

Rs. 6,297 on villages, the actual half net income of which was Rs. 8,042, is strong evidence that the rates were not too high.

The estimates and assessment of the whole Nálí circle are as follows:—

	Rs.
Former assessment ... ..	66,312
Assessment sanctioned by Financial Commissioner ...	74,000
Assessment at sanctioned revenue-rates ..	76,867
Assessment at rates now preferred ...	74,415
Assessments actually distributed over villages ...	74,000
Increase 12 per cent.	

### THE ROHI.

294. The Rohi assessment circle extends about eighty miles from the valley of the Ghaggar to the old valley of the Satlaj and comprises nearly two-thirds of the total area of the district. The whole of the cultivation depends upon a scanty and uncertain rainfall, and the produce of the cultivated lands varies greatly from year to year. The area returned as under cultivation is as follows (in acres):—

	Cultivated.	Lately thrown out of cultivation.	Total.
By Revenue Survey, 1876-79 ...	6,12,696	5,687	6,18,383
By Settlement Survey, 1880-81...	6,51,348	2,912	6,54,260

The increase of 6 per cent. is due to the rapid increase of cultivation, which is spreading in this tract at the rate of 2 per cent. per annum. That the area returned by the patwáris at Settlement as under cultivation was not an over-estimate is shown by the fact that in the following year (1881-82), the areas actually sown were 4,62,601 acres for the kharif harvest, and 1,95,136 acres for the rabi, making a total of 6,57,737 acres for the year, and in 1882-83 the areas sown were 4,26,114 acres for the kharif and 2,57,715 for the rabi, making a total of 6,83,829 acres for the year; so that even allowing for the area which owing to the partial failure of the kharif was sown for both harvests, it is evident that cultivation has not been over-estimated and is rapidly extending; and indeed the patwáris reported that some 50,000 acres of new prairie-land were brought under cultivation in those two years. My estimates are however founded on the area returned as cultivated by the Settlement measurements of 1880-81, viz., 6,54,260 acres; and of this area I have estimated that on an average of years 6,00,000 acres are actually sown, but only 4,80,000 acres produce a crop of the average

value of Rs. 16,90,000. Of the 4,70,842 acres held by tenants, 59,952 acres (13 per cent.) pay rent in kind as follows:—

<i>Share of produce paid.</i>				<i>Area in acres.</i>
One-seventh	...	...	...	3,176
One-sixth	...	...	...	15,326
One-fifth	...	...	...	24,085
One-fourth	...	...	...	16,427
One-third or more	...	...	...	938
Total				59,952

This gives an average rent of almost exactly one-fifth of the gross produce, and although the low rates of rent are almost confined to the most backward villages and are rapidly rising, it will be safest to assume that half the net produce is one-tenth of the gross produce. Applying this fraction to the estimate of average gross produce, we have Rs. 1,69,000 as an estimate of the half net produce of the uncultivated land.

The uncultivated area still comprises 5,33,095 acres of culturable land, or 43 per cent. of the total area. This is mostly good prairie-land little inferior to the cultivated lands in quality. Much of it is certain to be broken up within the next few years, but it would not have been safe to increase the assessment much in anticipation of this. At present it produces good grass which brings in a considerable net income to the proprietors. The grazing-fees actually levied by them were returned at Rs. 11,921 in 1880, but the indirect income from the sale of surplus cattle, *ghí* &c., must be very large; and the present half net produce of the uncultivated land may well be estimated at Rs. 11,000, which added to the estimate for the cultivated land gives Rs. 1,80,000 as the average half net profits of the whole of the land of the circle.

295. The tenants pay cash-rents on Chak Rohí. The cash-rent estimate. 4,10,980 acres, or 87 per cent. of the area they hold, in the following detail.

<i>Rate of rent per acre.</i>				<i>Area in acres.</i>
Under 5 annas	...	...	...	2,45,136
From 5 to 6½ annas	...	...	...	1,08,241
From 6½ to 8 annas	...	...	...	50,773
More than 8 annas	...	...	...	6,830
Total	...	...	...	4,10,980

The greater part of the land paying under 5 annas per acre is land held by occupancy tenants at favourable rents (1,84,658 acres) and the rest is land which was paying light rents determined more by custom than by competition. I found that in all parts of the tract 6¼ annas per acre (4 annas per *bigha*) was a common rate of rent for ordinary land, and the land which paid more than this rate (57,603 acres) was



not of any better quality than the greater part of the land of the tract. Since the new assessments were announced the proprietors have raised the rents of land held by tenants-at-will very generally throughout the tract; for instance, in 45 of the 157 villages in the Daḡwálí tahsíl the rents have been greatly raised, and in 43 of these villages the general rate of rent is now over 8 annas per acre, while in many it is over 9 annas. It seems safe then to estimate the half net produce of cultivation at 4 annas per acre, which would give on the 6,54,260 acres of cultivation an average half net produce of Rs. 1,63,565, and adding to this Rs. 11,000 for half the net produce of the uncultivated land, we have an estimate founded on the cash-rents of nearly Rs. 1,75,000 as the half net produce of the whole Rohí tract.

296. At the Regular Settlement the tract was settled by parganas and the assessment rates adopted differed considerably, not so much with reference to difference of quality in the soil as according to the stage of development of the village. In pargana Guda the older villages held by the Sikh Jats along the north-east border were assessed at 4 annas per acre, those along the centre at  $3\frac{1}{2}$  annas, and those along the Bíkáner border at 3 annas per acre on cultivation. In pargana Ráníá the rate varied from 2·8 to 3·2 per acre, and in parganas Malaut and Mahájani of the Fázilká tahsíl, which had only been recently colonised, the rate was 1·6 or 2·2 annas per acre. Uncultivated land was after certain deductions assessed at from one-fourth to one-third of an anna per acre. Probably the most backward villages now are almost as fully developed as the most advanced villages were at that time, and if allowance be made for the rise in prices and increase of competition for land, the rates of last Settlement seem to justify the application of a rate of four annas per acre to the whole tract, more especially as the total assessment of the Regular Settlement if spread over the area then cultivated gives an average rate of four annas per acre. At the Settlement of the Muktsar tahsíl of Fírozpur district, which adjoins this Rohí tract to the north for a considerable distance, Mr. Purser in 1873 assessed cultivation at six annas per acre, and from his description and from what I have seen of the Rohí of Muktsar, it appears to be very similar to the Rohí of Sirsá, except that the rainfall is probably somewhat more abundant and certain, population is denser, and the villages are older and more fully developed. The assessments in Muktsar have been paid without difficulty by the peasants, and the six-anna rate in Muktsar justifies a four-anna rate in the Sirsá Rohí. In Pattiála territory, which adjoins this tract for many miles along the north-east, the system of assessment and mode of collecting the revenue and cesses are very similar to our own, and the tract bordering on the Sirsá district was being re-assessed at the same time as Sirsá. I found it difficult to ascertain the actual incidence of the revenue in Pattiála, but it appeared that the average incidence of the land-revenue proper in the villages bordering on Sirsá on all culturable land whether cultivated or not was from three to six and a half annas per acre. The villages were prosperous and the people contented. In Bíkáner territory, which adjoins the Sirsá Rohí for some eighty miles along

Chak Rohi Comparison  
of estimates.

the south-west, there was no fixed term of Settlement, and no fixed assessment or revenue-rate. According to the Gazetteer of Bikaner, collections of revenue in that State are usually made in the following manner. Just before the revenue becomes due, the collector (usually called *hāvildār*) summons together the headmen of villages and the leading bankers and demands a heavy assessment from each village. After some haggling the collector and the headmen agree on the amount, and the banker advances it to the collector who makes use of it in private investments for some time before remitting it to headquarters. The banker collects the dues in cash or kind from each village and is assisted by the collector with camelmen and horsemen who help him to despoil the peasants. Where the revenue is levied in cash, it is nominally from three to seven annas per acre on the cultivation, which is roughly measured by an official every three or four years; and Jāts are assessed more heavily than Rājputs and Bráhmans. Where it is taken in kind, the nominal share is one-fourth of the kharíf produce and from one-fourth to one-seventh of the rabí, but the people are at the mercy of the appraiser who estimates the amount due at as high a rate as the village can pay. Many other irregular taxes and cesses are levied. Each house pays from Rs. 3 to Rs. 6, and a cess is levied on the cattle which are counted each year. In some villages each family has to give the State or the *jágirdár* one day's ploughing, one day's weeding, and one day's harvesting annually. The most grievous charge however seems to be the duty of supplying provisions free of cost to any official of whatever rank who may visit or be quartered on the village. Altogether in Bikaner the peasants are very heavily assessed, and never know how much they may be called on to pay.

There are then the following estimates on which to frame the assessment of the Rohí tract:—

<i>Estimate.</i>	<i>Amount.</i>
Half net produce, founded on produce estimate ...	Rs. 1,80,000
Half net produce, founded on cash-rent estimate ...	1,75,000
Estimate supported by the assessment rates of the Regular Settlement and of neighbouring tracts ...	1,75,000
Former assessment ...	85,767

Chak Rohi. The assessment of the circle. 297. The Rohi or Dry Tract extends in a long narrow strip from the valley of the Ghaggar to the valley of the Satlaj, and comprises 1,925 square miles divided into 364 townships. Its soil is sandy in places, but is generally a light easily worked loam, producing good crops with favourable rain. Its aspect is that of a flat prairie, broken only here and there by an undulation of the ground or a hillock of sand. Water is everywhere far below the surface and in many places quite brackish; so that irrigation is out of the question and the cultivation is wholly dependent upon the scanty and precarious rainfall. Eighty years ago the tract was a prairie waste almost without an inhabitant, and there were only ten permanent



villages in the whole region. At the instigation of the Sikh chiefs the desert was gradually occupied and brought under cultivation; and when in 1837 it came under British rule, there were 164 inhabited villages. In 1850 the number had increased to 239, and now it is 363. Population increased from 76,021 about 1858 to 1,05,414 in 1868, and 1,40,370 in 1881, an increase of 33 per cent. in 13 years and of nearly 100 per cent. since last Settlement; and the density is now 73 to the square mile. Nearly a third of the villages are owned by Sikh Jats, who are excellent cultivators, thrifty and industrious, and a fourth by Bāgrīs, who though inferior to the Sikhs in intelligence are not far behind them in thrift and industry. About a fourth of the population are Musalmānā, most of whose ancestors two generations ago were leading a pastoral life; and they have not yet thoroughly adapted themselves to a settled agricultural life. There are six times as many tenants as proprietors, and before the revision of Settlement 29 per cent. of the cultivated area was held by tenants with rights of occupancy; now about half the area is held by such tenants paying rents fixed in proportion to the land-revenue. A proprietor owns on the average 156 acres of cultivated land, and himself cultivates 36 acres, while a tenant's holding averages 18 acres. Two-thirds of the cultivated area is under kharif crops, but the proportion sown for the rabī is steadily increasing. The staple crops are bājra, jawār and pulses in the kharif, and barley, gram and oilseeds in the rabī; but the produce is always precarious and seldom large. Nearly half the area is still uncultivated, but cultivation is rapidly extending. Large herds of cattle pasture in the prairie and their surplus produce brings in a large income to their owners. Unlike the older parts of the district this tract has with the exception of a few villages always enjoyed a light assessment and its resources have gone on steadily and rapidly increasing. At the Regular Settlement its assessment was increased by 52 per cent. but still remained light, and though suspensions have been readily granted, remissions have on the average during the last 20 years amounted to little more than 1 per cent. of the demand. Sales and mortgages of land under pressure of debt have been very few. Since the Regular Settlement cultivation has increased by 87 per cent., and now 53 per cent. of the total area is cultivated. There are now twice as many masonry wells as there were then; and the people generally are very well off, many of them having accumulated a considerable amount of capital. In the oft-recurring droughts the poorer classes wander off to other tracts in search of work and food, and the cattle are driven to distant grazing-grounds, but when rain falls they all return, little the worse for their sojourn in foreign parts. Prices have risen by more than one-half and rents also have risen and are still rising rapidly. Half the net produce is now estimated at from Rs. 1,75,000 to Rs. 1,80,000, but at first I did not feel justified on the evidence then available in proposing a higher assessment than Rs. 1,40,000, which gave an increase of 63 per cent. on the previous assessment of Rs. 85,767; and I proposed to adopt, as my guide in distributing this assessment over the villages, an all-round rate of 3½ annas per acre on cultivation, and a rate of one-fourth anna per acre on culturable waste after deducting about one-third of the area. These rates

were accepted by the Financial Commissioner, and although the proposed assessment of Rs. 1,40,000 was considered too low, I was authorised to keep the total assessment within this sum, if in making the distribution it did not seem safe to take a greater increase. I was to use higher rates where they did not give a great increase and the village was strong; and on the other hand I was to lower them where the increase was very large and there were elements of weakness in the village.

298. I had visited each of the villages and recorded my impressions as to its capabilities in comparison with those of the other villages of the tract, and after considering all the available statistics regarding the village and the opinion of the Superintendents, I framed my assessment for each with reference to its former assessment, to the amount given by the sanctioned rates and to its resources generally, making some allowance for large areas of uncultivated land, but not so as to make the assessment too high to be paid by the present resources of the village. The total of my first calculations came out much above the Rs. 1,40,000 originally estimated, and I went over the village assessments several times, carefully cutting down any regarding which there could be any doubt. For that part of the Rohí which lay in tahsíl Sirsá the sanctioned rates gave an assessment of Rs. 18,548, and as I considered those villages about average I assessed them at Rs. 18,785, an increase of 46 per cent. on the former demand of Rs. 12,868. In the Dabwálí tahsíl I put on higher rates on the Sikh villages to the east than on the Bágri and Musalmán villages to the west, as it appeared that the soil was as a rule of better quality, that the rainfall was on the average somewhat heavier and that the villages were of older standing, stronger and better developed to the east than to the west. Besides at the Regular Settlement the Sikh villages had been assessed at higher rates and their cultivation had not increased to such an extent, so that assessment rates only slightly higher than those of the previous Settlement have given in those villages a comparatively small increase of assessment; while in the villages farther west the increase of cultivation since the Regular Settlement had been so great and the rates so low, that a rate lower than that sanctioned when applied to present cultivation doubled or trebled the former assessment. There was no danger in taking such large increases at once, for the proprietors were prepared for them, and much of the increase would be contributed by tenants paying rent in proportion to the revenue. The sanctioned rates gave for the Dabwálí Rohí an assessment of Rs. 70,067 and the assessments as distributed amounted to Rs. 76,400, an increase of 75 per cent. on the former assessment of Rs. 43,706. In the Fázilká Rohí, although many of the villages were of recent origin and not yet fully developed, I found that so many of the Farmed villages had been paying with ease for years assessments fully up to those given by the sanctioned rates, and so many tenants were paying about double the sanctioned rate on cultivation, that it was quite unnecessary to lower it for these or neighbouring villages. Even the newest villages in the south-west corner, where the soil seemed

Chak Rohí. Distribution  
of the assessment over  
villages.



somewhat inferior and the rainfall less, were paying these rates. Where the rents were paid in kind at low rates I kept the assessment low, and this I did also in villages where the increase was very great and the former cash-rents low, especially where the tenants were paying cash-rents at double the assessment rate. As such villages are mostly found along the north-east border, where the better circumstances of the villages would otherwise justify a higher assessment than on the south-west border, the general effect of these considerations was to keep the incidence of the assessment nearly equal throughout the whole of the Fázilká Rohí. The sanctioned rates would have given here an assessment of Rs. 60,279, and the actual village assessments aggregated Rs. 60,375, an increase of 107 per cent. on the former assessment of Rs. 29,193. The result for the whole Rohí tract is an increase of 81 per cent., as follows:—

TAHSIL.	No. of Villages.	Former Assessment.	Assessment at Circle Rates.	Assessment announced.	INCREASE PER CENT. ON	
					Former demand.	Assessment at Circle Rates.
		Rs.	Rs.	Rs.		
Sirsá ...	38	12,868	18,548	18,785	46	1
Dabwáli ...	152	43,706	70,067	76,400	75	9
Fázilká ...	174	29,193	60,279	60,375	107	...
Total Chak Rohí ...	364	85,767	1,48,894	1,55,560	81	4

The part of the tract along the north-east border, and especially the Sikh villages, have been most highly assessed, but generally speaking the assessment on cultivation is nowhere higher than  $4\frac{1}{4}$  annas per acre; the villages most lightly assessed are the Musalmán villages in the Fázilká Rohí, but even in them the rate on cultivation is hardly ever less than 3 annas per acre. Even where the increase was greatest or the incidence heaviest, the assessment is light, and the peasants everywhere readily accepted their new assessments and have since paid them with ease.

### THE UTAR.

299. The Utár assessment circle is the tract of land between the present valley of the Satlaj and its old bank, the Danda, and comprises 58 villages with a total area of 1,15,668 acres. The area under cultivation is returned as follows (in acres):—

	Cultivated.	Lately thrown out of cultivation.	TOTAL.
By Revenue Survey, 1876—79 ...	49,305	935	50,240
By Settlement Survey, 1880-81 ...	53,818	663	54,481

The increase of 8 per cent. between the two surveys is due to the spread of cultivation, which is extending rapidly. That the area

cultivated in 1880-81 was not over-estimated by the patwárís is shown by the fact that in the following year 41,949 acres were actually sown for the kharíf, and 12,061 acres for the rabí, making a total of 54,010 acres for the year. Only 167 acres are returned as within reach of irrigation from wells, and of this area only some 120 acres are actually irrigated on an average of years; so that in calculating the gross assessment of the circle it is not worth while to take account of the irrigation from wells. When I assessed the tract there was no irrigation from canals, and although it seemed probable that in a short time the Fírozpur Inundation Canal system might be extended to the Fázilká Rohí, I did not take this into account in assessing, but framed my estimates as if the whole of the cultivation of the tract were dependent on the scanty and precarious rainfall. Of the total cultivated area of 54,481 acres, I have estimated that on an average of years only 45,000 acres are actually sown and only 38,000 acres produce a crop of the average value of Rs. 1,17,000. Tenants hold in this circle 39,639 acres and pay rents in kind on nearly half of that area as follows:—

<i>Share of gross produce.</i>			<i>Area in acres.</i>
One-sixth	...	...	3,951
One-fifth	...	...	12,130
One-fourth	...	...	867
Total			16,948

Rents are rapidly rising, and it may be safely assumed from these figures that the half net produce equals one-tenth of the gross produce or Rs. 11,700. There are still 58,716 acres of culturable waste, which amounts to 51 per cent. of the total area, and apart from the certainty that much of this area will soon be brought under cultivation, its present profits are considerable. The grazing-fees levied by the proprietors were returned in 1880 as Rs. 1,385, but the indirect income from the uncultivated land is very large and its half net produce may well be estimated at Rs. 1,300, which added to the estimate for the cultivated land gives Rs. 13,000 as the half net produce of the whole tract.

Chak Utár. The cash-rent estimate. 300. Cash-rents are paid by 22,691 acres in the following detail:—

<i>Rate per acre.</i>			<i>Area in acres.</i>
Under 5 annas	...	...	12,967
From 5 to 6½ annas	...	...	7,763
From 6½ to 8 annas	...	...	1,931
Above 8 annas	...	...	30
Total			22,691

The area paying less than 5 annas per acre is either the land held by occupancy tenants at favourable rents, or land which was paying low



rents fixed by custom rather than by competition. A common rate of rent on ordinary soil was 6·4 annas an acre (4 annas per *bigha*), and since the assessment was announced rents have been raised in many villages to more than 7 or even 8 annas per acre. It now seems safe to assume  $3\frac{1}{2}$  annas per acre as the half net produce of the cultivated land, and this rate when applied to 54,481 acres gives Rs. 11,918 as the half net produce of the cultivated land, and with Rs. 1,300 for the culturable waste, gives over Rs. 13,000 as the half net produce of the tract.

301. The former assessment of the Utár was Rs. 8,355, but it had formerly been divided between two parganas which had been treated very differently. The 35 villages to the south-west, comprising 79,956 acres, had formed part of pargana Wattu which became British territory in 1844, and was assessed very lightly by Mr. Oliver in 1863, his assessment rates being  $2\frac{1}{2}$  annas per acre on cultivation and  $\frac{1}{4}$  anna per acre on waste, rates which would give about Rs. 9,000 on the present area. The 23 villages to the north-east, comprising 35,712 acres, formed portion of pargana Bahak which was annexed from Mamdot about 1855 and settled by Mr. E. L. Brandreth as part of the Firozpur district in 1857-58. It was then almost uninhabited and only 447 acres were cultivated. The Settlement Officer divided it into small blocks which he settled with the proprietors of the villages on the river for 30 years ending 1887-88, and as he anticipated a gradual increase of cultivation, he made his assessments progressive to rise by instalments from Rs. 139, the demand of 1858-59 to Rs. 5,581, the demand of the last year of Settlement, the last increment to take effect from 1881-82. He seems to have calculated his assessments at 5 annas per acre on the anticipated cultivated area and 3 annas per acre on the culturable waste after making certain deductions; but his usual rate on the poorer soils in the neighbouring part of the Muktsar tahsíl were 4 annas per acre on cultivation and 2 annas on the culturable waste after deducting an area equal to the cultivation. These rates would if applied to the present area of the whole Utár have given an assessment of about Rs. 14,000. Mr. Purser in assessing the Mamdot tract in 1873 assessed cultivation similar to that of the Fázilká Utár at 6 annas per acre and added something for the waste where its area was large. His rate on cultivation alone would have given an assessment of Rs. 20,000 for the Fázilká Utár, but there was reason to doubt whether his assessments would not have been felt somewhat heavy by the Mamdot villages, had not canal irrigation been extended almost simultaneously with the assessment; and at all events as the rainfall appears to diminish by about an inch for every ten miles of distance from the Himálayas, it would not have been safe to put the same rate on cultivation at Fázilká as at Mamdot 40 miles to the north. In the adjoining Bháwalpur villages to the south the assessment is fixed for a term of years and the cesses are somewhat similar to those levied in British territory, though not quite so high. The ordinary revenue-rate of the villages adjoining the Fázilká Utár seems to be 4 annas per acre, besides a tax on the cattle, which would give an assessment of about Rs. 15,000 for the Fázilká Utár.

There are thus the following estimates for the assessment of the tract:—

<i>Estimate.</i>	<i>Amount.</i> Rs.
Half net produce (founded on produce estimate) ...	13,000
Half net produce (founded on cash-rent estimate) ...	13,000
Assessment by Mr. Oliver's rates of Regular Settlement	9,000
Assessment by Mr. Brandreth's rates of Regular Settlement ...	14,000
Assessment by Mr. Purser's Mamdot rates ...	20,000
Assessment by Bháwalpur rates ...	15,000
Former assessment ...	Rs. 8,355

302. The Utár assessment circle lies between the Danda and the present valley of the Satlaj, and its soil is in places mixed with river-sand and is generally inferior in productive power to the loam of the Rohí. Water is nowhere very far from the surface, but except close to the Satlaj valley is too brackish to be used for irrigation, so that almost the whole of the cultivation has hitherto been dependent upon the scanty and uncertain rainfall. So late as 1850 there were only 10 inhabited villages in the tract, and very little of the area had been cultivated: now there are 56 inhabited villages, and 47 per cent. of the total area is now under cultivation. Population was returned at 3,405 about 1855, 10,882 in 1868 and 15,478 in 1881, an increase of 42 per cent. on that of 1868; but much of this increase is in the town of Fázilká, whose population has increased from 3,406 to 6,851. Including the town, the density of population is still only 86 to the square mile: A few Sikh Jats have purchased land and come to settle in the tract, but the greater portion of the population of the villages to the south-west are Bágri immigrants from the south and east, a quiet, thrifty and industrious peasantry, and the villages of the Bahak Utár are chiefly owned by Bodlas, Wattus and other Musalmáns from the north and west and cultivated by men of the same class, most of them bad managers and inferior cultivators of extravagant habits. There are nine times as many tenants as proprietors, but only 8 per cent. of the total cultivated area was held by tenants with rights of occupancy. A proprietor owns on the average 501 acres, but cultivates only 39 himself, while the average size of a tenant's holding is 21 acres. One-fifth of the cultivated area is sown with barley, gram and oilseeds for the rabi, and the remainder produces chiefly bájra and pulses in the kharif. More than half the total area is still uncultivated and produces grass and wood which bring in a considerable income to the proprietors. The assessment of the Regular Settlement had owing to the great increase of cultivation and the progressive assessments by which it was partly discounted risen to four times the assessment of the Summary Settlement which preceded it. Since the Regular Settlement cultivation has quadrupled, but much of this increase was anticipated by the progressive assessments. There had been few suspensions and remis-



sions, but the Musalmán owners of the small blocks of the Bahak Utár had found the progressive assessment too much for them, and had sold several of their blocks to Sikh Jats from the north who were able to make the land give better returns or to supplement its produce from their savings on the land held by them in their ancestral villages. The villages in the south-west part of the tract are prosperous and well-developed; and there are in the whole belt nearly four times as many masonry wells as at the Regular Settlement; but the villages in the Bahak Utár are small, poor and ill-developed, and their Musalmán population is still very migratory. Since the Regular Settlement prices have risen by more than half, and the whole tract has derived benefit from the wonderful progress of the town of Fázilká which is situated on its border. The proximity of this good market almost makes up for the inferiority of the soil as compared with that of the Rohí circle. The total half net produce is now estimated at Rs. 13,000, but the statistics at my command when I submitted my Assessment Report were not sufficient to justify so high an estimate, and chiefly because of the great increase which would be imposed on the villages of the Wattuán Utár which alone were at that time subject to revision of assessment, I proposed to assume Rs. 9,000 as the amount to be spread over the villages of the whole tract, and to take as my guide for its distribution over the villages an all-round rate of 3 annas per acre on cultivation and a rate of  $\frac{1}{4}$  anna per acre on culturable waste after deducting one-fourth. I estimated that this would give on the villages of the Wattuán Utár an assessment of Rs. 6,600, which would be an increase of 138 per cent. on their former assessment of 2,771, and I did not then think it safe to take a higher increase than this. When further information became available, it was seen that a higher assessment might fairly be levied, and I was directed by the Financial Commissioner in assessing the villages of the Wattuán Utár to take the rates proposed as my guide, apply them to the areas now ascertained for each village, and report how much it seemed advisable to take. The rates of 3 annas per acre on cultivation and  $\frac{1}{4}$  anna per acre on culturable waste would have given an assessment of Rs. 7,905 on these villages instead of their former assessment of 2,771.

303. I considered the circumstances of each village separately and found it quite safe to take the full increase given by the rates, great as it was. Cultivation had more than trebled since the Regular Settlement and in this part of the tract the increase had not been discounted by progressive assessments. The villages had become well established, had improved greatly in population and resources and had now almost all masonry wells. The former assessments had been in many cases little more than nominal, and although the new assessments were often double or treble the former demand, they were still light and would be easily paid. Almost all the villages were held by a few proprietors only, men of capital, drawing from their tenants rents considerably higher than the new assessments; so that even if the rents were not raised and cultivation did not extend as it was likely to do, they would still have no difficulty in paying the enhanced demand.

For the same reasons I thought it unnecessary to make any part of the increase progressive. Accordingly the village assessments of the Wattuán Utár, which were announced to and accepted by the people, amounted to Rs. 8,000, an increase of 189 per cent. on the former assessment of 2,771.

304. The Settlement of pargana Bahak had been announced for 30 years ending with 1887-88, so that the assessment of the villages in that pargana could not now be revised without the consent of the people.

The Revision of Settlement of the Bahak Utár.

But when I had announced the new assessments and rates of the Wattuán pargana, the proprietors of the Bahak pargana, Bodlas, Wattús and Sikhs, gave in petitions asking that the remaining six years of their Settlement might be cancelled and a new assessment given to them as to the rest of the district. I supported their application and pointed out that the reassessment of the pargana would probably leave the total demand much the same as before, so that Government and the *jagirdárs* who share the revenue of the pargana would not lose by it, while they and the proprietors would all be spared the necessity of a second enquiry and revision of assessment six years hence. It was highly desirable to relieve the villages of the Bahak Utár, some of which were then heavily assessed owing to the increase of cultivation not having kept pace with the progressive assessment; while the villages of the Bahak Hitár had improved so much that they would well be able to pay an enhancement more than sufficient to make up for the decrease in the Utár. It was objected by Government that the rates which had been sanctioned for the assessment of the Wattuán pargana were much lighter than those used at the previous Settlement of pargana Bahak and than those adopted by Mr. Purser in the assessment of the adjoining pargana of Mamdot, and I was directed to compare the new assessments of the Bahak villages with those rates. I pointed out that there were reasons for considering that Mr. Brandreth's rates at the Regular Settlement had been too high for the Utár villages, and that it would not be safe to assess the Bahak Utár at Mr. Purser's Mamdot rates which were applied to a region with better rainfall, but proposed in consideration of the facts that the new assessment would give a decrease in almost all the Utár villages and that they were not entitled to any decrease until their term of settlement expired, to assess them at rates higher than those calculated for the Wattuán villages, which had been kept low because of the great increase they gave. My proposal was approved, and with the sanction of Government the remaining period of six years of the Bahak Settlement was cancelled, and I assessed the Bahak Utár villages and announced their assessments, which were accepted by the people in lieu of their former assessments. I noted the amount which would have been due by the rates sanctioned for the Wattuán Utár, but took into account the culturable waste of each village, its former assessment and its general resources, and while the Wattuán rates would have given an assessment of only Rs. 3,014 and Mr. Purser's Mamdot rates would have given Rs. 5,563, my assessments amounted to Rs. 4,275, a decrease of 3 per cent. on Rs. 4,393, the assess-



ment of 1880-81, and of 23 per cent. on Rs. 5,581, which would have been the demand of 1881-82 according to the old Settlement.

The result for the whole Utár tract is as follows :—

Pargana.	No. of Villages.	Former Assessment.	Assessment by sanctioned rates.	Assessment announced.	INCREASE OR DECREASE PER CENT. AS COMPARED WITH	
					Former Assessment.	Assessment at Rates.
Wattuán ...	35	Rs. 2,771	Rs. 7,905	Rs. 8,000	+ 189	+ 1
Bahak ...	23	5,581	3,014	4,275	— 23	+ 42
Total Utár ...	58	8,352	10,919	12,275	+ 47	+ 12

### THE HITAR.

305. The Hitár assessment circle comprises 62 villages in a strip along the Satlaj, subject more or less to the action of the river and largely dependent for their cultivation on the annual floods. The cultivation is of three distinct kinds: (1) lands out of reach of the action of the river, cultivated with the aid of the local rainfall alone (*báráni*); (2) lands flooded by the river, cultivated with the aid of the moisture left by the floods after they have subsided (*rez*); (3) lands within reach of wells or *jhalárs* and ordinarily irrigated from them, whether they have been flooded or not (*cháhí*). As the floods are so variable, the area under cultivation varies very much from year to year. The areas have been returned as follows :—

	Cultivated.	Lately abandoned.	Total.
By Revenue Survey of 1878-79 ...	23,300	4,025	27,325
By Settlement Survey of 1880 ...	25,147	4,208	29,355
By Patwáris' Survey of 1881 ...	26,196	3,908	30,104

The original Settlement Survey on which the estimates for assessment were calculated was made in 1880; but as the river had made considerable alterations I had the villages partly resurveyed in the Rabi season of 1881, and incorporated the results in the faired Settlement Record. It is certain that 30,104 acres had actually been cultivated at some time or other during the five or six years preceding the Survey, and in the one year 1875-76, 27,954 acres were returned as actually sown; but owing to the neglect of the flood-channels cultivation had

been gradually falling off, and much of this area had not been actually cultivated for three or four years. I give below the detailed areas and the areas estimated by me as actually sown and producing a crop on the average:—

	Irrigated from wells and jhalárs.	Irrigated by floods.	Unirrigated.	Lately abandoned.	TOTAL.
By Settlement Survey 1880 ...	9,389	13,868	1,890	4,208	29,355
By Patwáris' Survey 1881 ...	10,005	13,660	2,531	3,908	30,104
Average area actually sown ...	6,500	9,000	3,500	...	19,000
Average area producing a crop ...	6,000	7,500	2,500	...	16,000

I have thus estimated that little more than half the area returned as under cultivation produces a crop on an average of years, and that a considerable area returned as ordinarily cultivated with the aid of floods is on an average of years left uncultivated or sown with the aid of the local rainfall alone. The number of wells used for irrigation was returned in 1880 as 286, of which 217 were *pakka* and 69 *kachcha*; but in 1881 the number was returned as follows:—

	Pakka wells.	Kachcha wells.	Jhalárs.	Total.
In use ...	223	82	6	311
Out of use ...	47	17	...	64
	270	99	6	375

So that about 30 acres are returned as the average area attached to a well, and I have estimated that on an average of years about 20 acres are actually irrigated by each well (in 1881-82 each well irrigated on the average 25 acres.)

306. Tenants hold in this circle 18,106 acres, and of this area only 1,037 acres pay rent in cash, almost all paying more than eight annas per acre. The area is so small that there is no means of framing a cash-rent estimate. The remaining 17,069 acres pay rent in kind at the following rates:—

Share of Produce.	Area in acres.
One-sixth.	1,032
One-fifth.	2,340
One-fourth.	8,430
One-third.	4,692
Two-fifths.	575
Total.	17,069



The general rule in this circle is to take as rent one-fourth of the gross produce on lands irrigated from wells and one-third on flooded lands. In some villages well-lands pay one-fifth and flooded lands one-fourth; but the landlord is entitled to an allowance of green fodder besides, and it may be fairly estimated that half the net produce equals one-eighth of the produce of well-lands, one-sixth of that of flooded lands, and one-tenth of the gross produce of unirrigated lands. If these rates be applied to the estimate of the average gross produce they give the following result:—

Class of Cultivation.	Estimated average gross produce.	Share representing half net produce.	Estimate of half net produce.
Well-land ...	67,000	One-eighth ...	8,375
Flooded land ...	73,000	One-sixth ...	12,166
Unirrigated land ...	12,000	One-tenth ...	1,200
Total ...	1,52,000		21,741

According to this estimate the average half net produce of the cultivated land amounts to Rs. 21,741. The culturable waste is still 38 per cent. of the total area of the circle, and brings in a considerable income. In 1880 grazing-fees were levied amounting to Rs. 470 and fees for cutting *sarr* grass amounted to Rs. 397. Allowing for this and other indirect income from the waste, the estimate of the half net produce may well be raised to Rs. 22,500.

307. The assessment rates adopted at the Regular Settlement of this tract and by officers engaged in assessing similar tracts in the neighbourhood have been as follows:—

PARGANA.	Date of Settlement.	Settlement Officer.	Rate per well.	RATE PER ACRE ON				
				Land irrigated from wells.	Flooded lands.	Unirrigated lands.	Lately abandoned.	Culturable waste after deductions.
			Rs.	Rs. As.	As.	As.	As.	As.
Wattuān ...	1863	Mr. Oliver ...	...	1 0	12½	2	2	2
Babak ...	1858	Mr. Brandreth ...	...	1 7	15	8	...	3½
Mamdot ...	1873	Mr. Purser ...	12	0 13	13	11	4	...
Dipālpur ...	1875	Mr. Purser ...	10	0 12	12	12	4	...
Bahāwalpur ...	...	.....	...	2 0	24	8	...	...

These rates applied to the areas now returned for the Fázilká Hitár would give approximately the following assessments:—

Rates.		Assessment.
		Rs.
Mr. Oliver's Wattuán rates ...	...	23,000
Mr. Brandreth's Bahak rates ...	...	28,000
Mr. Purser's Mamdot rates ...	...	25,000
Mr. Purser's Dipálpur rates ...	...	24,000
Baháwalpur rates ...	...	40,000

308. The soil of the Hitár is generally fertile when thoroughly moistened, but in some places deposits of river-sand have made it almost barren, and in others the layer of fertile soil is so thin that the produce is never very good. The local rainfall alone is rarely sufficient to produce anything but very poor crops, except in the hollows which receive the drainage of the surrounding higher ground. Cultivation is chiefly dependent on the annual floods of the Satlaj caused by the melting of the snows on the far Himálaya and by the rainfall on the nearer ranges. The old channels of the river which intersect the tract bring the floods far inland, and at various times attempts have been made to connect several of them into a sort of inundation canal. Water is sweet and everywhere near the surface, and irrigation from wells is extensively practised. At the beginning of the century there were only 12 inhabited villages, and now there are 58, most of them small and not well established, though generally prosperous enough. Population was returned at 14,372 about 1855, 17,347 in 1868 and 18,727 in 1881, an increase of 8 per cent. since 1868; and the density is now 195 to the square mile. The inhabitants are chiefly Musalmáns, who are fairly industrious but wanting in thrift, and the proprietors of the land are mostly Wattus, Bodlas and Chishtis, who are often extravagant and bad managers. There are four times as many tenants as proprietors, and only 7 per cent. of the cultivated area is held by occupancy tenants, many tenants having at settlement relinquished their occupancy rights. A proprietor owns on the average 125 acres, but himself cultivates only 11 acres; while a tenant's holding averages 10 acres. Three-fourths of the cultivation is for the *rabi* harvest, chiefly wheat, while *jawár* is the staple *kharif* crop. Some little land is cultivated with turnips, carrots, onions and other vegetables, pulses, tobacco and sugarcane; but wheat is by far the most important crop. The cultivated land produces a large quantity of *sarr* grass from which *múnj* is made, and the indirect income from the waste is considerable. Before the Regular Settlement the assessment of the south-west portion of the tract, then known as *pergana Wattu*, was very high, although it had been more than once reduced. The assessment of the whole tract was then still further reduced by 16 per cent. to Rs. 19,852, and under the operation of a one-sided and partial system of fluctuating assessment it fell off during the currency of the Settlement to Rs. 17,454 in 1881-82. Some villages, which had not been admitted to the benefits of this system, and especially those towards the south-west border which had been deserted by the river, had some difficulty in paying their revenue



and were now decidedly over-assessed. There had been a number of sales and mortgages of land, and at times there had been some difficulty in realising the revenue. The number of *pakka* wells had almost doubled since last Settlement and the area irrigated from wells had nearly doubled. Cultivation had increased 13 per cent., but during the last few years owing to the neglect of the flood-channels the area irrigated by floods had greatly fallen off, especially in the south-west part of the tract. On the whole the people are fairly well off. Prices have nearly doubled owing to the great progress of the neighbouring mart of Fázilká and the opening of the Railway across the river. Half the net produce is now estimated to be Rs. 22,500; but at the time of my first proposals the information was not so complete, and although I estimated the average half net produce at Rs. 22,000, I proposed that in consideration of the variable character of the produce and the improvidence of the people the assessment should be Rs. 20,000 if the tract were given a fixed assessment, and that the assessment rates to guide me in distributing it over the villages should be thirteen annas per acre on irrigated and flooded lands, two annas per acre on unirrigated and lately abandoned lands, and half an anna per acre on the culturable waste after exempting one-third. I did not propose to have a higher rate for lands irrigated from wells, for it seemed to me that the higher gross produce on well-lands than on flooded lands was little more than was necessary to make up for the greater expense of cultivation and irrigation, and that the average net produce on well-lands was not much more than on flooded lands, the excess being barely sufficient to meet the interest on the capital expended on the well. I was directed, however, to follow the course usually adopted in the neighbourhood, and to assess the wells on the average at Rs. 6 in addition to my proposed assessment of Rs. 20,000, charging slightly higher rates in the best cultivated villages where profits are realised from the cultivation of tobacco and vegetables and other good crops, and assessing less than the average on the poorer wells in the south of the tract, which are distant from the river and where the floods often fail or where the wells have little kharif cultivation. My other rates were accepted. They were founded partly on the assessment rates adopted in this and neighbouring tracts at previous Settlements, and partly on the estimate of average half net produce which would approximately give rates as follows:—

Class of cultivation.	Average half net produce.	Area returned at Settlement (acres.)	Average rate per acre.
	Rs.		
Well-lands ...	8,375	10,005	13½ annas.
Flooded lands ...	12,166	13,660	14 "
Unirrigated and lately abandoned lands ...	1,200	6,439	3 "

The sanctioned assessment rates when applied to the areas entered in the faired Settlement Record give the following assessment for the circle :—

Class.	Area in acres.	Rate per acre.	Assessment.
			Rs.
Well-lands	10,005	13 annas.	19,228
Flooded lands	13,660		
Unirrigated lands	2,531		
Lately abandoned	3,908	2 "	804
Culturable waste after deducting one-third	14,851	$\frac{1}{2}$ anna.	464

Total on land	...	Rs. 20,496
311 wells at Rs. 6 per well	...	" 1,866
Total estimated assessment	...	Rs. 22,362

309. Although in the end the greater part of the tract was put under fluctuating assessment, I was directed to assess the villages as they would have been assessed had the demand been fixed; and after several inspections of the villages, and especially a final tour in March 1882 during which I again inspected every village and almost every well in the Hitár, I assessed the villages at amounts aggregating exactly Rs. 22,000. I found that the northern part of the tract, though some of its villages in pargana Bahak had been highly assessed at the Regular Settlement, was very much better off than the southern portion. The soil seemed as a rule better, cultivation had greatly extended, numerous good *pakka* wells had been sunk, the population had greatly increased, the wells seemed to be more fully worked, the incidence of the assessment on present cultivation was light and the villages generally were in a prosperous condition. On the other hand, in the south of the tract which had formed part of pargana Wattuán, the soil seemed exhausted and perhaps naturally poor, cultivation had decreased, numerous *pakka* wells had fallen out of use and comparatively few new wells had been made, a very large area of land which at last Settlement was within the reach of ordinary floods was now never irrigated by the river, the population had decreased greatly, the level of the water in the wells appeared to have fallen and the irrigation from them was poor, the incidence of the revenue on present cultivation was in several villages ruinously high, many of the proprietors were deeply in debt and some had sold or mortgaged part of their lands. All along the river, however, both in the northern and southern portions of the tract, those villages which immediately border the river were 'prosperous' and lightly assessed; most of them

Chak Hitár. The distribution of the assessment over the villages.



had had large additions made to their culturable area since the Regular Settlement by the action of the river, and the increase made in their assessment under the alluvion rules had been light; while the diminution of assessment under the diluvion rules had been sufficiently liberal in villages which had lost land. It was those villages which were distant from the river which had suffered. At the Regular Settlement they had been frequently flooded by the Pádí Nála and its branches, percolation from which kept up the level of the water in their wells. Since then the river had receded towards the other side, the Pádí Nála had latterly been neglected, and the level of the water in the wells had sunk so low that only a small area could be irrigated from each well, a thick impermeable stratum generally preventing the cultivators (who have not yet learned how to pierce it) from sinking their wells deeper so as to tap a source of permanent supply. Many villages had been saved from ruin by the imperfect system of fluctuating assessment introduced by Mr. Oliver, but many others which had not been admitted to its benefits had been for some years very heavily assessed and were now in a critical condition. In distributing the assessment of Rs. 22,000, I reduced the demand on such villages, and increased it on the villages immediately bordering the river and on those villages in the north of the tract which were in a prosperous condition and had largely increased their area of irrigation from *pakka* wells.

In assessing the *pakka* wells and the land irrigated from them I had comparatively little difficulty. In the north of the tract, where the wells were good with plenty of water, irrigating a large area of fertile land, I assessed them at rates approaching Mr. Purser's rate of Rs. 12 per well in the neighbouring tract of Mamdot; to the south in the villages distant from the river, where the level of the water had sunk and the supply in the wells was very scanty, I assessed them as low as Rs. 4 or Rs. 5 per well. But in assessing the flooded land, I found the area flooded and cultivated varied so much from year to year that it was very difficult to make an estimate of a fair average assessment. In many villages, such as Salemsah and others dependent chiefly on the Pádí Nála, a very large area formerly cultivated had, owing to the failure of floods, been out of cultivation for several years, and yet it did not seem expedient to assess it as culturable waste only, for a slight change in the direction of the river or some little improvement of the Pádí Nála might at any time convert it into fertile cultivated land. With the experience of the changes which had taken place in the action of the river during the previous twenty years, I should have been very reluctant to announce some of my village assessments as fixed for the next twenty years, without some safeguard providing that on a succession of failures of floods speedy relief should be given in the form of a reduction of the demand. And yet it would not have been fair to Government in assessing a fixed demand for twenty years, not to take into account the chances of floods during that period as shown by the actual floods of the past twenty years. In such cases therefore I made a rough estimate by assessing the total area returned by the patwáris' measurements at a rate considerably below the sanctioned rate for flooded lands, at the same time assessing above the circle rate those

lands which are near the river and therefore tolerably sure of being ordinarily flooded.

The result is as follows :—

					Rs.
Total assessment of the Regular Settlement	...	...	...	...	19,852
Assessment of 1881-82	...	...	...	...	17,454
Assessment contemplated by the Financial Commissioner...	...	...	...	...	21,874
Assessment by sanctioned revenue-rates of the circle	...	...	...	...	22,362
Total of assessments actually distributed	...	...	...	...	22,000

This gives an increase of 7 per cent. on the full assessment of the Regular Settlement and of 26 per cent. on the assessment of 1881-82. The village assessments were not announced to those villages which were placed under fluctuating assessment, but they have been recorded in the village note-books as the estimate made in 1882 of the average assessment payable by each village in its then condition.

310. The results for the whole district may be summed up as follows; but it must be remembered that a number of villages in the Nāli and Hitār Chaks were ultimately placed under fluctuating assessment, so that the totals for those two circles are only estimates of what their assessment would have been had it all been fixed.

Assessment Circle	Former assessment (1881-82).	Lowest estimate of half net produce.	Assessment at sanc- tioned circle rates.	New assessment as actually distrib- ed over villages.	Increase on assess- ment of 1881-82.	INCREASE OR DE- CREASE PER CENT. ON		
						Assessment of 1881-82.	Estimate of half net pro- duce.	Assessment at sanctioned circle rates.
	Rs.	Rs.	Rs.	Rs.	Rs.			
Bágar	15,221	23,000	20,284	20,003	4,782	+31	-13	-1
Nāli	66,312	76,000	76,867	74,000	7,688	+12	-3	-4
Rohi	85,767	1,75,000	1,48,894	1,55,560	69,793	+81	-11	+4
Utār	8,352	13,000	10,919	12,275	3,923	+47	-5	+12
Hitār	17,454	22,500	22,362	22,000	4,546	+26	-2	-2
Total of the district	1,93,106	3,09,500	2,79,326	2,83,838	90,732	+47	-8	+2
Tahsil Sirsa	92,993	.....	.....	1,10,843	17,850	+19	...	...
„ Dabwali	45,114	.....	.....	78,345	33,231	+76	...	...
„ Fazilka	54,999	.....	.....	94,650	39,651	+72	...	...

The assessment of the whole district has thus been increased by Rs. 90,732 or 47 per cent. and there is an increase in every tahsil and in every assessment circle. The total assessment is 2 per cent. above the amount given by the sanctioned rates, but is 8 per cent. below the present estimate of half the average net produce, and is well below the half net produce in every assessment circle. The assessment is certainly a light one, and the people themselves after having paid it with ease for two years admit that it is light; but the heavy increase



of 47 per cent. on the whole district, and especially that of 81 per cent. on the great Rohí tract, whose assessment is lightest of all, will probably be accepted as sufficient for this Settlement; and it seems to be the best policy in a district so backward as Sirsá to be content with this considerable increase for the present, to encourage the further development of the district by a light assessment, and to look forward to another large increase of revenue at the expiry of the term of Settlement. The position of the district, stretching as it does in a long narrow strip between the Sikh States and those of Rajputana, affords an additional reason for leniency of assessment, for it forms a sort of safety-valve for the escape of those on whom the burden of Native rule presses too heavily; and there can be little doubt that the inferior classes in Bikaner have greatly benefitted from the proximity of a lightly assessed and well governed tract to which they could escape from the pressure of misrule or over-assessment; so that the revenue demand in the Sirsá Rohí must form a sort of standard for the demand in the adjoining Native States, and a low demand in Sirsá will benefit the peasantry not only of that district, but of the Pattiála and Bikaner States. In both States Settlement operations have been recently in progress, and the assessing officers have taken the Sirsá rates into account when framing their new assessments.

311. I have already in paragraph 49 given an account of the cesses realisable on the land-revenue. Under general instructions a cess of  $\frac{1}{2}$  per cent. for District Post was added and the cesses announced were—

Cess.				Per cent. on the land-revenue.	
				Rs.	
Headman's allowance	...	...		5	
Patwári's allowance	...	...		6 $\frac{1}{4}$	
Local rate	...	...	...	8 $\frac{1}{3}$	
School	...	...	...	1	
Road	...	...	...	1	
Post	...	...	...	$\frac{1}{2}$	
Total cesses ...				22 $\frac{1}{2}$	

For convenience of calculation on the individual holdings this was taken as 3 $\frac{1}{2}$  annas per rupee. Since Settlement the Local Rate, School, Road and Post cesses have by the District Boards Act been consolidated into one rate of 10 $\frac{1}{2}$  per cent., but the total is the same as before. Besides these cesses, the peasants have to pay the village watchmen, whose pay aggregates Rs. 17,450 or about 6 per cent. on the land-revenue, and the village messengers, whose pay aggregates about Rs. 5,000 or 2 per cent.; while the common expenses of the village, including the cost of stationery for the patwári and the repairs of his office, often amount to 5 per cent. on the assessment; so that it may

be said that the cesses and dues of all kinds payable by the Sirsá peasants in addition to the land-revenue amount to about 35 per cent. on the land-revenue demand, and swallow up a considerable proportion of the half net profits of cultivation which are supposed to be left to the peasants. And this forms a strong additional reason for keeping the assessment low.

312. It was desirable in this treeless district to afford every encouragement to the planting of trees. Accordingly the small groves planted here and there near village homesteads were left free of assessment, but they were mostly situated on land the assessment of which would not in any case have exceeded a few annas, and it was enough to give the planter of them a commendatory certificate for his exertions for the common good. The fruit garden at Dhanúr and one or two others near Sirsá were sufficiently remunerative to require no help by way of a remission of assessment, and were therefore assessed at the ordinary rates for land irrigated from wells. There were only five gardens in the whole district (one at Otu and four in the Hitár), on which it seemed necessary to remit the assessment, as they were all small and unremunerative. I accordingly gave the owners of these five gardens certificates entitling them to hold the land free of assessment for the term of Settlement, so long as it is not cleared of trees and brought under ordinary cultivation. The amount of revenue remitted on them is estimated at only Rs. 32.

According to the general rules in force in the Panjáb it was necessary to grant a remission of revenue on all masonry wells which had been made within the previous twenty years, and at the same time that we enquired into the rights in land we took care to enquire regarding each well when it had been made, and I granted to each well which had been made within twenty years a protective certificate entitling it, up to the expiry of the twenty-year period, to exemption from the assessment charged on the well, or on the land so far as that was due to its irrigation, or, on the Satlaj, to an exemption of half the total assessment on the well and the land attached to it. The results were as follows, calculating the assessments as they would have been if fixed:—

Tahsil.	Assessment Circle.	TOTAL NUMBER OF WELLS AND JHALARS USED FOR IRRIGATION.		Number of wells having protective certificates still in force.	Assessment remitted on these wells.
		Kachcha.	Pakka.		
Sirsá ...	Nálí ...	23	89	26	Rs. 134
Dabwálí ...	Nálí ...	4	6	5	33
Fázilká ...	Utár ...	2	14	5	45
Fázilká ...	Hitár ...	88	223	176	1,878
Total of the district ..		117	332	212	2,090



This gives an average remission of nearly Rs. 10 per well. It will be seen that of the 332 masonry wells in the district used for irrigation, no fewer than 212 have been made within the last twenty years.

313. There are in the district only two *jágírs* or large assignments of revenue. One of these consists of seven villages in the Dabwálí Rohí on the north-east border with a total revenue of Rs. 3,455, the largest village being Dádú with an assessment of Rs. 1,025. The whole of this revenue is assigned to the Shahíd Sardár of Shahzádpur in the Ambála district; but it is realised through the tahsíl and remitted to him through the Deputy Commissioner of Ambála, and he has no power to interfere in the internal arrangements of the villages. The villages were held by the Shahzádpur Shahíds when we annexed the country, and they have been allowed to draw the land-revenue ever since, but have now no jurisdiction over the villages. The other *jágír* is that of the whole Bahak pargana, consisting of 40 villages with an assessment of Rs. 10,705, of which Rs. 5 are remitted on gardens and Rs. 1,010 deferred on wells under protective certificate, leaving Rs. 9,690 as the present value of the *jágír*. When the pargana was annexed from Mamdot in 1855 it was found that the land-revenue was shared in the following proportions:—

Jágírdár.			Annas per Rupee.
Nawáb of Mamdot	...	...	12
Bháí of Arnaulí	...	...	2
Bháí of Jhumba	...	...	1
Bodlas of Bahak	...	...	1
Total	...	...	16

and the Jágírdárs were allowed to continue to draw the revenue in these proportions. When Mamdot itself was annexed, the Government of India in 1864 ordered that one-third of the Nawáb's income should be levied for expenses of management and collection; and the Sikh Bháis of Arnaulí and Jhumba, who as protected cis-Satlaj States had been bound to render service to the British Government, had that service commuted under the general orders of 1852 into a payment of two annas in the rupee on the land-revenue assessed on their lands. Thus the revenue of the whole of pargana Bahak is now shared as follows (in annas per rupee):—

Jágírdár.	Original share.	Commutation payable to Government.	Balance due to Jágírdár.
Nawáb of Mamdot	12	4	8
Bháí of Arnaulí	2	$\frac{1}{4}$	$1\frac{1}{4}$
" Jhumba	1	$\frac{1}{8}$	$\frac{7}{8}$
Bodlas of Bahak	1	.....	1
Total	16	$4\frac{3}{8}$	$11\frac{5}{8}$

I have already in paragraph 259 given an account of the origin of the Sukhlambari grants in the Ghaggar valley which entitled the grantees to hold their plots revenue-free for three lives. Their number must at one time have been considerable, but they are now gradually lapsing on the decease of the third life, and are assessed to land-revenue as they fall in. A few small plots had been granted revenue-free for the maintenance of shrines and are still held free of assessment on condition of keeping up the shrine. Some twenty plots, chiefly in the Fázilká Hitár, were granted revenue-free for life for service in the Mutiny, most of them consisting of a well or two wells valued at Rs. 30 each. Altogether, including the two jágírs, the number of revenue-free holdings is now 157, of which 12 are held in perpetuity or for the maintenance of shrines and 145 are held for life or lives, and the total amount of land-revenue remitted on them is Rs. 17,873 as follows:—

	Rs.
Tahsil Sirsá ... ..	3,981
" Dabwáli ... ..	3,519
" Fázilká ... ..	10,373
Total Rs. ...	17,873

314. At the present Settlement an allowance of 1 per cent. was made out of the land-revenue due to the revenue-roll. Government to the newly appointed zaildárs, and a deduction of Rs. 2,641 had to be made on this account. Afterwards this allowance was increased by ináms or personal grants amounting to Rs. 694, but sanction to these grants was not received until after I had made over the accounts to the Deputy Commissioner, and accordingly he was left to deduct them from his revenue-roll. The amount which would have been realisable in 1882-83, the first year of the new Settlement, if all the villages had been given a fixed assessment, would have been as follows:—

	Tahsil Sirsá.	Tahsil Dabwáli.	Tahsil Fázilká.	Total of the district.
	Rs.	Rs.	Rs.	Rs.
Total Assessment ...	110,843	78,345	94,650	2,83,838
Remitted on gardens ... ..	5	.....	27	32
Deferred on wells ... ..	134	33	1,923	2,090
Jágírs and revenue-free holdings ...	3,981	3,519	10,373	17,873
Zaildárs' 1 per cent. allowance ...	1,069	749	823	2,641
Balance realisable by Government ...	1,05,654	74,044	81,504	2,61,202

To this must be added Rs. 2,645 for the commutation due from the jágirdárs of pargana Bahak in tahsil Fázilká, and Rs. 694 must be



deducted for the allowances to zaildárs, leaving a revenue-roll of Rs. 2,63,153. The revenue-roll of 1881-82 was Rs. 1,75,257 land-revenue and Rs. 2,764 commutation, total Rs. 1,78,021; so that had the whole land-revenue been fixed, the re-assessment would have resulted in an increase to the Government revenue-roll of Rs. 85,132 or 48 per cent., while before the commencement of Settlement an increase of only Rs. 60,000 was expected.

315. Shortly before the commencement of Settlement operations in Sirsá, the attention of the Government of India had been directed to the hardship caused to the peasants in tracts whose produce is very variable, by the inelasticity of the ordinary system of a fixed average assessment of land-revenue payable alike in good or bad years, and I was instructed to consider whether it would not be desirable to introduce in Sirsá a system of collecting the land-revenue so that the demand should vary with the nature of the seasons. It was not the first time that the question had been mooted in Sirsá. When the tract came under British rule it was found that the native rulers almost everywhere collected their dues in kind by taking a definite share of the actual produce of each harvest; and even where, as in the villages under the Rájá of Bikaner, the State levied its dues in cash, the assessment was not a fixed one for the whole village or township, but was assessed at so much per plough and so fluctuated from year to year with the number of cultivators and the extent of cultivation. The first British Officers at once abolished the native system of levying revenue in kind, and substituted for it a system of fixed cash assessment, each village or township being leased to its cultivators at so many rupees per annum for a short period of years. In 1838, when Major Thoresby made this change in the newly annexed Dry Tract, he experienced great difficulty in persuading the peasants to give up their system of paying revenue in kind for ours of taking it in cash, as they feared that in seasons of poor harvest or low prices they would be unable to pay the fixed cash assessment. Their fears were justified by the experience of the next fifteen years, during which on the average a fourth of the State's nominal demand had to be remitted. In practice the cash assessment of each township was simply a maximum which could not be exceeded in good years, but in bad years was never attained. The officers of Government roughly appraised the crop, levied from the village as much as they thought it could pay from the produce of the harvest, and remitted the rest of the nominal demand. In 1838 Major Thoresby pointed out that the villages of this district, and especially those irrigated by the Ghaggar, could never pay the revenue assessed on them except in unusually good seasons, and that it was out of the question to reduce the demand so low that it could be paid punctually in good and bad seasons alike. He therefore urged that a system should be introduced under which some definite fraction, such as one-third or one-half of the nominal demand should be remitted in bad years. His proposals were not accepted however, and the revenue continued for fifteen years to be collected in the old rough way, the demand being much heavier than

the villages could ordinarily pay, and so much of it being collected as could be got out of them. In 1847 the Government and the Board of Revenue expressed doubts as to whether in a tract so peculiarly circumstanced the system of fixed assessment by villages for a term of years should be maintained where the Settlement contract was thus systematically broken, and whether it would not be better in all cases in which the revenue was not paid up in full to annul the Settlement and manage the villages in future in some other manner. But no action appears to have been taken on this suggestion. In 1852 Mr. Thomason, Lieutenant-Governor, objected to the haphazard system on which the revenue had been collected as at variance with our established principles of revenue administration, and directed that the assessment of each township should be fixed at the fair average produce of the lands, such as the people might hope to be able to pay with ordinary prudence in a run of years. In very bad seasons part of the demand might be suspended for possible recovery in future years, but if an unusually good season occurred when there was no balance, the people should be left without stint or grudge to the enjoyment of what their good fortune had given them. The assessment of the Regular Settlement was made and worked on these principles, and upon the whole with great success. Suspensions were freely granted in bad years, but the amount of revenue assessed on each village was collected sooner or later, and the remissions of revenue during the 18 years preceding the present revision of assessment averaged for the whole district only 1·6 per cent. of the demand.

316. In some villages on the Ghaggar and Satlaj however, it was found that this system of fixed average assessment could not be got to work well. Mr. Oliver in reporting on the Regular Settlement of the Ráníá pargana on the Ghaggar in 1860, pointed out that the villages had been assessed by Captain Robertson in a year of much more plentiful rain and higher floods than usual, and gave it as his opinion that many of the villages would be unable to pay their assessments except in similar good years. He therefore proposed a special arrangement for twenty villages, some of them more subject than the rest of the pargana to lose their crops by inundations, and others from their position low down the stream not so likely to benefit from floods as their neighbours higher up. His proposal was that the assessment of these twenty villages, which had been fixed at Rs. 9,617, should be reduced by Rs. 4,711; but as in some years favourable floods enabled their lands to be so cultivated as to be well able to pay the assessment originally fixed, he proposed to leave it to the discretion of the Deputy Commissioner to levy this Rs. 4,711 or such part of it as might be justified by the produce of each year. This proposal was not sanctioned, and the Deputy Commissioner was directed to maintain the original assessment on the revenue-roll and submit special applications for remissions whenever necessary. On the Satlaj also the assessments were sanctioned and announced on the usual principle of a fixed average demand, and the only arrangements made at the Regular Settlement for a fluctuating assessment were those under which the assessment of townships border-



ing on the river would be increased or diminished when the extent of their arable land was actually changed by the action of the river. But very soon after the commencement of the Regular Settlement it was found that owing to changes in the area flooded by the river a number of the villages in the Satlaj Hitár could not go on paying their fixed assessment, and Mr. Oliver introduced a system of fluctuating assessment in those villages in which the proprietors consented to the change. A few villages on the Ghaggar also were admitted to a similar system, and at the commencement of Settlement operations in 1879 we found that in 8 villages in the Ghaggar valley and in 44 of the 62 villages in the Satlaj Hitár the assessment fluctuated more or less with the cultivation of the year. But the system on which the assessment was calculated was very imperfect and one-sided. The lands which at Settlement had been assessed as cultivated with the aid of floods were measured every year, and the assessment was remitted on so much of the area as had not been cultivated for the year, but no assessment was charged on new land broken up after Settlement, and the assessment on lands which had been irrigated from wells at Settlement was not remitted, even when the well had fallen in and the land had laid uncultivated for years. As there might have been some difficulty in obtaining sanction to this system of fluctuating assessment, the strange expedient had been adopted of reporting these changes as due to alluvion and diluvion; thus land uncultivated last year but flooded and cultivated this year would be returned as alluvion, and land cultivated last year but not flooded and not cultivated this year would be returned as diluvion. The system, though irregularly introduced and imperfect and unequal in its operation, had been the means of saving a number of villages which would otherwise probably have broken down; and some villages similarly situated which had not been admitted to its benefits had found great difficulty in paying their fixed assessments. As under this one-sided arrangement the assessment of a village might be reduced but could hardly be enhanced, I found that under the system the assessment of the 8 villages on the Ghaggar had decreased from Rs. 2,396 at Settlement to Rs. 1,715 in 1880-81, or by 28 per cent., and that the assessment of the 44 villages on the Satlaj had fallen off from Rs. 14,882 at Settlement to Rs. 11,187 in 1880-81 or by 25 per cent.; and naturally the system was generally popular, and a number of other villages wished to be admitted to it.

317. In many respects the Sirsá district differs greatly from the other districts of the Panjáb, and its exceptional character makes it necessary to consider whether it does not require exceptional treatment. The Satlaj Hitár, which comprises little more than 3 per cent. of the total area, is exactly similar in character and circumstances to much of the land similarly situated elsewhere on the rivers of the Panjáb, and the Sotar valley in some respects resembles other tracts dependent for their fertility on mountain-torrents which flow only in the rainy season, though probably there are few such tracts where the supply of irrigation is so uncertain and the produce so variable. It is however in the circumstances of the unirrigated uplands, the Bággar, Rohí and Utár, that the Sirsá district is so exceptional. These three

Exceptional character of the Sirsá district.

tracts comprise 479 townships with an area of 2,377 square miles or 77 per cent. of the total area of the district. If the upland portions of the other belts be added, it may be said that five-sixths of the area of the district is beyond the reach of ordinary flood irrigation and has the underground water-level so far beneath the surface that irrigation from wells is almost impossible, so that the whole of the cultivation in this area is dependent on a rainfall exceedingly uncertain in its amount and distribution and averaging less than 15 inches per annum. And yet half the area is under cultivation. No district in the Panjáb has been so recently colonised or so recently brought under cultivation. Of all the districts having a low average rainfall, Sirsá has the smallest percentage (3 per cent.) of cultivated area protected from drought by irrigation, and of all the districts having a large proportion of their cultivation dependent on rain, Sirsá has the lowest average rainfall. The density of population per square mile of cultivated area is much less in Sirsá than in any other district, being 171 in Sirsá, 514 for the whole Province and 231 in Dera Gházi Khán, which comes next to Sirsá in this respect; that is, there are nearly four acres of cultivation to each person in Sirsá, while the average for the Province is only about  $1\frac{1}{2}$  acre. Cultivation is much more *extensive*, much simpler and more primitive than elsewhere in the Panjáb; the proportion of area manured and of area under the richer crops is less; the average outturn per acre is less than elsewhere, and generally speaking the prices are less than in almost any other district. A much larger proportion of the peasant population hold the position of tenants here than in any other district, for in Sirsá the tenants are seven times as numerous as the proprietors, while in the Province as a whole the proprietors outnumber the tenants in the proportion of three to two. And in Sirsá nearly half the cultivated area is held by tenants with rights of occupancy, while in no other district on the Panjáb is the proportion so held nearly so high. The revenue administration of Sirsá has also been exceptional. The incidence of the assessment on the cultivated area has been by far the lightest in the Panjáb, the average incidence having been only 3 annas per acre, while for Hissár, the next lowest, it is  $4\frac{1}{2}$  annas; and probably in no other district have suspensions of the revenue been so readily granted and allowed to remain unpaid so long, or have advances for the relief of distress been so large in proportion to the revenue. If allowance be made for the natural drawbacks of the climate, it may also perhaps be said that in no other district in the Panjáb are the peasantry as a body so prosperous and so free from indebtedness. The system of fixed average assessment worked with great elasticity and with a light revenue had been on the whole eminently successful, and the question now was whether the same system, with a revenue enhanced but still very light, should be left in operation throughout the district or a still more elastic system introduced.

318. It seemed out of the question to revert to the native system of taking revenue in kind, as this would have been very unpopular and very difficult to carry out fairly. With honest officials and an honest peasantry such



a system would perhaps be the fairest and the best suited to a tract whose produce is so precarious; but it gives so many opportunities for speculation and oppression that a reversion to it could hardly be justified, except where the system of cash assessment had been actually injurious to the peasantry, or perhaps in the case of individual villages whose proprietors were exceptionally thriftless or unfortunate. Nor did it seem advisable to revert to the system which prevailed in Sirsá before the Regular Settlement, of having a maximum demand realisable in full only in good years, and leaving it to local officials to decide how much of it should be remitted in bad years. The rainfall on which so much of the cultivation depends is distributed so unevenly over the villages that it would have been impossible in the case of a failure of crop to estimate with any approach to accuracy how much of the maximum demand should be remitted in each village, and unfair to apply the same fraction to all the villages in a tract, for often one village has a fair crop while its neighbour owing to the partial nature of the showers has got almost none. Such a system would have been most arbitrary in its operation, and except that the demand would be limited by a maximum, the peasants would have had no certainty as to the amount that would be demanded from them each harvest. The choice then lay between the system of fixed average assessments hitherto in force, according to which the land-revenue demand of each township as a whole was fixed at an average amount to be paid without increase or remission on a series of years good and bad, though not necessarily paid exactly in each year of the series, and a system of fluctuating assessment such as that in force in several districts on lands irrigated by the Panjab rivers, under which the cultivation is measured harvest by harvest and the revenue due calculated out on the crops of each harvest at fixed rates. It was necessary to consider the case of the lands flooded by the Ghaggar and Satlaj apart from that of the unirrigated uplands, as their produce was more precarious or at least more variable, and owing to the greater value of the produce in years of good flood, it would be necessary to assess them much more highly than the uplands dependent on the local rainfall, whose outturn at the best is much poorer.

319. In the three upland circles, Bágár, Rohí and Utár, the crops

The system of fixed average assessments maintained in the upland villages.

are very uncertain; in years of good rainfall the outturn is of considerable value and in the oft-recurring years of drought it often comes to nothing at all; and it may almost be said that the crop is never an average one. Complaints of the uncertainty of the produce are always in the mouths of the people (*ambari-mulk hai*), and at first sight it would seem that a system by which the assessment would fluctuate with the nature of the harvest would be most suitable to such a country. But when I suggested a system of fluctuating assessment to the people of the uplands, I found them everywhere strongly opposed to it, and as anxious to maintain the system of fixed cash assessment as their fathers had been strenuous in their opposition to it when it was first imposed on them by Major Thoresby in place of the native system of taking revenue in kind according to the actual outturn. Their

first objection was that their assessment would so fluctuate from year to year that they would not know beforehand how much they were to pay, and would be at the mercy of the officials. This objection they summed up in the word *kachcha*, and they begged for a *pakka* assessment however heavy. I explained that under such a system there would be no more uncertainty than was imposed by the variableness of the weather, for a man would know for certain that if from any cause he had been unable to sow his field he would have to pay no revenue on it that harvest, and a man who did sow his field would know for certain that he could not be charged on it a rate higher than that fixed at Settlement. They objected however that the patwāris and subordinate revenue officials would have too much power placed in their hands, and would be able to return the cultivation much as they pleased, as it would be impossible for the higher officials to check their harvest measurements properly, and that the constant measurements would entail great inconvenience on them by requiring them to attend the patwāris and supervising officials whenever they came to measure or inspect the fields for assessment. They had of recent years found the fixed assessment generally very light and had had little difficulty in paying it in bad years, either from the profits of good years or by borrowing. The proprietors in those upland tracts are generally few in number and men of some capital, so that with the help of liberal suspensions after a run of bad years they have no difficulty in paying a light fixed assessment. Few of them realise their rents in kind, and the whole system of cash-rents has been founded on the system of fixed cash assessments. The tenants generally pay average cash-rents demandable whether there has been a crop or not, and generally paid sooner or later even after a run of bad years, so that the income of the proprietors does not necessarily vary so much from year to year as does the actual produce of the fields. To have introduced a fluctuating assessment in such villages would have revolutionised the whole rent-system, and as the peasants were so unanimously and so strongly opposed to it, and there seemed no reason to fear that a continuance of the system of average fixed assessments would be likely to check their prosperity, I recommended that in the whole of the upland villages the assessment should be made as before by fixing an average demand for each township estimated at its average half net profits, to be paid without remission, whether the harvests were good or bad. This recommendation was accepted and the assessments were announced accordingly.

320. I pointed out however that it would be necessary so to work the system of fixed average assessments as to make it sufficiently elastic to meet the case of those proprietors who, whether owing to a run of bad seasons or other exceptional circumstances, might be unable to pay the State's demand without incurring irretrievable debt to meet it. I had seen cases in which the exaction of a light average assessment after a run of bad years had driven numerous peasants to mortgage their lands with little hope of redeeming them, although a timely suspension of the land-revenue would have tided them over the bad seasons,

Power reserved to introduce the cycle system.



kept them free from debt, and enabled them when good seasons returned to derive the full benefit of them and at the same time pay up their arrears of revenue so that no loss would have been caused to the State. It seemed to me that under the existing theory of fixed average assessments, the burden of proof was on the wrong side, and before a village could obtain a suspension of its demand it was necessary for it to produce evidence of its need sufficient to satisfy not only the Deputy Commissioner, but the Commissioner also, and that often before the evidence could be gathered and put before the Commissioner in proper form, the machinery for the collection of the instalment of revenue was put in motion and unnecessary hardship caused to the peasants while they were struggling with the difficulties caused by the failure of the harvest. I therefore urged that the Deputy Commissioner should be given authority to suspend the revenue of any village without the delay necessary to obtain the previous sanction of the Commissioner, and that he should before allowing the collection of any instalment satisfy himself regarding each village in the district that it was in a position to pay the revenue without undue hardship. I recommended that power should be reserved by Government to introduce what is known as "the cycle system" of collection, under which the Deputy Commissioner is authorised to realise in each year so much as he thinks the village can conveniently pay, but must so arrange his realisations that in the course of a cycle, say of ten years, he shall have realised exactly the amount given by the fixed average assessment, neither more nor less. Under the ordinary system Government by suspending revenue shares in all the losses of bad years, but when there is no balance against the village, cannot share in the profits of a good year by realising revenue in advance. The cycle system would enable this to be done, and would compel the peasants in good years to save against future bad years by paying in a portion of their revenue in advance. Without this, experience shows that when the bad year comes, it will be found that the peasants have expended all the gains of the past good year and that Government must wait for its revenue until the next good year. The Settlement Commissioner thought that in these upland villages there was no need to make any change in the present system of collection of revenue, as it had worked on the whole very well, and there was some danger of unsettling the present readiness of the owners and tenants to pay their light revenue and rents in bad years. As regards suspensions, he considered that Deputy Commissioners had already sufficient power to suspend revenue in anticipation of the Commissioner's sanction and that no change in the rules was needed; the innovation really required was that the Deputy Commissioner should have fuller information of the condition of each village, to be obtained chiefly by a careful observation of the crops of each harvest, the results of which should be recorded in a form which would enable him at any time to see for each village what had been the nature of its harvest for several years back. The Financial Commissioner approved of this suggestion, and under his instructions I drew up a system of observation of crops which will be described hereafter; but he considered that it would be well to retain the power to put the cycle system of collection in force in any village which had fallen into

arrears, especially if in spite of the return of fair seasons it had been found difficult to recover suspended revenue, or if the village seemed weak or unable conveniently to pay an average assessment in all years; and this might be found to be the case in villages where the proprietors take their rents in kind. A condition to the following effect was accordingly inserted in the tenders of engagement taken from the headmen of the upland villages. "We agree to the condition that if at any time the revenue of our village fall into arrears, Government shall thereafter up to the end of the term of Settlement and until a new Settlement is made, be at liberty to realise annually less or more than the demand above-stated, with regard to the nature of the harvest and the condition of the village; but so that at the end of every ten years the amount realised shall exactly equal ten years' assessment at the above annual sum, with no balance on either side." The cycle system of collection can only be introduced in the case of a village which has fallen into arrears, and the sanction of the Financial Commissioner will be necessary before it is put in operation.

321. The circumstances of the Satlaj Hitár are exactly similar

The Hitár. Fluctuating assessment introduced.

to those of the strips of land similarly situated along the Panjáb rivers and like it dependent for their cultivation on the annual river-floods. In several other districts experience had shown that the cultivation in such tracts is so variable that ordinary peasants cannot go on paying year after year a fixed average assessment, and an attempt to realise the land-revenue in this way had resulted in much hardship to villages which for a series of years failed to get favourable floods. It had been generally agreed by the experienced revenue officers of the Panjáb that in such tracts the land-revenue should be collected on a system which should make it fluctuate directly in proportion to the produce of each harvest. In the Sirsá Hitár also experience pointed to the same conclusion. The system of fixed average assessments had owing to a change in the set of the river broken down in some villages, and we found an imperfect system of fluctuating assessment in force in 44 of the 62 villages in the Satlaj Hitár. The floods had fluctuated so greatly of recent years and seemed likely to fluctuate so greatly in future, that it was impossible to frame a satisfactory estimate of what would be average half net profits. Rents are almost universally taken in kind, so that the income of the proprietors fluctuates directly with the outturn of each harvest, and thus a system of fluctuating assessment fits in better with the prevailing rent-system than would a system of fixed average assessment. Moreover, when I first talked the matter over with the peasants of the Hitár they were almost unanimously in favour of a system of fluctuating assessment, of which they had already had some experience. For these reasons I recommended that the lands in the Satlaj Hitár within reach of the river-floods or dependent upon them for their cultivation should be placed under a system of fluctuating assessment, the land cultivated each harvest to be measured and assessed at fixed rates per acre. This recommendation was approved by the Settlement Commissioner (Colonel Wace) and Financial Commissioner (Mr. Lyall), both of whom talked



the matter over with the peasants at Fázilká. At first the people were almost unanimously in favour of a fluctuating assessment; then they changed their minds and asked for a fixed assessment, the chief reason perhaps being that they were alarmed at the high sound of the rates, which they compared with the average rates of the fixed assessment of their own villages at the Regular Settlement and of the villages across the river in Montgomery. Again, after discussing the question with the Settlement Commissioner, the headmen all in a body and spontaneously gave in a petition asking for a fluctuating assessment on principles which have been embodied, almost as they put them, in the system ultimately sanctioned. When the Financial Commissioner (Mr. Lyall) came round on tour a few months after, they again combined to demand a fixed assessment, and some modifications were made in the rules and rates in order to meet their objections. I was strongly impressed by their prejudice against the system of fluctuating assessment, and urged that it should not be forced on the people without their consent, but that I should be allowed to announce the assessment of each village as it would be if it were a fixed average assessment and let the proprietors choose between the two, on the condition that if at any time a village under fixed assessment were to fall into arrears or to ask for fluctuating assessment the Deputy Commissioner should have the power at once to introduce the latter system. I was however instructed to require the people to accept the system of fluctuating assessment for all their lands dependent for cultivation on the floods of the river, lands beyond the influence of the river-floods being marked off and given a fixed average assessment calculated on the rates already sanctioned.

322. In arranging the details of the system of fluctuating assessment, I was guided chiefly by the system which

The Hitár. Assessment on the land in its uncultivated aspect.

had recently been put in force in some distressed villages on the Rávi in the Montgomery district, as modified by Mr. Lyall after some years' experience. As there was some danger that the peasants of the Hitár, who had only recently given up a pastoral for an agricultural life, might allow their land to lie uncultivated and devote themselves to cattle-breeding, it was decided that a low assessment should be put upon wood, grass and the other products of the waste, to be levied on the land in its uncultivated or culturable aspect, whether there be a crop or no. The direct produce of the waste to the proprietors is not very large in this circle, as the grazing fees in 1880 amounted only to Rs. 470, and the income from sale of *sarr* grass, wood, &c., to about Rs. 500; but the indirect income is considerable, as the peasants maintain large numbers of cattle from whose produce they derive considerable profits. I proposed a rate varying from half an anna to 1 anna and averaging  $\frac{3}{4}$  anna per acre, and this rate was accepted and acted upon. The total area placed under fluctuating assessment was 46,053 acres, of which 38,009 were returned as culturable, and of this area 19,565 acres were returned at Settlement as cultivated. The average rate of  $\frac{3}{4}$  anna per acre on the culturable area would have given an assessment on wood, grass, &c., of Rs. 1,782, and the assessments actually distributed and announced amounted to Rs. 1,856.

In distributing the wood and grass assessment I assessed the villages at different rates according to the quality of their soil and the advantages of their position, putting higher rates on those villages whose soil when uncultivated produces more valuable grass and on those whose soil when cultivated ordinarily produces better crops of their kind than does that of other villages.

323. In fixing the rates for fluctuating assessment on crops actually grown it was important to fix simple rates per *bigha*, for all the accounts of the *pat-wáris* and of the people are made out in *bighas*, and if the rates contained complicated fractions of an *anna* per *bigha* the difficulty of making out the accounts and understanding them would be much increased. The principle accepted was that the rates should amount as nearly as possible to half the net profits of cultivation, and so on an average of years they should bring in about the same amount of land-revenue as the fixed average assessment at half net profits would bring. For a distribution of the estimated average half net profits of the whole Hitár tract (Rs. 22,000) the rate of 13 annas per acre on irrigated lands had been accepted with Rs. 6 per well as an additional charge. This rate was applied to 9,389 acres irrigable from wells and 13,868 acres irrigable by floods, but I have shown reason for estimating that of this area only 6,000 acres of well-land and 7,500 of flooded lands actually produce a crop on an average of years, so that to bring in the same income on an average the rate to be charged on crops actually produced would have to be such that applied to 13,500 acres it would produce the same total as would a rate of 13 annas per acre when applied to 23,257 acres, *i.e.*, it would have to be on the average about Rs. 1-6 per acre. The staple crop of the Hitár tract is wheat, which occupies 10,000 of the 16,000 acres annually producing a crop, and according to the estimates of average gross produce on land actually producing a crop the average outturn and its average value are as follows:—

	Average outturn of wheat (in maunds per acre.)	Average price (sers per rupee.)	Average value of grain.	Average value of straw.	Total average value of produce of wheat (per acre.)
			Rs. As.	Rs. As.	Rs. As.
Land irrigated by wells	8	25	12 13	1 2	13 15
Land irrigated by floods	6	25	9 10	0 14	10 8
Unirrigated lands ...	5	25	8 0	0 11	8 11

The general rates of rent in kind are one-fourth of the gross produce on lands irrigated from wells, one-third on lands flooded by the



river and one-fifth on unirrigated lands. If half these rates be taken as representing half the net produce, we have the following rates for fluctuating assessment on wheat (per acre) :—

		Average value of gross produce.	Share repre- senting half net produce.	Resulting rate per acre.
		Rs. As.		Rs. As.
Well-lands ...	...	13 15	One-eighth.	1 12
Flooded lands.	...	10 8	One-sixth.	1 12
Unirrigated lands.	...	8 11	One-tenth.	0 14

It would seem then that a rate of Rs. 1-12 per acre might fairly be charged on all land irrigated by wells or floods which actually produces a crop of wheat. Allowing something for the assessment averaging  $\frac{3}{4}$  anna per acre already charged on the land in its uncultivated aspect, I proposed an assessment rate on irrigated lands of Re. 1 per *bigha*, which equals Re. 1-9 $\frac{3}{4}$  per acre. I urged that there should be only one rate for lands irrigated from wells and for lands irrigated by river-floods, as the greater produce of well-lands is not more than enough to compensate for the expenditure on the well and the greater trouble of working it, and the average net income to the proprietor from well-lands is much the same as that from flooded lands actually producing a crop, as he takes a larger share of the produce of the latter. I also urged that the rates should be applied leniently, and that as very often land actually sown fails to produce a crop altogether or produces only very little grain, the assessing officer should be allowed to remit the assessment on any field whose produce had failed entirely and to reduce the rate by half on any field the produce of which is very poor. After considerable discussion it was decided that the rate for wheat on well-lands should be fixed at Re. 1-8 per acre or 15 annas per *bigha*, and on flooded lands at Re. 1-4 per acre or 12 $\frac{1}{2}$  annas per *bigha*, and that the assessing officer should not be given the power to reduce the rate on poor crops, but should be allowed to remit it altogether on fields or patches on which the crop has failed entirely.

324. The statistics and estimates regarding the other crops commonly grown in the tract were similarly discussed, and it was decided that it was unnecessary to have separate rates for the more valuable crops, such as sugarcane and cotton, for they cover a very small area only and the greater value of their produce little more than compensates for the greater cost of production. Regarding jawar, barley, gram and vegetables it was held that the average net profit from their cultivation was

not so much less than that of wheat as to require a lower rate. The only crops regarding which a distinction was made were *churál*, *masar* and *methra* which are grown principally for fodder on land newly thrown up by the river; the land is simply scratched with the plough and a little seed thrown in, and the crop is seldom of much value. Accordingly a lower rate of 12 annas per acre or  $7\frac{1}{2}$  annas per *bigha* was sanctioned for these crops. This will also have the effect of giving a lower rate on land newly brought under cultivation, for it is usual to sow these crops the first year on new land. It was not thought necessary to make any further allowance for new cultivation, for when land is fit to grow wheat, it generally produces a crop good enough to pay the full rate. On unirrigated land I have estimated that the half net produce of wheat is about 14 annas per acre on the land actually producing a crop; but wheat is comparatively little sown on such land, and the usual unirrigated crops, *bājra* and pulses, *jawár*, barley and gram could not fairly pay so high a rate. It was accordingly decided that the rate for all crops on unirrigated lands should be 8 annas per acre or 5 annas per *bigha*. A small area of land irrigable from wells is sometimes cultivated for both harvests in one agricultural year, *i.e.*, when the *kharíf* crop has been harvested, the land is immediately again sown for the *rabi*. In such a case the two crops together are rarely equal to two full crops, and in order to make allowance for this it was decided that when land had paid the full rate of Re. 1-8 per acre for a *kharíf* crop, it should be charged only the half rate of 12 annas per acre for a crop sown in the following *rabi*, *i.e.*, for double crops (*dofasli*) the rate should be Rs. 2-4 per acre or Re. 1-6 $\frac{1}{2}$  per *bigha*. To meet the case of new wells under protective certificate it was decided that so long as the certificate lasts, *i.e.*, until the expiry of 20 years from the date of making the well, the land irrigated from the well, up to a limit of ten acres each harvest, should be charged only half rates *i.e.*, 12 annas per acre. This gives a remission of  $20 \times 20 \times 12$  annas = Rs. 300, and as a well in this tract seldom costs more than Rs. 250, the encouragement offered to improvements by this rule is ample. That a system of fluctuating assessment with this proviso does not discourage improvements is shown by the fact that in the first year after its introduction applications for advances to make wells to the amount of Rs. 9,000 were presented, enough to make 30 new wells.

The Hitár. Summary of rules and rates.

325. Thus the rules and rates sanctioned for the fluctuating assessment in the Satlaj Hitár are as follows:—

- (1.) The whole assessable area, whether cultivated or not, has been charged with a low assessment on grass, wood, &c., in its uncultivated aspect, leviable with the *kharíf* instalment without regard to amount of produce. This assessment will vary only when the assessable area is increased or diminished by the action of the river or by the resumption of a revenue-free plot, in which case it will be increased or diminished in proportion.



(2.) The crops of each harvest will be observed separately and assessed at the rates prescribed, but all land having practically no produce will be left free of assessment, whether cultivated for the harvest or not and whether the crop has failed over the whole field or only over part of it. In the latter case the assessing officer will leave free of assessment that part of the field on which the crop has failed.

(3.) The rates chargeable on lands actually producing a crop are as follows:—

Crop on	ASSESSMENT RATE.	
	Per acre.	Per bigha.
	Rs. As.	Rs. As.
Unirrigated lands ...	0 8	0 5
Flooded lands—		
(1) Churál, Māsar, Methra ...	0 12	0 7½
(2) Other crops, such as wheat ...	1 4	0 12½
Well and Jhalár lands—		
(1) Single crops ...	1 8	0 15
(2) Double crops ...	2 4	1 6½

(4.) Land irrigated from a well under protective certificate will be charged at half rate only while the certificate lasts, up to a limit of ten acres each harvest.

326. In July 1882 I summoned the peasants of the Hitár together at Fázilká and explained these orders to them, and required them to accept a fluctuating assessment at the above rates for all lands within reach of the action of the river. The great majority of them, though they repeated their desire for a fixed assessment, had no great objection to make; but a few villages held out for a time with considerable obstinacy, and it was only after a good deal of reiterated explanation of the advantages of the system and of the necessity under which they lay of accepting the decision of Government, and after they had been left in a small minority by the other villages which had accepted the terms offered, that they gave in and attached their seals to the tenders of engagement. The peasants of this tract are unusually ignorant, obstinate and given to haggling, and they had been frightened by the high sound of the rates as compared with those

The Hitár. The system announced and carried out.

of a fixed assessment which they had been accustomed to hear quoted; but the better class of them said they were willing to accept whichever system was thought best for them, and it is noteworthy that it was the least thrifty and least respectable proprietors (the very class for whom a system of the kind is most required) that held back the longest. One reason for their desire for a fixed assessment no doubt was that owing to failure of floods and neglect of the Pádí inundation-channel much of their land which used to be flooded by the river had not been cultivated for some years, and they had hoped that if they could get a fixed assessment calculated on their present cultivation, it would be a very light one. Not only however did all the headmen of the Wattuán pargana accept the terms offered, but (with the exception of one village, Núr Sháh), the Hitár villages of pargana Bahak, which might have adhered to their former lease for six years longer, all threw it up and asked to be admitted to the system of fluctuating assessment which had been sanctioned for the Wattuán Hitár. This request was granted, and the only Bahak village which continues to pay under its former lease is Núr Sháh, the assessment of which is fixed as before at Rs. 340 until kharif 1888, when the former lease will expire and the flooded lands of the village will come under the general system of fluctuating assessment. Including Núr Sháh for the sake of completeness, there are altogether 62 villages in the Hitár; 11 of these bordering on the Utár tract are almost wholly beyond the reach of the action of the river, and in accordance with instructions I announced the assessments of these villages as average fixed assessments; eight other villages have blocks of land beyond reach of the floods and these I marked off and gave average fixed assessments. I offered to treat a number of other high isolated blocks in the same way, but the headmen generally asked that if any part of their village was to be under fluctuating assessment, the whole might be, and as the difference of system would certainly have caused a complication of accounts, I complied with their request and in such cases placed the whole area under fluctuating assessment. So that 43 whole villages and parts of eight others have been placed under fluctuating assessment. The detail is as follows:—

Pargana.	Number of villages.	Total Assessment if all fixed.	VILLAGES PLACED UNDER FIXED ASSESSMENT.			VILLAGES PLACED UNDER FLUCTUATING ASSESSMENT.		
			Whole villages.	Parts of villages.	Total fixed Assessment.	Whole villages.	Parts of villages.	Total Assessment if fixed.
		Rs.			Rs.			Rs.
Wattuán ...	45	15,570	8	4	1,495	33	4	14,075
Bahak ...	17	6,430	3	4	3,000	10	4	3,430
Total Hitár ...	62	22,000	11	8	4,495	43	8	17,505



The detail of the estimated fixed assessment is as follows:—

	PARGANA WATTUAN.		PARGANA BAHAK.	
	Assessment actually fixed.	Estimated fixed Assessment of villages under fluctuating Assessment.	Assessment actually fixed.	Estimated fixed Assessment of villages under fluctuating Assessment.
Total assessment ...	1,495	14,075	3,000	3,430
Remitted on gardens ...	.....	22	5	.....
Deferred on wells... ..	73	805	789	211
Jágirs and revenue-free holdings ... ..	96	582	2,206	3,219
Zaildárs' 1 per cent. allowance...	12	128	.....	.....
Balance realisable by Government ... ..	1,314	12,538	.....	.....

As however the assessment of Núr Sháh in pargana Bahak, instead of being Rs. 185 fixed and Rs. 265 fluctuating, will until the expiry of the former lease remain at Rs. 340 fixed, the present detail of pargana Bahak is—

	Assessment actually fixed.	Estimated fixed Assessment of villages under fluctuating Assessment.
Total assessment ... ..	3,155	3,165
Remitted on gardens ... ..	5	.....
Deferred on wells ... ..	752	211
Jágir ... ..	2,398	2,954

Thus the area under fluctuating assessment, had it been given a fixed assessment, would have at present been assessed at Rs. 14,075 for the Wattuan villages and Rs. 3,165 for the Bahak villages, total Rs. 17,240; and of this Government would have realised Rs. 12,538 from the Wattuan villages and Rs. 800 as commutation at  $4\frac{3}{4}$  annas per rupee on the assessment of the Bahak villages after deducting

the zaildár's fees, total Rs. 13,338. As however in working the system the gardens are left unassessed and the wells under protective certificate are assessed at half rates only, the amount with which the total annual fluctuating assessment is to be compared is Rs. 13,148 or the Wattuán villages and Rs. 2,954 for the Bahak villages, total Rs. 16,102.

327. In villages under fluctuating assessment the patwári makes an inspection of every field each harvest before the crop is ripe and enters it up in his annual list of holdings (*jamabandi*), noting the area sown and the crop and calculating out the assessment at the full rate, both on lands held revenue-free and on revenue-paying lands. If the crop has failed or for any reason the field seems chargeable with less than the full rate, the patwári makes a mark against the field in his list to direct attention to it. When the list has been checked on the spot by the girdáwar or kánungo and the crops are getting ripe, the tahsildár, or if duly empowered the náib tahsildár, goes round the villages and inspects the fields noted by the patwári and any others to which his attention may be directed and remits the assessment on any fields or parts of fields which may have produced no crop, remitting at the same time half the assessment on lands irrigated from wells under protective certificate. He then calculates out the assessment for each village and announces it to the headmen, who collect it from the individual proprietors, to each of whom a note of the amount due from him is given by the patwári. The Extra Assistant Commissioner then makes a tour through the villages, decides any objections made to the assessment and satisfies himself generally that it has been correctly done.

The Hítár. Method of working the system.

328. The system has now been working for two years and the actual assessments have been as follows:—

Harvest.	PARGANA WATTUAN.		PARGANA BAHAK.		TOTAL.	
	Total Assessment.	Realisable by Government.	Total Assessment.	Commutation realisable by Government.	Total Assessment.	Realisable by Government.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Rabi 1882 ...	8,042	7,690	1,036	230	9,078	7,970
Kharif 1882 ...	2,850	2,716	570	155	3,420	2,871
Rabi 1883 ...	7,597	7,300	1,041	282	8,638	7,582
Kharif 1883 ...	3,436	3,328	734	199	4,170	3,527

Thus the total assessment of these villages for the agricultural year 1882-83 was only Rs. 12,058 against the estimated fixed assessment of Rs. 16,102; and the amount realisable by Government was Rs. 10,453 against the estimate of Rs. 13,338. During that year the Pádi



channel was not in working order and the area flooded was much less than an average of past years would have given. That the system has been leniently worked is shown by the fact that in kharif 1882, of 2,251 acres actually sown no less than 770 acres were left free of assessment as producing no crop; in rabi 1883, of 8,631 acres sown 881 were left free of assessment as producing nothing; and again in kharif 1883, 493 acres were left unassessed out of 2,415 sown. This experience of the advantages of the system in a bad season might have been expected to reconcile the people to it, but meanwhile under Colonel Grey the Pádí channel has been cleared out and realigned as the Fázilwáh Inundation Canal and there is every prospect of a great development of irrigation in the tract in the next few years. The people calculate that if they are given a fixed assessment now on the basis of their past bad years they will for the period of Settlement reap all the benefit of the improvement, while under the system of fluctuating assessment their assessment will increase with their cultivation and irrigation. They are consequently more anxious than ever to have a fixed assessment; and their application has been strongly supported by the Commissioner, Colonel Grey, on the grounds that the system of fluctuating assessment causes a great deal of trouble to officials and people and is now no longer necessary in this tract, as its irrigation is now assured by the inundation-canals. To me however it seems that the recent construction of the Fázilwáh is but an improvement of the existing Pádí Nála. In Mr. Oliver's time and again under Mr. Wakefield much more labour and money were spent on the Pádí Nála than have been spent on it during the past year, and indeed the recent improvements have consisted chiefly in a realignment of the old Pádí and the construction of a new head, works which are little more than are annually necessary on many inundation-canals. The cost of these improvements is estimated at only Rs. 5,072 or ten annas per acre on the land the canal will irrigate, an expenditure which would be amply repaid to the people by a remission of half the rate for one year only. No doubt the irrigation of the tract is much more secure than before, but experience on other inundation-canals elsewhere in the Pánjab and even in Fírozpur, to whose canal system the Fázilwáh has been attached, has shown that the watchfulness and energy necessary for the maintenance of these Canals are not always forthcoming, and that even when they are, the area irrigated varies very greatly from year to year. It seems certain that the annual produce of the Fázilká Hitár and the annual income of the proprietors will still fluctuate greatly, and I am strongly of opinion that it will be better for the people as well as fairer and more profitable to Government that the assessment should continue to fluctuate with the actual produce. I did recommend in deference to their objections that the system should not be forced on them, but my recent experience in Gurgáon and Jhajjar of the ruinous effects of a light fixed assessment even on a thrifty peasantry in bad years has convinced me strongly of the unsuitability of a fixed assessment to such a tract and to such a people, whom it would be certain sooner or later to force into debt and mortgage. At all events I deprecate any change of system until the experience of some years has shown the advantages and disadvantages of the present system.

which was after full discussion put in force by the concurrent opinion of such experienced officers as Colonel Wace, Mr. Lyall and Sir Robert Egerton; and I recommend that if at any time it is changed for a fixed assessment my detailed village assessments should be revised with reference to the circumstances of the time, and power should be reserved to reimpose the present system on any village which may fall into arrears or in which the numerical majority of the proprietors may ask for it. As regards the details of the system, I still think that the rate on lands irrigated from wells and on flooded lands should have been the same, and might well have been Re. 1 per *bigha*, or Re. 1-9 $\frac{3}{4}$  per acre; but it is not advisable now to raise the rates, and the present rates will no doubt in the course of a few years bring in on the average the amount which would have been given by a fixed assessment. I should be glad however if the assessment on wood and grass, to which the people strongly object, were to be remitted on all land actually assessed as cultivated, and charged only on culturable land left uncultivated. This would cost Government less than Rs. 1,000 per annum, and the resulting satisfaction of the people is worth this small remission. I recommend no other change in the present system.

329. The cultivation in the Nálí or Sotar valley dependent on the floods of the Ghaggar is almost more precarious than in the Satlaj Hitár, and in that tract also on such lands rents are generally taken in kind, so that the same reasons which rendered a fluctuating assessment desirable on the Satlaj made it equally desirable on the Ghaggar. A good illustration of the extent to which the net income of proprietors taking rent in kind on such lands fluctuates from year to year is given by the accounts of the Skinner Estate, which show the income of the Estate from the two large villages of Jagmalera and Chicháلكotli to have been as follows for the last ten years:—

Year.	Jagmalera.	Chicháلكotli.
	Rs.	Rs.
1871-72	13,950	8,927
1872-73	13,053	7,483
1873-74	9,149	5,242
1874-75	5,524	2,790
1875-76	4,601	2,200
1876-77	3,135	1,156
1877-78	179	133
1878-79	11,211	5,762
1880-81	4,242	1,841
1881-82	5,676	4,887
Average ...	7,072	4,052

From this it appears that the gross net income of the proprietor of such a village often equals double the average and is often less than half,



and although rich landlords like the Skinner Estate might well be able to pay an average half-net-asset assessment without difficulty in good and bad years alike, a small peasant proprietor could not pay anything approaching to a fair average assessment in a run of bad years without getting into debt and difficulties. It was accordingly decided that all lands in the Sotar valley whose cultivation depends on the floods of the Ghaggar should be placed under fluctuating assessment.

330. In the Nálí assessment circle there are altogether 109 villages, but 25 of these have practically no land in the Sotar valley or subject to floods, and have been included in the Nálí circle only because they were cut off by villages of that circle from the other assessment circles, in which they might otherwise have properly been included. In those villages of course the assessments were announced as fixed. Of the remaining 84 villages, 28 are wholly or partly in the Sotar valley above the point where the present channel of the Ghaggar enters it, and have no lands subject to floods of the river. In accordance with the orders of Government, I gave the proprietors of these villages the option of taking a fluctuating assessment for their *Sotar* lands; but they all declined it and asked for a fixed assessment, which was accordingly announced. The reasons for this preference no doubt are that the un-irrigated *Sotar* lands seldom produce as good crops as the flooded lands, and the rates sounded high to the owners of the *Sotar*; that the new fixed assessments are light compared with some of the old ones; that a considerable area of the *Sotar* is still uncultivated, and the owners hope by extending cultivation to secure for the term of Settlement under a fixed assessment the whole of the profits, part of which would under a fluctuating assessment go to Government during the currency of the lease; and that the bumper harvest of the previous year had made the people almost forget the frequency of failure of harvest in this tract. Again, there are 22 villages on the upper part of the Ghaggar, from where it enters the district at Musáhibwála to where it joins the wide Sotar valley at Dhanúr, which have only an insignificant area of land subject to floods, as in this part of its course the Ghaggar, following one of the old drainage-channels which intersect the Dry Tract, runs in a deep and narrow bed, and even in the best of seasons spreads only a short distance on either side. The soil here is not the alluvial clay of the Sotar, but is more like the light loam of the Rohí, and does not, even when flooded, produce such good crops as the hard clay soil of the Sotar valley; a considerable area of this land is protected by well-irrigation. The owners of all these 22 villages asked for a fixed assessment, and as the produce of such villages considered as a whole could hardly be said to be more precarious than that of ordinary villages in the Dry Tract, they were granted a fixed assessment. The waters of the Ghaggar, after leaving the Annakai lake, chiefly flow along the wide Sotar valley by Amritsar, Harní and Kariwáli into Bikáner, but a portion of them turns south-west through a narrow channel between Mauju Khera and Buddhí Mári and wanders about among the sandhills of Mamera, Surera Kalan and Kharyál (Ellenábád). The soil thus irrigated is quite unlike the hard clay of the ordinary Sotar; it is chiefly the ordinary

light sandy soil of this part of the country with hardly any alluvial deposit, and even when flooded is incapable of producing such good crops as the clay soil; so that the rates for crops in other villages would be apt to press hardly on these. These three villages asked for a fixed assessment, which was granted them at light rates for the above reasons.

331. Of the remaining 31 villages of the Nálí circle the whole or part

The Nálí. Rates and of the assessment is fluctuating; 11 villages rules for fluctuating as- being wholly in the Sotar valley are wholly under assessment. fluctuating assessment, and in 20 villages one

block in the valley subject to floods is under fluctuating assessment and the uplands have been formed into another block and given a fixed assessment. When I announced these arrangements to the villagers, there was some grumbling at the authoritative imposition of the fluctuating assessment system, but the opposition shown was inconsiderable and they all accepted the terms offered. A large number of the smaller proprietors were glad to be placed under fluctuating assessment; indeed, many of them had already asked to have their lands assessed on this system. Many others, while they would have preferred to be given a fixed demand and to be left to pay it as best they could, were not sure whether the fluctuating assessment would not prove better for them in the long-run; and the only strong opposition was shown by the few rich owners of large areas who knew they would be able to pay the fixed average demand, and hoped by rapidly developing cultivation to secure large profits before next Settlement came round. The total area placed under fluctuating assessment is 46,743 acres, of which 43,094 acres are culturable, and of this area 25,536 acres were returned at Settlement as cultivated. As on the Satlaj, it was decided that a rate on wood, grass, &c., should be assessed on the culturable area in its uncultivated aspect, but as in the Sotar valley much of the waste is valuable grazing ground producing excellent grass and brushwood, and many villages derive large profits from grazing fees and the sale of firewood, the rate was pitched at from  $\frac{1}{2}$  anna to  $1\frac{1}{2}$  anna per acre, to average 1 anna. The total assessment of this description as announced amounted to Rs. 2,835, which gives an average incidence of a little more than an anna per acre. The ordinary rate of rent in kind on flooded lands is one-third, so that one-sixth of the average value of the gross produce may be taken as representing the half net produce on land actually producing a crop. This would give the following rates as deducible from the estimates of gross produce:—

Crop.	ESTIMATE OF GROSS PRODUCE (PER ACRE.)					Half net produce at one-sixth.
	Grain in maunds.	Average price (sers per rupee.)	Average value of grain.	Average value of straw.	Average value of gross produce.	
			Rs. As.	Rs. As.	Rs. As.	Rs. As.
Rice ...	12	30	16 0	0 11	16 11	2 12
Wheat ...	6	24	10 0	1 0	11 0	1 13
Barley and gram ...	6	45	5 5	1 8	6 13	1 2
Jawar ...	4	45	3 9	1 4	4 13	0 13
Bajra ...	3	35	3 7	0 4	3 11	0 9



After considerable calculation and discussion the rates for the fluctuating assessment on the Ghaggar were fixed as follows, in addition to the one-anna rate on the land in its uncultivated aspect:—

Crop.	ASSESSMENT RATE.			
	Per acre.		Per bigha.	
	Rs.	As.	Rs.	As.
Munji rice ...	2	8	1	9
Wheat alone or with gram, kharsu rice, tobacco, vegetables, sarson, mirch, dhaniya, san, kasumbha, cotton ...	1	8	0	15
Other rabí crops, such as barley, gram, tára mira and haliya ...	0	12	0	7½
Jawár alone or with pulses...				
Other kharíf crops, such as bájra, moth másh, múng, gwár, til ...	0	8	0	5

The system of assessment for these Ghaggar lands is much the same as on the Satlaj. All fields having practically no produce are exempted from assessment; but here the rule which I advocated for both tracts has been sanctioned, and the tahsildár is allowed to remit half the rate on fields whose produce is very poor; as a rough guide to the decision of the question whether half the rate should be remitted or not, the tahsildár is in cases of doubt to calculate approximately the value of the proprietor's share in grain and straw, and if that does not exceed the full rate, he may remit half. Here also land irrigated from a well under protective certificate is charged at half rates only while the exemption lasts, up to a limit of ten acres each harvest. As it sometimes requires considerable expenditure to bring new land under cultivation in the hard clay of the Sotar, new land broken up from waste is to pay half rates only for the first two years; and in order to encourage the extension of rice-cultivation and to enable the maker of a new rice-kund to recoup himself for his expenditure on the improvement, he is to be given a protective certificate entitling him to a remission for the first ten years of half the rate on rice-crops grown within the *kund*; and similarly a five-year's exemption from half the rate is given for the repair of an old *kund* where the expenditure has been considerable. That this exemption is sufficient to encourage improvements is shown by the fact that within a year after the introduction of the system, advances were taken for the construction of six *kunds* calculated to irrigate 509 acres. The numerous revenue-free plots in the area under fluctuating assessment are to be assessed in the same way for the purpose of calculating the cesses due on them.

332. The distribution of the Rs. 74,000 which would have been the total assessment of the Nali assessment circle had all the villages been given a fixed assessment is as follows:—Rs. 1,945 has been assessed on the five villages and two detached blocks of the Dabwāli tahsīl which have all been given a fixed assessment, so that it is necessary to give a detail only of the Rs. 72,055 which would have been assessed on the villages in tahsīl Sirsa.

	Total.	Assessments actually fixed.	Estimated fixed Assessment of lands under fluctuating Assessment.
	Rs.	Rs.	Rs.
Total assessment ...	72,055	38,980	33,075
Remitted on gardens ...	5	5	.....
Deferred on wells ...	134	105	29
Jāgirs and revenue-free holdings...	3,981	1,247	2,734
Zaildārs' 1 per cent allowance ...	682	379	303
Balance realisable by Government ...	67,253	37,244	30,009

Thus the total average fixed assessment of the lands under fluctuating assessment would have been Rs. 33,075, and of this Rs. 30,009 would have been realisable by Government. The system has been working for a year and a half and the actual assessments have been as follows:—

Harvest.	Total Assessment.	Realisable by Government.
	Rs.	Rs.
Kharif 1882 ...	15,722	14,185
Rabi 1883 ...	10,551	9,516
Kharif 1883 ...	10,494	9,126

Thus the actual total assessment of the agricultural year 1882-83, which was a poor one, was only Rs. 26,273 against the estimate of Rs. 33,075, and the amount realisable was Rs. 23,701 against the estimate of Rs. 30,009. The returns of kharif 1883 are still more unfavourable, as the floods of the Ghaggar were poor and some villages have suffered from the erosion of the bed of the Ghaggar. The system has been leniently worked, for the remissions have been as follows:—

	Total Area sown.	Left unassessed owing to failure of Crop.	Assessed at half rate owing to pooriness of Crop.
	Acres.	Acres.	Acres.
Kharif 1882...	6,607	609	947
Rabi 1883 ...	10,898	1,277	752
Kharif 1883...	5,455	1,500	800



Some villages have derived great benefit from the system during these bad seasons, and at Ráníá in January 1884 the assembled proprietors, although they had some objections to make to the details of the system, said they preferred it to a fixed assessment so long as their irrigation remains so uncertain. I think the rates low and do not recommend any change in them, but I should be glad if here too, in order to meet the reasonable wishes of the people, permission were given to remit the one-anna per acre rate on wood and grass on land which is actually assessed as cultivated (a concession which would cost Government about Rs. 1,500); and if the tahsildár were permitted to remit the whole assessment on part of a field on which the crop has totally failed, assessing the full rate or half rate only on that portion of the field which has produced some crop. It seems probable that cultivation will extend in this area, and that unless the Ghaggar floods continue unfavourable the average realisations will soon equal what they would have been under a fixed assessment.

333. Thus of the total assessment of Rs. 2,83,838, which would have been imposed on the district had all the villages been placed under fixed assessment, Rs. 17,505 have been made fluctuating on the Satlaj and Rs. 33,075 on the Ghaggar, total Rs. 50,580, leaving Rs. 2,33,258 as the aggregate of the fixed assessments actually announced as such. The detail of this amount is as follows:—

*Fixed assessments actually announced as such.*

	Tahsíl Firsá.	Tahsíl Dab-wáli.	Tahsíl Fázil-ká.	Total of the district.
	Rs.	Rs.	Rs.	Rs.
Total assessment ...	77,768	78,345	77,145	2,33,258
Remitted on gardens ...	5	...	5	10
Deferred on wells ...	105	33	907	1,045
Jágirs and revenue-free holdings ...	1,247	3,519	6,572	11,338
Zaildárs 1 per cent. allowance ...	766	749	695	2,210
Balance realisable by Govt.	75,645	74,044	68,966	2,18,655

The revenue-roll actually sanctioned by the Financial Commissioner for 1883-84 was Rs. 2,18,651, the difference of Rs. 4 being due to an increase of Rs. 13 and a decrease of Rs. 17 caused by the resumption and grant of revenue-free plots. The commutation at  $4\frac{3}{4}$  annas per rupee on the fixed land-revenue of pargana Bahak included in the above would have been Rs. 1,751; but owing to the continuance of the old lease of Núr Sháh and to the expiry of the period of exemption for a well, the commutation actually sanctioned for 1883-84 was Rs. 1,808. Thus the fixed land-revenue realisable by Government has increased from Rs. 1,75,257 in 1881-82 to Rs. 2,18,651 in 1883-84, a difference of

Rs. 43,394 or 25 per cent., besides Rs. 42,547 which is the estimated average income realisable by Government from the villages under fluctuating assessment on the Ghaggar and Satlaj.

334. Previous to the Regular Settlement the instalments of the land-revenue appear to have been payable before the crop was off the ground, and it was not uncommon to attach the crop itself as security for the revenue. At the Regular Settlement the kharif instalment was made payable half on 15th November and half on 15th December, and the rabi instalment half on 15th May and half on 15th June. I pointed out that it was unnecessary to complicate the accounts by having two instalments for each harvest, as the crops generally ripen about the same time and the rents are usually collected at one time for each harvest, and showed by an examination of the tahsil accounts for the previous five years that in the three Dry Tracts, Bagar, Rohi and Utar, of 479 villages, 408 had actually paid in their revenue in one instalment each harvest, so that it was evident that the people found little advantage in having two instalments for each harvest. I consulted the headmen and found that they considered one instalment for each harvest most convenient, provided the date fixed was not too early. Accordingly throughout the district the two-instalment rule was abrogated, and the revenue due from each village for each harvest is now payable in one instalment only. The former dates however were too early and came upon the peasant before he had time to cut and thresh his crop and take it to market. The reaping of the kharif crop commences about the middle of October and goes on until the end of December, and to require the peasant to pay his revenue on 15th November is to make him stop his harvesting of the kharif and his sowing of the rabi to take part of his crop to market or to borrow from the banker unless he has savings on hand. The harvesting of the rabi commences about the beginning of April and goes on to the end of May, and the 15th May is too early for the rabi. The Sikhs keep their harvest accounts by the dates of the two festivals Lorhi and Namani, and wished to have those dates fixed for the instalments; the Lorhi is on the first day of Mah, about the middle of January, and the Namani on the last day of Jeth, about the middle of June. After some discussion it was decided that villages under fixed assessment should pay their revenue on the 15th December for the kharif and on the 15th June for the rabi, and that villages wholly or partly under fluctuating assessment should pay theirs on 1st January and 1st July, the reasons for fixing the latter dates a fortnight later being that the rice and wheat grown on irrigated lands are harvested somewhat later than the bajra and barley grown on the uplands, and that it was desirable to give more time for making up the accounts of the fluctuating assessment.

In villages under fluctuating assessment the revenue assessed on the crops of each harvest is payable as the instalment of that harvest, and the assessment on wood, grass, &c., charged on the land in its uncultivated aspect is payable in the kharif instalment, as most



of the income from the uncultivated land is derived from grass, which may be called a kharif crop. In the villages under fixed assessment I left it almost entirely to the people themselves to decide in what proportion they would pay their revenue at each harvest. When the proprietors and tenants were assembled to hear their new assessments announced, I asked them with reference to their former instalments, how much of the new assessment they wished to pay in the kharif and how much in the rabi. Where they asked for a change in the old instalments for which I did not see sufficient reason, I discussed the matter with them with special reference to the proportion of the total annual produce usually grown at each harvest, and decided what instalments would best suit the village. As the cultivation of the rabi is rapidly spreading in the Dry Tract, many villages have properly thrown more of their revenue payments than before on the rabi. Of the 596 villages the whole or part of which is under fixed assessment, 262 pay the whole of their revenue in the kharif, 70 pay more in the kharif than in the rabi, and 251 pay half in the kharif and half in the rabi, so that only 13 pay more in the rabi than in the kharif. The details are as follows:—

Assessment Circle.	Total No. of villages paying fixed assessment.	NUMBER OF VILLAGES PAYING				
		All in kharif.	More in kharif than in rabi.	Half and half.	More in rabi than kharif.	All in rabi.
Bagar ...	57	57	...	...	...	...
Nali ...	98	54	24	14	3	3
Rohi ...	364	119	46	199	...	...
Utár ...	58	31	...	27	...	...
Hitár ...	19	1	...	11	6	1
Total ...	596	262	70	251	9	4

The villages paying the whole of their revenue in the kharif are all along the south-west border of the district where the rabi crop is as yet little sown, though its cultivation is rapidly spreading. Those paying half in kharif and half in rabi lie along the north-east border where the rabi crop is extensively cultivated as well as the kharif; and the villages paying more in kharif than in rabi chiefly lie in a belt between these two. A number of villages about Abohar which have already a considerable area of rabi cultivation elected to pay the whole of their revenue in the kharif, because often in years of drought the inhabitants wander off elsewhere to work in the rabi and their dues cannot easily be collected at that season of the year. If for any reason, such as the spread of rabi cultivation or the introduction of canal irrigation, the instalments now fixed should prove inconvenient to any village, the Deputy Commissioner might at any time during the currency of the Settlement apply for sanction to change the instalments. The new dates and proportions are much more suitable than the former arrangements were and cause much less inconvenience to the

people in paying their revenue. The fixed land-revenue and commutation due for 1883-84 were payable on the following dates:—

<i>Date.</i>	<i>Amount.</i>
15th June ... ..	Rs. 55,033
1st July . ... ..	„ 294
<hr/>	
Total rabí ... ..	Rs. 55,327
15th December ... ..	Rs. 1,58,207
1st January ... ..	„ 6,925
<hr/>	
Total kharif ... ..	Rs. 1,65,132
<hr/>	
Total of year ... ..	„ 2,20,459
<hr/>	

335. As the kharif harvest of 1881 was a very good one and it was important that such a large enhancement of revenue should be introduced in a good season, I obtained permission to announce the new assessment throughout the upland villages, in the Bágár, Rohí and Utár, with effect from kharif 1881, and it was collected accordingly. In the other two tracts it took some time to settle the details of the system of fluctuating assessment, and the new assessments took effect in the Hitár from rabí 1882, and in the Nálí from kharif 1882, but in all cases the engagements were taken for a period ending with the rabí instalment of A.D. 1901, *i.e.*, a 19 or 20 years' lease was given to all the villages in the district; and if the present arrangements are sanctioned the assessment of the whole district will not again come under revision until after rabí 1901. The Rewárá-Fírozpur Railway has now been made through the district, the Sirhind Canal recently opened will irrigate a considerable area about Malaut and Abohar, inundation-canals are being rapidly developed from the Satlaj, and there seems some hope of a similar development of irrigation from the Ghaggar, so that it appears certain that cultivation and irrigation will rapidly extend, population increase, and prices and rents rise, and the district seems to have before it even greater prosperity than it has enjoyed in the past. The assessment, though a great enhancement on the former demand, is already very light, and will soon in many villages be very much below the half net profit standard; and now that this progress is assured, I am inclined to think that a 15 years' lease would have been better, and that the State might well have claimed a further large enhancement of revenue from the Sirsá peasants after the lapse of 15 years; but as with the approval of the Financial Commissioner and of Government I have told the people that their assessments will probably be sanctioned for 20 years, and have taken their engagements for that period, I recommend that the arrangements above detailed be formally sanctioned for 20 years ending rabí 1901.

336. The new assessment has now been in force for two years and has been realised with ease. On 31st March 1883 the arrears amounted only to Rs. 159; at the end of September 1883 they were only

Past and future, working  
of the assessment



Rs. 243; the kharif instalment of 1883 has been realised without difficulty, and the balance on 31st March 1884 was only Rs. 613. This result is due, not only to the lightness of the assessment, but to the good harvests which the district has enjoyed during the last two years, and it must not be expected that the assessment, light as it is, can always be realised with equal punctuality. Experience has shown that even after the failure of two harvests a Sirsá village can ordinarily pay its assessment without suspension; but if a third harvest fails it is necessary to consider carefully the circumstances of the village before pressing it to pay its revenue. There need be no reluctance to suspend revenue in bad seasons, for in good years the value of the produce is so many times the revenue that one good year is enough to clear off very heavy arrears; and thus liberal suspensions in bad seasons, while affording the greatest possible relief to the people, can hardly cause any loss to the State. It will probably be found desirable to grant large suspensions in the Dry Tracts after a series of bad seasons, such as may be expected to occur within the next 20 years, but it should never be necessary to grant remissions. It should be remembered that the produce is very variable, not only from year to year but from village to village, and although the district generally may be prosperous, individual villages may be in need of suspension. It is not enough to go on the facts of one harvest, and before deciding for or against suspension in the case of any village its previous history and especially the outturn of the past few harvests should be taken into account. The present condition of each village has been recorded in its village note-book with the reasons for the assessment fixed for it, and if the harvests be observed and the progress of the village recorded according to the system which has been arranged and has now worked well for two years, there should be no difficulty in understanding at any time whether a village needs suspension or not. In estimating the relative value of any harvest in the Dry Tract the statistics should not be compared with those of more favoured districts; but it should be remembered that according to my estimate, on an average of years only three-fourths of the total area under cultivation actually produces a crop, that the average outturn is only about  $3\frac{1}{4}$  maunds per acre, and the average price of the commoner grains only about 50 sers per rupee. In the villages under fluctuating assessment it should never be necessary even to suspend revenue, for under that system the assessment of each harvest will be well below the actual net profits of that harvest for each holding. So long as the supervision is tolerably good, there is little danger of any fraud or mistake likely to cause appreciable loss to the State; the danger is that the subordinate officials will work the system too strictly and give unnecessary trouble to themselves and to the people, though it seems impossible that it should be worked so strictly as to cause serious pecuniary loss to the peasants. I think it should be worked leniently and somewhat roughly, and so long as there is no suspicion of fraud, the Deputy Commissioner should be content with an approximation to the proper assessment, and should not insist upon arithmetical exactness to an acre or a rupee. Such a method of assessment will save trouble to both officials and people, and make the system more popular, and

in the end by encouraging the development of cultivation prove more profitable to the State. Except on the Satlaj, where owing to exceptional causes the people are dissatisfied with the system of fluctuating assessment, the peasants of the district are everywhere well content with the new assessment, and Government too may be satisfied for the present with the enhancement of nearly 50 per cent. on the former demand.

## CHAPTER VII.—ADMINISTRATION.

337. In 1876 the period of the Regular Settlement had expired throughout almost the whole of the district, and although it was not then convenient to commence Re-settlement operations, it was decided to depute a Revenue Survey party to measure and map the villages in preparation for the Revision of Settlement; and the Deputy Commissioner was instructed to have the village boundary pillars put in order and compared with the boundary maps of the Regular Settlement, and to have sketch maps of the village boundaries prepared to guide the Revenue surveyors. This work was well done by the patwáris and ordinary district staff aided by a small extra establishment, at a cost of some Rs. 2,669; and in 1876-79 the Revenue surveyors surveyed and mapped the whole district. Their survey took account of all topographical features, villages, roads, ponds, sandhills, and drainage channels, and of village boundaries and the limits of cultivation, but did not take note of individual fields or cultivating holdings, or of the rights in land within the townships. They supplied at a cost of about a lakh and a quarter of rupees beautiful and scientifically accurate maps of the whole district on the scale of one inch to the mile, and four inch to the mile maps of the individual villages, and these were of great use to us in our Settlement survey. Before the commencement of Settlement operations, I suggested that it would be a saving of labour if we obtained boundary maps of the villages from the Revenue Survey Department, and devoted our attention to filling in the details of cultivation and ownership; but it was decided that the patwáris should do the whole work of survey themselves, and that the Revenue Survey maps should be used only to check their measurements.

338. In May 1879, after visiting the district, I submitted a report on the prospects of a Revision of Settlement, and the arrangements necessary for carrying it out, and a Deputy Superintendent and three munsarims were sent to the district to teach the patwáris how to measure and map. In November 1879 a number of Settlement officials were transferred to Sirsá, chiefly from the Gurgáon Settlement; but operations did not commence until my arrival at Sirsá on 2nd December 1879, when I organised the establishment and set them to work. The 136 patwáris or village accountants whose duty it is to keep the village records up to date were placed under my authority, as well as the kanungos and sadr kanungo whose duty



it is to supervise them, and my Settlement staff consisted of an Extra Assistant Commissioner, three Superintendents (one to each tahsíl) nine Deputy Superintendents and 28 munsarims or supervisors, besides a varying number (at one time 300) of temporary clerks to be employed or dismissed as the progress of the work required. Many of the patwáris were very poorly paid and hardly fitted for their work, but it was necessary to teach them how to measure and map and to draw up the record of rights. A number of skilled clerks and mappers who had been working under me in Gurgáon were anxious to be employed in Sirsá, but as orders had been passed that only residents of the neighbouring districts of the Panjáb were to be entertained, I had reluctantly to turn them away and hunt up recruits in the neighbourhood, so that most of my temporary establishment were raw lads or ordinary clerks having no experience of Settlement work. They as well as the patwáris had to be taught how to measure land and prepare records, and as a number of the supervising staff also were ignorant of their duties, the first few months were occupied chiefly in teaching the establishment, and the progress made was at first comparatively slow. But the system of measurement employed was so simple, and the country to be surveyed so open and level, that men of very inferior capacity and attainments soon acquired sufficient knowledge and skill to be employed in surveying under close supervision. Each patwári, as he showed himself fit, was given a clerk to assist him, supplied with a plane-table, chain, sight, scale, &c., and sent to survey one of the villages of his circle. The boundary map recently made was got out of the District Office and used as an aid, but the patwári mapped the boundary of the village anew according to scale, showing each corner and boundary pillar in its proper place and drawing up a list of distances (*khassra thákbast*) which was afterwards filed with his copy of the Settlement record. The boundary map prepared by the patwári was checked on the ground by the munsarim and compared by him with the rough boundary map of the Regular Settlement, and with the more accurate map recently drawn up in preparation for the Revenue Survey. He drew up a report giving the result of his comparison and an account of any discrepancies he detected, and a copy of this report with a tracing of the patwári's boundary map was sent to me for approval. I compared the map with the 4-inch to the mile map supplied by the Revenue Survey, both as to distance and direction of the corners from one another, and where I noticed a discrepancy not satisfactorily explained by the munsarim's report, I returned the map for check on the spot by the Deputy Superintendent, and on receipt of his report again compared the two maps. When satisfied that the boundary as shown by the patwári was correct, I passed the tracing and sent it back to the Superintendent's office, where it was, with the original list of distances between pillars and the report connected with it, placed with the district boundary file (*misl thákbast*) and sent into the Record Office with a Vernacular proceeding stating what had been done. The original boundary map drawn up by the patwári was afterwards filled in as the original field map of the Settlement. Of 106

cases in which, owing to a discrepancy between the boundaries as shown by the patwári and by the Revenue Survey, I returned the map to be checked on the spot by the Deputy Superintendent who went over the doubtful boundary with the headmen of the villages concerned and mapped it as agreed to by them, in 70 the patwári's boundary map turned out to be correct and the Revenue Survey map wrong, and only in 36 cases had the patwári made a mistake requiring correction, such as omitting a corner or wrongly plotting an offset. Land in this district is of such little value that the people had been very careless about their boundaries and in many places had not kept the boundary pillars in proper repair, so that the Revenue surveyors had in mapping village boundaries often unwittingly cut across a corner which the patwári with his slower procedure and his greater local knowledge was able to put in; and enquiry regarding the discrepancy from the peasants concerned generally showed that the patwári was right. In all these cases a report stating the discrepancy and the decision regarding it has been filed in the Record Office with the boundary map; so that it is not likely that any one will be injured by the mistake in the Revenue Survey map. I myself compared the maps of every village in the district and passed orders on every serious discrepancy, and I am satisfied that there are very few mistakes in the village boundaries shown in our Settlement maps, such as are likely to cause any appreciable injury to any individual or to give rise to any serious dispute. As the maps are drawn to scale, the patwári can easily at any time mark out on the ground the boundary shown on his map; so that disputes regarding the boundaries of villages should be rare and easy to decide. During our measurements 29 cases of disputed boundary occurred and were decided, generally to the satisfaction of both parties.

339. While the patwári was mapping the boundary of the village, the munsarim with the aid of the patwári's annual papers, and after enquiry from the peasants, drew up a pedigree table (*shajra nasab* or *kursindma*) of all the proprietors of the township, arranged the list of holdings (*khewat khatauni*) showing each man's share and status, and made out a separate list of the discrepancies he detected (*fard badar*) on which special orders were passed by the Deputy Superintendent or Superintendent. When the boundary map had been completed, the patwári commenced to measure the separate fields, plotting each in turn into his map and entering it in his list of fields (*khassra*) with its boundaries, area, proprietor, tenant, class of cultivation, &c., and at the same time entered it in his list of holdings under the holding of the proprietor and cultivator to whom it belonged. Every evening he and his assistant totalled up the pages of the list of fields and checked and completed the work of the day, and every few days the munsarim came round, checked on the field the work done by the patwári since his last visit, went over all his calculations, and satisfied himself that every entry was correct. Each proprietor and tenant was given a copy of the entries made regarding his fields in the list of holdings, that he might satisfy himself as to their correctness. The Deputy Superintendents, Superintendents, Extra Assistant Commissioner and myself were constantly



moving about the district, checking the work of the patwáris on the field, and satisfying ourselves that it was being correctly done. When the whole area of a village had been thus measured and mapped, and the list of fields and of holdings completed, the patwári totalled up his entries and drew up various abstracts. The munsarim then completed his check of the detailed entries and of the totals, and after the Deputy Superintendent had satisfied himself by a final check on the field that the measurements were correct, the whole file was sent into the Superintendent's office, with the map to be compared and checked there. About 10 per cent. of the entries were checked by the clerks in the office, and if no serious mistakes appeared the measurements were accepted as correct; if the file appeared untrustworthy, it was sent back to be corrected on the field, or checked from beginning to end. When the Superintendent had satisfied himself that the measurements were correct, he sent me an abstract of the total area and total cultivated area, which I compared with the totals given by the Revenue Survey. Where the total area differed by more than 3 per cent., which it did in 32 cases, I sent the file back for correction on the field; in three of those cases no mistake could be discovered in the patwáris' measurements, but in the other 29 cases the errors were corrected. Where the area returned by the patwáris comparatively rough method of survey was within 3 per cent. of that given by the more scientific Revenue Survey, I accepted this as a sufficient approximation. The total area of the district as given by the patwáris' survey differs by only one per thousand from that given by the Revenue Survey; and of the 650 townships in the district, the areas of 450 are within one per cent. of those given by the scientific survey, in 600 the difference is within 2 per cent., and there are only 17 cases in which the difference is greater than 3 per cent. It was not possible to compare the totals of cultivated area so exactly, as cultivation varies greatly from year to year and is rapidly extending, but where the areas returned as under cultivation differed by more than 10 per cent., I required a special explanation of the discrepancy, and in this way of 106 cases returned for further check on this point, in 20 mistakes were discovered and corrected. The comparison of the Settlement areas with those of the Revenue Survey shows that they are approximately correct; and although owing to the comparatively rough methods of measurement and of check, some mistakes may have crept in, it is not probable that there are many likely to cause appreciable injury to any individual, seeing that land is of so little value in this district.

340. We endeavoured to adapt the style of survey to the circumstances of the tract by making it as simple as possible. The standard of area adopted was the *bigha*, which equals exactly five-eighths of an acre, as that was the standard adopted at the Regular Settlement and was well-known to the people; but we discarded the *gatha* which was the former standard of linear measure for the *kadam*, which is better known to the people, and made this exactly equal 66 inches, so that 900 square *kadams* make a *bigha*. We took no account of fractions of a *kadam*, or of smaller areas than a *biswa*, or a twentieth of a *bigha*. In the

uplands, where the fields are large, the maps were drawn on a scale of 420 *kadams* to the inch, or 8 inches to the mile, and in the irrigated lands, where the fields are smaller, the scale adopted was 60 *kadams* to the inch, or 16 inches to the mile. The average area of a field or survey block is 14 acres and the land is mostly very easy to measure, so that after the first few months the progress made was rapid, and soon each measuring party consisting of a *patwári* and his assistant was able to survey and map on the average more than a thousand acres a month, and the total cost of the actual measurements was only about Rs. 50,000, or Rs. 25 per thousand acres. I endeavoured to save the measuring parties from the hardships of the climate by employing as many as possible in the dry hot weather in the valleys where water is sweet and comparatively plentiful and shade is generally attainable, and in the rains sending them to survey the uplands which are then less malarious than the valleys; but many of them had to do their survey work at a temperature of something like 160° in the sun on the treeless prairie, where they could get only brackish water to drink and that had often to be carried several miles. Yet there was little grumbling and only one or two broke down. To save them the hardship of a second hot weather, I obtained permission to employ a few skilled mappers from other districts in the Panjáb, and we were thus enabled to complete the field survey and the preparation of the preliminary record of rights of the whole district (nearly two million acres) within sixteen months of the commencement of operations. The peasants showed themselves most willing to help; each village was bound to supply two men to accompany the *patwári*, and the owners and cultivators of the fields to be measured each day had to go with him, but where necessary they took it in turns to give further help in the way of bringing drinking-water, of carrying the chain, &c. Although arrangements were made to prevent it, it is probable that many of the measuring parties lived at the expense of the village, as is the custom of the country, but there were almost no complaints of bribery or extortion, and the survey cost the peasants little in money, though it gave them a good deal of trouble, which they underwent with but little grumbling. That the *patwáris* might receive a thorough training, as much as possible of the actual measuring and mapping was done by them, and they measured and mapped with their own hands 9,45,301 acres in 355 villages, or more than half the area of the district, and of this area 6,82,552 acres were mapped by the *patwári* to whose circle the village belonged.

341. When the measurements had been completed, checked and passed, we commenced the attestation of the record. The *patwári* was given the file he had completed and sent back to the village, where he summoned together all the proprietors and tenants, read out to them the entries made regarding each field and holding and noted what they had to say regarding them. The *munsarim* checked these entries before the assembled peasants, compared them again with the former record of rights and worked out any discrepancies. The Deputy Superintendent then went over every entry with the people



at the village and where there was no dispute passed the record finally; where there was a dispute it was referred to the Superintendent, who called the parties, examined the papers and decided how the right should be recorded. I think this attestation procedure was unnecessarily long, and might with advantage have been much shortened and combined with the measurement stage. Before commencing operations I had proposed to combine them, but was instructed to work on the usual system. Attestation was almost always done at the village, so that as little trouble as possible was caused to the peasants and almost all the persons interested were present and heard how their rights were recorded. At the same time that the Superintendent attested the disputed entries in the record of holdings, he adjusted the rights of the tenants, determining in what land they had occupancy rights and under what section and clause of the Tenancy Act, and also attested the administration paper or statement of customs of the village, which had been prepared in the rough by the munsarim. From time to time I checked in the villages before the parties interested, the work of attestation done by the different grades of officials, and in every case in which a petitioner thought himself aggrieved by the Superintendent's order at attestation, I sent for the file and passed orders myself regarding the disputed entry. Very few such petitions were presented, and in almost every case the Superintendent's order seemed correct. The people generally expressed themselves as satisfied that their rights had been thoroughly investigated and properly recorded, and during the last two years hardly any mistake has come to light, so that the revised record of rights may be considered trustworthy.

342. When I had distributed the new assessments over the villages.

The assessments announced and distributed.

I called together the headmen, proprietors and tenants of each village in turn, announced to them the assessment I had fixed for their village, and took an engagement for the term of Settlement from the headmen. At the same time I calculated and announced the assessment remitted on revenue-free plots and on new wells exempted from enhanced assessments, fixed the instalments in which the revenue was to be paid, and the mode in which it was to be distributed over the proprietary holdings, and determined the rate of rent to be paid. I took the opportunity of the assembling of the villagers to record the votes of the headmen for their *zaildār*, to determine how many watchmen each village should have and how they were to be paid, to decide whether the number of headmen should be increased, and to pass orders on all miscellaneous petitions and disputes brought before me. All this was done *coram populo*. I usually sat in the open air under a tree with all the countryside sitting round listening to the proceedings, heard all objections, took the advice of the leading peasants and explained to the parties interested my decision on each point and the reasons for it. It was no doubt, partly owing to this openness of procedure that in almost every case the people acquiesced in my decision in all these matters and made no attempt to have it altered. The orders passed regarding each village were carried out in detail by the Superintendent, and I satisfied

myself that the revenue and rent of each holding were properly calculated and recorded.

343. Two faired copies of the attested and completed file were made out, one for the patwári, and one for the District Record Office; and the original field map was placed in the office copy as the basis of the Settlement record. Both copies were carefully checked and have been signed by me after I had generally satisfied myself that they were complete and correct in all essential particulars. The papers which form the record are (1) the field map (*shajra kishwár*); (2) the list of fields (*khasra*); (3) the tender of engagement for the assessment (*darkhwást málguzárá*); (4) the pedigree-table (*kursínáma*); (5) the list of holdings (*khewat khatauni*); (6) the list of irrigation wells (*naqsha cháhát*); (7) the statement of customs or administration paper (*wájibularz*); (8) the final proceeding (*rúbakár akhír*); and the patwári's copy also contains the list of distances of boundary-pillars (*khasra thákbast*). We also sent into the record office the rough attestation papers of each village, and the file showing how the revenue was distributed.

344. This work was all done, and the records of the 650 villages in the district completed, faired and made over to the Deputy Commissioner by September 1882, the patwáris and kanungos were retransferred to his control, and the Settlement establishment all sent to take up work in a new district. Orders had not been passed by Government on the case of the Farmed villages, and I had still to write my notes in the village note-books, and my report on the Settlement. I completed my enquiry into tribal custom, the results of which have been published separately; but I was then deputed on urgent work among the distressed villages of Gurgáon. When orders had been passed on the Farmed villages, I returned to Fázilká for a week in January 1883 to announce them, and had to leave them to be carried out in detail by the Extra Assistant, who completed this work in January 1884 without any special establishment, recording the attested agreements with his own hand on the faired records of these villages, which were again filed as amended in the Record Office. The Settlement operations proper ended in September 1882 when all the establishment was transferred, and thus lasted little more than 2½ years. The original estimate was that the Settlement would take four years to complete, and the speed with which it was carried through was due to the simplicity of the tenures and of the system of agriculture, and to my having been allowed a larger establishment of temporary clerks than was at first intended. The total expenditure on the Settlement has been as follows:—

Patwáris' fees, Mutation fees, &c. ...	Rs. 45,025
Imperial and Provincial expenditure ...	„ 2,30,490
Total expenditure ...	Rs. 2,75,515

The patwári's fees, Mutation fees, &c. would have been realised and expended in any case, and may be left out of account. The cost



of the operations to Government has been Rs. 2,30,490 against the original estimate of Rs. 2,61,000. According to the rules in force each cultivator was required to pay a fee of half an anna for the rough copy and of eight annas for the final faired copy of the entries regarding his holding, and the assignees of land-revenue were required to pay part of the cost of Settlement of their village. The amount assessed on these accounts was—

Fees for rough copies of entries	...	...	Rs. 3,096
Fees for faired copies of entries	...	...	" 40,454
Assignees' share of expenditure	...	...	" 4,830
Total			Rs. 48,380

This sum has already been realised and credited to Government as a set-off against the Settlement expenditure, so that the net cost of the operations to Government has been Rs. 1,82,110; and as the increase of land-revenue resulting from the revision of assessment is about Rs. 80,000 per annum (against the original estimate of Rs. 60,000), the cost of the Settlement will be repaid to Government in less than two and a half years. And we have not only measured and mapped every field in the district, revised the record of rights in the land and reassessed and redistributed the land-revenue, but have taught the patwáris how to maintain the record, decided judicially 3,024 civil suits between proprietor and tenant, divided joint-holdings aggregating 3,00,000 acres, fixed the rents to be paid by 20,000 tenants for some 4,00,000 acres, carried out the Census of the population, observed every harvest during our operations, enquired into and recorded the agricultural, local and tribal customs of the people, revised the arrangements regarding patwáris, watchmen, headmen and rural notables, and collected and made available a great deal of information regarding the district as a whole and regarding each individual village.

345. I held charge of the Settlement from the beginning to the end of operations, except for three months during which I officiated as Under Secretary to Government and Mr. Trafford, Deputy Commissioner, held charge of the Settlement. Munshi Gobind Sahai was my Extra Assistant for the last two years of the Settlement and gave me great assistance in supervising the details of the work and in organising the establishment. Latterly the whole of the judicial work was left to him and was done by him most thoroughly and carefully. It has been a great advantage that on the expiry of Settlement operations he remained attached to the district as Extra Assistant Commissioner in charge of the Fázilká subdivision, as the continuity of revenue administration was thereby better maintained than if all the Settlement officers had left the district. He deserves special acknowledgment for the care and thoroughness with which he has, in addition to his ordinary Criminal and Civil work, carried out in detail the orders on the Farmed villages, and attested the agreements between the lessees and their sub-tenants regarding over 2,000 holdings. Munshi Alimulla was Superintendent of the Fázilká tahsil from the beginning to the end

of operations, and supervised them energetically and well. He not only worked hard himself, but got good work out of his subordinates. He and the people understood each other thoroughly and were on more familiar terms than is usual, so that they had great confidence in him; and his experience and judgment enabled him to carry out his work quickly and thoroughly without wasting too much time on unimportant details. He is now Extra Assistant Settlement Officer in the Karnál-Amballa Settlement. Pandit Kálka Parshád was Superintendent of the Sirsá tahsíl all through. His orders and reports are always very clear, sensible and thorough, and I acquired great confidence in his work as unusually trustworthy. Munshí Kishn Parshád, a younger officer, was for the last year and a half in charge of the Dabwáli tahsíl. He showed himself very energetic and got through a great deal of work, yet without sacrificing accuracy to speed, and I found his investigations careful and his decisions generally correct. The subordinate Settlement establishment worked on the whole very well, and without much grumbling at the hardships of the climate which were really considerable. The liberal grant placed at my disposal enabled me to encourage them by reward rather than by punishment, and the system I employed of reviewing their work and revising their pay every six months kept up a healthy spirit of emulation, and made the outturn of work generally satisfactory both in quantity and quality. The patwáris and temporary clerks had most of them to be taught their duties, but they quickly got to understand them, and their work, especially towards the end of the operations, was wonderfully good for men drawing only Rs. 10 or Rs. 12 a month as pay. From first to last the establishment pulled well together, and almost every man did his best; and with few exceptions they got on well with the peasants, and gave them as little trouble as possible.

346. Up to the commencement of Settlement operations there were in the district 137 patwáris' circles and, including two assistants, 139 patwáris. At the Regular Settlement considerable difficulty had been experienced in obtaining men willing and able to do the work of patwáris, and in providing sufficient remuneration for them. Generally the patwáris cess had been fixed at  $6\frac{1}{4}$  per cent. on the land-revenue, but in some of the more backward villages it had been fixed at 10 per cent., and in tahsils Dabwáli and Fázilká a clause had been entered in the administration paper of almost every village, entitling the patwáris to levy 1 per cent. on the rent of all land broken up from the prairie after Settlement. Under the operation of this clause the pay of the patwáris in those two tahsils had increased with the spread of cultivation, while in the Sirsá tahsíl where the circles had been smaller to begin with, and where no such clause had been entered in the Settlement record, the patwáris' pay had remained at its original low figure. According to the old system each patwáris levied these allowances and an additional charge for stationery from the villages of his circle. When Settlement operations began, I had an account made out of the income of the patwáris from all sources, and with effect from the rábí instalment of 1880 I appropriated it to the Settlement deposit from

The Patwaris, Girdawars,  
and Kanungos.



which I disbursed the pay of the patwáris every two months, fixing the rate of pay from time to time according to the quantity and quality of the work actually done by the patwári. The income from all sources including cost of stationery and allowance on local rate was approximately Rs. 18,060, which amounted to  $9\frac{1}{3}$  per cent. on the land-revenue, and gave the patwáris an average income of Rs. 130 per annum, but their actual income varied from Rs. 50 to Rs. 270 per annum, and the amount of work of the different circles varied to almost as great an extent. In fairness then both to the people and to the patwáris, and in the interests of revenue work, it was necessary to make considerable changes in the distribution of circles, and in the mode of remunerating the patwáris. It was decided that the rate on new cultivation should be abolished, and that the patwáris' cess should be fixed all over the district at the maximum rate of  $6\frac{1}{4}$  per cent. on the land-revenue, and should be collected into a general fund from which the Deputy Commissioner should pay the patwáris at monthly rates fixed according to their work and qualifications. At the time of the redistribution I had 135 patwáris drawing on the average Rs. 9-5 per month, and I had since the commencement of Settlement been revising their pay every two months according to the quantity and quality of the work done by each, and had been gradually raising their pay as their work improved. Leaving out some exceptionally useless men who were getting less than Rs. 8 a month, the standard of qualification was fairly good, and to judge from the grades then fixed and the manner in which the work was being done, it seemed that men drawing from Rs. 8 to Rs. 12 a month with an average somewhat over Rs. 10 would be able to carry out satisfactorily the work of patwáris in Sirsá. The amount of land-revenue on which the cess would be chargeable, including an estimate of the average income from the fluctuating assessment, was Rs. 2,81,716, on which a cess of  $6\frac{1}{4}$  per cent. would give an average income of Rs. 17,607, but out of this it was necessary to provide for a balance to meet the case of bad seasons causing a decrease in the fluctuating revenue, or a suspension of the fixed land-revenue, and it was also necessary to provide for the payment of girdáwars or supervisors to superintend the work of the patwáris in the field. The arrangements I proposed, which were ultimately sanctioned, gave 121 patwáris instead of 136, the reduction being chiefly made in the Sirsá tahsil where many of the circles had formerly been much too small; and the averages are now as follows:—

TAHSIL.	No. of patwáris.	AVERAGE PER PATWARI.					
		No. of villages.	Total area acres.	Cultivated area acres.	Assessment.	No. of fields.	No. of holdings.
Sirsá ...	47	4	13,514	8,602	Rs. 2,355	900	443
Dabwali ...	36	4	14,521	8,855	2,175	1,248	494
Fazilka ...	38	8	20,145	9,046	2,349	1,261	420
Total of the district ...	121	6	15,896	8,917	2,300	1,117	451

Seven girdáwars were appointed from among the patwáris, and the patwáris' circles were distributed among them so as to give each of them as nearly as possible the same amount of supervision. Tahsil Dabwáli was given only one girdáwar, and tahsils Sirsá and Fázilká with their fluctuating assessments were given three each. It is intended that the girdáwars shall be selected from among the patwáris, and shall retain a lien on their patwáris' circles to which they may return on quitting the post of girdáwar. A substitute is appointed as patwári and draws the full pay of the post while the original patwári remains girdáwar. The seven girdáwars are paid from the patwáris' fund at the rate of Rs. 15 per mensem with half-yearly rewards at the discretion of the Deputy Commissioner not exceeding Rs. 30 each half-year. The patwáris' cess at  $6\frac{1}{4}$  per cent. on the revenue is realised by the tahsildárs and credited to the patwáris' fund account which is under the control of the Deputy Commissioner, and from this fund the patwáris are paid at the following rates :—

TAHSIL.	No. OF PATWARIS WHOSE PAY PER MENSEM IS			Total No. of patwaris.
	Rs. 12.	Rs. 10.	Rs. 8.	
Sirsá ... ..	16	23	8	47
Dabwáli ... ..	12	18	6	36
Fázilká ... ..	12	20	6	38
Total of the district ...	40	61	20	121

Thus the average pay per mensem is Rs. 10-5. The number of patwáris in each grade in each tahsíl is not to be altered without the sanction of the Financial Commissioner, but the Deputy Commissioner may for sufficient reason promote one man and reduce another from grade to grade. At the close of Settlement operations I graded all the patwáris according to the way in which they had worked through the Settlement, making some allowance for seniority, the claims and merits of each being discussed before him and his fellows before orders were passed. There were hardly any cases in which the new rate of pay was less than the patwári had been previously drawing, so that the patwáris were as a rule well content with the rates fixed. The average annual income and expenditure of the patwáris' fund are estimated as follows :—

TAHSIL.	Land-revenue on which cesses are chargeable.	Patwáris' fees at $6\frac{1}{4}$ per cent.	Annual cost of Girdáwars (maximum.)	Annual cost of Patwáris.	Annual savings.
	Rs.	Rs.	Rs.	Rs.	Rs.
Sirsá ...	1,10,704	6,919	720	5,832	367
Dabwáli ...	78,312	4,894	240	4,464	190
Fázilká ...	92,700	5,794	720	4,704	370
Total of the district.	2,81,716	17,607	1,680	15,000	927



This surplus of Rs. 927 is meant to provide a balance against the fluctuations in the realisation of the income which may be expected to result from the fluctuating assessments and the suspension of fixed assessments. Should it accumulate to more than half the annual income, the Deputy Commissioner will report as to its disposal. The patwáris and girdáwars will draw their pay from the tahsíl every three months for the past quarter, the maximum disbursements for the quarter being Rs. 4,170. I paid them from the Settlement deposit for the quarter ending September 1882, and since then they have been paid by the Deputy Commissioner from his patwáris' fund. Regarding the patwáris' office and stationery charges, the following clause has been inserted in the administration paper of each village:—"The villages of each circle are bound to build and maintain in repair the patwáris' office, and to pay any expenses necessary for this purpose in proportion to their revenue. The patwári will realise from the village common fund the cost of paper, ink, &c., for his annual records, but the annual charge on this account must not without the tahsildár's sanction exceed 6 annas per cent. on the assessment." In most circles patwáris' offices exist already, and the repairs should cost the peasants little or nothing beyond occasional labour. The charges made by the patwáris for stationery should be carefully scrutinised. Paper of uniform size and quality is lithographed and supplied to the patwáris, the cost being deducted from their pay and afterwards realised by them from the village common fund. The patwáris continue, as under former arrangements, to draw the allowance on the local rate and the share of mutation fees leviable within the circle.

At the commencement of operations only 59 of the 139 patwáris in the district could map, and we had considerable difficulty in training them; several men who were reported incapable I encouraged to try again and succeeded in teaching to map correctly, and I had to allow some of the older men whose eyesight was bad to do their mapping on a large scale. Ultimately 114 of them learned to map, and themselves measured and mapped at least one village; many of them measured five or six villages, and, on the whole, more than half of the measurement work of the district was done by the patwáris. During Settlement operations four patwáris who felt themselves incapable resigned of their own accord, four were removed as quite useless, four were dismissed after twice failing to pass the examination, six were superannuated, and six dismissed for bad conduct. I held two examinations of the patwáris towards the end of Settlement operations and passed all but five of them as fit for their posts. Some of the older men were not very active or intelligent, but the patwáris as a whole had improved very much in skill and knowledge during Settlement operations and seemed fit to carry on their duties. At the commencement of the Settlement 66 of the patwáris could read and write only the Hindi or Nágrí character; at the end, although 54 of them still ordinarily wrote in that character, they could almost all read the figures and numerals in the Persian character and words ordinarily used in the Settlement record, so that it was unnecessary to make out for them a separate complete copy in

the Nágri character. I allowed candidates for patwáriship to appear at the examinations and gave certificates of fitness for the post of patwári to 80 candidates, of whom 26 were residents of the district. I made over to the Deputy Commissioner a register of the passed and unpassed patwáris and a list of the passed candidates from which he will be able to fill up vacancies.

The work of a patwári consists chiefly in observing and recording the results of each harvest, keeping the accounts of the village and bringing to notice all changes affecting the record of rights, which he has to keep up to date. His work in the field is checked by the girdáwars, and above them there is a kánungo for each tahsíl whose duty it is to supervise the work of the girdáwars and patwáris and to maintain the revenue records of the tahsíl, and above them again a sadr kánungo who maintains the revenue records at district headquarters. All these officials did good work under me during Settlement operations and received a useful training in their duties.

347. I drew up a set of rules and forms, which has been printed in English and Vernacular, describing the duties of the patwáris, girdáwars and kánungos and the form in which the record of rights is to be maintained. The basis of the whole system is the harvest inspection, at which the patwári visits every field in the village, and records what crop it has produced and whether any changes have taken place affecting the rights in it. The reports and returns which he draws up for each village after this inspection are sent into the tahsíl and there entered into registers by the kánungo, so that the condition of each village and of the tahsíl as a whole can be ascertained from an inspection of the tahsíl registers. I drew up in English a village note-book for each village, giving all the available statistics regarding its area, cultivation, irrigation, population, cattle, &c., and a note describing the condition of the village, my reasons for assessing it as I did, and the arrangements made between proprietors and tenants. These have been bound up and made over to the Deputy Commissioner, on whom the Financial Commissioner has impressed the advisability of his taking them about with him in camp and of recording in them or in supplementary volumes any important facts which bear on the revenue administration. I wished to give the tahsildárs complete copies in Vernacular of these village note-books, but it was not thought necessary to give them more than the bare statistics. Provision however has been made in the rules for the maintenance of village note-books in Vernacular by the tahsildárs, and it is important that these and the village statements should be kept up to date that it may be easy at any time to ascertain the condition of any village. Directions have also been given for the observation of the outturn of each harvest and for a general report upon the nature of the harvest, the condition of the people and cattle, and the realisation of the revenue, similar to those I have given at pages 256 to 292 of this Report. Forms have also been prescribed for the reports of the results of the fluctuating assessment to be submitted each harvest to the Commissioner for sanction.



348. When the district came under British rule, each village was required to maintain a watchman or constable (*chaukidár*) for the prevention and detection of offences, and as at first the number of crimes, and especially of cattle-thefts, was considerable in proportion to the population, the number of these watchmen was at first large and the burden of maintaining them heavy. Their number was reduced at the Regular Settlement, but in many parts of the district their pay still equalled 13 per cent. of the land-revenue. Few changes were made during the currency of the Settlement; and up to the recent Revision of Settlement there were in the district 507 village watchmen drawing pay at different rates averaging Rs. 31 per annum and aggregating Rs. 15,500; but they were very unequally distributed, and in tahsíl Fázilká which had been most recently colonised there were 130 villages which had no watchman. According to the rules under the Panjáb Laws Act, the arrangements for watch and ward of the villages had to be revised at the Revision of Settlement, and at the request of the Deputy Commissioner I discussed the arrangements with the villagers when they were assembled to hear their new assessments announced, and submitted proposals which were approved by the Deputy Commissioner, sanctioned by the Commissioner and put in force. I increased the number in the Fázilká tahsíl, where the population had nearly doubled since the previous arrangement was made, and reduced the number considerably in the Sirsá tahsíl where the number originally appointed had been very large, and the population had increased at a slower rate. The total number of watchmen in the district is now 499 to the 645 villages (excluding Municipalities), giving an average of one watchman to 88 houses or 446 persons, while at last Settlement the average was one watchman to 300 persons. Only 36 villages have been required to maintain more than one watchman, 296 have a watchman each, and the remaining 313 have been combined in twos or threes in watchman's beats; so that there is now no village in the district without some watchman bound to report the occurrences in it. The pay of the watchmen now aggregates Rs. 17,450 and averages Rs. 35 per annum; 448 of the 499 are paid at the rate of Rs. 36 per annum, and the others having smaller beats draw pay at lower rates. The increase of cost is wholly in the Fázilká tahsíl and the total cost now falls at 6 per cent. on the land-revenue; but the watchmen are now everywhere paid at an all-round rate levied on the houses within their beat, except where the proprietors levy rents at double the assessment rate and are liable to pay the watchman out of their profits. The arrangements now made have put the watch and ward of the villages on a much more satisfactory footing and distributed the burden much more equally than before, but the district is progressing so rapidly that it will be necessary to modify them now and then in order to keep pace with the times; and there is no reason why the arrangements of individual villages should not be reported for modification as occasion arises without waiting for a general revision of the arrangements of the whole district. The burden though much lighter than before is still heavy, and the number should not be increased without good reason. As a rule