent land in the hands of occupancy tenants is not large; but by no means as many as might have availed themselves of the opportunity have done so. Those who hold on *jinspher* rents especially stood to gain. Altogether 1,025 applications were filed and the rent determined was Rs. 37,044 on 7,430 acres. I may note that these cases have been carefully dealt with by what I believe is an unusual procedure. Instead of hordes of cultivators being summoned to court for the hearing of the cases while they are still unacquainted with the steps being taken and when they have very imperfect opportunities of urging their objections, special printed notices have been issued in the name of each tenant whose rent has been changed specifying the nature and extent of the change and calling upon him to file, in writing, his objections to it, if any. Notice has at the same time been sent to the zamindar to appear and inspect the proceedings and file his objections, if any. Each objection has then been dealt with on its merits and the orders passed either modified or maintained. At the same time in the case of those who do not appear the orders are made final. Due service of notices has been secured by the maintenance of a *terij* by the serving officer on which the signature of each recipient is taken. When dealing with masses of holdings it is difficult to devise a procedure which will ensure due compliance with the provisions of the law, but I believe the above

satisfactorily does so and that now no man can plead that he has been in the dark as regards the action taken against him.

The existing *halqabandi* of patwari circles have been revised and proposals submitted to the Director. New mauza registers and pargana books as well as muafi registers and registers of groves exempted from assessment have been prepared in the sanctioned form; and new parganas handbooks written.

#### F I N A L.

59. I have been in charge of the settlement throughout operations from 1st October, 1917, to 6th November, 1920. Pandit Brij Chand Sharma joined the district as Assistant Settlement Officer in November, 1918, and remained in the district after I left it to finish off odd matters that remained. His inspection and assessment work has been thoroughly careful and sound and the Board is well aware of its quality from its own perusal of the assessment statements. Khan Sahib Saiyid Zamin Husain was first Assistant Record Officer and worked from 1st May, 1917, to August, 1919. He attested the records of the Deoband and Nakur tahsils. Babu Himmat Singh Maheshwari joined as second Assistant Record Officer in May, 1917, and attested the records of tahsils Saharanpur and Rurki, besides finishing off such work as was left by Saiyid Zamin Husain. The work of both officers has been reliable and thorough and has given complete satisfaction to landholders and cultivators alike. The appellate work has been considerable, but not so great as it was in the Allahabad district; and though the actual volume of original case work has perhaps not been so large, the care and trouble with which it was tried has no doubt been a material factor in reducing the number of appeals. A statement showing the amount of work disposed of will be found in the Appendix (VIII). The English office has been in charge of Babu Ujiare Lal, an old experienced settlement official. Though I have had reason to complain of his lack of initiative and dilatoriness at times, he has on the whole kept the office at work well, exercised good supervision over it and successfully coped with the multifarious work with which an English office has to deal. The Vernacular office has been throughout in the charge of Babu Raj Bahadur, Sadr Munsarim, also an old experienced settlement official, who has pushed through his work with expedition and with a minimum of friction. I regret to report that he died of dropsy in September, 1920, after practically completing all the work for which the presence of a Sadr Munsarim was strictly necessary. Of all tahsils the statistics of the Nakur tahsil were the least satisfactory; but there was trouble with the patwaris at the start. The most troublesome pargana has been Gangoh, in which some of the patwaris have at times shown a spirit of insubordination. But with the exception of these and a few others the work done by these men has on the whole been excellent, and they have it put through both expeditiously and satisfactorily. Settlement involves a considerable amount of hardship in various ways on them; and matters have not been made easier by the high prices that have prevailed throughout. I gratefully acknowledge the good work they have done and the sacrifices they have made. My thanks are also due to the whole of the English and Vernacular office staff, who have worked long hours and on the whole cheerfully responded to the inevitable calls made on them to sacrifice holidays in the cause of work. The recent increase of pay sanctioned by the Government for them is a matter for congratulation; and it will be an additional gratification if those who most deserve it at least are able to secure some permanent appointment. Promotions have from time to time been given to them; and I have proposed some exemptions from the educational tests prescribed by Government for the consideration of the Board. The sadr qanungo Saiyid Zafar Husain has supervised the work of map correction over most of the district, and both to him and the other qanungoes, both supervisor and registrar, my acknowledgements are due. Most of them have received rewards from time to time. The work of map tracing was under the supervision of

M. Hamid Husain, head draftsman, who carried it out satisfactorily. The corrected maps together with the blue prints have been sent for record to the office of the Director of Land Records and the other printed copies disposed of as directed in the rules.

60. The total cost of operations from first to last has been Rs. <sup>2,05,220</sup><sub>98,200</sub> and the work has been carried out as cheaply as circumstances permitted; the denominator roughly representing the cost of survey and record operations as distinct from settlement. But the expense of all such work is gradually increasing, and future settlements are likely to be more expensive as time goes on. The good work of all the officers mentioned is brought to the notice of the Board: and the sanction of Government solicited to the proposals of assessment. No trouble has been spared to make them fair to the state, landholders and cultivators alike; and I believe them to be as a whole most accurate. To my knowledge rents in many villages have risen since the records were attested as leases have fallen in and the non-occupancy rent roll is already higher than it was when we assessed; while in the neighbourhood of the city itself land which was poor worthless stuff even when I inspected it is rapidly being turned into valuable *kachiana*. Government may, I think, rest assured that even if prevailing prices fall to any figure that can be humanly foreseen, the proposed demand will never exceed a fair half asset demand anywhere.

(Sd.) D. L. DRAKE-BROCKMAN, I.C.S.,  
Settlement Officer.

Dated Saharanpur, October, 31st 1920.



## APPENDIX I.

*Comparative area statement, district Saharanpur.*

Description.				Former settlement.	Present settlement (year of veri- fication).	Increase.	Decrease.	
Total area .. ..				1,176,740	1,165,506	..	11,234	
Revenue free and Government plots				8,754	28,206	19,452	..	
Not culturable	{	Village site .. ..	..	16,280	18,126	1,846	..	
		Covered with water .. ..	..	82,919	79,742	..	3,177	
		Otherwise barren .. ..	..	47,684	38,406	..	9,278	
		Total .. ..	..	146,883	136,274	..	10,609	
Groves .. ..				12,263	13,750	1,487	..	
Culturable ..	{	Waste .. ..	..	12,540	10,752	..	1,787	
		Fallow .. {	Old .. ..	..	126,216	113,468	..	12,748
			New .. ..	..	28,873	46,823	17,950	..
		Total .. ..	..	167,638	171,043	3,405	..	
Cultivated ..	{	Irrigated from: {	canals, {	By flow .. ..	142,168	130,189	..	11,979
			By lift .. ..	6,897	2,866	..	4,031	
			Wells .. ..	91,654	341,66	..	57,498	
			Other sources .. ..	9,762	6,339	..	3,423	
			All sources .. ..	250,491	173,560	..	76,931	
		Unirrigated .. ..	..	590,711	642,673	51,962	..	
		Total .. ..	..	841,202	816,433	..	24,769	
Total of items 11 and 18 ..				1,008,840	987,276	..	21,564	

## APPENDIX II.

*Statement showing losses and gains of various castes of proprietors, district Saharanpur.*

Serial number.	Caste.				Last settlement.		Present settlement.		Percentage of change.
					Total area.	Percentage of total area.	Total area.	Percentage of total area.	
1	Ahirs.. ..	..	..	..	7,157	·6	7,752	·7	+16·7
2	Brahmans .. ..	..	..	..	34,185	2·9	37,076	3·2	+10·3
3	Chamars .. ..	..	..	..	13,832	1·1	15,209	1·3	+18·2
4	Europeans .. ..	..	..	..	30,788	2·5	23,704	2·0	-20·0
5	Faqirs, Jogis and Gosains .. ..	..	..	..	14,922	1·3	19,035	1·7	+27·6
6	Garas .. ..	..	..	..	33,347	2·8	34,877	3·0	+7·1
7	Gujars .. ..	..	..	..	232,852	19·8	2,05,387	17·6	-11·1
8	Jats .. ..	..	..	..	34,653	3·0	31,508	2·7	-10·0
9	Jhojhas .. ..	..	..	..	6,531	·5	6,818	·6	+20·0
10	Kalals .. ..	..	..	..	9,629	·8	5,248	·4	-50·0
11	Khatrias .. ..	..	..	..	11,248	1·0	8,169	·7	-30·0
12	Kolis .. ..	..	..	..	7,413	·6	8,870	·8	+33·3
13	Mahajans .. ..	..	..	..	283,936	24·1	3,17,483	27·2	+12·9
14	Pathans, Mughals and Pirzadas .. ..	..	..	..	50,809	4·3	49,516	4·2	-1·6
15	Rajputs .. ..	..	..	..	190,920	16·2	1,89,188	16·2	..
16	Rorhs .. ..	..	..	..	8,848	·8	7,860	·7	-12·5
17	Sainis .. ..	..	..	..	10,064	·9	8,101	·7	-22·2
18	Sadh (Hindu) .. ..	..	..	..	7,794	·7	6,935	·6	-14·3
19	Sheikh and Sheikhzadas .. ..	..	..	..	54,095	4·6	56,184	4·8	+4·3
20	Saiyids .. ..	..	..	..	20,264	1·7	16,967	1·5	-11·8
21	Tagas .. ..	..	..	..	47,132	4·0	49,939	4·3	+7·5
22	Others .. ..	..	..	..	51,934	..	33,942	..	..
23	Government property .. ..	..	..	..	16,488	1·4	22,678	1·9	+35·7
Total ..				..	1,176,740	100·0	1,165,506	100·0	..

## APPENDIX III.

*Statement showing area and revenue of the largest proprietors, district Saharanpur.*

Serial number.	Proprietors.	Area.	Revenue.
			Rs.
1	Chaudhari Balwant Singh of Landhaura .. ..	23,798	89,765
2	Lala Jambu Prasad Agarwal Jâini of Saharanpur .. ..	18,423	31,143
3	Rai Bahadur Lala Joti Prasad, etc., Mahajan of Jagadhari ..	13,379	23,657
4	Powell family .. ..	10,320	20,878
5	Akharas .. ..	13,557	14,170
6	Lala Asa Ram of Kota .. ..	5,473	12,080
7	Khan Bahadur Muhammad Naim Khan of Kailashpur ..	4,735	10,959
8	Hulas Rai etc., of Saharanpur .. ..	6,220	9,248
9	Musammat Iqbal Kunwar Vaish of Thapal Ismailpur..	3,999	8,465
10	Musammat Gomti Kunwar of Saharanpur .. ..	6,425	8,36
11	Rana Dharam Singh of Jasmaur .. ..	6,957	6,410
12	Shah Zahid Husain Pirzada of Behat .. ..	3,576	6,004
13	Lala Jai Parshad Agarwal for the present residing at Dehra Dun	3,071	4,814
14	Lala Dharam Das, etc., of Saharanpur .. ..	5,037	2,966

## APPENDIX IV.

*Statement showing the castes of the cultivators, district Saharanpur.*

Serial number.	Caste.	Cash rented.			Kind.	Sir and khud-kisht.	Rent free.	Total.
		Area.	Rent.	Incidence.				
			Rs.					
1	Ahirs .. ..	4,792	89,176	6·7	241	4,361	244	9,638
2	Brahmans .. ..	13,942	93,882	6·7	1,805	7,958	3,143	26,848
3	Chamars .. ..	31,457	2,63,260	8·4	9,216	139	653	41,465
4	Garas .. ..	52,517	3,86,775	7·4	5,361	20,937	1,173	79,988
5	Gujars { Hindu ..	74,517	4,91,813	6·6	5,762	71,388	3,729	1,55,396
	Musalman ..	20,295	1,22,724	6·0	4,244	11,091	1,037	36,667
6	Jats .. ..	14,824	1,07,585	7·4	1,238	15,689	785	32,481
7	Jhojhas .. ..	8,754	61,920	7·1	397	2,618	165	11,934
8	Kolis .. ..	7,846	46,074	5·9	90	5,262	194	13,392
9	Malis or Sainis { Hindu ..	60,728	4,35,515	7·2	14,793	4,095	603	80,222
	Musalman ..	872	7,691	8·8	58	216	23	1,169
10	Rajputs { Hindu ..	34,546	2,16,657	6·3	6,058	53,430	2,361	96,295
	Musalman ..	14,140	78,582	5·6	1,493	16,724	1,115	33,472
11	Tagas { Hindu ..	14,177	1,01,674	7·2	356	28,852	956	44,341
	Musalman ..	2,535	18,949	6·7	24	2,047	125	5,031
12	Others .. ..	1,09,417	8,08,458	7·8	26,556	44,586	6,011	1,86,670
	Total .. ..	4,65,659	32,73,725	7·3	77,687	2,89,344	22,219	8,54,909



APPENDIX V.  
Comparative crop statement, district Saharanpur.

Tracts with periods.	Total cultivated area.	Rabi.					Kharif.								Zaid.	Dofasli.			
		Wheat alone.	Wheat in combination.	Gram alone and in combination.	Barley alone and with gram.	Others.	Total.	Late rice.	Early rice.	Juar.	Bajra.	Sugar-cane.	Cotton.	Urd, mung and moth.			Maize.	Others.	Total.
Up land	Former settlement	83,384	13,298	38,716	13,072	9,044	157,514	60,076		11,164	9,648	17,684	7,857	146	3,755	53,707	164,037	899	57,007
	Five years' average	104,195	22,939	39,937	9,078	11,741	186,890	41,119	12,028	34,812	10,090	23,897	6,479	8,423	4,328	16,496	157,678	1,009	76,314
	Present settlement	93,101	25,206	40,440	8,856	13,056	179,659	46,973	17,103	33,719	7,793	26,430	6,026	9,851	5,639	17,180	170,714	1,479	84,329
	Former settlement	91,726	15,208	23,116	14,106	7,672	151,828	46,455		8,513	20,705	14,062	14,140	25	9,020	57,629	170,549	..	39,952
	Five years' average	106,442	16,380	38,410	10,767	9,905	181,804	11,038	17,631	42,529	25,470	12,796	12,014	4,828	11,790	21,170	159,266	1,505	59,023
Ghar	Present settlement	104,629	15,867	43,570	11,437	11,527	187,100	13,853	21,322	42,201	22,839	14,867	13,057	9,288	13,298	17,876	163,601	1,065	70,307
	Former settlement	6,541	2,395	4,285	2,228	1,307	17,346	4,971		627	3,384	1,732	2,217	..	2,802	3,354	19,087	..	7,419
	Five years' average	9,134	2,194	5,792	1,922	1,761	20,203	894	3,886	3,314	2,632	2,232	2,272	8	3,349	1,022	19,609	262	11,442
	Present settlement	8,301	2,176	3,468	1,426	1,733	17,103	1,350	3,226	2,433	2,883	3,018	2,939	59	2,756	833	19,537	248	9,539
	Former settlement	34,301	9,022	16,621	6,305	5,146	73,395	7,952		2,310	15,898	3,564	13,112	8	15,221	15,426	73,481	5	24,401
Khadar..	Five years' average	41,867	8,376	25,963	9,535	3,536	83,927	882	3,507	14,689	15,672	3,271	13,778	111	20,579	4,672	77,141	265	40,263
	Present settlement	38,245	8,228	22,093	5,245	4,020	77,831	742	4,374	12,979	14,502	4,808	14,965	715	20,042	4,356	77,463	220	41,656
	Former settlement	44,215	13,456	8,181	14,952	8,710	89,516	28,139		1,280	5,304	5,186	8,918	7	12,247	22,909	83,990	2	34,093
	Five years' average	49,866	12,388	10,556	13,327	8,249	94,406	4,956	10,444	13,975	5,371	8,07	8,440	415	18,385	9,780	79,973	724	43,455
	Present settlement	45,108	7,637	7,696	12,150	8,965	82,556	4,415	9,752	12,056	5,066	12,083	11,290	903	17,018	10,049	82,577	395	38,353
Total	Former settlement	260,107	53,381	92,319	50,563	32,469	489,599	147,593		23,894	54,934	42,223	46,244	181	43,045	153,025	511,144	906	182,877
	Five years' average	311,524	62,777	119,658	38,029	35,242	597,280	58,889	47,493	109,319	59,215	50,403	42,933	13,791	58,431	53,140	493,637	4,365	230,497
	Present settlement	250,384	59,134	117,237	32,163	33,301	544,249	67,363	55,777	103,438	59,083	61,161	48,237	20,876	58,753	50,284	518,932	3,407	244,184

*Comparative statement of tenures and holdings, district Saharanpur.*

( 50 )

**APPENDIX VII.**  
*Canal irrigated upland, district Saharanpur.*

Soils.	Non-occupancy.		Occupancy.		Sir.		Khudkasht.		Kasht Theka.		Grain rental.		Rent free.		Total.	
	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.
Super	796	..	719	..	720	..	720	..	7	..	70	..	84	..	3,146	..
Superior	498	..	528	..	371	..	457	..	8	..	99	..	63	..	1,949	..
Superior	17,868	..	17,751	..	23,373	..	11,990	..	24	..	1,528	..	1,790	..	78,724	..
Average	4,426	..	4,253	..	3,931	..	2,849	..	2	..	362	..	1,634	..	15,817	..
Below average	18,073	..	10,949	..	13,774	..	7,148	..	20	..	1,905	..	1,093	..	47,978	..
Poor	10,022	..	8,854	..	8,579	..	4,749	..	4	..	912	..	1,093	..	37,143	..
Very poor	4,685	..	3,587	..	3,767	..	2,992	..	..	..	437	..	1,897	..	15,215	..
Dakar I	15,107	..	13,065	..	10,903	..	7,266	..	..	..	1,685	..	1,542	..	48,522	..
Dakar II	91	..	50	..	3,319	..	1,978	..	..	..	411	..	584	..	13,304	..
Miscellaneous	4,052	..	2,959	..	809	..	560	..	1	..	75	..	189	..	8,807	..
Total	77,886	313	66,455	213	72,652	162	41,667	170	79	1	5,604	19	7,836	97	274,289	974

*Non-canal irrigated upland.*

Soils.	Non-occupancy.		Occupancy.		Sir.		Khudkasht.		Kasht Theka.		Grain rental.		Rent free.		Total.	
	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.
Super	464	..	439	..	536	..	360	..	..	..	123	..	45	..	1,937	..
Superior	405	..	424	..	521	..	416	..	..	..	32	..	81	..	1,879	..
Average	8,689	..	7,842	..	9,220	..	3,341	..	..	..	1,531	..	793	..	81,300	..
Below average	14,708	..	15,335	..	15,011	..	5,954	..	..	..	2,445	..	1,099	..	54,593	..
Poor	3,939	..	3,167	..	3,206	..	1,441	..	..	..	320	..	225	..	11,593	..
Very poor	16,844	..	16,007	..	15,902	..	6,899	..	..	..	2,618	..	1,270	..	59,573	..
Dakar I	1,926	..	1,285	..	1,206	..	654	..	..	..	979	..	118	..	5,468	..
Dakar II	23,651	..	17,309	..	16,257	..	9,102	..	..	..	3,276	..	198	..	71,578	..
Miscellaneous	81	..	36	..	56	..	27	..	..	..	13	..	13	..	1,225	..
Total	81,822	5,063	70,784	4,202	72,31	2,783	33,402	2,525	123	3	12,712	2,101	7,091	588	2,78,444	17,315

APPENDIX VII.  
*Ghar, irrigated tract, District Saharanpur.*

Soils.	Non-occupancy.		Occupancy.		Sir.		Khudkasht.		Kasbi Theka.		Grain rented.		Rent free.		Total.	
	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.
Super	77	..	80	..	39	33	203	..	..	..	53	..	21	..	443	33
Superior	13	..	5	..	692	..	59	..	..	..	1	..	6	..	84	..
Average	1,600	..	2,352	..	123	..	823	..	..	..	367	..	82	..	6,134	..
Below average	870	..	194	..	603	..	139	..	..	..	240	..	33	..	1,087	..
Poor	1,764	..	594	..	942	..	434	..	..	..	844	..	59	..	4,207	..
Very poor	1,164	..	410	..	765	..	270	..	..	..	530	..	62	..	2,636	..
Dakar I	1,034	..	684	..	651	..	327	..	..	..	183	..	81	..	3,037	..
Dakar II	2,390	..	1,175	..	335	..	673	..	..	..	1,372	..	5	..	2,555	..
Miscellaneous..	95	..	72	..	343	..	32	..	..	..	442	..	40	..	1,178	..
Total	613	..	13	..	6	..	224	..	..	..	1	..	..	..	1,107	..
	306	..	187	..	93	..	107	..	..	..	389	..	23	..	185	..
	43	..	26	..	15	..	10	..	..	..	6	..	2	..	39	..
	5	..	4	..	54	..	7	..	..	..	5	..	1	..	76	..
	8	..	15	..	65	..	91	..	..	..	74	..	6	..	193	..
	38	..	15	..	..	..	6	..	..	..	14	..	..	..	73	..
	127	..	20	..	..	..	77	..	..	..	144	..	..	..	368	..
Total	9,665	102	6,556	4	4,017	40	8,369	22	15	..	4,153	80	445	1	28,919	190

<i>Ghar, dry tract.</i>																
Super	38	..	5	..	2	..	48	..	..	..	1	..	3	..	97	12
Superior	16,895	..	294	..	1,389	..	3,124	..	..	..	9,146	..	808	..	81,560	7,670
Average	8,327	..	6,203	..	1,141	..	1,643	..	..	..	3,264	..	430	..	21,331	5,815
Below average	10,254	..	6,262	..	1,314	..	2,054	..	..	..	5,094	..	409	..	25,482	2,814
Poor	7,853	..	8,820	..	785	..	1,303	..	..	..	4,128	..	239	..	17,662	3,173
Very poor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dakar I	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dakar II	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Miscellaneous..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	43,069	7,305	16,788	10,069	5,181	420	8,353	1,533	94	8	21,808	580	1,028	352	97,351	23,292

APPENDIX VII.  
*Khadar tract, district Saharanpur.*

Soils.	Non-occupancy.		Occupancy.		Sir.		Khudkasht.		Kachh Theka.		Grain rented.		Rent free.		Total.	
	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.
Super	40	8	30	23	21	3	21	1	..	..	5	..	2	..	119	85
Superior	125	99	90	79	71	33	115	30	..	..	73	..	17	..	491	989
Superior	427	320	422	579	619	492	222	157	..	..	64	..	70	..	1,894	1,776
Average	4,628	8,817	4,145	7,245	2,861	4,530	2,594	4,235	..	..	4,553	..	393	..	19,881	29,534
Below average..	190	147	114	100	93	41	61	40	..	..	19	..	18	..	455	350
Poor	4,555	5,154	2,994	8,624	2,239	2,755	2,662	2,603	..	..	4,653	..	858	..	17,393	18,377
Very poor	71	113	60	17	48	20	44	18	..	..	11	..	16	..	240	233
Dakar I	3,975	5,035	2,153	4,279	1,637	3,093	2,844	2,924	..	..	4,747	..	425	..	15,818	21,096
Dakar II	1	..	..	..	8	..	4	53	..	..	..	..	..	..	13	1
Miscellaneous..	487	..	..	..	211	..	884	530	..	..	..	..	..	..	1,850	1,796
Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Super	112	75	97	172	..	..	..	..	..	..	..	..	..	..	..	..
Superior	63	23	21	864	..	..	..	..	..	..	..	..	..	..	..	..
Average	475	952	371	864	..	..	..	..	..	..	..	..	..	..	..	..
Below average..	11	..	..	173	..	..	..	..	..	..	..	..	..	..	..	..
Poor	232	264	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Super	15,003	23,059	10,795	17,900	8,238	11,987	9,405	10,729	145	124	15,079	13,072	1,430	2,340	60,120	78,300

Combined Statement VII of all tracts, district Saharanpur																
Soils.	Non-occupancy.		Occupancy.		Sir.		Khudkasht.		Kachh Theka.		Grain rented.		Rent free.		Total.	
	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.	Bangar.	Khadar and kachhar.
Super	1,415	8	1,273	42	1,318	36	1,882	1	..	..	222	..	175	..	5,772	90
Superior	17,457	143	1,271	7,806	2,802	144	4,171	39	..	..	9,281	..	970	..	85,973	8,143
Superior	28,569	577	28,431	850	34,154	638	15,805	211	..	..	3,519	..	2,672	..	112,186	2,475
Average	32,753	14,117	30,157	9,889	23,037	5,687	12,678	5,911	..	..	10,867	..	2,443	..	112,016	41,578
Below average..	18,252	230	16,275	224	17,037	85	9,149	73	..	..	2,600	..	1,880	..	64,368	676
Poor	42,539	6,057	34,527	5,140	28,276	3,503	16,634	3,797	..	..	13,807	..	3,110	..	1,39,003	26,872
Very poor	7,778	155	5,070	78	5,789	28	3,420	17	..	..	912	..	425	..	24,093	306
Dakar I	52,476	8,794	36,522	6,040	30,233	3,986	21,091	3,861	..	..	15,157	..	4,265	..	159,842	29,201
Dakar II	9,929	610	6,889	633	7,320	415	4,760	313	..	..	1,970	..	1,281	..	32,176	2,576
Miscellaneous..	238	..	20	328	1,173	..	19	..	..	..	4	..	..	..	10	1
Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Super	2,548	136	1,920	328	1,432	138	1,173	63	..	..	823	..	427	..	8,554	930
Superior	2,363	30	1,401	28	1,235	15	914	15	..	..	300	..	250	..	6,466	136
Average	4,778	1,544	3,932	1,152	3,704	539	2,117	523	..	..	1,245	..	550	..	16,338	4,408
Below average..	799	11	438	3	527	4	205	145	..	..	138	..	78	..	2,416	48
Poor	4,857	374	3,913	247	4,434	168	2,205	145	..	..	949	..	607	..	16,765	1,073
Very poor	174	..	21	..	10	..	55	..	..	..	14	..	..	..	74	..
Total	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Super	236,947	24,872	1,71,578	32,437	1,24,418	15,393	95,196	15,008	459	131	61,975	15,802	18,750	3,378	738,353	1,17,080

## APPENDIX VIII.

*Statement of litigation.*

Description.			Number of cases of—				Number of appeals.	
			Record of rights.	Rent.	Miscellaneous.	Total.		
On their merits	{ For plaintiff	..	8,317	7,141	61	15,519	493	
	{ For defendant	..	3,191	2,715	21	5,927		
Otherwise than on their merits.	{ By admission, etc	..	906	24	..	980		
	{ By default	..	454	6	1	461		
	{ Ex parte ..	..	92	..	..	92		
Withdrawn	..	..	104	252	1	357		
Others ..	..	..	443	40	5,737	6,220		
Total			..	13,507	10,178	5,821	29,506	493

## APPENDIX IX.

*Statement showing the names of villages in which a short term settlement has been sanctioned.*

Serial number.	Pargana.	Name of village.	Name of mahal.	Period for which assessment has been sanctioned.
1	Jwalapur ..	Ahmadpur Grant ..	..	10 years.
2		Mirpur ..	..	Ditto.
3		Mustafabad ..	..	Ditto.
4		Akbarpur and ..	..	Ditto.
5		Fidaipur ..	..	Ditto.
6		Keshowala urf Ladaula ..	..	Ditto.
7		Mohammed Zamanpur ..	..	Ditto.
8		Budhakhera Timli ..	..	5 years.
9		Bukanpur ..	Beni Prasad, Shri Sarup, Lachhman Sarup, Ghair Daiyan, Brij Nandan Sarup.	Ditto.
1	Bhagwanpur ..	Lalwala Mazbita ..	Mohammad Ikram-ul Haq, Mohammad Ikram.	10 years.
2		Kheri Shikohpur ..	Mohammad Ahmad Haq, number I.	5 years.
1	Rurki ..	Alawalpur ..	Mithoo, Kadar Bux, Indar Singh, Fida Hussain, Jagat Singh.	10 years.
2		Bahadurpur Khurd ..	Daiyan, Ghair Daiyan ..	Ditto.
3		Badli Kalanjari ..	Imrat, Sheo Saran, Musammat Ram Kuar, Baldeo Bharghi, Dalip.	Ditto.
4		Nashtarpur alias Nasirpur ..	..	5 years.
5		Pithpur ..	..	Ditto.
6		Raipur Darara Grant ..	..	Ditto.

## APPENDIX X.

Name of taluk.	Name of pargana.	Name of circle.	Names of soils.											
			Goind A.A.	Goind A.	Goind.	Goind.		Kachiana.	Manjha I.		Manjha II.		Har I.	
						Wet.	Dry.		Wet.	Dry.	Wet.	Dry.	Wet.	Dry.
DIBRANG.	Dibband, Nagal and Rampur.	I .. .. .	..	..	..	9.1	7.2	9.1	7.6	6.1	6.3	5.3	6.1	4.6
		II .. .. .	..	..	..	9.6	7.2	9.6	8.0	6.1	7.2	6.3	6.4	4.6
		III .. .. .	..	..	..	9.6	7.6	9.6	8.0	6.4	7.2	6.3	6.4	4.8
		IV .. .. .	..	..	..	7.4	5.9	7.4	6.2	5.0	5.6	4.3	5.0	3.7
		V .. .. .	..	12.9	..	10.3	8.2	10.3	8.6	6.9	7.3	6.6	6.6	4.7
		VI .. .. .	..	..	..	8.6	7.8	9.6	8.0	6.4	7.2	5.6	6.4	4.8
		VII .. .. .	..	..	..	8.9	7.0	8.9	7.4	6.1	6.7	5.2	6.1	4.6
NAGUR.	Saraawa ..	I .. .. .	..	..	..	10.1	..	..	..	..	..	..	..	..
		II .. .. .	..	..	..	8.6	..	..	..	..	..	..	..	..
		III .. .. .	..	..	..	7.7	..	..	..	..	..	..	..	..
	Nakur ..	I .. .. .	..	..	..	10.1	8.0	..	..	..	..	..	..	..
		II .. .. .	..	10.8	..	8.6	6.8	..	..	..	..	..	..	..
	Gangoh ..	I .. .. .	..	9.6	..	7.7	6.1	..	..	..	..	..	..	..
		II .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
	Saraawa, Nakur and Gangoh.	III { Bangar mixed with Khadir tract only.	..	..	..	..	..	..	..	..	..	..	..	..
	Gangoh ..	IV { Bangar mixed with Khadir tract only.	..	9.0	..	6.2	4.9	..	..	..	..	..	..	..
	Saraawa, Nakur and Gangoh.	V { Bangar mixed with Khadir tract only.	..	..	..	7.2	5.7	..	..	..	..	..	..	..
	SAHARANPUR.	Sultanpur ..	I .. .. .	..	..	10.8	..	..	..	..	..	..	..	..
II .. .. .			..	..	..	..	..	..	..	..	..	..	..	..
III .. .. .			..	..	9.8	..	..	..	..	..	..	..	..	..
IV .. .. .			..	..	6.0	..	..	..	..	..	..	..	..	..
V .. .. .			..	..	..	..	..	..	..	..	..	..	..	..
VI .. .. .			..	..	9.1	..	..	..	..	..	..	..	..	..
VII .. .. .			..	..	7.6	..	..	..	..	..	..	..	..	..
VIII .. .. .			..	..	..	..	..	..	..	..	..	..	..	..
IX .. .. .			..	..	7.8	..	..	..	..	..	..	..	..	..
Mustafarabad ..		I .. .. .	..	..	10.1	..	..	..	..	..	..	..	..	..
		II .. .. .	..	..	8.5	..	..	..	..	..	..	..	..	..
		III .. .. .	..	..	8.2	..	..	..	..	..	..	..	..	..
		IV .. .. .	..	..	7.8	..	..	..	..	..	..	..	..	..
		V .. .. .	..	..	8.4	..	..	..	..	..	..	..	..	..
Seharanpur ..	VI .. .. .	..	..	8.8	..	..	..	..	..	..	..	..	..	
	I { Group A	..	23.7	19.0	..	..	..	..	..	..	..	..	..	
	II { Other groups	..	..	11.4	..	..	..	..	..	..	..	..	..	
Bharaura ..	III .. .. .	..	..	10.1	..	..	..	..	..	..	..	..	..	
	IV .. .. .	..	..	10.3	..	..	..	..	..	..	..	..	..	
	Alluvial ..	..	..	9.6	..	..	..	..	..	..	..	..	..	
Fyzabad ..	I .. .. .	..	..	..	12.0	10.0	..	..	..	..	..	..	..	
	II .. .. .	..	..	..	10.8	9.0	..	..	..	..	..	..	..	
	III .. .. .	..	..	..	..	7.6	..	..	..	..	..	..	..	
Manglaur Bangar ..	IV .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	
	V .. .. .	..	..	..	9.0	8.0	..	..	..	..	..	..	..	
	VI .. .. .	..	..	..	..	9.6	..	..	..	..	..	..	..	
Bhagwanpur and Rurki ..	I .. .. .	..	12.0	..	9.6	7.6	..	..	..	..	..	..	..	
	II .. .. .	..	13.2	..	10.5	8.4	..	..	..	..	..	..	..	
	III .. .. .	..	12.9	..	10.3	8.2	..	..	..	..	..	..	..	
Jwalapur ..	IV .. .. .	..	15.0	..	12.0	9.5	..	..	..	..	..	..	..	
	V .. .. .	..	..	..	..	6.2	..	..	..	..	..	..	..	
	VI .. .. .	..	..	..	..	8.1	..	..	..	..	..	..	..	
Manglaur Khadir ..	VII .. .. .	..	9.0	..	11.2	9.0	..	..	..	..	..	..	..	
	VIII .. .. .	..	..	..	..	11.8	..	..	..	..	..	..	..	
	IX .. .. .	..	..	..	..	5.5	..	..	..	..	..	..	..	
Jwalapur ..	X .. .. .	..	..	7.9	..	..	..	..	..	..	..	..	..	
	XI .. .. .	..	..	..	9.4	..	..	..	..	..	..	..	..	
	..	..	..	..	..	..	..	..	..	..	..	..	..	
Manglaur Khadir ..	..	..	..	7.6	..	..	..	..	..	..	..	..	..	
	..	..	..	7.2	..	..	..	..	..	..	..	..	..	
	..	..	..	9.0	..	..	..	..	..	..	..	..	..	
Manglaur Khadir ..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	..	..	..	8.4	..	..	..	..	..	..	..	..	..	
	..	..	..	7.0	..	..	..	..	..	..	..	..	..	

## APPENDIX

Names														
Name of tahsil.	Name of pargana.	Name of circle.	Har II.	Har III.	Jungle I+		Jungle I.		Jungle II+		Jungle II.		Jungle II-	
					Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.
PRABAND.	Peoband, Nagal and Rampur.	I .. ..	9.4	2.7	..	..	..	..	..	..	..	..	..	..
		II .. ..	3.4	2.7	..	..	..	..	..	..	..	..	..	..
		III .. ..	3.6	2.8	..	..	..	..	..	..	..	..	..	..
		IV .. ..	2.8	2.2	..	..	..	..	..	..	..	..	..	..
		V .. ..	8.9	3.2	..	..	..	..	..	..	..	..	..	..
		VI .. ..	3.6	2.3	..	..	..	..	..	..	..	..	..	..
		VII .. ..	4.1	3.3	..	..	..	..	..	..	..	..	..	..
NAKUR.	Sarsawa ..	I .. ..	..	..	..	..	8.4	6.9	7.9	6.3	7.4	5.8	6.8	4.7
		II .. ..	..	..	..	..	7.2	5.9	6.8	5.4	6.3	6.0	5.4	4.0
	Nakur ..	III .. ..	..	..	..	..	6.4	5.2	6.0	4.8	5.6	4.4	4.8	3.6
		I .. ..	..	..	..	..	8.4	7.7	7.6	5.9	6.7	5.0	5.5	4.2
	Gangoh ..	II .. ..	..	..	..	..	7.2	5.8	6.5	5.0	5.8	4.3	4.7	3.6
		Sarsawa, Nakur and Gangoh.	III { Bangar mixed with Khadir.	..	..	..	..	6.4	5.1	5.8	4.5	5.1	3.8	4.2
	.. { Khadir tract only.		..	..	..	..	..	..	..	..	..	..	..	..
	Gangoh ..	IV .. ..	..	..	..	..	5.2	4.2	4.7	3.6	4.2	3.1	3.4	2.6
		Sarsawa, N. kur and Gangoh.	V { Bangar mixed with Khadir.	..	..	..	..	6.0	4.8	5.4	4.2	4.8	3.6	3.9
	.. { Khadir tract only.		..	..	..	..	..	..	..	..	..	..	..	..
SAHARANPUR.	Sultanpur ..	I .. ..	..	..	..	..	9.0	7.4	8.5	6.7	7.9	6.2	6.7	5.0
		II .. ..	..	..	..	..	8.0	6.6	7.5	6.0	7.0	5.5	6.0	4.5
		III .. ..	..	..	..	..	9.4	8.2	8.6	7.2	7.7	6.4	6.8	5.1
		IV .. ..	..	..	..	..	5.7	5.0	5.2	4.4	4.7	3.7	3.8	3.1
		V .. ..	..	..	..	..	11.7	10.2	10.7	9.0	9.6	7.6	7.8	6.3
		VI .. ..	..	..	..	..	8.7	7.6	8.0	6.7	7.1	5.7	5.9	4.7
		VII .. ..	..	..	..	..	..	6.9	..	5.5	..	4.7	..	3.9
		VIII .. ..	..	..	..	..	..	8.0	..	7.0	..	6.0	..	5.0
		IX .. ..	..	..	..	..	..	6.5	..	5.7	..	4.9	..	4.0
Baharanpur ..	Mussafarabad ..	I .. ..	..	..	..	..	10.1	8.4	..	7.4	7.6	6.3	..	5.2
		II .. ..	..	..	..	..	..	7.1	..	6.2	..	5.3	..	4.4
		III .. ..	..	..	..	..	..	6.8	..	6.0	..	5.1	..	4.2
		IV .. ..	..	..	..	..	..	6.5	..	5.7	..	4.9	..	4.0
		V .. ..	..	..	..	..	..	7.0	..	6.2	..	5.2	..	4.3
		VI .. ..	..	..	..	..	..	7.3	7.7	6.4	6.6	5.5	..	4.5
Haraura ..	Baharanpur ..	I { Group A	..	..	..	..	9.0	9.5	7.8	8.9	7.1	8.4	6.5	7.1
		II { Other groups..	..	..	..	..	..	9.5	7.8	8.9	7.1	8.4	6.5	7.1
		III .. ..	..	..	..	..	..	8.4	6.9	7.9	6.3	7.4	5.8	6.8
		IV .. ..	..	..	..	..	..	8.6	7.0	8.1	6.5	7.6	5.9	6.5
		Alluvial..	..	..	..	..	..	6.6	..	6.0	..	5.6	..	4.5
		.. ..	..	..	..	..	..	10.0	8.0	8.5	6.5	8.0	6.0	7.0
Fyzabad ..	Haraura ..	Permanent { I..	..	..	..	..	9.0	7.2	7.6	5.8	7.2	6.4	6.3	4.6
		.. { II..	..	..	..	..	..	7.6	6.1	6.5	4.9	6.1	4.5	5.3
		.. { III..	..	..	..	..	..	..	6.1	..	4.9	..	4.5	..
		.. { IV..	..	..	..	..	..	9.4	7.5	8.0	6.1	7.5	6.6	6.6
		Alluvial { I..	..	..	..	..	..	7.2	5.7	6.1	4.7	5.7	4.3	5.0
		.. { II..	..	..	..	..	..	..	5.3	..	4.7	..	4.0	..
Jwalapur ..	Fyzabad ..	I .. ..	..	..	..	..	..	5.3	..	4.7	..	4.0	..	3.3
		II .. ..	..	..	..	..	..	5.3	..	4.7	..	4.0	..	3.3
		III .. ..	..	..	..	..	..	8.7	7.1	8.2	6.5	7.7	6.0	6.5
		IV .. ..	..	..	..	..	..	9.6	8.0	8.4	7.0	7.2	6.0	6.4
		V .. ..	..	..	..	..	..	9.0	7.5	7.9	6.6	6.7	5.6	6.0
		VI .. ..	..	..	..	..	..	9.6	8.0	..	7.0	7.2	6.0	..
KURRI.	Manglaur Bangar	I .. ..	..	..	..	..	..	8.0	6.4	6.8	5.2	6.0	4.4	5.2
		II .. ..	..	..	..	..	..	8.8	7.0	7.5	6.7	6.6	4.8	5.7
		III .. ..	..	..	..	..	..	8.6	6.9	7.3	5.6	6.4	4.7	6.0
		IV .. ..	..	..	..	..	..	10.0	3.0	8.5	6.5	7.5	5.6	6.5
		I .. ..	..	..	..	..	..	5.0	..	4.4	..	4.0	..	4.0
		II .. ..	..	..	..	..	..	6.2	..	5.5	..	4.7	..	3.8
	Bangwanpur and Roorkhee.	III .. ..	..	..	..	..	..	6.8	..	6.1	..	5.0	..	4.6
		IV .. ..	..	..	..	..	..	9.0	7.2	7.3	5.8	..	5.2	5.9
		V .. ..	..	..	..	..	..	9.9	7.9	..	7.2	6.5	6.4	..
		VI .. ..	..	..	..	..	..	..	..	..	..	..	..	..
		VII .. ..	..	..	..	..	..	..	6.8	..	6.0	..	5.1	..
Manglaur Khadir	Jwalapur ..	VIII .. ..	..	..	..	..	..	5.9	..	5.2	5.6	4.4	..	3.6
		IX .. ..	..	..	..	..	..	7.6	6.6	..	6.2	..	5.5	6.0
		I .. ..	..	..	..	..	..	7.5	6.1	7.0	5.6	6.6	5.2	6.1
		II .. ..	..	..	..	..	..	8.8	6.5	7.0	5.8	6.3	4.8	5.6
		III .. ..	..	..	..	..	..	8.0	6.7	7.2	6.0	6.5	5.0	5.8
		IV .. ..	..	..	..	..	..	..	6.3	..	6.1	..	4.7	..
		V .. ..	..	..	..	..	..	..	4.9	..	4.5	..	4.1	..
		VI .. ..	..	..	..	..	..	8.7	7.0	7.7	6.6	6.7	6.6	6.1
		VII .. ..	..	..	..	..	..	6.7	5.8	6.0	5.1	..	4.3	..
		VIII .. ..	..	..	..	..	..	..	..	..	..	..	..	..
Manglaur Khadir	IX .. ..	..	..	..	..	..	..	..	..	..	..	..	..	
	X .. ..	..	..	..	..	..	8.1	7.0	7.2	6.2	6.3	5.2	5.7	
	XI .. ..	..	..	..	..	..	6.7	5.8	6.0	5.1	5.3	4.3	4.7	



X.-(continued).

of soils - (continued).

Jungle A		Jungle B.		Jungle III+		Jungle III.		Jungle IIIF.		Jungle IV.		Jungle IV.		Jungle V.		Jungle V dry.		Dakar I.		Dakar I.		Dakar II.	
Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.5	4.9	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.8	4.9	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.8	5.2	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5.3	4.0	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.9	5.4	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.3	5.2	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6.3	4.8	..	..	..	..
..	..	..	..	..	..	5.2	3.7	..	..	2.5	..	..	..	1.7	..	..	..	6.3	5.2	..	..	..	..
..	..	..	..	..	..	4.5	3.2	..	..	2.2	..	..	..	1.4	..	..	..	5.4	4.5	..	..	..	..
..	..	..	..	..	..	4.0	2.8	..	..	1.9	..	..	..	1.3	..	..	..	4.8	4.0	..	..	..	..
..	..	..	..	..	..	4.6	3.8	..	..	2.5	..	..	..	2.1	..	..	..	5.9	4.6	..	..	..	..
..	..	..	..	..	..	4.0	3.2	..	..	2.2	..	..	..	1.8	..	..	..	5.0	4.0	..	..	..	..
..	..	..	..	..	..	3.5	2.9	..	..	1.9	..	..	..	1.6	..	..	..	4.5	3.5	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	2.9	2.3	..	..	1.6	..	..	..	1.3	..	..	..	3.6	2.9	..	..	..	..
..	..	..	..	..	..	3.3	2.7	..	..	1.8	..	..	..	1.6	..	..	..	4.2	3.3	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	5.6	4.0	..	..	2.7	..	..	..	1.8	..	..	..	6.7	5.6	2.7	..	..	..
..	..	..	..	..	..	5.0	3.5	..	..	2.4	..	..	..	1.6	..	..	..	6.0	5.0	2.4	..	..	..
..	..	..	..	..	..	5.3	4.1	..	..	3.1	..	..	..	2.0	..	..	..	6.1	4.9	2.5	..	..	..
..	..	..	..	..	..	3.2	2.5	..	..	1.9	..	..	..	1.2	..	..	..	3.7	3.0	1.5	..	..	..
..	..	..	..	..	..	6.6	5.1	..	..	3.9	..	..	..	2.5	..	..	..	..	6.3	3.1	..	..	..
..	..	..	..	..	..	4.9	3.8	..	..	2.9	..	..	..	1.9	..	..	..	..	4.6	2.3	..	..	..
..	..	..	..	..	..	..	3.1	..	..	2.4	..	..	..	..	..	..	..	..	3.8	1.9	..	..	..
..	..	..	..	..	..	..	4.0	..	..	..	..	..	..	2.0	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	3.2	..	..	2.5	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	4.2	..	..	3.2	..	..	..	2.1	..	..	5.0	..	..	..	2.5	..	..
..	..	..	..	..	..	..	3.5	..	..	2.7	..	..	..	1.8	..	..	4.3	..	..	..	..	..	..
..	..	..	..	..	..	..	3.4	..	..	2.6	..	..	..	1.7	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	3.2	..	..	2.5	..	..	..	1.6	..	..	3.9	..	..	..	..	..	..
..	..	..	..	..	..	3.8	3.5	..	..	2.7	..	..	..	1.7	..	..	4.2	..	..	..	2.1	..	..
..	..	..	..	..	..	4.3	3.6	..	..	2.8	..	..	..	1.8	..	..	4.4	..	..	..	2.2	..	..
12.8	9.5	19.0	14.2	..	..	5.9	4.2	..	..	3.8	..	..	..	1.9	..	..	..	7.1	5.9	2.8	..	..	..
..	..	..	..	..	..	5.9	4.2	..	..	2.8	..	..	..	1.9	..	..	..	7.1	5.9	2.8	..	..	..
..	..	..	..	..	..	6.2	3.7	..	..	2.5	..	..	..	1.7	..	..	..	6.3	5.2	2.5	..	..	..
..	..	..	..	..	..	5.3	3.8	..	..	2.6	..	..	..	1.7	..	..	..	6.5	5.3	2.6	..	..	..
..	..	..	..	..	..	..	3.5	..	..	2.4	..	..	..	1.6	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	6.0	4.5	..	..	..	3.5	3.5	..	1.5	..	..	..	7.0	6.5	..	..	..	..
..	..	..	..	..	..	5.4	4.0	..	..	..	3.2	3.2	..	1.3	..	..	..	6.3	5.0	..	..	..	..
..	..	..	..	..	..	4.5	3.4	..	..	..	2.7	2.7	..	1.1	..	..	..	5.3	4.2	..	..	..	..
..	..	..	..	..	..	..	3.4	..	..	..	..	2.7	..	1.1	..	..	..	..	4.2	..	..	..	..
..	..	..	..	..	..	5.6	4.2	..	..	..	3.3	3.3	..	1.4	..	..	..	6.6	5.2	..	..	..	..
..	..	..	..	..	..	4.3	3.2	..	..	..	2.5	2.5	..	1.1	..	..	..	5.0	3.9	..	..	..	..
..	..	..	..	..	..	..	2.7	..	..	..	..	2.0	..	1.3	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	2.7	..	..	..	..	2.0	..	1.3	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	5.4	3.8	..	..	..	..	2.6	..	1.7	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	5.6	4.0	..	..	..	..	3.0	..	2.0	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	5.2	3.7	..	..	..	..	2.9	..	1.9	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	4.0	..	..	..	..	3.0	..	2.0	..	..	..	..	4.8	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	8.6	2.8	..	..	..	..	2.0	..	1.2	..	..	..	5.6	4.4	..	..	..	..
..	..	..	..	..	..	4.0	3.1	..	..	..	..	2.2	..	1.3	..	..	..	6.1	4.8	..	..	..	..
..	..	..	..	..	..	3.9	3.0	..	..	..	..	2.1	..	1.3	..	..	..	6.0	4.7	..	..	..	..
..	..	..	..	..	..	4.5	3.5	..	..	..	..	2.5	..	1.5	..	..	..	7.0	5.5	..	..	..	..
..	..	..	..	..	..	..	3.8	..	..	..	..	3.1	..	2.0	..	..	..	..	3.9	..	..	..	..
..	..	..	..	..	..	..	3.1	..	..	..	..	2.7	..	2.4	..	..	..	..	4.8	..	..	..	..
..	..	..	..	..	..	..	4.2	..	..	..	..	3.2	..	2.6	..	..	..	..	4.9	..	..	..	..
..	..	..	..	..	..	5.4	4.3	..	..	..	4.4	3.6	..	2.5	..	..	..	5.8	4.7	..	..	..	..
..	..	..	..	..	..	..	4.9	..	..	..	..	4.0	..	3.0	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	3.4	..	..	..	..	3.0	..	2.6	..	..	..	..	5.3	..	..	..	..
..	..	..	..	..	..	..	3.0	..	..	..	..	2.0	..	2.2	..	..	..	..	4.6	..	..	..	..
..	..	..	..	..	..	5.8	4.4	..	..	3.5	..	..	3.1	..	..	..	..	..	5.0	4.1	..	..	..
..	..	..	..	..	5.6	4.2	..	..	..	3.1	..	..	2.2	..	..	..	..	6.1	..	..	..	..	..
..	..	..	..	..	5.1	3.9	5.5	4.4	..	3.4	..	..	..	2.7	..	..	..	6.2	5.0	3.8	..	..	..
..	..	..	..	..	5.8	4.0	..	..	..	3.5	..	..	..	2.8	..	..	..	..	4.5	3.3	..	..	..
..	..	..	..	..	..	3.5	..	..	..	3.0	..	..	..	2.2	..	..	..	..	4.0	3.0	..	..	..
..	..	..	..	..	..	..	3.2	..	..	2.6	..	..	..	2.1	..	..	..	..	4.0	3.0	..	..	..
..	..	..	..	..	..	..	4.2	..	..	3.5	..	..	..	2.9	..	..	..	..	5.4	4.0	..	..	..
..	..	..	..	..	..	..	3.6	..	..	2.9	..	..	..	2.2	..	..	..	..	4.2	..	..	..	..
..	..	..	..	..	..	..	3.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	3.9	..	..	3.3	..	..	..	2.7	..	..	..	6.2	5.0	3.7	..	..	..
..	..	..	..	..	..	4.3	3.6	..	..	2.9	..	..	..	2.2	..	..	..	5.1	4.2	3.5	..	..	..





## APPENDIX

		Name										
Name of taluk.	Name of pargana.	Name of circle.	Khadir II +	Khadir II +		Khadir II.	Khadir II.		Khadir II -	Khadir II -		
				Wet.	Dry.		Wet.	Dry.		Wet.	Dry.	
DORABDI.	Deobind, Nagal and Kampur.	I .. .. .	..	..	..	..	..	..	..	..	..	
		II .. .. .	..	..	..	..	..	..	..	..	..	
		III .. .. .	..	..	..	..	..	..	..	..	..	
		IV .. .. .	..	..	..	..	..	..	..	..	..	
		V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
		VII .. .. .	..	..	..	..	..	..	..	..	..	
NAKUR.	Sarsawa .. {	I .. .. .	..	..	..	..	..	..	..	..	..	
		II .. .. .	..	..	..	..	..	..	..	..	..	
	Nakur .. {	III .. .. .	..	..	..	..	..	..	..	..	..	
		I .. .. .	..	..	..	..	..	..	..	..	..	
	Gangoh .. {	II .. .. .	..	..	..	..	..	..	..	..	..	
		III .. .. .	Bangar mixed with Khadir tract only	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
	Sarsawa, Nakur and Gangoh.	IV .. .. .	..	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
SARANSAPUR.	Gangoh .. {	V .. .. .	..	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
		VI .. .. .	..	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
	Sarsawa, Nakur and Gangoh.	V .. .. .	..	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
		VI .. .. .	..	5.4	4.2	..	4.8	3.6	..	3.9	3.0	
	Sultanpur .. {	I .. .. .	6.7	..	..	5.8	..	..	5.0	..	..	
		II .. .. .	..	..	..	..	..	..	..	..	..	
		III .. .. .	6.2	..	..	5.3	..	..	4.5	..	..	
IV .. .. .		4.5	..	..	4.0	..	..	3.2	..	..		
V .. .. .		7.6	..	..	6.6	..	..	5.6	..	..		
SARANSAPUR.	Muzaffarabad .. {	VI .. .. .	5.7	..	..	4.9	..	..	4.2	..	..	
		VII .. .. .	4.7	..	..	4.1	..	..	3.5	..	..	
	Baharanpur .. {	VIII .. .. .	..	..	..	5.2	..	..	..	..	..	
		IX .. .. .	4.9	..	..	4.2	..	..	3.6	..	..	
	Haraora .. {	I .. .. .	..	..	..	..	..	..	..	..	..	
		II .. .. .	..	..	..	..	..	..	..	..	..	
	Fyzabad .. {	III .. .. .	..	..	..	..	..	..	..	..	..	
		IV .. .. .	..	..	..	..	..	..	..	..	..	
	BAGWANPUR AND RUKI.	Manglaur Bangar {	V .. .. .	..	..	..	..	..	..	..	..	..
			VI .. .. .	..	..	..	..	..	..	..	..	..
Bhagwanpur and Ruki. {		V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
Jwalapur .. {		V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
Manglaur Khadir {		V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
BAGWANPUR AND RUKI.		Manglaur Khadir {	V .. .. .	..	..	..	..	..	..	..	..	..
			VI .. .. .	..	..	..	..	..	..	..	..	..
	Jwalapur .. {	V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
	Manglaur Khadir {	V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
	BAGWANPUR AND RUKI.	Manglaur Khadir {	V .. .. .	..	..	..	..	..	..	..	..	..
			VI .. .. .	..	..	..	..	..	..	..	..	..
		Jwalapur .. {	V .. .. .	..	..	..	..	..	..	..	..	..
			VI .. .. .	..	..	..	..	..	..	..	..	..
Manglaur Khadir {		V .. .. .	..	..	..	..	..	..	..	..	..	
		VI .. .. .	..	..	..	..	..	..	..	..	..	
BAGWANPUR AND RUKI.		Manglaur Khadir {	V .. .. .	..	..	..	..	..	..	..	..	..
			VI .. .. .	..	..	..	..	..	..	..	..	..
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Khadir III.	Khadir III.		Khadir F.	Khadir IV.	IV Khadir dry.	Khadir V.	Khadir V dry	Dakar I. Khadir	Khadir Dakar I.		Dakar II. Khadir	Abadi.	Bungalow.	Pazawa.
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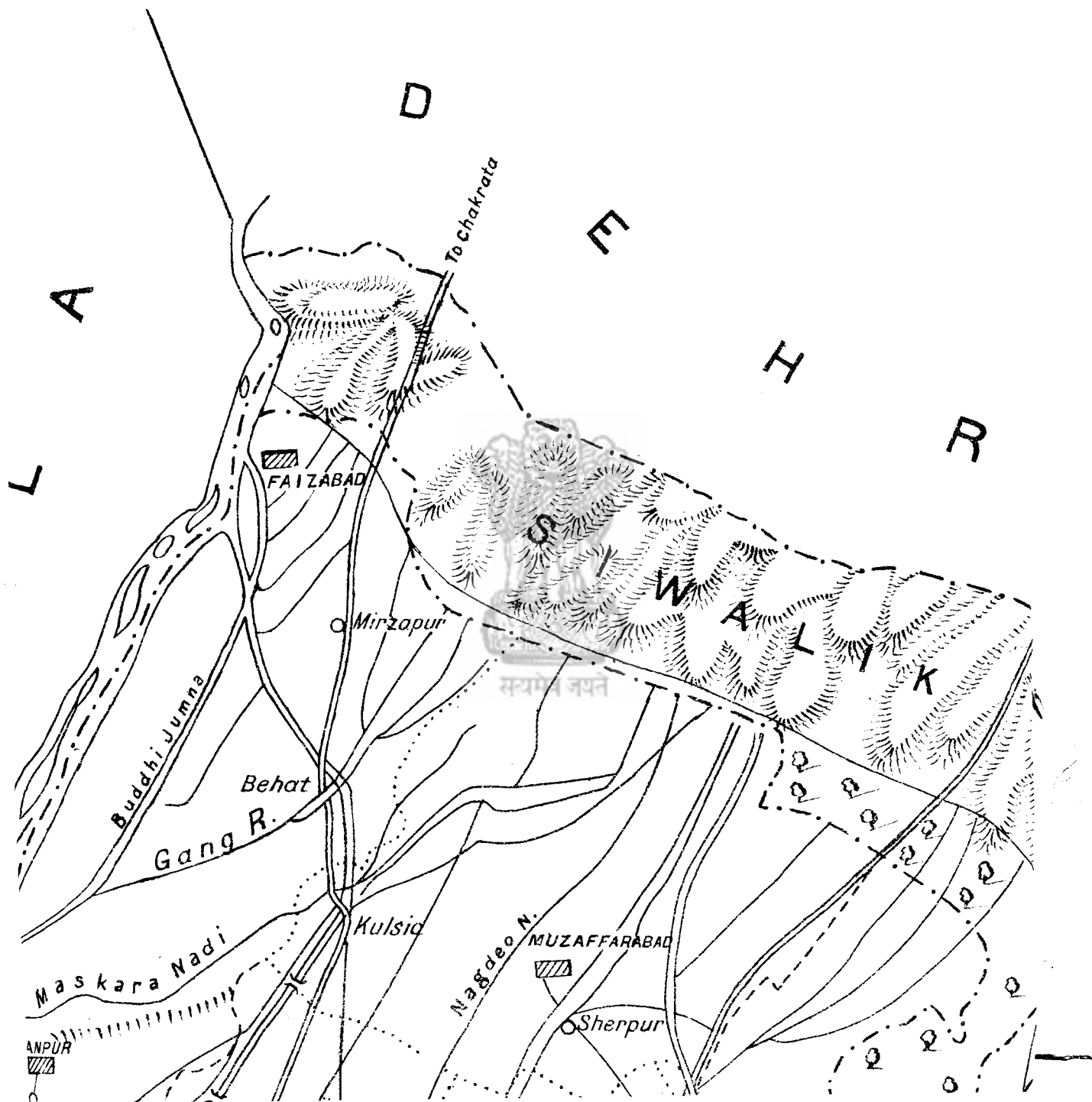


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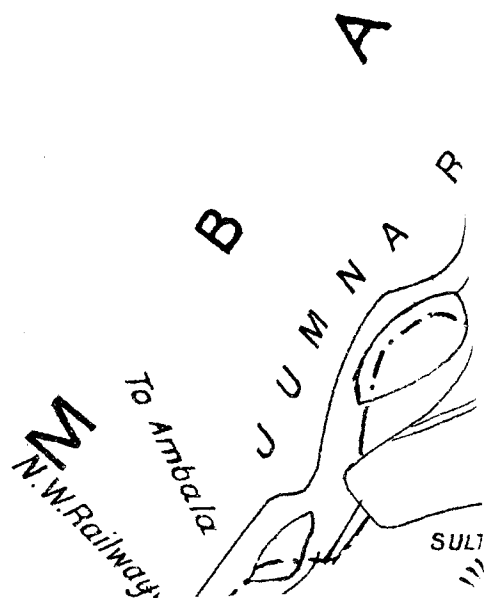
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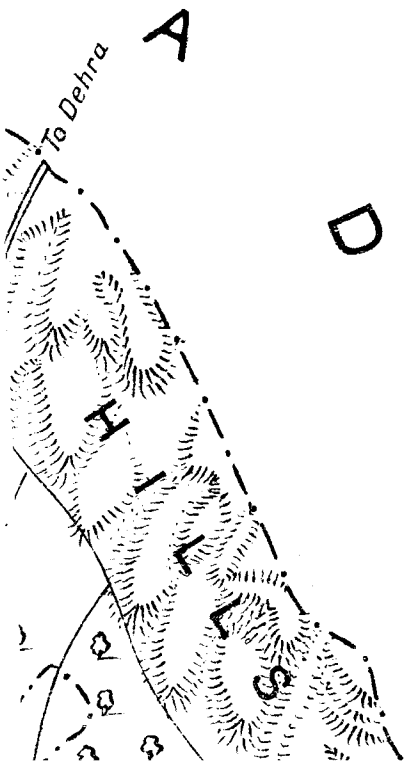




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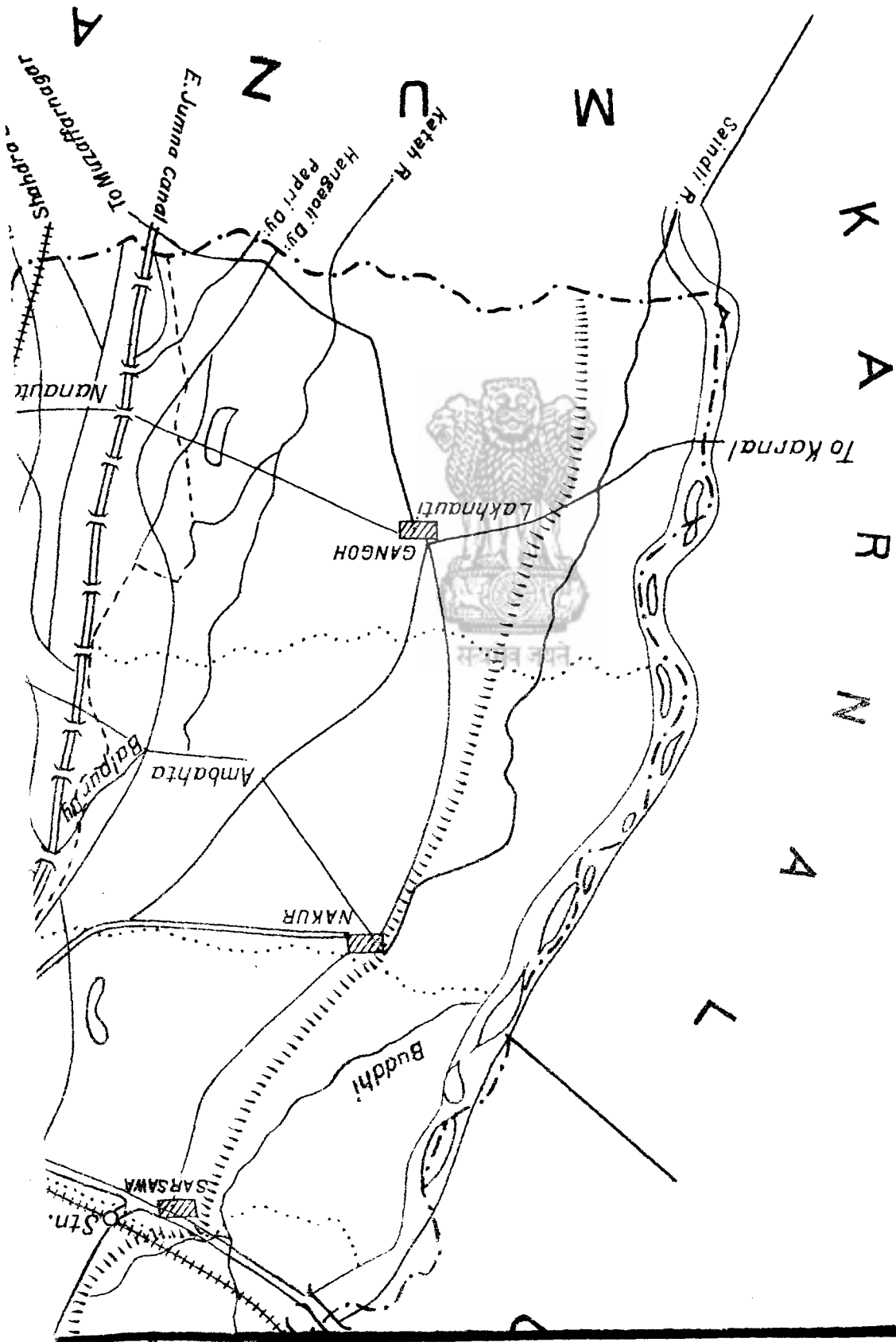


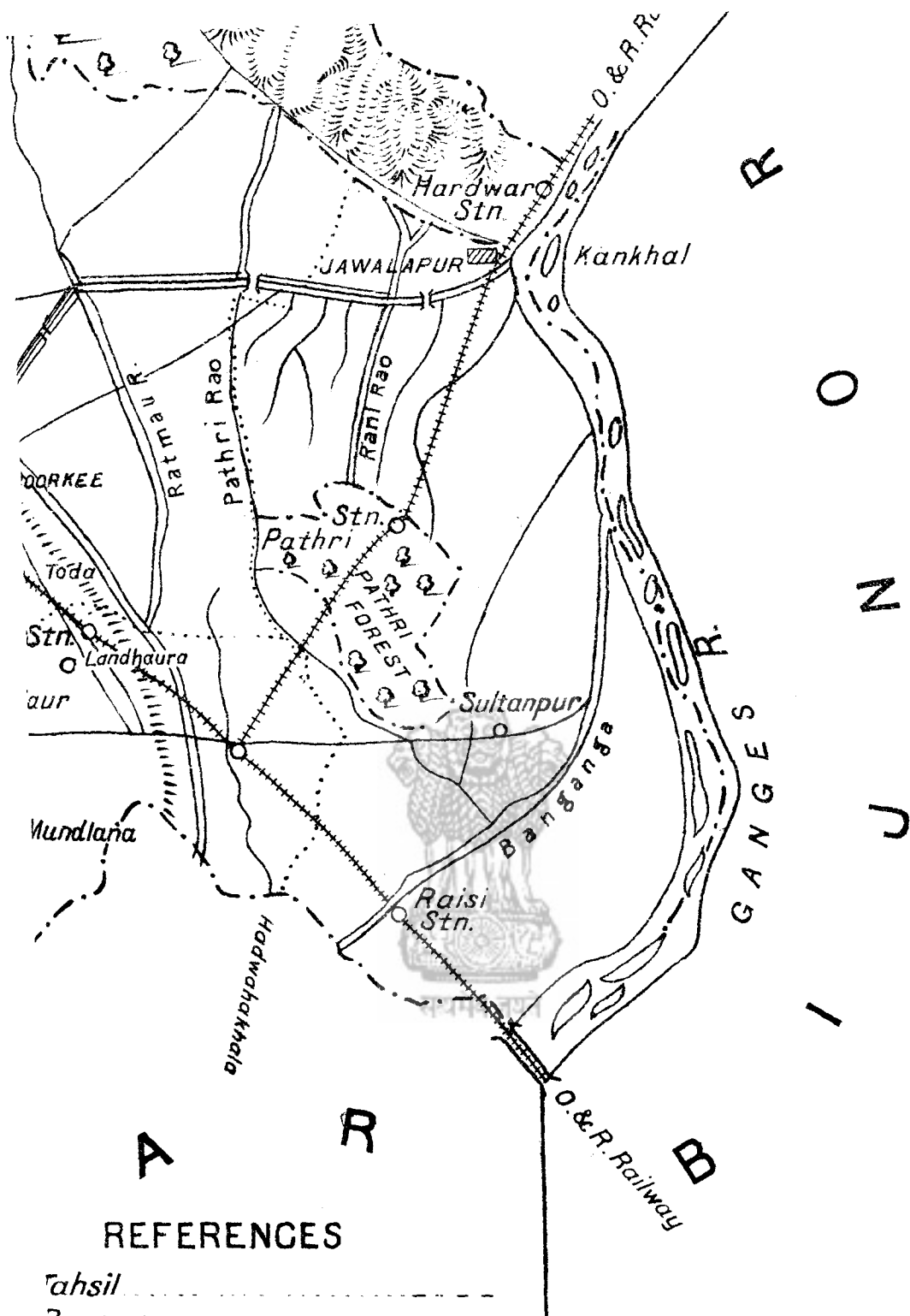
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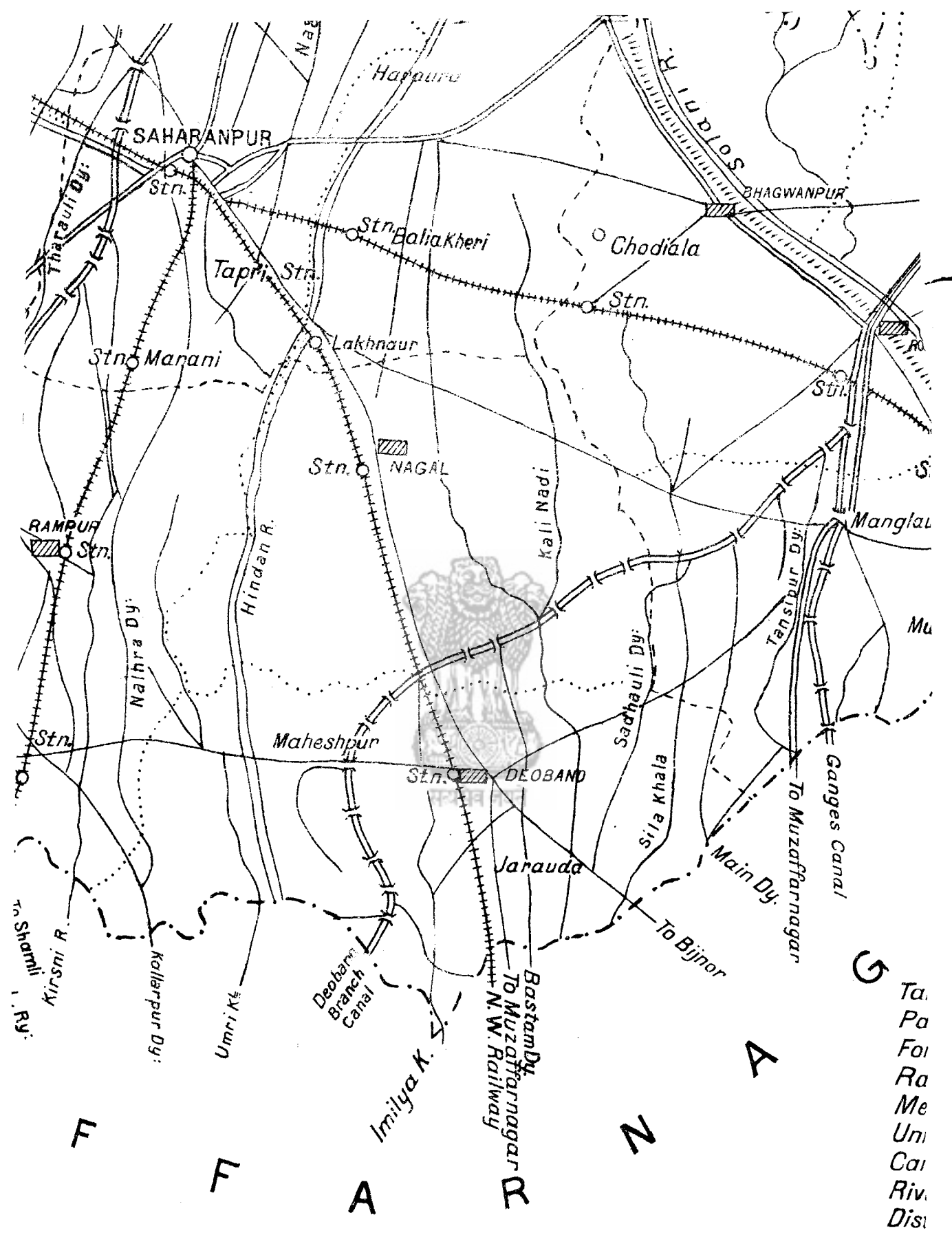
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## REFERENCES

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