

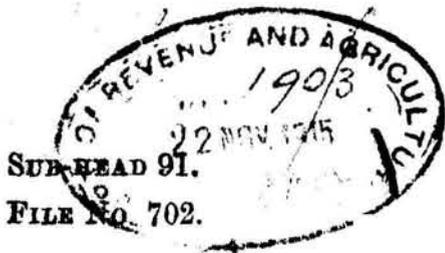
REVENUE AND AGRICULTURAL DEPARTMENT.
REVENUE.

JUNE 1915, Nos. 16-23.

ASSESSMENT REPORT OF THE KHUSHAB TAHSIL OF THE SHAHPUR
DISTRICT.

File No. 33.

No. 417.



FINANCIAL COMMISSIONERS' OFFICE :

Dated Lahore, the 29th April 1915.

FROM

J. M. DUNNETT, Esquire, I.C.S.,

Junior Secretary to the Financial Commissioners,

Punjab,

THE REVENUE SECRETARY TO GOVERNMENT,

PUNJAB.

The Hon'ble Mr A. H. Diack, C V.O.

SIR,

I AM directed to forward a copy of the Assessment Report of the Khushab Tahsil of the Shahpur District by Mr M. S. Leigh, I.C.S., Settlement Officer, together with the Commissioner's review and the orders which the Financial Commissioner proposes, with the approval of Government, to pass thereon.

2. I am to say that the Financial Commissioner has abstained from making any comparisons between the proposals for this tahsil and those made in Mr. Leigh's previous assessment report on the Cis-Jhelum tract (No. 952, dated 26th November 1913), because Government has not yet passed orders on that, and in any case the tract dealt with in it has little in common with this tahsil except in the Bet-Jhelum, and there irrigation from canals which is such a prominent feature of the Shahpur and Bhera riverain is almost entirely absent in Khushab.

3. A printed copy of the correspondence on the commutation prices sanctioned for adoption in this settlement is enclosed for reference.

I have, &c.,

J. M. DUNNETT,

Junior Secy. to the Finl. Commrs., Punjab.



Financial Commissioner's orders on the Khushab assessment report.

THE Commissioner in a brilliant review which throws an instructive light on the tenderness to the ryot of our practice in assessment has dealt so thoroughly with the tract and its problems that I need notice only the points bearing immediately on the orders which I propose to pass. I need add nothing to his remarks on physical features and assessment circles, rainfall, increases in cultivation, population and live-stock.

2. The cropping of the various circles is compared in the following table with that of adjacent or similar circles in percentages of the total matured area; there is no other circle exactly like the Thal, but the two Ferozepore Circles have some points of resemblance to it:—

Crop.	Pind Dadan Khan Hill	Khushab Hill.	Mianwali Pakka.	Khushab Mohar.	Pind Dadan Khan River Bank.	Khushab Bdt.	Khushab Thal.	Ferozepore R. hi.	Fazilka Udar.
Bajrs	25	30	39	32	6	4	11	1	4
Maize	...	...	...	...	6	...	...	1	...
Jowar	2	2	8	7	5	4	...	2	2
Cotton	...	...	...	1	4	1	...	...	...
Pulses	9	6	8	2	2	2	23	...	2
Total kharif	39	42	59	46	25	23	55	12	19
Wheat	48	44	14	84	60	50	...	35	28
Gram	1	...	15	16	2	9	34	47	40
Oilseeds	8	11	6	2	8	...	...	1	3
Total rabi	61	58	41	54	75	77	45	88	81

3. Sales since settlement have amounted to 5 $\frac{1}{2}$ per cent. of the total cultivated area, and less than 10 per cent. of the cultivation is under mortgage as compared with 14 $\frac{1}{2}$ at last settlement. The weakest circle in this respect is the Jhelum where 9 $\frac{1}{4}$ per cent. of the cultivated area has been sold and 15 per cent is under mortgage. In the Thal where acquisition by squatting was unrestricted before 1905 alienations have been few. Only 2 per cent. of the cultivated area has been sold, and 3 $\frac{1}{2}$ per cent. is under mortgage. There is nothing unhealthy in the statistics of transfer. All circles are much less encumbered than at last settlement. Only 1 $\frac{1}{2}$ per cent. of the cultivated area has been sold to non-agriculturists, and they hold only a little over 5 per cent. on mortgage. In the Hill and the Mohar Circles the proportion of the cultivated area mortgaged to non-agriculturists are 6 per cent. and 4 per cent. respectively, but in the Jhelum. Circle the figure is as high as 12 per cent. In the last-named circle the areas mortgaged between 1893 and 1903 were considerable, but during the last decade the rate of alienation has been checked and redemption has gone on apace so that the circle is now better off

Alienations.

than at settlement or at any time since. The requirements of all circles for the equipment of the numerous colony grants must have been considerable, and it is satisfactory that that expenditure has been met concurrently with a reduction in embarrassment.

4. Owing partly to the small percentage of area sold and partly to the intermixture of waste and cultivation in the plots transferred the Settlement Officer has had some difficulty in arriving at the true selling value of cultivated land. The figures, however, leave no doubt that it has increased enormously since last settlement, twofold in the Jhelum and as much as fourfold in the Mohar and Hill circles. It is quite certain that these enormous increases do not represent simply the increase in the value of agricultural produce, and it is very likely that transfer values in circles where the inflow of money from miscellaneous sources is so considerable are above a fair remunerative price. But in the absence of any serious pressure on the soil they are a striking indication of the financial prosperity of the tahsil. And expressed in multiples of the land revenue, (and the multiples given in the table on page 21 are much below actuals) they afford a striking proof that the present demand is now very light, whatever its pitch may have been when it was imposed.

5. This, as well as the increase in the price of land, is largely due to the rise in the prices of agricultural produce which in paragraph 52 Mr. Leigh makes out from a comparison of the actuals of 1887-92 with the actuals of 1909-1914 to have been 32½ per cent. This is based on circle note-book figures and agrees with Mr. Connolly's estimate in his forecast (30 per cent.) which was based on gazette figures. The area cultivated by the owners themselves is high except in the Jhelum. The tenants there and elsewhere are drawn chiefly from the proprietary body and almost invariably pay rent by division of the produce. Irrigated and sailab lands rent for half the produce. In the Thal the owner usually takes a third. In the other circles various rates are paid for unirrigated soils, and the higher rates are becoming more common. Cash rents are practically unknown. The assessment of the cultivated land must therefore be based on calculations of proprietary profits framed from the value of the produce which normally reaches the owner. These calculations are unfortunately scattered through the report and the statements, and statement XIV does not, as is usual, afford a complete account.

6. The cycle of years selected as representative of the present normal cropping is the five years ending with rabi 1911, and Statement XIV is based on the matured areas of that period. The selection was not free from difficulty as the recent development of cultivation in the Thal and the Mohar limited the choice to the last ten years, and in those the harvests had been very diverse. Accepting the Settlement Officer's selection I suggested the corrections quoted in paragraph 41 of the report in order to bring the averages of the selected years into conformity with his estimates of the normal in each circle. Mr. Leigh accepts the reductions made in the Jhelum, Mohar and Hill Circles, but would raise, not reduce, the average yielded for the Thal by the selected years. The increase he suggests of 16 per cent. in the rabi cropping of the Thal is, however, hardly justified by recent statistics. The estimated normal of 17,500 is roughly the average of the last five years, and in these the sown area remained high. Past history shows that allowance must be made for years in which sowings are seriously contracted and I think it best to accept the average of the selected years without alteration.

7. Mr. Leigh's rates of outturn have been arrived at chiefly by correcting Sir James Wilson's rates in the light of the results of experiments and the assumptions made in adjoining tahsils. The general justification for rais-

ing the rates of last settlement is that the new rates are for application to matured areas carefully ascertained, whereas twenty-five years ago the Settlement Officer had to depend on the returns available for the few years during which the recently introduced harvest to harvest crop inspection had been in force. Mr Leigh has proceeded with caution in raising Sir James Wilson's figures and his yields are suitable, except perhaps in the case of gram and particularly the gram of the Thal. On this virgin soil the yield is doubtless high, but from what I saw of the cultivation on those sandhills and hollows I should doubt whether it is safe to take an average yield of 9 maunds per acre matured. Eight maunds is probably high enough, and to be on the safe side it might be put at seven, which is more in accord with the conclusions arrived at in Hisar and Fazilka.

8. Colonel Young in paragraph 10 (a) of his review dwells on the relationship between the assumed yield and the assumed area discussed in the last paragraph. His criticism also shows that in framing our produce estimates we allow for fields that produce less than the standard but ignore the large number that produce in excess of the standard. It must be admitted that the resulting estimate is rather the minimum than the actual outturn of a year in which the area matured is normal, and perhaps the fact is not always sufficiently borne in mind. But to make an estimate of the actual outturn of a circle for an average year would involve greatly increased labour and would be of little practical use, seeing that we are never able to approach in assessment the half asset estimates made on the present system.

9. The scale of commutation prices is that adopted for the rest of the district, with this exception that Thal gram is assumed to fetch 4 annas per maund less than the gram of other circles, 24 annas to 28 annas—a fiction devised by the Settlement Officer to meet the fact that Thal gram is most plentiful in the years when prices are lowest. With these rates for gram and a rate of Rs. 2-4-0 for wheat it is scarcely likely that prices will ever fall to the level of the produce estimate.

10. The Settlement Officer's estimates of half net assets from crops are Rs. 1,17,500 for the Jhelum, Rs. 44,500 for the Thal, Rs. 1,34,000 for the Mohar and Rs. 1,20,600 for the Hill Circle. The assumptions underlying the estimates are made with caution except in the case of the Thal. For that circle the result given by the average area cropped in the selected years, namely, Rs. 29,300, is safer than the above and might be further reduced to Rs. 31,000 on account of exaggeration of the gram outturn. Otherwise the Settlement Officer's calculations may be accepted as a cautious estimate of a full demand. The true half net-assets therefore compare as follows with those of last settlement :—

Circle.	Half net assets of	Half net assets now.	Rate of increase.
	last settlement.		
	Rs.	Rs.	
Jhelum	70,000	1,17,500	68
Thal	4,800	31,000	...
Mohar	70,000	1,34,000	91
Hill	75,000	1,20,000	61
Tahsil	2,19,800	4,03,100	...

11. Mr. Leigh has rightly devoted great care to framing estimates of the income earned by the inhabitants of the tahsil from their live-stock. Based on rough generalizations they are necessarily *mitima* and as such they may be

accepted, viz., Rs. 51,910 in the Jhelum, Rs. 1,86,560 in the Thal, Rs. 1,07,230 in the Mohar and Rs. 45,660 in the Hill Circle. But the Commissioner rightly points out that the land owners are not the only owners of stock, and their net profits from this source are difficult to gauge. There is nothing in the circumstances of the tahsil except perhaps in the Thal which requires us to make a difference in this respect in the practice followed in other semi-pastoral tracts such as Karnal and Hissar. When it is impossible owing to the leniency of the present demand to raise it to anything approaching the equivalent of half the net income from arable land it has been our practice to take that income alone (of which it is possible to frame a fairly reliable estimate) as the measure of the new demand and to bear in mind that there is the more justification for approaching that measure if the income from live-stock is considerable. In the Fatehabad Tahsil, for instance, where the figures for live stock were only a little below those for Khushab and the profit therefrom estimated to be about the same, the circle assessments were based on the half asset estimates derived from arable land alone. The rougher estimates of the income from stock are, however, useful for arriving at rates suitable for application to the waste in estates where the profits from stock are so considerable as to require that the waste land should bear a share of the assessment.

12. In paragraph 31 the Settlement Officer has given various estimates of miscellaneous profits not due to agriculture. However unfair it may be to under-assess a population that breeds and multiplies on the land without attempting to seek for work or service elsewhere to add to its income, the fact that the people of this tahsil not only make the most of their land, but also are enterprising enough to take up outside sources of income cannot be overlooked in considering their revenue paying capacity.

13. The Jhelum is agriculturally the best circle. It has 27 per cent. of the cultivated area protected by wells and the rate of crop failure—13 per cent—is low. The proprietary body, however, is the least satisfactory in the tahsil and the highest amount of mortgage is in this circle. The cultivated area has increased slightly, and there is a small increase in the chahi area though wells are more numerous than before. The circle is more free from embarrassment than at any time since settlement. The present assessment is Rs. 64,000 including fixed assessments of Rs. 1,100 and Rs. 1,000 on date-groves and waste respectively, and the average income, Rs. 1,000 round, from the present water advantage rate. The demand proposed by the Settlement Officer is Rs. 75,000 including Rs. 1,200 and Rs. 4,200 fixed assessments on date-groves and waste and Rs. 2,000, the estimated income from the water-advantage rate. The information given in the report is not sufficient to enable me to deal with the assessment of date-groves, and that will be disposed of in separate orders. Omitting it the Settlement Officer's proposed demand, Rs. 74,000 round, absorbs 63 per cent. of the half asset estimate for arable land, involves an enhancement of 15 per cent. on the present demand and falls at Re. 1-15-8 per acre of the matured crops. In the River Bank Circle of Pind Dadan Khan which is rather better than this circle, but which was assessed as long as 17 years ago, the demand then imposed was estimated to fall at Re. 1-12-0 per acre of matured crops. No comparison can usefully be made with the Kharia Bet Jhelum which includes much inferior Pabbi land, but the rate sanctioned there for *sailab*, Re. 1-14-0 per acre, is the same as that proposed here. The Commissioner would raise this rate to Rs. 2-4-0 and so add Rs. 5,000 to the demand. The circle could no doubt stand this addition, but on the whole I accept the Settlement Officer's proposal as adequate.

14. His rates of fixed assessment are suitable. The improvement in the Corbynwah justifies the proposal to raise the water-advantage rate to Re. 1 per acre matured, which is accepted. Lift irrigation and grass appear from the Settlement Officer's account to pay at present 4 annas an acre, i.e., half the present rate of 8 annas and the Settlement Officer proposes to maintain the rate of 4 annas for both. From paragraph 65 of Mr. Wilson's Khushab Report it would

seem that he meant to exempt altogether grass land on this canal from payment, and Mr. Leigh's proposal to continue the low rates now in force is therefore appropriate. The rate of Rs. 4 per 100 acres of waste may be used in distributing the demand over villages, though it will be for the people to decide whether to use it in the internal distribution or to enhance instead the rates on cultivation.

15. The fixed system of assessment will be adhered to for the present in this circle, but provision has to be made for the contingency of conditions being materially altered by the reduction of river flood owing to withdrawals from the river by the Upper Jhelum Canal. In paragraph 23 of his draft orders on Mr. Leigh's previous report Mr. Fagan observed that this provision should take the form of a true fluctuating assessment at classified crop rates on matured crops, and that revised proposals with this object should be drawn up by the Settlement Officer. Mr. Leigh in paragraph 70 of his present report remarks that his proposals will be submitted when orders reach him on the Shahpur and Bhera Tahsils. For the Khushab Tahsil, however, he should draw up a scheme at once and orders to this effect have been communicated to him.

16. The existing assessment of the Thal is Rs. 11,830. The demand when introduced was Rs. 12,000, of which Rs. 4,500 fell on the cultivated area and Rs. 7,500 on the waste. In the meantime the cultivated area has increased 166 per cent., and yields almost as much profit as the waste. This development has occurred concurrently with an increase in the head of stock and in the profits from the waste, and the extension of cultivation is still proceeding. The Settlement Officer proposes a demand of Rs. 47,320, or four times the present demand, to be reached by progressive enhancement of 50 per cent., and to be reassessed at the end of twenty years. This is in excess of the Settlement Officer's estimate of the value of half the net assets of cultivation and considerably in excess of my estimate, Rs. 31,000. Its incidence on matured crops would be Re. 1-5-4, compared with Re. 1-1-2 and Re. 0-8-8, that of the new demand recently sanctioned for the Ferozepore Rohi and the Fazilka Uttar respectively. The forecast for this tahsil was dealt with by a number of officers at different stages, among them by Sir James Wilson, its former Settlement Officer, who as Financial Commissioner, in full knowledge of the great transformation that had taken place, estimated the new demand of this circle at Rs. 24,000. Sir James Douie who, as Financial Commissioner, dealt with the case at a later stage put it at Rs. 22,000. In the fuller knowledge that we now possess and in view of the fact that the development of gram cultivation has gone on continuing while the profits from stock have not diminished, we may considerably exceed these estimates, and I agree with the Commissioner that whatever the final demand may be the initial increase may be Rs. 19,000 instead of the Rs. 6,000 proposed by the Settlement Officer. But I hesitate to accept a final demand of either Rs. 48,000 as proposed by Mr. Leigh or Rs. 52,000 as proposed by the Commissioner. I think, that the proper course to take with this exceptionally situated circle is to have a short term of settlement, and in that case an assessment of Rs. 29,000 (at 13 annas per acre of matured crops) is a sufficiently high demand to cover both cultivation and waste. It absorbs 93 per cent. of my half asset estimate for the former, and is the equivalent of applying to cultivation and waste the rates of last settlement, viz., 4 annas per acre and Rs. 2 per 100 acres, respectively, which rates may suitably be employed in distributing the new demand. Of the new demand Rs. 22,000 should be imposed at once, and the balance should be deferred for 5 years. I would limit the term to 10 years. If the cultivation of gram should prove to be ephemeral it will be necessary to revise the assessment: if it is maintained and extended the Thal will soon outgrow even its present stage of development.

17. The present assessment of the Mohar is Rs. 69,206. The demand proposed by Mr. Leigh consists of Rs. 78,000 round on cultivation and Rs. 10,000 on the waste, total Rs. 88,000, which absorbs 65 per cent. of the half

asset estimate based on profits from cultivation. It falls at Re. 1-8-8 per acre matured and amounts to an enhancement of 27 per cent. After allowances have been made for differences in the method of soil classification the cultivated area is found to have increased 20 per cent. The greatest increase has taken place in the Thal area, where the same process has been going on as in the Thal Circle and the cultivated area has almost doubled, but there are also increases of 4 per cent. in embanked lands and of 17 per cent. in the lands profiting by surface drainage. The net result of Mr. Leigh's proposal is to take an increase of only $1\frac{1}{2}$ per cent. on account of a rise in prices which is estimated at $32\frac{1}{2}$ per cent. The proprietary body is strong. Holdings average 9 acres cultivated. Miscellaneous income amounts to roughly Rs. 4 lakhs per annum, and less than 10 per cent. of the cultivated area is under mortgage. Cropping, however, is not particularly secure, twenty-nine per cent. of the sown area failing to mature, and suspensions of the demand with occasional remissions are a necessary feature of the administration. It is for this reason that the Commissioner proposes a fuller demand of Rs. 91,000, which he estimates would after deducting remissions yield on the average the Rs. 88,000 proposed by the Settlement Officer. Mr. Leigh would maintain unaltered Sir James Wilson's rates on *rariidar* and *barani* soils and reduce the *naladar* rate from Re. 1 to Re. 0-14-0. This accords with the people's own valuation as shown at their distribution of the land revenue, and good *rariidar* land is little inferior to *naladar*. In the discussion which took place on the forecast this circle evoked more varying opinions than any. The Commissioner and the Deputy Commissioner were disposed at first to think that a reduction was necessary. Sir James Wilson, however, as Financial Commissioner considered that an increase of Rs. 10,000 might be taken. Later Sir James Douie in the same capacity recorded his opinion that a fluctuating system was the most suitable treatment, and that otherwise no increase was possible. Sir James Wilson knew the circle best and with the fuller information as to increase of cultivation that is now before us there need be no hesitation in accepting the Settlement Officer's enhancement of Rs. 18,000, based as it is on village to village estimates. To go higher, however, as the Commissioner proposes would probably entail even a more watchful and liberal policy in collection than that of the past settlement. In the adjacent Pakka Circle of Mianwali the estimated income from the fluctuating assessment introduced in 1907 was Rs. 67,000 or an increase of 69 per cent. on the old demand of Rs. 40,000 round, and absorbed $54\frac{1}{2}$ per cent. of half-net assets*. It falls at only 14 annas per acre of matured crops, but obviously it was the extreme leniency of the old assessment that prevented a more adequate pitch being adopted. The Khusab Circle is the better of the two, as the cropping shows, and as the Settlement Officer's demand practically maintains the rates of last settlement I accept it and also his proposed method of distribution. The experience of the fluctuating system in Mianwali has not been such as to encourage its extension elsewhere without strong reasons for such a course. The people have no wish for it here and the working of the past settlement has shown that a fixed assessment can be made sufficiently elastic for the circumstances of the tract.

18. The Hill Circle is the most fully developed of all the circles. The waste available for cultivation is only 2,500 acres. Cultivation depends largely on laborious embanking. Holdings are small, but large enough (5 acres) for the maintenance of the manly and vigorous population, who take service freely and have numerous sources of miscellaneous profit. Fifteen per cent. of the sown crops fail. Mortgagees, mostly of the cultivating classes, hold 12 per cent. of the cultivation, and there has been an enormous rise in the value of land. During the bad years which occurred during the currency of the expiring assessment less than the equivalent of a year's demand was remitted. The present assessment is Rs. 53,457 and the estimate of half net assets is Rs. 1,20,000. The real increase in the cultivated area is 7 per cent., most of the gain being in the laboriously embanked lands. The Commissioner agreeing with the Settlement Officer proposes a demand of Rs. 65,760 or 54 per cent. of half net assets, with an incidence of Re. 1-8-4 per acre of matured crops and an enhancement of

* Paragraph 17, Financial Commissioner's review of Assessment Report.

23 per cent. The enhancement for the rise in prices is therefore 12 per cent. The Hill Circle of Pind Dadan Khan is a similar but somewhat inferior circle. The incidence on matured crops of the demand introduced in 1898 is Re. 1-11-0 per acre. This shows that the demand proposed is very moderate, but in a circle of small holdings it is the amount of enhancement that can be borne that has principally to be considered. Sir James Wilson as Financial Commissioner gave Rs. 10,000 as the amount that might be taken, and Sir James Douie thought Rs. 7,000 would be enough. Since they wrote prices have been sustained, full statistics have become available, and Mr. Leigh has made his detailed village inspection. I accept his assessment and his rates.

Financial results. . . .

19. The results are as follows:—

Circle.	Present demand.	Amount if not added.	Demand proposed by Settlement Officer.	Demand proposed by Commissioner.	Demand approved by Financial Commissioner.	Increase per cent. of 6 on 2.
	Rs.	Rs.	Rs.	Rs.	Rs.	
Jhelum	64,000	1,17,500	*75,000	80,000	174,000	10
Thal	11,830	31,000	†47,320	†52,000	†29,000	145
Mohar	69,200	1,34,000	88,000	94,000	88,000	27
Hill	53,487	1,23,900	66,000	66,000	66,000	23½
Tahsil	1,98,523	4,03,100	2,76,320	2,92,000	2,57,000	29

*Inclusive of date assessments.

†Exclusive of date assessment, to be imposed separately.

‡The demands framed by the Settlement Officer and Commissioner are their final demands for a 20 years' term, while the Financial Commissioner's demand is for a proposed term of 10 years.

Cesses.

20. Cesses may remain at their present rate.

21. The demand should be introduced if possible with effect from the Rabi of 1915 which promises to be a bumper harvest. Final orders regarding

the term of settlement will be passed by Government on the Final Settlement Report and will depend partly on the result of the assessment of the Shahpur and Bhera Tahsils, but in the Thal it should be announced that the assessment is for 10 years only. In the rest of the tahsil outside the Thal areas conditions are so stable that a 30 years' term would not be unsuitable. To meet the contingency of the Sind Sagar Canal being brought into use during the term of settlement it should also be announced that in that event the fixed assessments of villages commanded by it will be cancelled. Deferred assessments should be allowed in the Thal to the extent indicated in paragraph 16 of this review. For the other circles the ordinary rule quoted in paragraph 74 is suitable, but in applying it to the Thal portion of the Mohar and Bet Circles the Settlement Officer may if he desires take initial increases up to 50 per cent.

Occupiers' rates.

22. Occupiers' rates on the Corbynwah should be dealt with when the Settlement Officer reports on the rates to be imposed in future on the other canals of the district.

Dialluvion rules.

23. The Settlement Officer should, in advance of orders on this and on his previous report take up the subject of the dialluvion rules and submit a draft showing what changes he would propose.

24. The separate report on Government lands referred to in paragraph 76 need not be postponed till the Settlement Officer receives orders on his assessment report.

Government lands.

25. Mr. Leigh's report is fresh and original and his assessment proposals are well considered. He has as usual brought immense industry to bear on his task.

Notice of officers.

A. H. DIACK,

25th April 1915.

Financial Commissioner, Punjab.

Commissioner's Review of the Khushab Tahsil Assessment Report.

No. 18.

A range of hills, a river, and a great sandy plain are the dominating features of the Khushab Tahsil. A sloping sub montane region, the soil of which is naturally somewhat broken, and a strip of level land with a hard surface, connect hills with riverain, and with the sandy tract aforesaid, which one would be inclined to call a desert if patwaris' field maps and statistics of cultivation did not now render that appellation, hitherto applied to it without reserve, dubiously appropriate.

• Physical attributes of the tahsil, and Assessment circles.

The hills are the Salt Range, the river is the Jhelum, and the quondam desert is a portion of the great plain between the Jhelum and Indus rivers known as the Thal.

Assessment circles form themselves naturally, but not with the same clear cut limits as are defined by the physical attributes of the five tracts referred to above.

The Hill Assessment Circle does not extend beyond its natural boundaries. The sub-montane circle, however, cannot be separated entirely from the hills, from the "Chachh," or level plain of hard clay, or from the Thal, for the reason that many estates comprise areas in either tract; whilst in similar manner riverain villages own large hinterlands both of "Chachh" and of Thal. The "Chachh," therefore, disappears as a separate entity, and is for statistical purposes merged either in the "Mohar," or sub montane, or in the Jhelum Assessment Circle. The Thal, minus the fringe of sandy upland which is attached to various riverain and Mohar estates, constitutes the fourth assessment circle.

2 A small inundation canal and a fair number of wells irrigate something more than one-third of the cultivated area in the Jhelum Circle. River *sailab* is naturally the most important source of moisture in this circle. The Thal depends solely upon a scanty rainfall.

Means of irrigation and sources of moisture.

In the Mohar drainage from the hills, or from the higher to the lower portions of sloping fields, assists in the maturing of the bulk of the crops raised. Cultivation by the aid of the former is known as *naladar*, by that of the latter as *raridar*.

In the Hill Circle there is a little well irrigation and much laborious conducting and retaining of the rain water, which left to itself would do little but denude the hill sides and sloping terraces.

3. The type of cultivation in the riverain is well known. Slackness on the part of the cultivator is encouraged by the fact that he is more dependent on the vagaries of the stream than on his own labour. In the Thal the peasant has little to do but wander after his flocks and herds, and, in due season, "scatter the good seed on the land." In the Mohar the training of water flowing from the hills and higher levels by means of embankments, which constantly stand in need of repair, induce industry. In the hills the war with nature is much more arduous and enduring. Fields are almost hewn out of rocky hill sides, embankments are made which might serve as fortifications, and every scrap of soil and drop of water are utilised to the full by the hardy dwellers therein, whom Mr. Leigh aptly terms "human beavers."

The type of agriculture and rainfall.

It is somewhat unexpected to find that the rainfall throughout the tahsil has averaged since last settlement considerably more than in the period from the statistics of which Mr. Wilson (now Sir James Wilson), the last Settlement Officer, drew his conclusions. Mr. Leigh is justified by his figures in saying that the Jhelum Circle can count on an average of 13 inches in the year, the Thal and Mohar on about 10 inches, and the Hills on about 20. Distribution,

which is apt to be very erratic, is, however, of infinitely greater importance than accumulated quantity; and it will be well to assume that the tahsil may very likely experience harder times than the record of recent years would appear to suggest.

The classes of soil, enumerated and elucidated in paragraph 12 of the report, need no recapitulation here.

The inclusion of embankments in the cultivated area is the only point in which Mr. Leigh's method of classifying and recording areas has differed from Mr. Wilson's.

4. Facts of fiscal history prior to Mr. Wilson's Settlement, all of which were duly appreciated by him, have no direct bearing upon the present business of assessment. His revision was completed in 1894 and an enhancement of 30 per cent. for the tahsil resulted. The Jhelum Circle contributed 42 per cent., the Thal 20 per cent., the Mohar 30 per cent. and the Hill Circle 21 per cent.

The demand of the last settlement absorbed 85 per cent. of Mr. Wilson's estimate of the half-net assets of cultivation in the tahsil, an estimate which excluded the value of straw. The percentages in the four assessment circles were 87 in the Jhelum Circle, 80 in the Thal, 92 in the Mohar and 73 in the Hill Circle. The circumstances of the Thal, owing to the recent development of gram cultivation, bear no relation whatever to those which maintained at last settlement.

With an expansion of cultivation and a large increase in prices, it would have indicated some extraordinary fallacy in Mr. Wilson's calculations had his settlement failed to "work well," as the phrase goes. It is unnecessary to say in connection with the work of that distinguished officer that had there been any serious difficulty in collecting in normal years the demand which he imposed, we should have had evidence of catastrophic disturbances of agricultural conditions such as could not have been reasonably anticipated. There have been no catastrophes, and yet we do find that it has been necessary to suspend at different times revenue amounting in the aggregate to Rs. 4,79,862 in the tahsil, and to remit Rs. 1,66,167. Remissions have been considerable only in the Hill Circle, where they amounted to Rs. 42,499, and in the Mohar, where we have foregone a total of Rs. 1,07,325 or 7.4 per cent. of the demand for the whole period of settlement.

It would be interesting if I could make a comparison for the Jhelum, Mohar and Hill Circles between the demand of last settlement and the amount which we should have realised had we actually taken that share of the gross produce which was at the time of settlement, according to Mr. Wilson's calculations, the equivalent in value of that demand. Unfortunately we attempt no harvest to harvest valuations of the crops raised, and to ask Mr. Leigh to make a valuation now of all crops raised since last settlement would be to impose an unfair burden on a very busy official. We can, however, attempt a very rough and ready calculation for the Mohar Circle.

5. The demand imposed at last settlement was Rs 68,975 which amounted to 17 per cent. of the total value of the gross produce after deductions on account of fodder, etc. This estimate (appendix VII to Mr. Wilson's Final Settlement Report) did not, it appears, include the value of straw.

Mr. Wilson's appraisement of Rs. 3,90,793 compares with that made by Mr. Leigh, amounting to Rs. 8,13,944. This large increase is due to (a) an expansion of cultivation amounting to 20 per cent.; (b) a rise in prices equal to 49 per cent.; (c) the addition of the value of straw in Mr. Leigh's estimate; (d) the assumption of larger outturns made by Mr. Leigh in the case of certain crops; (e) and a rise in the landlord's

(a) Paragraph 24 (b) of the report, (b) paragraph 52. (c) Paragraph 51. See 134, 53 + 57

Fiscal history - continued.

Comparison of Mr. Wilson's and Mr. Leigh's produce estimates in the Mohar Circle.

share of the produce taken as rent. Mr. Leigh's valuation of straw in this circle is Rs. 53,521. I have calculated that the value of the increased maundage due to the higher outturns assumed for *bajra*, gram and *taramira* is Rs. 79,003.

If we were to raise Mr. Wilson's gross produce estimate proportionately to these factors we should arrive at the following :—

	Rs.
The estimate of last settlement	3,90,793
Add 20 per cent. for increased cultivation ...	78,160
Add 49 per cent. on the total of the above on account of rise in prices	2,29,810
Total	6,98,763

Mr. Leigh's additions of Rs. 53,521 for the value of straw and Rs. 79,003 on account of increased maundage due to higher outturns, would bring the gross produce estimate to Rs. 8,31,287, as compared with his actual estimate of Rs. 8,13,944. The difference is of course explained by the fact, noted in paragraph 24 (b) of the report, that the increase in cultivation has been in the inferior *barani* soils, and consequently of the lower priced crops, and has not represented a 20 per cent. rise in value.

I am, however, at the present moment attempting to evaluate the crops raised under existing conditions as Mr. Wilson would value them if he were to apply the standards of last settlement and the prices now ruling.

I find that his estimates allowed for a much smaller percentage of failed crops than Mr. Leigh's. At last settlement $\frac{1}{4}$ or 20 per cent. of the sown crop was classed as failed. Mr. Leigh has now assumed a failure of $\frac{2}{3}$, or of 29 per cent.

Regarding the whole process through Mr. Wilson's eyes we must, therefore, increase his valuation by 12 per cent., since the difference in the proportion of matured and failed crops is not due to any actualities, but merely to the methods adopted by patwaris, of their own accord or at the instance of those who control them. In order to eliminate the error resulting from increasing crop values by 20 per cent. on account of an all round increase in cultivation to this extent, we can work backwards from Mr. Leigh's gross produce estimate and arrive at the following :—

	Rs.
Mr. Leigh's estimate	8,13,944
Deduct value of straw included by Mr. Leigh and not by Mr. Wilson	53,521
Balance	7,60,423
Deduct value of extra maundage due to the raising by Mr. Leigh of Mr. Wilson's rates of yield	79,003
Balance	6,81,420
Add 12 per cent. on account of Mr. Wilson's lower standard of kharaba	81,770
Total	7,63,190

This is the sum which I calculate would have represented Mr. Wilson's present day valuation of the gross produce of this circle. It exceeds his estimate of twenty-one years ago by Rs. 3,73,397. It will be a fairly safe assumption that the increase in cultivation was not less in the first ten years of the expiring settlement than it was in the last ten years. On the other hand, we know that the rise in prices, the main factor, has mostly taken place within

the last decade. As a set-off against this we have the fact that the higher prices have applied to the larger cultivated areas. I have not allowed for a slight increase in rents which Mr. Wilson could not, of course, anticipate, but even so, we shall be on the safe side if we assume that the gross produce, calculated by Mr. Wilson's methods has, owing to the expansion of cultivation and increased prices, been on the average worth Rs. 1,50,000 to Rs. 1,60,000 per annum more than was assumed for assessment purposes. Seventeen per cent. on the mean of these figures would have amounted to about Rs. 5,50,000 in the 21 years of settlement. This means that our demand calculated in accordance with Mr. Wilson's methods has been less in this circle by some 5½ lakhs of rupees than it would have been had we taken in kind the percentage of the gross produce, and the proportion of the half-net assets, which Mr. Wilson's cash assessment was designed to take. If Mr. Leigh's methods of calculation be substituted for Mr. Wilson's, we may be said to have dropped on the assessment (an assessment designed only to take that share of the landlord's assets which was equal to 17 per cent. of the gross produce) at least 6½ lakhs.

6. I fear that I may have elaborated this point to a somewhat wearisome extent. * But surely nothing in the

The Mohar Circle assessment of last settlement.

fiscal history of the Mohar Assessment

Circle is worth considering in comparison to this. As things stood some twenty years ago the land-owners contracted to pay an assessment laboriously estimated by an expert of Mr. Wilson's calibre to be equal to the cash value of 17 per cent. of the crops grown on the soil owned by them. The landlord's profits have in the period of settlement exceeded the estimate on which the assessment was based by five or six lakhs of rupees, and yet we have remitted over a lakh of rupees from a demand which fell so far short of our own lenient standard.

The facts of the case may, in short, be thus represented. We formulated a demand of Rs. 68,975 per annum on the assumption that the value of that share of their produce rents which the land-owners would pay us was the equivalent of 17 per cent. of the gross produce. The aggregate of our demand, remissions excluded, in the 21 years of settlement was Rs. 14,48,475. Treating suspended revenue as collected, we have taken Rs. 13,41,150 only in this period. The share of the produce, the value of which we intended to take has been worth Rs. 20,00,000. The land-owning community is not only the richer by, say, 6 lakhs of rupees in respect of the sum which we might have realised without raising the pitch of the last assessment: it has also profited by a greater sum in respect of the increased value of that share of the produce which was expressly reserved to it; and, no doubt, by an amount not much less in respect of the profits derived from the application of its own-labour to the business of agriculture—the tenant's profits. To sum up, it may be stated that during the 21 years of settlement the zamindars of this poor circle have realised some 16 lakhs of rupees more than they would have done had the conditions in all respects remained precisely as they were when Mr. Wilson devoted so much sympathetic consideration to their circumstances. His demand has in fact been easily paid from an income which has accrued to them in addition to that of which he took cognisance. Similar calculations for the Jhelum and Hill circles would give similar, though less striking, results. In the case of the Thal there has, of course, been a vastly greater disproportion between owner's profits and the assessment. But here there has been an altogether abnormal expansion of cultivation which makes the Thal assessment problem a thing apart.

7. There is presumably a lesson to be drawn from the contemplation of

The lesson to be drawn from a consideration of the Mohar assessment.

these figures. This might at first sight appear to be the simple one that we should not have thrown away

Rs. 1,67,300 by remitting revenue out of a demand which in the aggregate has been 5 or 6 lakhs less than it would have been had the owners only paid to us that share of their net assets which they cheerfully contracted to pay twenty-one years ago.

In point of fact, however, the Mohar tract does not show signs of super-abundant prosperity. The remissions have afforded a very necessary measure of relief to a class of people who are not living extravagantly, and who would probably have got into debt and difficulty had we insisted on payment. The truth is, I take it, that the extra cost of maintaining the standard of comfort which obtained in Mr. Wilson's time, has absorbed a large portion of the surplus which would seem to have accrued to the land-owning classes. Perhaps even a larger portion has been devoted to raising that standard, seeing that this is still a low one which can well be raised and yet remain capable of expression in such primary terms as food, warmth, clothing and health without reference to such extravagances as leisure and recreation (not to mention 'kultur'). There is no occasion to feel that the remissions we have made, and the revenue demand which we have failed to formulate, have enriched people who had no use for the money, or given relief when none was needed.

The lesson seems to be that in an insecure tract we must give considerable remissions from time to time, even though our assessment is studiously moderate. Any accession of wealth will but operate to fill partially a great void in the lives of these people. It will not fill a reservoir. Consequently when the sources of wealth are temporarily dried the stern exaction of revenue can only mean privation. This is not an argument in favour of under-assessment in such a tract. It is, on the contrary, an argument in favour of a fairly full assessment. Having regard to our responsibilities and to the economic advance of India as a whole, it is not our duty to promote in any one part of the country a too rapid rise in the standard of living by leaving in the possession of the people surpluses, the expenditure of which will convert present luxuries into necessities of life, and render the temporary withdrawal of the means of attaining these a very real hardship. The policy in the Mohar should be, I take it, to formulate a reasonably full assessment, and to forego the demand readily when bad harvests follow each other in successions.

NOTE.—The fact that Mr. Leigh reduced his net assets estimate for the reason that the produce estimate related to a series of years of more than normal productivity, would affect the foregoing figures only within the margin which I have allowed for safety.

8. Generalities about this tahsil are vitiated by the circumstances of the Thal, where, owing to the belated discovery that gram crops mature in sandy soil with very little rainfall, and to the stimulus afforded by the rate at which gram can now be sold, there has been an almost riotous development of cultivation.

Mr. Leigh has, however, made in Chapter III of his report a most illuminating survey of the general statistics. The conclusion of the matter is that there has been, except for a recent set back in the population in the Jhelum Circle, progress in every direction. The Hill and Mohar circles are strong in their agricultural population and show, especially the former, considerable increases of cultivation. Wells have been added to; live-stock and agricultural accessories have materially increased throughout the tahsil. In the hills holdings are small. In the Thal they are large. In the Jhelum and Mohar circles they average 8 and 9 acres of cultivated land. There has been a substantial rise in the value of land. As Mr. Leigh points out, however, in paragraph 34 of his report, it would be very unsafe to make any deductions regarding the profits of cultivation from land values. In the Hill Circle the supply is less than the demand, and the price has relation not to the economics of investment, but to the land hunger of Awans. In the Thal until the great awakening of recent years land could almost be had for the asking.

The inferences to be drawn from a general survey of the statistics presented in Statements III to VIII-B are that our approximation to a half-net assets demand will be limited, in the Jhelum Circle, by a consideration of the comparative weakness of the proprietary body, induced by indolence bred of several conditions, aggravated by sickness and plague, and evidenced by heavier mortgages than in any other circle and by sales since settlement amounting to 6½ per cent. to agriculturists and 3 per cent. to non-agriculturists of the total cultivated land; in the Thal by reference to the nominal character of the present demand; quadruplication which would still leave the half-net

assets standard 'hull down' and out of sight being a process hardly known in settlement operations; in the Mohar by reference to the fact that the available water-supply has been utilised to the full, so that expansion of irrigated cultivation to any material extent seems impossible; and in the Hill Circle by a consideration of the extreme pressure on the soil, and an appreciation of the qualities of a people who, stimulated rather than depressed by adverse natural conditions, wield the sword and drive the plough share with equal courage and persistence.

9. The supremely important factor in the agriculture of this tahsil is, of course, the dependence of the great bulk of the cultivation upon a rainfall both scanty and precarious. In statement IX-A and in the diagrams appended thereto Mr. Leigh has illustrated the results which follow from plentiful and timely, and from untimely and insufficient, rain. Variations in areas sown and matured are least considerable in the Jhelum Circle where *chahi*, *nahri* and *snilab* cultivation is collectively more important than *barani*. Even in this circle it is demonstrated that in a really bad year the area of matured crops may be only three-fifths of the same in a really good year; and in the tahsil as a whole the difference in the area of harvested crop due to rainfall, or to the want of it, may be as four is to one. In the Thal a good year has produced 58,426 acres of successful crop, a bad one has yielded 4,989 acres only. Here, however, comparisons of this kind have little value, as the sown area is rapidly increasing year by year. It follows that I can by no argumentative process demonstrate the fact that Mr. Leigh's proposed assessment is exactly right, or too much, or too little. Our theoretical share of the value of the produce raised will be a great deal more than we can contemplate taking. We are going to make contracts for the payment of fixed assessments with people who will frequently have sums at their disposal out of which our demand will be a mere flea bite, and as frequently will be hard put to it to maintain the standard of living induced by their years of prosperity, even if they pay us no revenue at all.

In such circumstances it may well be a case of *quot homines tot sententia*.

10. The produce estimate, and an estimate of the profits derived from stock farming, which in this tahsil, and especially in the Thal, are very considerable, must form the basis of our calculations, and of our comparisons with past and present assessments in this district and in other districts of the Punjab.

(a) As to Mr. Leigh's produce estimate it will be observed that he has for reasons given in paragraph 41 of his report reduced the estimates which result from the statistical tabulation of the recorded croppings of the 'selected years'. Herein he has, I think, justification. If there is error it is on the safe side.

It is noteworthy that in the case of three staples, bajra, gram, and taramira, Mr. Leigh has felt constrained to assume higher outturns than Mr. Wilson thought appropriate. There is dubious justification for supposing that the yield is really larger than it was 20 years ago, Mr. Leigh's suggestion regarding 'rot bajra' (paragraph 51) notwithstanding, and one naturally hesitates to alter the figures of so careful an observer as Mr. Wilson. As I have, however, already indicated, the truth of the matter is that the difference is in respect of the standard for an average matured crop which these two experts have had in mind.

At the last settlement Mr. Wilson contemplated crop failures amounting to 6 per cent. in the Jhelum Circle, 10 per cent. in the Hill Circle, and 20 per cent. in the Mohar. Mr. Leigh's corresponding figures are 13 per cent., 15 per cent. and 29 per cent. In the Jhelum Circle the enhanced value of the gross produce due to the raising of the bajra, gram, and taramira outturns, I have calculated to be about Rs. 13,500. In the Hill Circle a similar calculation gives Rs. 2,000 only, and in the Mohar Rs. 79,900. But if Mr. Wilson's failed crop percentages were adopted instead of Mr. Leigh's, the latter officer's gross produce estimates would be increased by Rs. 46,000, Rs. 32,000 and Rs. 81,000 in

the three circles. In the Mohar the assumption of larger outturns is fully discounted by the adoption of a higher standard for a matured crop, and in the Jhelum and Hill circles the *kharaba* percentages assumed by Mr. Leigh really amount to a reduction of Mr. Wilson's crop outturns.

I trust I may be excused if I point out in passing that these discussions about crop outturns which figure so largely in our assessment reports, are really illusory and misleading. X, a Settlement Officer, Y, a Director of Land Records, and Z, a Commissioner, think that a fairly good field of wheat yields 8, 9 and 10 maunds per acre. The patwari, more or less controlled, decides what a fairly good field is. When it comes to striking an average of outturn in respect of all sown areas (obviously the ultimate issue) we may consider the patwari's figures for crops which have fallen short of his standard, but we ignore the outturns superior to the standard by which the return of a crop as matured is justified. In fact the argument of one expert is to the effect that a field which yields 8 maunds, yields 320 seers. Another maintains that 360 seers are garnered from a field yielding 9 maunds. The 8 or the 9 or the 10-maund field may all be accepted by the patwari as his standard for a matured acre. The 7 maund field is very likely, and the 12-maund field certainly, thus accepted. I have submitted elsewhere that we shall arrive at logicity only, and to a nearer approximation to facts, when our girdawari returns deal with outturns instead of with areas. The fact that Mr. Leigh thought that he was raising Mr. Wilson's outturns when he was in fact lowering them, seems to justify my 'adorning the tale' of this review by this slight excursion.

Since Mr. Leigh has been careful to give to the zamindar the benefit of the doubt whether future seasons will on the whole be as propitious as those which formed his statistical cycle of years, since his moderate outturns are tempered by liberal *kharaba* assumptions, since his deductions from the gross produce (paragraph 54) are sufficiently generous, and since the landlord's share of the divisible produce is based on ascertained facts, we need not hesitate to accept his 'full, fair half-net assets' estimates of the profits of cultivation as being eminently safe. These justify a demand, quâ agricultural lands only, of Rs. 4,16,600 from the tahsil, with rates of Rs. 2-6-0 per acre on crops matured, and Re. 1-5-0 per acre on areas sown.

(b) Mr. Leigh has devoted a great deal of careful consideration to the question of the profits derived from stock farming. Whilst I am not prepared to challenge the correctness of his calculations in detail, the conclusion that in the Jhelum, Thal and Hill circles grazing on the uncultivated waste land is worth 8 annas per acre, and in the Mohar annas 5, is one which I find it difficult to accept. Mr. Leigh arrives at this conclusion by dividing the net profits estimated as accruing from all stock, by the grazing areas in each circle. But as a great number of the animals must be owned by people who are not revenue payers, and as cattle and sheep by no means subsist throughout the year on what they can pick up on the uncultivated waste, the deduction that 'half the profits per acre of grazing amount to 2½ annas in the Mohar and 4 annas elsewhere' (paragraph 57) seems to be dubiously correct, and of more than dubious applicability to the business of assessment. If it be admitted that the graziers who are not *malguzars* will pay *tirni* or grazing fees to those responsible for the Government demand, it cannot be presumed that these will amount to annas 8 and annas 5 per acre on areas proportionate to their flocks and herds. The net assets of the revenue-paying community will therefore, be much less than if all the cattle, sheep and goats in the tahsil were owned by them.

The fact remains that the proprietary body amongst the agricultural community does without doubt derive a very considerable income from stock farming in this tahsil. The grazing areas, occasionally, affording sufficient sustenance, and sometime little more than healthy exercise, for the flocks and herds are of great value to that body. But to determine the assessable value by the precise methods adopted by Mr. Leigh is, I think, hardly possible.

My inclination is to reduce (arbitrarily I admit) his estimates of half-net assets, accruing to the revenue-payers of the tahsil, and his half-net assets rates on grazing lands (paragraph 58) by one-third.

(a) The full fair half-net assets of the tahsil would then stand as follows :—

The resultant fair half-net assets estimate.

	Jhelum.	Thal.	Mohar.	Hill.	Tahsil.
	Rs.	Rs.	Rs.	Rs.	Rs.
Of cultivation	1,27,500	44,500	1,34,000	1,20,500	4,16,500
Of stock-farming	16,500	80,500	86,000	15,400	1,28,400
Total	1,34,000	1,05,000	1,70,000	1,36,000	5,45,000

Mr. Leigh has shown that his half-net assets estimates are higher than Mr. Wilson's by 70, 350, 100 and 65 per cent. in the circles, and by 108 per cent. in the tahsil.

If my figures are accepted the percentages of increase will be 59 in the Jhelum Circle, 250 in the Thal, 82 in the Mohar and 56 in the Hill Circle; and in the tahsil 85 per cent. The rise in prices, expansion of cultivation, slight increase in rent rates, and enhanced value of stock and their products, would hardly account for a greater addition to Mr. Wilson's estimates than these figures represent. I would prefer to accept them rather than in the alternative to convict Mr. Wilson of under-estimation on an extensive scale.

11. In assessing the Jhelum Circle Mr. Leigh points out that the assessments which may be approved for the adjoining Shahpur Riverain Circle on *chahi* and *sailab* lands, and in the Thal on *barani*, impose limits to the rates which can be proposed.

He proposes an assessment of Rs. 75,000 which would absorb 64 per cent. of the half-net assets of cultivation alone, and 52 per cent. of the half-net assets from all sources by his estimate. By lowering his estimates of the assessable profits of grazing I would make the latter figure 56. The increase on the present demand would be 17 per cent. It is difficult to justify this moderation except by reference to the assessment, not yet announced, of the Shahpur Tahsil, and by reference to the Thal *barani* rate, which is limited by a consideration of the rise involved even if the very low rate of 5 annas per acre is adopted.

I think that the *chahi* rate of Rs. 1-14-0 proposed by Mr. Leigh is high enough, not only with reference to the probable Shahpur rate on somewhat superior wells, but also with reference to the half net assets rate of Rs. 2-8-0. The *nahri* rate I would leave at 6 annas. A *sailab* rate of Rs. 2-4-0 being 63 per cent. only of that justified by the assets estimate, would not, I think, be heavy. A *barani* rate of 6 annas is indubitably light, but there is force in the argument that the rate cannot be much higher than that which we must perforce accept for the Thal. There can be no quarrelling with a grazing rate of nine pies per acre. An assessment of Rs. 80,000 in lieu of the Rs. 75,000 proposed by Mr. Leigh can be obtained by pushing up the *sailab* rate by 4 annas only. This would mean an increase of Rs. 17,000, or 27 per cent., on the present demand, and absorb 60 per cent. only of the half net assets of agriculture and of stock farming as amended (and reduced) by me. It seems hardly possible to recommend a more moderate assessment than this, even admitting that the general circumstances of this tract are such as to warrant special leniency.

Seeing that cultivation in the Thal is still rapidly expanding, and that

(b) The Thal.

although we cannot limit the immediate rise in our demand to 33 per cent only, our assessments will be progressive, and each subsequent increment in consequence be more than discounted before it becomes operative, I do not think that we need hesitate to adopt a *barani* rate of 6 annas. This will give a demand of Rs. 33,000. I have assumed that the half-net assets of stock farming by revenue-payers is Rs. 60,500 as against Mr. Leigh's estimate of Rs. 93,280. I would not, however, lower his rate of Rs. 6 per 100 acres of grazing land. Rs. 20,180 or 3½ per cent. of the demand theoretically admissible is sufficiently moderate. The fact that an assessment of Rs. 53,000 looks alarming in conjunction with a present demand of Rs. 11,830 need not trouble us in the peculiar circumstances of this tract, which have been so fully explained by Mr. Leigh. There is a beautiful symmetry about the progressive assessments and the rates proposed by Mr. Leigh in paragraph 74 of his report which one is loth to disturb. But I doubt if this justifies the proposal to keep the pitch of the demand 'absurdly low' (paragraph 61) for the next 10 years. Moreover, the symmetry is more apparent than real since the cultivated and grazing areas of the present will not be the cultivated and grazing areas of 5 and 10 years hence.

Mr. Leigh's proposal is to increase the present demand of Rs. 12,000 (approximate) by Rs. 6,000 now and five years hence, and by Rs. 12,000 in 1925 and again in 1930, thus working up to an assessment of Rs. 48,000. I think we might take at least Rs. 52,000 as our maximum, adding Rs. 10,000 to the demand now and the same sum at the commencement of each successive quinquennium. An assessment of Rs. 22,000, which is all that the zamindars will have to face in the immediate present, will amount to 21 per cent only of the half-net assets, as reduced by me to Rs. 1,05,000. It is quite likely that owing to the development of cultivation, the demand raised by Rs. 10,000 after each period of 5 years will never in the course of settlement amount to as much as 25 per cent. of half of the net assets actually realised by the revenue-payers. Can moderation go further? Rates of 2 annas 9 pies per acre on 80,000 acres of cultivation and of Rs. 2 per 100 acres on 3,60,000 acres of grazing land would about give the figure required for the first five years.

In the Mohar Circle Mr. Leigh, adopting the Shahpur-Bhera standard of 57 per cent. of the half-net assets of cultivation as a guide, and a grazing rate of Rs. 4 per 100 acres (equal to that proposed for the Jhelum Circle), suggests a demand of Rs. 88,000. This would absorb 47 per cent of his total half-net assets, and 52 per cent. of mine.

(c) The Mohar Circle.

Having regard to the circumstances detailed in paragraphs 5 and 6 of this review I think we ought to formulate a demand slightly higher than this. During the last settlement we remitted nearly 7½ per cent of our demand. We shall not pursue a less liberal policy in the future, and since we cannot expect zamindars to hoard in good years in order to pay the assessment in full when seasons are unpropitious, our demand may, I think, fairly be pitched with reference to our expected realisations.

A rate of Re. 1 on the *naladar* seems to be fully justified by a half-net assets rate of Re. 1-10-0 per acre. A lower rate than 6 annas on the *barani* seems to be uncalled for. The *raridar* rate of 9 annas proposed by Mr. Leigh I would leave alone. I would formulate a demand of Rs. 94,000 in this circle, with rates of Re. 1, 9 annas and 6 annas, on *naladar*, *raridar* and *barani*, and Rs. 4 per 100 acres on grazing. This will amount to 55 per cent. only of the modified half-net assets demand of Rs. 1,70,000. Realisations may be expected to average 7½ per cent. less than this during the term of settlement. On this assumption collections will average Rs. 88,000 only, which is the assessment proposed by Mr. Leigh.

'The peculiar character of the cultivation and the many merits of the people', which induced Government to lower Mr. Wilson's assessment some twenty years ago, still constitute the most powerful appeal for leniency in this

(d) The Hill Circle.

circle. I would not add an anna to Mr. Leigh's proposed assessment of Rs. 63,000. This will absorb about 50 per cent. of the half-net assets demand of Rs. 1,36,000 estimated by me.

My suggestions then are that Mr. Leigh's proposed assessment may be raised by Rs. 5,000 in the Jhelum Circle, by Rs. 4,000 in the Thal, and by Rs. 6,000 in the Mohar.

(e) Summary of proposals.

The result for the tahsil would be as follows :—

Circle.	Assessment.	Increase.	Percentage of increase.	Percentage of half-net assets demand.
	Rs.	Rs.	Rs.	Rs.
Jhelum	80,000	17,500	27	60
Thal	52,000	40,000	83	50
Mohar	94,000	25,000	36	55
Hill	66,000	12,500	23	50
Tahsil	2,92,000	94,500	53	53

The half-net-assets demand referred to is that arrived at by me by the arbitrary process explained in paragraph 10 (e). In the Thal the suggestion is to raise the assessment to Rs. 22,000 only for the first five years, and by Rs. 10,000 at the commencement of each successive quinquennium.

If it be considered that the Jhelum Circle assessment here proposed is high, relative to that approved for the Shahpur riverain by the Financial Commissioner, it can be said that the percentage of the half-net-assets is moderate and the increase, having regard to the rise in prices, small. In the Thal the percentage of increase proposed, even in the immediate present (something over 80 per cent.) would seem to bar any suggestion that the assessment should be heavier. The fact that I propose to take only 21 per cent. of the half-net assets now, and that by the time this assessment will amount to 50 per cent. of those assets they will have increased to something equally subversive of all assessment theory, would seem to make any more lenient demand out of the question.

In the Mohar an increase of 36 per cent. suggests that my proposal is a little stiff. On the other hand, an assessment which absorbs only 55 per cent. of the half-net assets can but be considered lenient in the extreme.

As for the Hill Circle the percentage of increase and the percentage of half-net assets are alike low. Justification for this leniency, and, I am disposed to think, for even greater moderation, can be found in the eloquent passage from Mr. Thorburn's review of the assessment report for this circle written some twenty years ago, which I transcribe below.

“ Could I regard the peasantry of the tract as mere tax-payers, the latter consideration might have little weight. But they are more. They are a fine, brave, loyal, thrifty race, with excellent potential fighting qualities. Putting the case broadly, it would, I think, be morally and politically wrong to now so raise the assessment as to make the existing struggle of life in their over-populated mountains still harder. The following specific reasons against increasing existing soil-rates appear to me to outweigh the reasons for enhancement founded on increase of prices, *viz.*, the too great density of peasant proprietary population, their having lived up to their incomes since annexation, though leading frugal self-denying lives, the productiveness of the tract being almost entirely the result of their own incessant industry; the continuance of that productiveness depending on a heavy annual expenditure of labour, unknown, or at least unusual, in plain lands; the fact that cultivation has reached its limits; and finally the political inexpediency of discontenting for a few thousands of rupees a fairly united clan of 17,000 hardy Highlanders.”

12. I have indicated the nature of the orders which may, in my opinion be passed on the points enumerated in ~~Some final suggestions and a personal acknowledgment.~~ (1), (2), (3) and (5) of paragraph 77 of Mr. Leigh's report. His suggestion that the existing rules regarding irrigation of waste by canals be extended for the term of settlement, on the grounds put forward in paragraph 72 of his report, and his recommendation that the settlement be for a term of 20 years, have my support.

It only remains to add that Mr. Leigh's work, whether in the field or in the office, of which latter the admirable report now submitted by him is a striking exemplar, has been in my opinion, such as to command the confidence of the people, and to earn the gratitude of Government.

F. POPHAM YOUNG, LIEUTENANT-COLONEL.

Commissioner, Rawalpindi Division.

The 23rd March 1915.

TABLE OF CONTENTS.

No. 19

Para.	SUBJECT.	Page.
CHAPTER I.—PHYSICAL CHARACTERISTICS.		
1	Topography	1
2	The river valley	1
3	The sandy upland or Thal	1
4	The level plain or Chhachh	2
5	The submontane, or Mohar	2
6	The Salt Range	2
7	Means of irrigation— (a) Corbynwah canal (b) the wells (c) perennial streams	2 2 3
8	Rainfall	3
9	Vegetation, grasses, weeds	4
10	Communications and markets	4
11	Assessment circles	5
12	Classes of soil	5
CHAPTER II.—FISCAL HISTORY.		
13	Genesis of the tahsil	6
14	Sikh administration and summary settlements	6
15	First regular settlement	6
16	Second regular settlement	7
17	Distribution of the demand	8
18	Working of the settlement	9
19	Coercive processes	9
20	The existing demand	10
21	Assigned revenue	10
CHAPTER III.—GENERAL STATISTICS.		
22	Total area	10
23	Uncultivated land	11
24	Cultivated land— (a) irrigated (b) unirrigated	11 12
25	Variations in area since settlement	13
26	Wells	13
27	Population	13
28	The agricultural tribes	14
29	Holdings	15
30	Cattle and ploughs	15
31	Miscellaneous income	16
32	General pecuniary condition	17
33	Sales since settlement	18
34	Sale prices	18
35	Existing mortgages	19
36	Mortgage prices	20
37	Apparent value of land in terms of land revenue	21
CHAPTER IV.—HARVESTS AND CROPS.		
38	Harvests since settlement	21
39	Apparent normal under existing conditions	22
40	Quality of recent harvests	23
41	Harvests selected for the produce estimate	23
42	Comparison with period selected at last settlement	24
43	Fallows, failed crops and double cropping	25
44	System of cultivation and cropping	26
45	Staple crops	26
46	Cost of cultivation	27

Para.	SUBJECT.	Page.
CHAPTER V.—TENANCIES AND RENTS.		
47	Cultivating possession	28
48	Rents, in kind	29
49	Cash rents	30
CHAPTER VI.—THE PRODUCE AND HALF NET ASSETS ESTIMATE.		
50	The produce estimate	30
51	Outturns	30
52	Prices	31
53	Gross annual value	32
54	Deductions from the gross produce—	
	(a) fodder	33
	(b) expenses	33
55	The landlord's share	33
56	The true net assets on cultivation	34
57	Profits from cattle—	
	(a) sale of young stock	35
	(b) sale of hides	35
	(c) milk and ghi	35
	(d) hair and wool	36
	(e) hire of camels	36
58	The full half net assets on land, including pasture	37
CHAPTER VII.—ASSESSMENT PROPOSALS.		
59	Leading points for consideration	38
60	Assessment of Jhelum Circle	39
61	Assessment of Thal Circle	40
62	Assessment of Mohar Circle	41
63	Assessment of Hill Circle	42
64	Summary of revenue rates proposed	43
65	Comparison of proposals with the forecast estimate	43
66	Comparison with neighbouring circles	44
CHAPTER VIII.—FINANCIAL EFFECT OF PROPOSALS AND MISCELLANEOUS.		
67	General effect of proposals	45
68	Cesses	45
69	Water advantage rate and water-rate	46
70	System of fluctuating assessment	46
71	Dialluvion	46
72	Cultivation of waste land	46
73	Protective certificates	46
74	Deferred assessments	46
75	Introduction and term of new assessment	47
76	Government lands	47
77	Orders solicited	47

CHAPTER I.—PHYSICAL CHARACTERISTICS.

1. The Khushab Tahsil constitutes that half of the Shahpur District which lies towards the north-west. It stretches east from meridian $71^{\circ} 35'$ to $72^{\circ} 40'$ and north from parallel $31^{\circ} 3'$ to $32^{\circ} 45'$ in shape. It is not unlike a kidney-bean, with a maximum length (north and south) and breadth (east and west) of 82 and 49 miles, respectively. The sketch map at the end of this volume will show that the River Jhelum curving down from east to south, is almost coincident with the boundary between this tahsil and Shahpur. In the extreme south, the Jhang Tahsil cuts across the river; on the west side the Bhakkar and head-quarters Tahsils of Mianwali District, on the north the Talagang Tahsil of the Attock District, and on the extreme east the Pind Dadan-Khan Tahsil of the Jhelum District enclose Khushab.

The total area is 2,539 square miles; of these 611 are owned by Government, and will be dealt with in a separate report; in the remaining 1,928 square miles there are 147 villages, with a cultivated area of 487 square miles, and a population of some 175,500 souls, mainly Muhammadan and agriculturist. The tahsil is broken up by nature into five clear-cut sections, each with its own characteristic method of agriculture.

2. Here and there the tahsil boundary lies to the east of the Jhelum, and the soil is similar to that described in my report on the Shahpur Tahsil, and good of its class. On the other side, from Khushab southwards, the beneficial effects of the river are severely restricted by a high bank of sand or clay, above which all the village sites are built. At intervals this bank becomes less marked, and semi-circular depressions of sandy soil run back a mile or so into the uplands. The narrowness of the flood-belt ensures its excellence, for there is little land that cannot count on an annually renewed deposit of silt, but the height of the bank and the sandiness of the soil above it makes much of the well-land markedly inferior to that of Shahpur.

3. Riding up the high bank one passes at a bound from a table of green fields to a forbidding succession of sand dunes. The whole tract of country lying between the two roads that run from Khushab town to Kundian and Jhang consists of a sandy upland, known to the west Punjab as Thal. In the northern half of this area the land is fairly level, and the sand hills are far apart and inconspicuous. Southwards they are both higher and closer together, and in the south-west they dominate the landscape: they run in parallel ridges from south-west, to north-east being aligned, one supposes, by the prevailing wind. Between the dunes are troughs and hollows of firm soil, locally known as *lôgha*, which produce, with the aid of even a scanty rainfall, excellent crops and pasture. Here and there a long strip of hard level soil, called a "patti" stretches for a considerable distance. The most important runs from Rangpur Baghurto the west of Nurpur and on through Rakh Nawan Saggu almost to the south of the Doab.

For a picturesque description of the Thal, it would be hard to improve on Mr. Hailey's Assessment Report of the Bhakkar tahsil, but a few words are necessary to describe a remarkable change that has taken place since 1902. About that date some enterprising cultivator in Mianwali discovered that gram could be sown with very little trouble and matured with very little rain, even on the sand hills. The Khushab Thal has gradually learnt the same lesson, and the gram fields cover more and more ground every succeeding year of good rainfall. To what extent the cultivated and cropped areas and the tenures of land have been affected will appear from subsequent paragraphs; here it will suffice to remark that the very face of the Thal is beginning to change. Hitherto it generally retains its old aspect; the gram fields are refreshing patches of green set among the almost treeless stretches of waste;

the flocks and herds are still multiplying, and have ample space for grazing; and they must still crowd round one of the wells of the main village for their drink every second day. But there is a strong centrifugal tendency, which the headmen oppose in vain, driving men out to sink wells and found hamlets near the distant fields, and to break away from the sparsely-planted ganglions of the old time civilization. Already the old villages have replaced the unpretentious huts of the last generation with decent houses of mud, and mosques and *Dharmshalas* of brick are springing up.

Still it must always be remembered that until a revolution in irrigational facilities takes place, a dry season will always reduce the Thal temporarily to the condition of a lifeless desert.

4. Just south of the railway line, the river valley and the Thal give place to a level plain of stiff clay soil, of varying degrees of salinity; where the admixture of salts is greatest, the ground is bald and glistening, and produces nothing but imposing mirages; in other parts only *lana* will thrive; but in many places, especially nearer the hills, excellent crops and grass will grow. Here the cultivation depends on shallow catchment drains, which lead the rain-water down from impervious bare patches on to the sweeter fields.

5. A mile or two from the foot of the Salt Range, the land begins to slope up, and changes to a pattern of torrent-beds, talus-slopes, and moraines jutting out into an inclined plain of rich alluvial soil—the detritus of the limestone and sandstone cliff of the background. Here the system of husbandry is quite distinctive, and depends upon the construction and maintenance of imposing embankments, often five or six feet high, and a very careful and elaborate distribution of the water that comes down off the hill side or through the gorges. The three most important torrents are the Dodha, the Surakka, and the Vahi, which debouch near Golewali, Jabbi and Katha Masral, elsewhere the catchment area is confined to the steep southern escarpment of the range, and the protected area is restricted.

6. The Salt Range, continuing from Jhelum District, runs right across the north of the tahsil to where it culminates at Sakesar (nearly 5,000 feet high) and turns north-west to cross the Indus at Kalabagh in Mianwali. The southern face is very abrupt, and, except for a few scattered pockets of cultivation, consists of almost bare rock. But beyond the top of the highest ridge the land slopes gradually downwards, and the top of the range is grooved into various basins and valleys running east and west, which are grouped by the natives into three tracts, known as Sun, Tappa and Vanhar. The Sun is a large land-locked basin, with the salt Sakesar lake in the middle, and two parallel series of ridges to the north and south. The Tappa is a succession of ridges and valleys running more or less east and west, and contains the small Khabakki and Jahlar lakes and the catchment areas of the Surakka and Vahi torrents. The Vanhar is a shallow basin surrounded by sandstone hills, near the Jhelum border. In point of soil, rainfall, embankments and irrigation the Sun is much the most, and the Vanhar much the least, favoured of these three tracts.

7. There is only one canal in this tahsil, the Corbynwah, an inundation canal which takes out of the Jhelum a few miles above the eastern border, and matures about 2,000 acres of crops in 7 villages above Khushab. It compares very unfavourably with its transpentine rivals in Shahpur, owing to difficulties of level and the salt nature of the country commanded. The inferiority is recognized in the pitch of the water-rate, Rs. 1-8-0 as against Rs. 2-8-0 in Shahpur and Bhera.

In the Jhelum circle wells are numerous, especially in the tracts from Khushab to Rajar, and from Jaura Kalan to Khai Kalan (in which they are quite as good as those in Shahpur) and in the semi-circular depressions from

Hamoka to Kaka (in which they are distinctly inferior). Viewed as a whole, the well-cultivation of this circle is, in my opinion, certainly of a lower class than that of Shahpur.

In the Thal it is only in the Patti that wells are used for irrigation to any considerable extent, and even here a great expenditure of energy on the part of the cattle is necessary to raise enough water to mature a few acres. In the Chhachh, there are wells of varying sweetness along the Khushab—Kundian road, especially at Hadali and Mitha Tiwana, but here too little irrigation is done. There are no wells in the Mohar.

In the hills, wells are of importance, especially round the margins of the lakes, where sweet water is close to the surface, however pungent the brine of the neighbouring lake may be—Durable stone cylinders can be easily sunk, and command small areas of high-class cultivation.

In the Mohar and the hills there are a few perennial streams of sweet water, but it is only at Katha and Kund in the Mohar, and Sodhi Jaiwala in the hills, that the area commanded is at all considerable. There are several streams which are rendered useless by passing over salt strata, and it is to be hoped that the villagers or the District Board will devise some means of conducting the sweet water down to the fields. In several of the Mohar villages, sweet drinking water is often unprocurable.

8. It will be seen from the preceding paragraph that the tahsil is almost entirely dependent for its prosperity on the river floods and the local rainfall. The latter is even more variable from year to year and from village to village than that of the Cis-Jhelum Tahsils. The most favoured circle is certainly the Hill, and within it the Sun basin. The clouds, according to the weather-wise of the locality, travel west to drink at the Indus and then, turning back, break over Sakesar. For the same reason, the western end of the Chhachh is more secure than the eastern. The Riverain and the Thal, on the other hand, are driest to the south-west. A comparison of Statement 1 with the Appendices to the reports of last Settlement will shew that the years taken into consideration by Mr. Wilson gave an unduly low average, but even as compared with the 21 year average which he gives for Khushab (11 inches), the last 22 years show an improvement of 4 inches. Since there is no good reason for believing in a permanent improvement in the rainfall, we may note that the period since Settlement has been on the whole fortunate in its rainfall, and that the years selected for the produce estimate calculation were particularly so. The figures may be summarised thus:—

Rainfall.
(See Statement 1).

	Jhelum (Khushab).	Thal (Nurpur).	Mohar* (Mitha Tiwana).	HILL.		TAHSIL SHAHPUR.	
				Nandera.	Sakesar.	Shahpur.	Sahival.
22 years average—							
June—September ...	9.66	7.66	7.09	13.36	15.93	8.97	6.94
October—December ...	4.45	2.22	2.22	6.66	7.77	4.44	2.22
January—May ...	4.84	3.29	2.50	6.86	6.91	4.50	3.64
12 months ...	14.95	11.17	9.81	20.87	23.66	13.93	10.87
At last Settlement ...	9.1	9.9	11.3	16.7	...	...	...

* To May 1904, only.

We may say from this that the Jhelum Circle can count on an average of 13 inches or so, the Thal and Mohar of about 10 and the Hills of about 20 in an ordinary year.

In addition to not infrequent failures of rainfall, the crops have to contend with terribly high temperatures, and, especially when the wheat is ripening, scorching winds; hail storms also are a common cause of damage.

9. With so little irrigation and so light a rainfall, luxuriant vegetation can hardly be expected, and in fact the tahsil is practically timberless.

Vegetation.

In the river bed there are few areas of sufficiently ancient accretion to have produced full-sized trees. Above the bank there is a general absence of timber, but in the extreme south, from Jaura to Khai, there is an abundance of date-palms of considerable value. In the Thal, the *jand* and *ber* provide some shade near the villages and in the most sheltered hollows, and the *kari* is fairly common. The Chhachh is treeless, but where the embankments end there is a fairly good growth of trees, the *ber* being specially valued for its fruit and foliage, and the *kikar* for carpentering purposes. In the hills, the "modest acacia," the wild olive and wild fig are common and useful; the mulberry, the *lahura* and the Persian lilac have become popular as ornaments to roadsides and well-compounds, and the fruit of the first named is picked with enthusiasm. Where there is any effective control of the grazing (as in Rakh Sakesar), the northern slopes of the hills are fairly well-wooded; but elsewhere in village waste or Government 'forest', the devastating goat nips all things in the bud, and the land scape is becoming yearly less verdant. The absence of edible vegetation is in places disguised by a thick growth of shrubs—notably the *Sanatha*, *Bahakar*, and the evergreen box—which have only domestic uses; but foresters and villagers all agree that the Shahpur Salt Range is badly overgrazed, and nothing short of rigorous closure will restore the fodder-bearing trees.

At present, as in all good years, excellent grass is plentiful every where

Grasses.

In the Thal, where the grass crop is of greatest moment, *chhembar* and *sen* do well, and in places *khabbal*; a small trefoil, flattered by the name *maina*, grows plentifully after rain, but soon dries up. *Khavi* and *phitsen* are emergency rations. When even those fail, the flocks move off to the river, where grazing is almost always obtainable. Of the other plants, *lana* (a necessary article of diet for the camel), and *phog* (which all cattle eat) are the most important. The colocynth and the 'akk' only appeal to goats. *Bhakkra* is a grass whose seeds used to be consumed by the peasantry in times of scarcity, but probably this gram-fed generation would not condescend to anything less appetising than melon-seeds. *Bui*, *khipp* and *harmal* are only useful for fuel or hedging.

The flood lands, being for the most part of recent accretion, are comparatively free from the wild thistle,

Weeds.

but it is much in evidence in the older lands near Khushab. The cultivation in the Thal is very clean, as are the embanked fields of the Mohar. In the hills there is a certain amount of thistle and camel thorn, but for the most part these are kept in check by the industry of the Awans.

10. The Sind Sagar Branch of the North-Western Railway crosses

Communications and markets.

the greatest breadth of the tahsil, and has seven stations within its boundaries. There are hopes of a connection between Khushab and Sargodha via Shahpur, but this will not much affect the trans-Jhelum.

Metalled road is unknown, except for a few yards of the Sargodha-Khushab road, between the station and the river, which is crossed by boat-bridges in the cold weather. Of unmetalled roads, the most important are those which run from Pind Dadan Khan along the river bank to Jhang and Multan, and from Khushab through Mitha Tiwana, whence one branch leads to

Mianwali and another to Dera Ismail Khan. One could drive along these roads in a light vehicle if one had to. The hills are opened up by three cleverly engineered roads from Kund, Fatehpur and Katha, which villages are linked up by the Salt road skirting the foot-hills, and connected with the nearest railway stations by roads which are generally passable. The roads in the Salt Range are all very stony and uneven in places. All transport off the railway is done by camels and donkeys, and they can easily get the peasants' goods to market in their own time, except when heavy rain has reduced the Chhachh to the condition of a continuous butter-slide.

Khushab is the chief market town, but Gunjiyal, Mitha Tiwana and Hadali put most of the produce of the Thal on to the railway. Nurpur and Naushahra are minor foci of trade, and a good deal of wheat goes to the water mills of Katha. Girot has lost the little importance it once possessed.

11. I have, with the sanction of the Financial Commissioner,* maintained unchanged, the four existing circles Jhelum, Thal, Mohar, and Hill—except that one small village—Haveli Majoka—has been transferred to the Jhelum Circle from Shahpur Tahsil.

Assessment Circles.

The Jhelum Circle contains villages mainly dependent upon the river or wells near the high bank, many of which include extensive 'hinterlands' of Chhachh and Thal. The Thal Circle is homogeneous, and stops short both of river valley and Chhachh. The Mohar Circle contains the bulk of the Chhachh and the whole of the Mohar; from Hadali westwards it makes considerable inroads into the Thal; on the eastern border it stretches out one finger to the river, and on the north it includes the whole southern face of the Salt Range, while some villages (notably Jabbi, Kund and Nali) overstep the ridge and own cultivated valleys beyond it.

The Hill Circle nowhere breaks through the external ridges of the Range.

12. I have also, with sanction, kept unchanged Mr. Wilson's soil classification†.

Classes of soil.

Chahi—Is land irrigated from a well or *jhalar*, according to the Settlement Manual definition. For assessment purposes this class is only differentiated from *barani* in the Jhelum and Hill Circles; in the Thal and Mohar, the areas and profits are both too inconsiderable to call for separate treatment.

Nahri—Is land irrigated from the Corbynwah, and only occurs in the Jhelum Circle.

Abi—Is land irrigated from a perennial spring, and only occurs in the Hill and Mohar Circles, in the latter it is merged in *naladar* for assessment purposes.

Sailab—Is land flooded by the Jhelum, and occurs in the Jhelum Circle and one village of the Mohar, in which circle it is merged in *naladar* for assessment purposes.

Barani I—Is called *hail* in the Hill circle and *naladar* in the Mohar, and includes all land which is assured of water from a hill-side torrent, or higher field; it is generally recognizable by the solidity of its embankments.

Barani II—Is called *maira* in the Hill Circle and *raridar* in the Mohar and includes all land which is not in the preceding class, but gets surface drainage from higher land or an uncertain overflow from higher fields.

Barani III—Includes all other land. In the Thal the villagers distinguish '*lagha*' and '*wari*' the former consists of the hollows between the

* Order No. 181, dated 10th January 1914, from the Junior Secretary to the Financial Commissioner to the Government, Rawalpindi.

† See Hill Circle, Preliminary Report, paragraph 2, and Plains Circle Assessment Report, paragraph 5.

sand hills, and gets the drainage of the latter. *Wari* consists of the sand hills themselves, and hitherto grows little but water-melons, but it will soon be caught in the rising tide of gram.

These three classes pass into one another almost insensibly, and there is very little distinction between the poorest fields of a higher class and the best of a lower. In the Jhelum and Thal Circles they are not distinguished at all, but if they were, the bulk of the *barani* would come in the middle class.

It must be noted that the embankments, which Mr. Wilson classed as unculturable, I have included in the cultivated area, partly because they are in fact often sown with *taramira*, and partly because the calculation of their area was bound to give patwaris an unavoidable power of extortion. The fact will be borne in mind in considering the increase in cultivation.

CHAPTER II.—FISCAL HISTORY.

13. In 1853 the *taluka* Khushab—a narrow strip made up of the Khushab, Girot, and Jaura *pargannahs*—was transferred from Leiah to the Sahiwal Tahsil of Shahpur. In 1857 the Mitha Tiwana *taluka* followed, and also 65 villages, comprising 29 in the Salt Range, 25 to the north and 11 to the south of it, were made over by Jhelum District, and embodied in a new tahsil with headquarters at Jaba, in the Vanhar. In 1862 the 25 villages to the north were discarded, the Nurpur *taluka* was brought in from Bannu, and the tahsil head-quarters were moved to Khushab. Since that date the only change has been the transfer of Haveli Majoka from Shahpur in 1912.

14. Shortly before annexation, the whole trans-Jhelum was held by *jagirdars*—the Khushab *taluka* by Baloch Sardars of Sahiwal the Mitha Tiwana and Nurpur *talukas* by Malik Fateh Khan, Tiwana; the Sun by S. Gurmukh Singh, Lamba, the remainder by Sindhanwalia and Billi, Sikh Sardars—these were all absentees whose agents exacted revenue by a system of appraisalment ominously called "*Tip*."

The first summary settlement was made by Mr. Bowring, and in 1852-53 Major Browne and Mr. Simpson revised the assessments of the Jhelum and Leiah villages, reducing the revenue of the Mitha Tiwana and Sun *talukas*, and raising that of Nurpur. Further relief was given in the Salt Range from time to time, and in 1860 Mr. Parsons slightly reduced the assessment of Nurpur and made a settlement with each village separately instead of with the Tiwana Maliks.

15. The first regular settlement was concluded in the Khushab *taluka* by Mr. Ouseley in 1860, and for the remainder of the tahsil by Captain Davies in 1866. The result was to raise the demand in the Thal by

Circle.	Apparent demand, last summary settlement.	Total demand including assigned revenue first regular settlement.	Demand at expiry of first regular settlement.
	Rs.	Rs.	Rs.
Jhelum	87,700	86,136	42,887
Thal	9,750	9,928	10,171
Mohar	54,700	52,090	52,205
Hill	50,850	45,800	46,052
Tahsil	1,52,500	1,44,954	1,52,315

2 per cent., and to lower it in the Jhelum, Mohar and Hill by 4, 8 and 9 per cent., respectively, the decrease for the tahsil as a whole being 5 per cent. And since the last summary settlements were mitigations of the first, and the first were in turn supposed to be 20 per cent. less than the average of recent Sikh collections (which would on this showing have been about 2 lakhs of rupees for the tahsil), the settlement was naturally considered moderate and the revenue was collected without difficulty.

16. Mr. Wilson, the Deputy Commissioner of the district, began to revise this settlement in 1887 and completed his revision in 1894. The new demand was first realized in the Hill circle in *kharif* 1891, and in the other circles two years later. The assessment was based on statistics for 1889 in the Hills, and 1891 elsewhere:—

1	2	3	4	5	6	7	8	9	10
CIRCLE.	Existing demand.	Estimated half net assets.	Assessment proposed by Settlement Officer.	Recommended by Commissioner.	Recommended by Financial Commissioner.	Sanctioned.	Rise per cent. (column 7 on 2).	Percentage of column 7 on 3.	REMARKS.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
Jhelum ...	42,887	70,000	(a) 56,200	(a) 52,950	(b) 56,000	(b) 61,000	42	87	} Estimated water advantage rate, fluctuating. a) Including Rs. 1,200. b) Including Rs. 1,000.
Thal ...	10,171	15,000	12,000	12,000	12,000	2,000	20	80	
Mohar ...	53,205	75,000	70,000	63,150	70,000	70,000	80	93	
Hill ...	46,052	75,000	60,000	55,000	55,000	55,000	21	73	
Tahsil ...	1,52,315	2,35,000	(a) 1,98,200	(a) 1,83,100	(b) 1,93,000	(b) 1,93,000	80	84	

It will be noted that, while the percentage of increase was considerably less in this tahsil than it was in Bhera and Shahpur, where it amounted (including water-advantage rate) to 86 and 60 per cent. respectively, the percentage of half-net-assets taken was considerably higher (in Bhera it was 80 and in Shahpur 81, and in both tahsils large sums were deferred and never subsequently imposed). In the Jhelum and Mohar circles especially the percentage of profits taken was very high. Mr. Wilson himself noted* that the pitch of the assessment was "appreciably higher than in the similar circles across the river" in the Jhelum circle, and "comparatively full" in the Mohar. It was admitted by Government that the assessment was fuller than that of neighbouring tracts simultaneously settled, and Sir Dennis Fitzpatrick clearly demonstrated its adequacy, as judged by the half-net-asset standard.†

* Final Settlement Report, paragraphs 64 and 66.

† Printed Proceedings (Revenue and Agriculture Department) for August 1893, No. 23

17. In order to appreciate the extent to which Mr. Wilson's calculations were endorsed by the revenue-payers, we may make a comparison of his revenue rates and those brought out by the *bachh* papers:—

CIRCLE.	Class of soil.	Area according to assessment report.	Sanctioned revenue rates.	Result.	Area according to <i>Bachh</i> files.*	<i>Bachh</i> rate.	Result.
		Acres.	Rs. A. P.	Rs.	Acres.	Rs. A. P.	Rs.
JHILUM.	Chahi	12,709	1 14 0	23,829	12,980	1 11 6	22,228
	Nahri	2,927	0 6 0	872	2,275	0 6 6	921
	Sailab	17,379	1 12 0	30,414	18,036	1 11 9	31,186
	Barani	9,121	0 6 0	3,420	7,708	0 8 0	3,846
	Total cultivation	47,536	1 7 0	58,535	40,959	1 7 0	58,181
	Banjar ... ..	...	...	...	...	...	716
	Date-palms ... ..	...	...	1,200	...	...	1,100
Total assessment ... ..	...	...	59,735	...	...	59,997	
THAL.	On cultivation	18,000	0 4 0	4,500	32,000	0 3 0	5,970
	On grazing ... ..	...	...	7,500	...	...	5,860
	Total assessment ... ..	...	...	12,000	...	...	11,830
MOHAN.	Naladar, etc.	34,158	1 0 0	34,158	31,095	0 14 3	30,444
	Raridar	51,159	0 9 0	23,777	50,777	0 8 6	26,087
	Barani	8,595	0 5 0	2,080	7,608	0 7 0	3,358
	Total cultivation	93,912	0 11 0	60,015	89,478	0 10 6	60,489
	On banjar ... ..	...	...	...	...	...	4,266
	On cattle ... ..	...	...	4,879	...	...	4,130
	On water-mills ... ..	...	...	...	...	...	100
Total assessment ... ..	...	...	70,000	...	...	68,995	
HILL.	Chahi	631	3 10 0	2,390	482	2 5 6	1,129
	Abi			149	1 9 8	339	
	Hail	11,925	1 9 0	18,476	15,211	1 6 0	20,660
	Maira	28,551	1 0 0	39,551	25,116	1 1 0	26,564
	Barani	7,025	0 9 0	3,951	5,497	0 13 9	4,721
	Total cultivation	49,082	1 2 0	54,368	46,455	1 2 6	52,964
	On banjar ... ..	...	...	...	...	...	185
Total assessment ... ..	...	...	54,368	...	...	53,149	

* Fields exempted from assessment by the *ruah* orders are excluded.

From this we may judge (1) that while Mr. Thorburn thought the rate (Re. 1-10-0) proposed by Mr. Wilson from Jhelum *chahi* rather high, and Government on the other hand raised it by 4 annas, the owners were not prepared to go above Re. 1-12-0, but preferred to charge the balance on their hinterlands: (2) that in the Mohar, the relative superiority of *naladar* and *varidar* was over-rated, and the owners preferred to pay more on their *barani* and *banjar*: we may remember that the revenue rate for *naladar* was actually 100 per cent. of the half-net-assets rate: (3) that similarly in the Hills the villagers preferred to level up the classes considerably: but a disposition to adopt all-round rates for a whole village would largely account for this, in both these circles. As between villages Mr. Wilson's distribution was generally admitted to be extremely fair: the only villages in which I have heard complaints of relative over-assessment are those to the east of the old 'Danda' circle, in which the high rates date from Captain Davies, and were considerably reduced by Mr. Wilson.

18. Mr. Wilson anticipated* that the Jhelum circle would be able to pay its revenue regularly without difficulty, that suspensions would be necessary, on rare occasions in the Hills, and not infrequently in the Thal and, most of all, the Mohar. Experience (tabulated in statement II) has proved him right in the main, but it has been necessary to grant several suspensions in the Jhelum, and from 1 98 to 1903 a succession of bad harvests involved remissions in all circles. The figures and accompanying diagram bring out clearly the judicious care taken by the revenue authorities to temper the wind to the shorn lamb, and to make the assessment of the Thal and Mohar "quasi-cyclic," to use Mr. Thorburn's word. But we may remark that for the last 19 years the Mohar circle, in spite of remissions equal to more than 1½ years, revenue, has never been able to show a clean sheet, though there is good reason to hope that this *kharif* will wipe off the outstanding balance. In 21 years the following aggregate sums have been suspended and remitted:—

CIRCLE.	Normal demand.	Total amount suspended.	Total amount remitted.	Suspended amounts still outstanding.	REMARKS.
	Rs.	Rs.	Rs.	Rs.	
Jhelum	†60,000	17,889	1,448	...	†Subject to division fluctuation.
Thal	11,830	43,848	14,895	450	
Mohar	†69,100	3,34,042	1,07,325	9,418	
Hill	†54,500	84,083	42,499	...	
Tahsil	†1,95,480	4,79,863	1,66,167	9,868	

19. In the last 10 years 110 writs and warrants have been issued annually for the whole tahsil, being less than one per village. Only in 1906 and 1907 was there any considerable difficulty in collecting the demand; otherwise payments have been made punctually, except where lamhardars are lacking in efficiency or authority. The assessment is certainly nowhere oppressive.

20. The extent to which the demand has varied since it was revised and its present amount can be seen at a glance from this table:—

CIRCLE.	INITIAL DEMAND AFTER APPEAL.			Imposed subsequently on termination of well leases.	ADDITIONS TO REVENUE ROLL.			REDUCTION OF REVENUE ROLL.			EXISTING DEMAND.		
	Khalsa.	Assigned.	Total.		For land transferred from Government forest.	For waste land irrigated by the Corbrwah.	For alluvion.	For land acquired by Government.	For wells fallen out of use.	For diluision.	Khalsa.	Assigned.	Total.
Jhelum ...	40,904	9,430	(1) 50,334	587	77	390	19,076	8	101	16,889	56,791	6,900	63,691
Thal ...	11,763	1,089	(2) 12,852	...	...	...	...	...	...	...	11,618	312	(3) 11,930
Mohar ...	55,398	13,637	69,035	...	30	...	376	18	...	164	55,645	13,961	69,606
Hill ...	48,007	5,890	(4) 53,897	344	300	...	3,499	1	...	3,343	47,377	6,310	(5) 53,687
Tahsil ...	1,64,011	30,005	1,94,016	831	297	390	21,953	17	101	19,855	1,71,531	34,963	1,97,514

NOTE.—(1) Includes Rs. 300 for Haveli Majoka, but excludes Rs. 75 assessed on Bakh Khushab.

(2) Excludes Rs. 130 and Rs. 20 malikana assessed on Government lands.

(3) Excludes Rs. 130 and Rs. 80 malikana assessed on Government land.

(4) Excludes Rs. 250 and Rs. 343 malikana assessed on Government land.

(5) Excludes Rs. 529 and Rs. 261 malikana assessed on Government land.

It will be noticed that gains by alluvion and extensions of canal irrigation* have already been assessed, while losses by diluision and the collapse of wells have already been discounted. The new wells and the extensions of *barani* cultivation remain as assets awaiting taxation. In the Thal the usual practice is to distribute the demand over cultivation and cattle every year, and the great development of gram has resulted in an incidence of about 2 annas per acre cultivated, and generally nothing on the grazing; the whole revenue is payable in the *khariif*, so in a good year the gram crop pays nothing.

21. Of the existing demand, 13 per cent. is assigned, the principal jagirdars being the Maliks of Mitha Tiwana who hold three large villages in the Mohar and several small villages in the riverain, the Lamba Sardars who hold Nowshehra in perpetual *jagir*, and the Mianas of Amb who enjoy the revenue of their own village. In one village, Ahirpur, near Khushab, the Baloch owners have compounded for the land-revenue for ever.

CHAPTER III.—GENERAL STATISTICS.

22. In statement III will be found statistics showing the variations in area for each class of land since settlement in the villages with which this report is concerned. The total area of these villages has grown by 17,745 acres, or nearly $1\frac{1}{2}$ per cent., owing to boundary proceedings with other districts

*Final Settlement Report, paragraph 74. S/73-74

and to re-adjustments of the forest boundaries by Mr. Wilson.* The areas so transferred have already been assessed. The constituent parts of the total, then and now, compare as follows:—

Percentage of total area.	JHELUM.		THAL.		MOHAR.		HILL.		TOTAL.	
	At settlement.	Now.	At settlement.	Now.	At settlement.	Now.	At settlement.	Now.	At settlement.	Now.
Unculturable	17	18	1	1	25	23	61	61·8	19	19
Culturable	58	57	91	78	55	52	2	2	63	56
Cultivated—										
Irrigated	9	10	...	...	...	...	·8	·7	1·5	1·5
Unirrigated	18	18	8	21	19	25	86·2	86	16·3	23·5
Total	25	28	8	21	19	25	87	86·7	18	25
Increase since settlement in total area ... ..	...	+ 1	...	...	...	...	...	+ 11	...	+ 1·5

23. Three-quarters of the whole area is still uncultivated, and nearly a fifth is recorded as unfit for cultivation. The unculturable portion of the Jhelum circle is of course the river-bed, and its area, while varying from year to year, will remain fairly constant on the whole. In the Thal only village sites and roads are considered hopeless, but the bulk of the sand-hills will not aspire above melon-patches for some time to come. The decrease in unculturable area in the Mohar is mostly due to the present system of recording embankments in the cultivated area (see paragraph 12); there has been little enterprise in breaking up the hilly portion of the circle. In the Hill circle the addition of the area mentioned in the last paragraph and the rise of the lakes would have resulted in a rise in the percentage unculturable, but this has been counteracted by the deduction of embankment and a good deal of terracing on the slopes. It will be observed that the revenue staff take a pessimistic view of the extent to which further expansion in the Hill circle is possible; only an Awan knows what he can do when he tries. Three-quarters of the Thal and more than half the Mohar and Jhelum circles are recorded as culturable, but it must always be remembered that a cultivated field, outside the river-bed, demands an extensive background to bring down rain-water: in spite of this, there is room for considerable development, especially on the *barani* lands of all these circles, and a number of big partitions now in progress will ensure that this development takes place in the next favourable season.

24. Only 1·5 per cent. of the total and 6 per cent. of the cultivated area is irrigated: in the Jhelum circle the percentages are 10 and 36, and in the Hill circle ·7 and 1·8, respectively. In the other two circles it is even less. There has been little expansion of the well areas in the Jhelum circle, but there has been an improvement in the last two years (see statement III-B), following on a noticeable drop in the preceding decade. The other circles all show a high percentage of increase, but the areas still remain small. In the Hill circle it is quality and not size that counts. The increase in *nahri* area in the Jhelum circle is partly due to

* About 15,900 acres, of which 97 were cultivated, were transferred from Salt Range rakkas to estates in the Hill and Mohar Circles: see paragraphs 2-8 of Mr. Wilson's letter No. 265, dated 29th February 1896 (Forest Settlement

improvements in the Corbynwah, but much of the newly-recorded area depends on an extremely precarious supply, which generally arrives when it is least required. The Executive Engineer has assured me that levels are all against any material extension of irrigation by flow, and the land is hardly good enough to repay the trouble of lifting. In the Mohar the substitution of wheat for poppy enables a little water to go a longer way, but the change has greatly reduced the profits of the irrigators.

It follows that 64 per cent. of the cultivation in the Jhelum circle and practically the whole of it in the other circles gets no artificial irrigation. There are, however, degrees of unirrigatedness, and these have been explained in paragraph 12 :—

Per cent. of total cultivated area.	JHELUM.		THAL.		MOHAR.		HILL.		TOTAL.	
	At settlement.	Now.								
	Sailab	48	42	9
Barani I	20	22	100	100	85	82	88	86	22	19
Barani II					54	51	54	51		
Barani III					10	16	12	11		

The percentages show that more development has taken place in the weaker classes than in the stronger, except in the Hill circle, and, when the change in classification of embankments is taken into account, the preponderance of the former becomes even more pronounced than the figures show.

In order to estimate the expansion that has occurred since settlement, we must adjust for the Mohar and Hill circles the areas given in statement III so as to allow for the merely apparent increase due to this change in classification. I have made a calculation based upon the areas recorded as "unculturable embankment" at settlement, from which it appears that 15 per cent. of the *naladar*, 6 per cent. of the *raridar*, 9 per cent. of the *hail* and 4 per cent. of the *maira* came under this head. Making these additions to the settlement area, we get the following result, expressed in percentages of rise since settlement :—

Rise per cent. since settlement.	Jhelum.	Thal.	Mohar.	Hill.	Total.
Chahi	1.5	88	63	62	5
Nabri and Abi	64.5	...	48.5	4	67
Sailab	11	...	200	...	11
Barani I ... ..	...	...	4	12	7
Barani II	19	106	17	2	25
Barani III			95	4	
Total	12	166	30	7	25

From this we can see at a glance that it is to the *barani* soils that we must look for the bulk of our increase in assessment, and that the Thal and—a bad second—the Mohar are the circles which can stand the biggest rise.

25. In statement III-B I have shown the circle note-book figures of area for each quinquennium starting from 1891-92. It is worth noticing

Variations in area since settlement. that there is a tendency for remeasurement to reduce the figures of the note-books for *barani* land, owing to the exclusion of patches of melon cultivation, which are ignored in assessment. In spite of this, there has been a great expansion on this class in the Thal and Mohar since 1911. In the Mohar the *ravidar* total is considerably less now than it was supposed to be two years ago: this is due to the fact that cultivated land is frequently given a long rest, and uncultivated land broken up in its place—a process that is apt to be ignored in the somewhat sketchy soil classifications of ordinary annual records. The general history of cultivation has been one of steady expansion everywhere, the rapidity of which is very noticeable in the Thal.

26. In statement IV will be found the number of wells and *jhalars* existing now and at settlement, their depth, water and length of life. Altogether the masonry wells in use have gained 36 per cent., and, including unlined wells and *jhalars*, the rise has been 29 per cent. One well in 12 is standing idle, but I think that the opening of settlement operations is in part responsible for this; in some cases the land attached to the well has been washed away, and then restored as *sailab*. On paper there has been a general rise in the water level, but I think it must be attributed mainly to the fact that the new wells have been sunk in the most favourably situated spots, i.e., below the high bank of the river and round the lakes in the hills.

In the Jhelum circle there are 100 more wells and 29 fewer *jhalars* than at settlement. It is from Khushah eastwards that the gain has been most marked, no less than 80 out of the 100 surplus being in this area. One hundred and seventy-two wells have become unworkable, but only 10 of these were less than 20 years old; diluvion was of course the principal destroying factor. The area per wheel is now 20 acres as against 21 at settlement, and 23 and 28, respectively, in Bhera and Shahpur. On an average 100 acres of *chahi* land will have 20 acres fallow, 87 sown, 3½ failed and 7 double-cropped.

In the Thal and Mohar conditions have changed but little: in the Thal the depth to water varies from 30 to 66 feet; in the Mohar from 40 to 56. Only about 6 acres can be irrigated, and less than three-quarters of this area produces a crop every year.

In the Hills masonry wells have increased from 204 to 340, or counting idle wells, from 217 to 368. The quality of the cylinders has also been improved. The apparent rise in the water-table of 6 feet is partly due to the fact that the level of the lakes, round which most of the new wells are situated, has risen appreciably, owing to wet seasons. The area per wheel is still only 2½ acres, but on an average 100 acres of *chahi* land will show 1 acre fallow, and 167½ acres sown, of which 10½ are failure and 68½ are double-cropped. Thirty-nine wells have become unworkable, only 2 being less than 20 years old; nearly a third of this number succumbed to the rise of the lakes, so it is clear that even the unmortared cylinders are sufficiently lasting.

27. Statement V gives the figures of total population for the villages under settlement according to the census returns of the last three decades.

Population.

I extract the following figures for comparison:—

	JHELUM.		THAL.		MOHAR.		HILL.		TOTAL.	
	1891.	1911.	1891.	1911.	1891.	1911.	1891.	1911.	1891.	1911.
(Rakhs are excluded.)										
Total population in hundreds ...	416	422	161	249	581	661	243	423	1,501	1,786
Rise per cent. on preceding settlement ...	48	1½	21	54	47	14	34	23	41	17
Pressure per square mile of cultivation*	562	515	434	212	392	342	470	557	450	374
Pressure per square mile of total area*	157	156	24	37	76	85	172	222	78	90

*Figures of area taken from statement III-B, excluding columns 5 and 7.

There has been a marked set-back in the Jhelum circle in the last 10 years, the population in 1901 having been 47,383. This is probably due more to plague than to anything else; migration to the colony may have contributed, but not, I think, to any serious extent. In all other circles the rise has been steady, and is surprisingly large in the hills, when it is remembered that considerable drafts have gone to the army and the colony. Pressure on the soil is heaviest in the hills; the Jhelum circle is not far behind, but has much greater capacity for expansion. In the three plain circles cultivation has expanded more rapidly than population; in the Hill circle less.

Of the total population, 51·5 per cent. are male and 48·5 per cent. female—a discrepancy of which the importance becomes apparent chiefly in the criminal courts. Eighty-nine per cent. are Mussalman, and 11 per cent. Hindus, Sikhs, etc. Of the Mussalman total, 60 are of agricultural tribes, and 29 of others; these last mostly belong to the castes who practise arts and crafts subsidiary to agriculture.

28. The figures in the margin* show the relative strength of the tribes that subsist on their land, in terms of percentage of the total population. They may be compared with those in paragraph 53 of the Assessment Report.

The agricultural tribes.			
Awan	...	...	29
Jat	...	...	13
Rajput	...	...	5
Khokhar	...	...	4
Baloch	...	...	2·5
Sayad	...	...	1·5
Pathan	...	...	1
Malliar	...	...	1
Qureshi	...	...	1
Arain	...	...	1
Others	...	...	1

The Awans have enhanced their predominance and the Jats have gained considerably from the Rajputs, but this last is only a matter of stricter classification. In statement V-B will be found statistics showing the areas owned and the revenue paid by each tribe. In the Jhelum circle the proprietary body is very mixed, and, as agriculturists, rather indifferent. The Baloches own 13 villages, and those of Khushab and Girot are important historically and socially. Joyas own 3 and Khokhars 6 villages, and are fairly well-to-do. Sayads own 6 villages, and are, as usual, inefficient cultivators.

In the Thal the Tiwanas have a somewhat loose hold on two villages; Baloches and Joyas have 2 each; and in 2 more there are strong communities of Arora Sikhs, who are hereditary owners and cultivators, besides dealing largely in grain and wool. The rest of the villages belong to a medley of unsophisticated tribes, who like to claim kinship with the Tiwanas, but are officially classed as Jats. They are hardy, simple folk, frugal in their habits of hard necessity, and ready to migrate in mass when pasture fails.

In the Chhachh there are Tilokars to the east and Bachhars to the west: the centre is held by the strong clan of Tiwanas, with whom the Nuns and Waddhals are closely connected. Their military virtues are well-known; they are not naturally gifted cultivators. Aroras have established themselves in force in Mitha Tiwana and Hadali.

In the Mohar we find Pathans at the mouth of the Dodha, and Janjuhas at the mouth of the Vahi. The rest of the circle, and practically the whole of the Hill, is owned by Awans—a race of human beavers, to whom a *cho* is not a problem, and a stony hill-side is a matter for faith and works; in a pent-up community that abjures interest, the law of diminishing returns is unknown, and I have little doubt that it will again be found at next settlement that the new cultivation exceeds the total area now shown as “available for cultivation.” I need not enlarge on the great ability and industry with which this excellent tribe has terraced and embanked its native hills, as they have long been recognised. As soldiers and sportsmen they are hard to beat, and I understand that as horse-breeding colonists they have generally earned the approval of the various departments that superintend the adolescence of the Jhelum Colony.

In the Hill and Mohar tracts, then, we may say that the peasants nobly do their duty by their land. In the Chhachh, Thal and Riverain agricultural

ability is less developed, but throughout the tahsil the population is essentially hardy and virile, and provides many valuable recruits for the army.* Unfortunately faction and a fondness for the law courts interfere with the regular business of life, and lead to much avoidable expense and waste of time.

29. Statement No. VI gives figures showing the cultivated area held on an average per head by the owners and occupancy tenants of each circle, with details showing how much of this is free of mortgage. The figures may be compared with those given by Mr. Wilson† :—

Cultivated area per owner, in acres.	Jhelum.	Thal.	Mohar.	Hill.	Total.
At settlement	11	7	12	6½	9
Now	8	16	9	5	9
Rise per cent. in number of owners ...	50	80	77	34	55

Considered alongside of the rise in total population given in paragraph 27, the increase in the number of owners, especially in the Jhelum and Mohar circles, is surprising. It is no doubt due to the fact that a number of new families have been added to the proprietary body by purchase of small plots of land, often in more than one village. Even so, it is only in the Hill circle that the average holding can be considered unduly low; in the other circles, as we have seen, the owners can always, in a favourable season, extend their cultivation, should they wish to do so. In the Hill circle congestion has been largely relieved by the grant of land in canal colonies (see paragraph 31).

The size of holdings brought out by the statement of cultivating occupancy (No. X) is misleading; generally the same individual holds land either as tenant and owner, or as tenant under more than one owner.

30. In statement V, I give the numbers of cattle existing in each circle during January 1914 and, for purposes of comparison, the numbers at settlement and at the last quinquennial enumeration. The percentages of rise and fall since settlement are these :—

	Bulls and bullocks.		Male buffaloes.		Young stock.	Total of horned cattle.	Sheep.	Goats.	Horses and mules.	Donkeys.	Camels.	Ploughs.
	Cows.			Cow buffaloes.								
Jhelum	19	44	35	115	54	31	18	38	54	43	47	41
Thal	258		1,000		9	254	72	114	160	213	67	165
Mohar	24		3		9	22	66	48	88	81	11	18
Hill	22	24	19	41	59	30	14	19	29	71	9	4
Total	53		78		9	52	57	47	65	82	44	35

*I am informed by the Deputy Commissioner that 488 residents of this district, most of them from the Kumbhar Tahsil, are now serving in the expeditionary force. No less than 13 of them are commissioned and 74 non-commissioned officers.

†Paragraph 10 of the Hill Circle Assessment Report and paragraph 54 of the Plains Circles Assessment Report.

If we adopt the local notation and, reckoning bullocks and cows as the unit, count 4 for a camel, 2 for a buffalo or horse, and $\frac{1}{2}$ for a sheep or goat, we find the all-round increase to be:—

In the Jhelum circle increase 40 per cent.

In the Thal circle increase 119 per cent.

In the Mohar circle increase 26 per cent.

In the Hill circle increase 26 per cent.

In the whole tahsil increase 51 per cent.

There is no reason for regarding the present figures as abnormal: the very dry year 1911-12 (in which there was a general migration from the Thal and Mohar) is sufficiently recent to ensure that the increases shown are not attributable to a series of prosperous seasons: in fact in the case of sheep and goats, the last five years have been rather disastrous, and the present figures are perhaps somewhat under normal. The most striking facts are the great development in the Thal as compared with the other circles, and the steady advance for the tahsil as a whole of all classes, except male buffaloes, which have completely gone out of fashion here as elsewhere.

The following ratios are of interest:—

			Cultivated acres per plough.	Bullocks and male buffaloes per well or <i>ghalar</i> after allowing 2 for each plough.	Milk kine and buffaloes per head of population.	Sheep and goats per head of population.	Acres of grazing per head of cattle, adopting the local notation.
Jhelum	...	...	11	4	4	6	2
Thal	...	...	15	35	8	6	4
Mohar	...	...	16	77	4	12	3.5
Hill	...	...	9	6	3	1	1.5
	Tahsil	...	13	9	4	1.75	3

None of these figures give grounds for any uneasiness, and we may safely say that the tahsil is well-stocked with cattle and the cattle are well fed, except in seasons of drought. The estimated profits accruing to the owners of these cattle are dealt with in Chapter VI.

31. Apart from the direct income on crops and cattle, there are various items of profit, which are not easily estimated, but undoubtedly add to the wealth of the revenue-payers, in consequence of their ownership of land. In the Jhelum and Mohar circles *lana* is sold, sometimes for the extraction of *sajji*, and more often as fuel for brick-kilns. In the Thal grass is cut and sold to outsiders in good seasons. The water-mills at Katha Maaral and Sagral* were assessed at Rs. 100 by the villagers at last settlement, and bring in at least Rs. 400 to the landlords: some other villages have now erected similar mills. The date-palms round Majoka are worth over Rs. 4,000 per annum. In all circles cattle from outside villages are charged grazing fees, but it is impossible to say what the net gain to the tahsil is, since in

* Assessment Report, paragraph 87.

any one year the cattle of one village may have to migrate to the rakh of another village owing to local scarcity of pasture, so that the profits are a matter of give-and-take as between villages. Estimates made by Naib Tahsildars show a miscellaneous income from all these sources of about Rs. 50,000, but I consider that this figure is greatly exaggerated, and I should put the profits as follows:—Jhelum circle, Rs. 10,000; Thal, Rs. 8,000; Mohar, Rs. 5,000; Hill, Rs. 2,000; Total, Rs. 25,000.

Pay and pensions add largely to the resources of the tahsil: the figures are in round numbers:—

	Jhelum.	Thal.	Mohar.	Hill.	Tahsil.
	Rs.	Rs.	Rs.	Rs.	Rs.
Military Service	58,000	72,900	3,55,000	1,09,700	5,95,600
Civil Service	87,400	1,500	4,400	55,200	1,48,500
Private Service	87,900	...	...	200	88,100
Pensions	13,800	7,350	24,500	6,500	51,800
Total	1,96,600	81,750	3,83,550	1,71,600	8,38,500
Total at last settlement*	85,000	73,000	2,17,000	85,000	4,10,000

* Assessment Report, paragraph 54.

Another source of increased income, especially important in the Hill circle, with its small holdings, consists in the grant of lands in the Jhelum and Chenab Colonies. In all, the Jhelum circle has obtained 193 squares, the Thal 275, the Mohar 434, and the Hills 218. I have, moreover, selected from the most congested villages nominees for 60 more squares in the Hill circle and 40 in the Jhelum, who will in time, I hope, be accommodated on the Lower Bari Doab Canal.

32. Unsecured debts are not as a rule very serious, and where they are, they are due from persons who would be better off than most of their neighbours, if they had been content with the same standard of life. In 1911-12 the rise and fall of several "funds" (supposed to be insurance societies, but really exact imitations of the "Anglo-Bengalee" venture of Mr. Tigg-Montague) caused a great deal of distress, though most of this affected the non-agricultural communities. These iniquitous impostures mostly arose in the Hills, and it is, therefore, the more surprising that it has been possible during the past summer to start half a dozen co-operative societies in that circle. I hope that the Thal will be induced to follow suit before long; in the Southern Thal a complete lack of business instinct deprives the owners of much of their profits. They store their grain and wool with the village shop-keeper, and obtain from him their daily requirements; at the end of the year he informs them of the balance due to or, much more usually, from them; after about five years, the villagers tell me, the shop-keeper retires to his home at Nurpur, and a poor relation takes his place; the villagers themselves live much as ever, inspite of the enormously increased resources.

Taken all round, it is clear that in all circles the people are easily able to pay their revenue and gradually raise their simple standard of living,

except when two or more harvests fall in quick succession. When this happens, the revenue is suspended, the people and cattle migrate, and a fresh start is made when better times arrive.

83. The extent to which land has changed hands by sale since settlement may be judged from this table, Sales since settlement. (Statement VII-A.) extracted from statement VII-A :—

Sales since settlement:	JHELUM.		THAL.		MOHAR.		HILLS.	
	To agriculturists.	To non-agriculturists.						
Total area, in acres ...	9,347	6,995	1,708	1,467	27,424	7,186	4,126	714
Cultivated area, in acres...	2,946	1,430	1,037	801	6,631	1,483	2,875	541
Percentage of total cultivated area ...	6½	3	1½	½	5½	1½	5½	1

Statement VII-B shows the sales in five-yearly periods, and is interesting as showing the effect of the Alienation of Land Act in checking sales to money lenders: it will be noticed that during the first ten years of the settlement the original owners were being rapidly dispossessed. Luckily this state of affairs has been effectually abolished, and the figures I have given above need not cause any uneasiness. Sales by one agriculturist to another only mean that a competent farmer takes the place of an incompetent.

84. It is more than usually difficult to determine the true value of land in this tahsil. Prices vary greatly according to the amount of waste land that accompanies cultivated, and the quality of the cultivation: hence it is impossible to compare prices per acre of total area or prices per acre cultivated. In the plains *barani* land generally sells absurdly cheap; in the Thal there can scarcely be said to be a market-value; we must remember that in this circle up to 1905 anyone who desired to own land in the Thal had only to cultivate as much waste as he could: even now a squatter has no difficulty in obtaining possession of land, provided he pays the revenue on it: but the villagers are at last beginning to realise the value of their land, and will endeavour to evict squatters before long. In the Hills and the embanked lands of the Mohar, on the other hand, the natural restriction of the supply has forced up prices to a pitch where it would be most dangerous to endeavour to deduce profits from outlay: more especially we must remember that an Awan will pay for land without any thought as to the income he may reasonably expect from it: as a good Mussalman he cannot take interest, and his only other chances of investment have been the Shadi funds (now happily extinct) and the co-operative societies, which are still in their infancy. In order to give some sort of evidence to enable us to judge of the rise in prices, I show below comparative figures for the six years preceding last settlement and the five years just elapsed (1) for all sales, (2) for sales to money-lenders who do presumably calculate profits before making a purchase, and (3) for each class of land, as estimated at "low average market-rates" by Mr. Wilson

and myself. My own figures are partly based on the statistics given in statement VII-C, and partly on more general considerations: they are of course very problematical; Mr. Wilson's figures were, I gather, arrived at in much the same way:—

CIRCLE.		JHELUM.			THAL.			MOKAR.			HILL.		
Price, in rupees. •		Per acre sold.	Per cultivated acre.	Per rupee of land revenue.	Per acre sold.	Per cultivated acre.	Per rupee of land revenue.	Per acre sold.	Per cultivated acre.	Per rupee of land revenue.	Per acre sold.	Per cultivated acre.	Per rupee of land revenue.
All sales.	1885-86—1890-91	23	56	46	17	22	182	23	48	62	81	101	92
	1908-09—1912-13	34	118	104	19	35	247	27	180	244	244	402	402
	Rise per cent. ...	50	100	126	12	59	87	17	275	197	200	300	337
Sales to money-lenders.	1885-86—1890-91	37	60	51	12	18	74	19	80	108	71	79	92
	1908-09—1912-13	79	140	92	20	67	478	62	508	937	411	468	468
	Rise per cent. ...	114	133	80	66	415	548	220	14	9	6	6	5
									times.	times.	times.	times.	times.

Price, in rupees per acre.	JHELUM.					THAL.		MOKAR.					HILL.							
	Chahi.	Nabri.	Saihab.	Barani.	Banjar.	Barani.	Banjar.	Chahi.	Abi.	Saihab.	Nahadar.	Baradar.	Barani.	Banjar.	Chahi.	Abi.	Hail.	Maira.	Barani.	Banjar.
Mr. Wilson's estimate.	60	40	50	15	8	7	...	40	40	40	30	30	10	2	100	100	100	100	100	...
Present estimate ...	140	90	150	50	30	50	30	100	300	150	150	80	50	30	400	400	400	300	100	50

85. In statement VIII-A, I show the areas now mortgaged with possession, and compare them with the corresponding areas at last settlement. Existing mortgages. (Statement VIII-A.) Expressed as percentages of the total and cultivated area, they compare as follows:—

CIRCLE.	JHELUM.		THAL.		MOKAR.		HILL.		TAHSIL.	
	Of total area.	Of cultivated area.								
At settlement ...	17	22	1.5	5	4.75	12	7	10.75	5.5	14.5
Now ...	18.5	15	2.25	2.5	4.5	10	5	12	5	10
Differences per cent.	1.5	-7	+1	-2.5	-0.25	-2	-2	1.25	-0.5	-4.5

In order to judge the extent to which the old proprietary body has become more or less indebted as a whole, we may see how far the non-agricultural classes have tightened or loosened their grip of the land :—

CIRCLE.	JHSLUM.		THAL.		MOHAR.		HILL.	
	Total.	Cultivated.	Total.	Cultivated.	Total.	Cultivated.	Total.	Cultivated.
Mortgaged to non-agriculturists now ..	19,472	5,831	9,698	2,737	8,651	4,853	8,611	8,220
Mortgaged to non-agriculturists at settlement.	26,777	8,472	6,724	1,853	14,086	7,701	5,428	4,745
Gain or loss by agriculturists ...	+ 7,305	+ 2,641	- 2,974	- 1,084	+ 5,435	+ 2,848	+ 1,815	+ 1,525
Sold to non-agriculturists ...	6,995	1,430	1,467	801	7,186	1,483	714	541
Net gain or loss by agriculturists ...	+ 810	+ 1,411	- 4,441	- 1,885	- 1,751	+ 1,365	+ 1,101	+ 984

The figures include transactions in which both parties are non-agriculturists, and if allowance is made for that, the results will be somewhat more favourable to the agriculturists. The general effect is that in all circles the peasants have won back cultivated land from the traders, except in the Thal ; in that circle land has only recently become negotiable, and the whole of the land mortgaged to non-agriculturists could be redeemed for Rs. 2 per acre or Rs. 7 per acre cultivated, in other words, in one good harvest. A comparison of statement VIII-B (which shows mortgages in five-yearly periods) with statement VIII-C (which shows redemptions in five-yearly periods) will show that this improvement in the peasant's position has taken place in the last 10 years, and must no doubt be largely attributed to the educative influence of the Alienation of Land Act. The Redemption of Land Act is also thoroughly appreciated, and considerable areas are being redeemed with its help.

36. In the case of mortgages, scarcely less than in that of sales, we must remember that *barani* land in the plains is apt to be under-valued and embanked land, whether in the plains or in the hills, considerably over-valued. Statement VIII-A shows clearly that agriculturists are willing to pay more per acre or per rupee of land revenue than non-agriculturists, demonstrating thereby their disregard of the law of diminishing returns. Every year mortgagors in the Hills manage to redeem old mortgages and substitute more favourable ones.

If we compare the mortgages existing now with those in existence at settlement, we find the following differences :—

CIRCLE.	JHSLUM.			THAL.			MOHAR.			HILL.		
	Per acre mortgaged.	Per acre cultivated.	Per rupee of land revenue.	Per acre mortgaged.	Per acre cultivated.	Per rupee of land revenue.	Per acre mortgaged.	Per acre cultivated.	Per rupee of land revenue.	Per acre mortgaged.	Per acre cultivated.	Per rupee of land revenue.
(a) All mortgages :—												
At settlement ...	6	26	19	3	6	33	7	14	22	89	44	40
Now ...	85	109	79	3	9	44	27	50	81	102	116	111
Rise per cent. ...	337	319	316	50	50	33	286	257	268	132	267	177
To money-lenders :—												
At settlement ...	8	26	20	2	6	33	10	18	30	37	43	44
Now ...	21	74	52	2	7	34	16	30	45	60	63	73
Rise per cent. ...	162	185	160	...	17	3	60	66	53	62	39	66
1885-86 to 1891-92 ...	9	27	24	7	6	27	10	18	36	27	33	34
1893-09 to 1913-14 ...	5	39	35	16	16	109	26	43	21	5	133	55
Rise per cent. ...	...	44	46	23	166	303	160	139	...	...	300	62

Imp: 16237 Dated 1.1.10

These figures cannot be said to be particularly enlightening.

37. Taking all the statistics for sales and mortgages into consideration, and making due allowance for fancy prices in the Mohar and Hill, the helplessness of the alienor in the Thal, and the inclusion of large areas of unassessed waste in all circles, I diffidently suggest the following figures, as indicating the present value of land in each circle in terms of rupees per rupee of land revenue:—

	Jhelum.	Thal.	Mohar	Hill.
Value of land expressed as a multiple of land revenue ...	80	200	100	100
Percentage of half net assets absorbed by existing demand (see Settlement Manual, paragraph 384).	52	24	44	44

This would make the half net assets on land, exclusive of waste, about Rs. 1,15,000 in the Jhelum circle, Rs. 59,000 in the Thal, Rs. 1,38,000 in the Mohar, and Rs. 1,20,000 in the Hills. But to use these results to check the half net assets estimate would be like testing a patwari's chain by pacing. At least we can say that the statistics, for alienations show clearly that the position of the peasantry is improving, prices having more than doubled in every circle, and the demand for better class land greatly exceeding the supply.

CHAPTER IV.—HARVESTS AND CROPS.

38. In a tahsil of scanty rainfall and little artificial irrigation, great variations in the areas sown and matured will naturally occur. The extent of the variations on each class of land for the period since settlement may be learnt from the figures and diagrams in statement IX-A, from which the following figures may be extracted:—

Circle.	JHELUM.				THAL.	MOHAR.			HILL.			
	Chabi.	Kahri.	Saibab.	Barani.	Barani.	Nahadar.	Baridar.	Barani.	Hill.	Meira.	Barani.	
MAXIMUM.	Year ..	1898-00	1913-14	1900-01	1913-14	1905-09	1892-93	1913-14	1890-91	1892-93	1913-14	
	Acres matured ..	14,152	2,070	21,518	10,976	56,428	82,118	52,815	15,068	16,473	30,641	5,637
MINIMUM.	Year ...	1908-09	1896-96	1897-1900	1911-12	1899-1900	1911-12	1911-12	1899-1900	1899-1900	1899-1900	1899-1900
	Acres matured ...	10,977	758	15,728	227	4,089	6,098	2,759	662	5,123	4,827	671

In the Jhelum, Thal and Mohar circles 1913-14 was the best year on record, and it will be remarked that it was on the *barani* soils that its excellence most showed itself. In the Hill circle, in spite of a record *barani* crop, the total harvest did not come up to 1892-93 or 1891-92. For the tahsil as a whole 1899-1900 was much the worst year, being quite abnormally bad in the Thal and the Hills, but in the Jhelum and Mohar circles 1911-12 was even worse. It is obvious that these violent fluctuations are bound to occur; having pointed them out, we may endeavour to look for changes of a more permanent character.

In the Jhelum circle we note that there has been since 1905 a distinct falling-off in *chahi* crops ; since that date the 22-year average has never been reached. *Nahri* and *barani* crops are, however, improving, and the latter are likely to continue to do so, with the spread of gram cultivation. *Sailab* crops rise and fall with the river banks.

In the Thal the improvement in *rabi* harvests is shown by the diagram, and is, I think, bound to continue for some time to come ; partitions of village waste are now, after much preliminary argument, being undertaken, and these will certainly make for a higher average of harvested areas, apart from any questions of rainfall.

In the Mohar Mr. Wilson rightly pointed out that the water of the torrents was already spread out as thin as it could economically be, and the statistics confirm us in the opinion that *naladar* and *ravidar* crops have already reached their limit, and that no rise in the average can be looked for, unless the rainfall average also rises. On the *barani* lands south of the railway, however, the conditions are the same as in the Thal, and here there has been a distinct improvement, which will continue to manifest itself.

In the Hills there is not likely to be any improvement, except on the small area of *barani* land broken up on the slopes ; but the 22-year average is unduly depressed by the abnormal badness of 1899-1900. On the other hand, the heavy rains of the past four months have made the lakes rise considerably, and so have reduced the cultivated area.

39. Bearing these conditions in mind, I have endeavoured to arrive at a definite opinion as to what may be considered to be, at the present moment, the normal expectation of a crop on each kind of land. The diagrams reveal the fact that, while the 22 years that have elapsed since settlement have been on the whole rather well-favoured in the matter of rainfall, they may be distinguished into two periods of 11 years each, containing similar proportions of good and bad years, and both very fairly typical of the history of each circle. Referring to the statistics of cultivated area, we can judge how much of any apparent increase or decrease in cropping depends upon the breaking-up of new lands or the submersion of old. In this way we can arrive at a fairly close idea of the present normal, and we should expect this to be exceeded at least every second year. The figures I have arrived at are these :—

Circle.	Class of land.	CULTIVATED AREA.			MATURED AREA.*			Number of years out of last 11 exceeding 22-year average.	Estimated present normal.*	Number of years out of last 8 exceeding estimated normal.
		At settlement.	1901-02.	Nov.	11 years from 1893-93 to 1902-03.	11 years from 1903-04 to 1913-14.	22 years from 1892-93 to 1913-14.			
JHELUM.	Chahi ...	12,930	18,062	13,128	12,258	11,071	11,064	2	10,500	5
	Nahri ...	2,285	3,115	3,761	1,377	1,947	1,662	5	2,000	4
	Sailab ...	18,195	21,601	20,191	18,123	19,152	18,887	6	18,350	4
	Barani ...	8,579	11,963	10,229	5,152	5,955	5,553	6	6,500	4
	Total ...	41,989	56,641	47,309	36,910	38,125	37,516	6	37,350	4
THAL.	Total ...	33,076	48,002	38,112	20,939	33,266	27,102	7	36,000	4
MOHAR.	Naladar, etc. ...	24,163	39,755	41,527	23,124	21,939	22,081	5	22,000	4
	Ravidar ...	50,822	65,037	63,271	29,253	27,828	28,541	5	29,000	4
	Barani ...	9,736	11,932	18,971	5,304	5,518	5,411	5	6,000	3
	Total ...	84,721	1,17,374	1,23,769	56,681	55,285	55,953	5	57,000	4
HILL.	Chahi ...	432	689	780	971	1,155	1,063	10	1,120	4
	Nahri ...	158	181	164	162	179	170	3	180	3
	Hail ...	15,211	15,738	18,621	14,012	15,215	14,814	8	15,000	4
	Maira ...	25,116	26,181	26,776	21,826	23,176	22,501	5	23,000	4
	Barani ...	5,497	5,868	5,695	3,324	4,534	4,204	6	4,300	4
	Total ...	46,405	48,650	52,036	40,795	44,309	42,552	5	43,900	4

*Government lands are included ; they do not materially affect the totals.

Quality of recent harvests.

40. The recent history of the tahsil in the matter of crops can be briefly set forth as follows :—

Year.	JHELUM.		THAL.		MOHAR.		HILL.	
	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.
1906-07	Good	Excellent	Fair	Good	Fair	Good	Good	Excellent.
1907-08	Poor	Moderate	Poor	Bad	Poor	Bad	Moderate	Poor.
1908-09	Good	Moderate	Good	Excellent	Good	Good	Good	Excellent.
1909-10	Poor	Poor	Fair	Moderate	Poor	Poor	Poor	Moderate.
1910-11	Good	Fair	Fair	Fair	Fair	Good	Good	Moderate.
1911-12	Bad	Poor	Bad	Bad	Bad	Bad	Bad	Poor.
1912-13	Fair	Moderate	Good	Excellent	Moderate	Moderate	Moderate	Moderate.
1913-14	Excellent	Excellent	Excellent	Excellent	Fair	Excellent	Excellent	Excellent.
Excellent	1	3	1	3	...	1	1	3
Good	3	...	2	1	1	3	3	...
Fair	1	1	3	1	3	...	...	...
Moderate	...	3	...	1	1	1	2	3
Poor	2	2	1	...	2	1	1	2
Bad	1	...	1	2	1	2	1	...

As the quality of these harvests was discussed in detail in a report submitted by me on 15th October 1913, it is unnecessary to say more about them here.

41. The Financial Commissioner, in his letter No. 181, dated 10th January 1914, approved of my proposal to select the first five years in the foregoing table (1906-07 to 1910-11), for the calculation of the produce estimate. He noted, however, that "the average of the five years gives, as the Settlement Officer says, a high standard, that is to say, it is above a true normal. It is so, in Mr. Diack's opinion, to a slight degree only—by perhaps 1,000 and 2,000 matured, respectively—in the Jhelum and Hill circles; to a somewhat greater degree in the Thal—perhaps 10 per cent.—and by something over 10 per cent. in the Mohar." It will be seen that a comparison of the averages for the selected years with the normal figures arrived at in paragraph 39 gives practically the result that Mr. Diack anticipated, after allowance has been made for the fact that *barani* soils in all circles have

recently been considerably developed; I venture to hope that the Financial Commissioner will agree that in the Thal, the normal is at least now below the selected average.

Circles.	Class of soil.	AVERAGE MATURED AREA FOR FIVE SELECTED YEARS.*			ESTIMATED NORMAL.*			PERCENTAGE BY WHICH THE AVERAGE SHOULD BE RAISED OR LOWERED.		
		Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
JHELUM.	Chahi ...	1,950	8,835	10,785	1,900	8,600	10,500	- 2	- 3	- 3
	Nabri ...	825	1,667	1,992	800	1,700	2,000	...	...	...
	Sailab ...	3,073	15,282	18,355	3,050	15,300	18,350	...	...	...
	Barani ...	3,507	3,428	6,935	3,500	3,000	6,500	...	- 13	- 7
	Total ...	8,855	29,212	38,067	8,750	28,600	37,350	- 1	- 2	- 1½
THAL.	Total ...	18,772	15,101	33,874	18,500	17,500	36,000	...	+ 16	+ 6
MOHAR.	Naladar, etc. ...	12,295	12,400	24,695	11,700	11,000	22,000	- 11	- 12	- 11½
	Raridar ...	14,977	17,435	32,412	14,000	15,000	29,000	- 7	- 14	- 11
	Barani ...	1,864	3,967	5,831	2,000	4,000	6,000	+ 10	...	+ 1
	Total ...	29,136	33,802	62,938	27,500	30,000	57,000	- 7	- 12	- 10
	HILLS.	Chahi ...	510	611	1,121	510	610	1,120
Abi ...		65	117	182	65	115	180	...	...	...
Hail ...		6,586	8,591	15,177	6,500	8,500	15,000	- 1	- 1	- 1
Ma'ra ...		9,773	14,017	23,790	9,800	13,200	23,000	...	- 6	- 4
Barani ...		2,175	2,543	4,718	2,000	2,500	4,600	- 3	- 1	- 2
Total ...		19,109	25,879	44,988	18,975	21,925	43,900	- 1	- 4	- 3

* Government lands are included.

The results arrived at in the calculation of the produce estimate will therefore be diminished to the extent indicated, in determining the true net assets.

42. Mr. Wilson based his calculations in the Hills on a two-year period, and in the other circles on a five-year period. In the Hills he compared with period selected at last settlement. I note that the figures he used should be lowered by 9 per cent. in order to make them typical. I compare his assumptions with the average of the 11 years which followed the settlement: I have also shown in the harvest diagrams the years considered by Mr. Wilson:—

Matured areas, in even hundreds of acres.	JHELUM.			THAL.			MOHAR.			HILLS REDUCED 9 PER CENT.		
	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.
Assumed by Mr. Wilson ...	89	254	343	107	14	121	352	223	575	216	245	461
Average 1892-93 to 1902-08...	93	276	369	181	28	209	350	217	567	186	222	408

In the Jhelum circle, the diluvion assessment ensures the variation of the demand with the harvests on the whole; in the other three circles we may say that Mr. Wilson considerably underestimated the productivity of the Thal, and overestimated that of the Mohar and Hills. I have tried to show that my

selected average errs in the same directions; so a comparison of my selected period with his will give us a sufficiently true idea of the extent to which harvests have improved or deteriorated since Settlement:—

Area in even hundreds of acres.	JHELUM.			THAL.			MOHAR.			HILL.			
	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	Kharif.	Rabi.	Total.	
Matured ...	Settlement...	89	254	343	107	14	121	352	223	575	222	243	465
	Now ...	89	292	381	188	151	339	291	338	629	101	259	450
Failed ...	Settlement...	8	14	22	57	3	60	108	83	144	20	33	53
	Now ...	25	30	55	139	61	200	160	96	256	43	37	85
Sown ...	Settlement...	97	268	365	164	17	181	458	261	719	242	276	518
	Now ...	114	322	436	327	212	539	451	434	885	239	236	535
Percentage of increase or decrease	Matured ...	...	+16	+11	+75	11 times	+180	-17	+50	+9	-14	+6	-4
	Failed ...	+200	+114	+150	+128	20 times	+233	+51	+153	+77	+140	+12	+60
	Sown ...	+17	+20	+19	+100	12 times	+200	-2	+66	+23	-1	+7	+8

For the tahsil as a whole, matured areas have increased 20 per cent., and sown areas 34 per cent.; the entire gain is in the *Rabi*, except in the Thal. The Hill circle shows a slight falling off on the whole in matured area, but though this is partly accounted for by diluvion, it is mainly due to more careful recording of failures. The Jhelum and Mohar circles show increases of about 20 per cent. sown and 10 per cent. harvested; alluvion and the cultivation of *barani* lands on the Thal side are responsible for the bulk of it. In the Thal, sowings have exactly trebled, and crops harvested have nearly trebled: the figures speak for themselves. The large increases in failed areas are noticeable: they may be attributed partly to the extension of cultivation to inferior soils or areas too large for the catchment, and partly to the gradual weaning of the staff from the tendency to overlook failures, on which Mr. Thorburn laid so much stress at last Settlement.

43. In Statement IX B, I give figures to show the extent of fallows, mature and failed areas, and double croppings for the selected period. Stated as percentages of the average cultivated area, they compare thus with the figures for last Settlement:—

Percentage of average cultivated area.	JHELUM.		THAL.		MOHAR.		HILL.		
	At Settlement.	Now.							
Left fallow ...	12	22	13	20	26	29	12	4	
Under crops ...	88	78	87	80	74	71	88	96	
Matured ...	In Kharif ...	21	17	52	28	36	24	46	39
	In Rabi ...	62	56	6	22	23	28	49	58
Total	83	73	58	50	59	52	95	92	
Failed ...	In Kharif ...	2	5	28	21	11	13	4	10
	In Rabi ...	2	6	1	9	4	8	7	7
Total	4	11	29	30	15	21	11	17	
Double cropped ...	...	6	...	...	...	2	18	13

Fallows have increased in the plains for the reason already given—the greater insecurity of most of the new cultivation: in the Hills few fields lie fallow for more than one harvest in each agricultural year: luckily the torrent seldom fail to renew their silt deposits.

Failures are as common as is to be expected: the following percentages of sown area give a very fair idea of the security of the various circles in relation to each other and those across the river:—

Circle.	Bhera Jhelum.	Shahpur, Jhelum.	Jhelum.	Thal.	Mohar.	Hill.	Tahsil Khushab.
Percentage of sown area which fails.	10	11½	18	37	29	15	25

The double cropping is not important: in the Jhelum circle catch-crops on the poorer *sailab* account for nearly two-thirds of it and in the Hill circle the figures are misleading, owing to the former practice of recording *taramira* intersown with *bajra* as a double crop; 68 per cent. of the well lands in this circle, however, are regularly sown twice a year, with superior crops.

In a period of twenty years, an average field in the Thal and Mohar will produce 10 times its area of matured crop; in the Jhelum circle 15 times: and in the Hill circle 18 times.

44. Each circle has its characteristic system of cultivation and cropping, closely corresponding to its geographical features. The Jhelum circle is much like any other River circle, in which the wells are not of a very high order; *rabi* crops are 77 per cent. of the total, and no less than 50 per cent. is wheat.

The Thal sows when and where it can; it is no longer, as at Settlement, wholly dependent on the *kharif*; in fact gram already outweighs the older staples—*bajra* and *moth*—and it is only the large area devoted to the so-called “water-melon” that keeps *kharif* in advance of *rabi*.

In the Mohar also cropping is principally determined by opportunity; there is a tendency to reserve the most secure fields for *rabi* crops, with an occasional change to *kharif*; in the villages with large areas of waste, cultivated land is sometimes given a complete rest, and waste land broken up instead. *Kharif* and *rabi* are about equal, but wheat is now more nearly equal to *bajra* than it was, and gram is making great strides, both in the Mohar and in the Thal tracts.

In the Hills, cropping is fairly steady: large blocks of land are sown or left fallow together, and there is a generally accepted rotation wheat, *bajra* (often intersown with *mung* or *taramira*), fallow, fallow, wheat and so forth, of the “two-crops in two years” description.

45. To the list of the crops grown at last Settlement must be added *barani* gram in the three plains circles. Otherwise there has been no important change. *Jowar* is now largely recorded under the head of *chari*; *bajra* has lost ground in the Jhelum, Mohar and Hill circles, both relatively and absolutely; in the last named circle, *taramira* has been taken into partnership with it; in the other two, it has made way for wheat and gram. Two villages at the

Staple crops. (Statement IX C).

mouth of the Vahi torrent have lost their right to grow rich on their poppy fields. In the case of other crops, a fall in the percentage is due to the relative rise of gram :—

Principal crops per cent, of total matured area (Statement IX-C).	JHSLUM.		THAL.		MOMAR.		HILL.	
	At Settlement.	Now.	At Settlement.	Now.	At Settlement.	Now.	At Settlement.	Now.
Rice	2	1.5	...	...	...	...	...	...
Maize ... ..	...	5	...	...	...	...	2	2.5
Jowar	10	4	...	...	9	7.5	2	2.5
Bajra	6	4.5	17	11	44	32.3	37	30
Other cereals ... ..	...	1	...	...	...	...	...	...
Moth	1	1.5	38	23	4	2	...	5
Mung ... ..	...	...	...	...	...	...	5	6
Cotton	3	1.5	...	...	2	1.5	...	5
Fodder	4	5	...	...	2	1.5	...	5
"Water-melons" ... ..	...	4.5	39	21	...	1	...	...
Total Kharif	26	23.2	89	55.3	61	46	48	42.3
Wheat	53	50	5	5	27	34	44	44
Barley	5	3	1	...	1	...	1	1.5
Gram	4	9	...	43.7	6	16.2	...	...
Masoor ... ..	...	5	...	...	...	...	...	...
Other cereals ... ..	...	5	...	...	...	...	...	...
Oilseeds	2	5	3	3	4	2	6	11.5
Melons ... ..	...	2.5	...	...	...	5	...	5
Garden crops ... ..	...	1	...	...	1	5	...	...
Roots	6	4	...	...	...	...	...	...
Fodder	4	1	2	...	...	5	1	...
Total Rabi	74	76.8	11	44.7	39	54	52	57.7

46. The cost of building and keeping up a well in the Riverain circle is much the same as in Shahpur tahsil. In the Hills, the wells are made of stone, plastered with mud or with mortar, and cost from Rs. 400 to Rs. 700 ;

Cost of cultivation.

as the lift is generally small and the area irrigated three acres at most, the expenditure on cattle is light. *Barani* lands, and much of the *ravidar*, can be cultivated very cheaply: little ploughing is needed, and there are no earth-works to keep up. But on the *hail*, *maira*, *naladar* and better *ravidar* lands, the expenses of levelling, embanking, repairing of banks and removal of stones are very considerable. Water is passed on from field to field by the cutting of the bank; often the bank breaks, and a large breach is made. This involves annual repairs which take up time and energy: it is difficult to estimate the cost,* as most of the work is done by a system of neighbourly co-operation, which is happily not yet extinct. Every year some of the earth-works are strengthened; the terraces are held up by imposing stone walls, and the sloping of the field is improved. These facts must never be ignored in assessment.

CHAPTER V.—TENANCIES AND RENTS.

47. Tenures in this Tahsil are for the most part very simple, so far as the relations of land-lord and tenant are concerned, as the following percentages of the cultivated area show:—

Percentage of cultivated area in possession of	Jhelum.	Thal.	Mohar.	Hill.	Tahsil.	
(1) Owners	86	78	59	60·5	61	
(2) Tenants free of rent	5	1·5	2	·5	2	
(3) Occupancy tenants	5	...	3	·75	2	
(4) Tenants at will... {	...	(a) paying at revenue rates ...	6	2	·25	2·5
		(b) paying other cash rents ...	1
		(c) paying kind rents ...	52·5	14·5	84	88	82

Except for the lands of the more lordly tribes—the Tiwanas, Baloches and Janjuhas—the tahsil is generally cultivated by the owners, either on their own account or under mortgagees. Few villages have any considerable number of cultivators who are tenants merely, with no lands of their own. In the Hill circle especially, almost the whole cultivation is done by the proprietary body.

The land held free of rent is in the river circle newly accreted soil, in which boundaries are guessed at, or else sand-hills on which menials grow "melons" for their own consumption.

In the Thal, it includes those patches in the waste which had been secured in proprietary right (under the old custom which allowed all the world so to secure land by the simple process of cultivating it) and then left fallow till some acquisitive neighbour included it in his own boundaries. The area held at revenue rates by tenants-at-will in the Thal is the amount of waste absorbed in this way by squatters since 1905, in which year the old custom was broken by executive order. In the Mohar there has never been any recognized custom, but squatting has been fairly extensively practised.

* Since Settlement, Rs. 25,150 have been advanced to the owners under the Land Improvement Loans Act; by circles the distribution has been:—

Jhelum; 4,190.
Thal; 800.
Mohar; 8,610.
Hill; 11,500.

48. All rents, with negligible exceptions, are paid in kind: the percentages of kind-rented area paying each proportion now may be compared with those given by Mr. Wilson at Settlement:—

Rents in kind. (See Statement XI.)	JHELUM.		THAL.		MOHAR.		HILL.		TAHSIL.	
	Settlement.	Now.	Settlement.	Now.	Settlement.	Now.	Settlement.	Now.	Settlement.	Now.
(a) $\frac{1}{2}$ or more ...	84	94	4	10	17	33	61	82	49	55
(b) $\frac{1}{3}$...	2.5	1	25.5	...	37	37	25	16	22	10.5
(c) $\frac{1}{4}$...	13.5	5	56	72.5	46	29	14	2	28.5	23
(d) less than $\frac{1}{4}$ ...	...	...	14.5	17.5	...	1	...	...	5	2.5
Average rent per cent. of total divisible* produce.	47.5	49	31	34	38.5	41.5	45	48	43	44

It is not, of course certain that, if the whole of the cultivated area were leased to tenants, the same percentages would result, but there are sufficient leased areas of each kind to enable one to infer with some certainty the renting value of land.

In the Jhelum and Hill circles, irrigated land can almost invariably claim half the divisible produce. Jhelum *chahi* takes only a modest share of the straw, which may be ignored. *Sailab* land regularly lets for half produce with straw.

In the Thal, the third share, with straw, is still by far the commonest rent, and the average on the present rented area is practically that fraction. It may be accepted as the normal rent; where cultivation is so exceedingly easy, and fodder-crops are so unnecessary, two-thirds of the crop leave a tenant ample margin to support himself in relatively decent comfort: on the other hand, it would be difficult to find a large number of tenants willing to pay more, in this very uninviting tract.

On the unirrigated soils of the other circles, rents have risen since Settlement. Villages which used to get $\frac{2}{3}$ in the *kharif* and $\frac{1}{3}$ in the *rabi* generally get $\frac{2}{3}$ in both harvests now and even in some cases $\frac{1}{2}$: for some reason which I cannot explain there has been a rise within the last 3 years. As a rule each village has one rate for all classes of unirrigated land, but naturally the tendency is to lease the weakest fields of the better classes, and I think we shall be nearest to the truth of the relative renting value of each class as a whole, if we assume that *barani I* pays somewhat above the average percentage, *barani II* the average percentage or somewhat less, and *barani III* considerably less, the proportions being fixed so as to keep the average percentage unchanged.

* "Divisible" means remaining after deduction of shared expenses.

The fractions I have adopted for the half-net-assets estimate are, therefore, these :—

	JHELUM.		THAL.		MOHAR.		HILL.	
	(a) Per cent. of matured area.	(b) Per cent. of divisible produce taken as rent.	(a) Per cent. of matured area.	(b) Per cent. of divisible produce taken as rent.	(a) Per cent. of matured area.	(b) Per cent. of divisible produce taken as rent.	(a) Per cent. of matured area.	(b) Per cent. of divisible produce taken as rent.
Chahi	20	49	..	..	..	..	8	50
Nahri-Ahl	6	50	..	..	..	..	..	50
Sailab-Barani I	46	50	..	..	40	45	24.5	50
Barani II ... ..	..	..	..	..	51	40	53	48
Barani III	22	45	100	83.3	9	38.3	10.5	38.5
Total	100	49	100	83.3	100	41.5	100	48

49. The figures for the few cash rents that exist will be found in Statement XII; no useful purpose will be served by exhuming them. They are all abnormal.

Cash rents.

CHAPTER VI.—THE PRODUCE AND HALF-NET-ASSETS ESTIMATES.

50. The calculation of half-net assets based on rents in kind will be found in Statement XIV. As already explained, I have included *chahi* in *larani* in the Thal, and *chahi*, *abi* and *sailab* in *naladar* in the Mohar. Government owned estates have been excluded. The figures in the first stage, "average area matured," are taken from Statement IX C, and have been fully discussed in Chapter IV.

The produce estimate.

51. The second stage shows the outturns of each kind of crop in maunds per acre. I have collected in Statement XIII the principal data by which I have been guided. It is necessary to point out that all the experiments were made in 1912-13 and 1913-14, both of which years were above average in the matter of rainfall. Fortunately I have had an opportunity of seeing two *kharif* harvests and one *rabi* in which less favourable conditions prevailed, and so to correct my impressions of the average fertility of *barani* soils. In the case of gram, I purposely selected some fields for experiment which seemed to me to represent what would be the average of an ordinary year. I have in my assumptions gone well below the results of my experiments in the case of unirrigated soils, wherever I have felt that the fields selected would be unduly fertile as specimens of a longer cycle of years. In this place I will only explain my reasons for differing in certain instances from Mr. Wilson, who formed his opinions on this subject, I need hardly say, with the greatest care and good judgment. The experiments clearly show that his estimate was in no case too high, and the peasants freely admit as much.

Outturns.

Bajra.—In this Tahsil, as in Bhera and Shahpur, the previous assumptions as to this crop on the better classes of land seem to be somewhat too low: Mr. Wilson makes no mention of the special method of cultivation which produces *rot bajra*, so it is probable that this improved method has come into fashion since Settlement. Following my experiments, which are sufficiently representative, I assume 10 maunds for *chahi* and 6 for *sailab* against 8 and 5 maunds respectively assumed at Settlement, and 12 and 6 respectively assumed in Shahpur.

On *naladar* I assume 7 maunds, instead of 6, this figure is justified by Court of Wards accounts, and by the opinions of the Settlement Officers of Jhelum and Mianwali, experiments give a very much higher figure, but must be considerably corrected as having been confined to well favoured seasons.

Gram.—This crop has greatly increased in importance on all circles since Settlement, and has only recently discovered the soil which is best suited to it, the light sandy soil of the Thal tract. In the Thal circle, we have no Settlement figure to guide us, and no recent opinions from other Settlements. Experiments give as much as 20 maunds to the acre in some cases; a careful selection of fields in a good year, so as to approach to normal, gives 11 maunds. Court of Wards accounts give only $4\frac{1}{2}$ maunds, but the tenants in the villages under management are very independent. After consulting Zamindars and the Tahsildar and Naib Tahsildar, I have come to the conclusion that 9 maunds is a safe estimate. In all other circles I assume 8 maunds, as in Bhera and Shahpur, for gram; there is little difference between the richest and the lightest soils; with light rainfall the lightest soils do best, and a field that does not actually fail will yield more than an equally watered field of firmer soil; for this reason I make a difference of 1 maund between the Thal and the other circles.

Taramira.—Mr. Wilson assumed 2 maunds on all soils in the Hills, and 1 maund on all soils elsewhere. I think there should be some differentiation between the stronger and the weaker soils. I assume 3 maunds on *chahi*, *sailab* and *barani I*, 2 maunds on *barani II* and 1 maund elsewhere. These figures are justified by the data given in the Statement, and are certainly moderate.

In no other case do I feel justified in raising Mr. Wilson's figures, though it is clear that these are distinctly on the safe side.

52. The third stage of the produce estimate is a mere multiplication, giving the total average produce in maunds. The fourth stage gives the prices assumed, either in annas per maund or rupees per acre. These prices were sanctioned by the Financial Commissioner for the district as a whole.* In my report on Bhera-Shahpur I compared these prices with those assumed by Mr. Wilson; in Khushab Tahsil a similar comparison gives a theoretical rise in prices of 49 per cent. In order to determine the actual rise, I have compared the 5 years preceding Mr. Wilson's report (1887-88 to 1891-92) with the 5 years preceding this report 1909-10 to 1913-14.

		Jowar.	Bajra.	Cotton.	Pulses.	Wheat.	Barley.	Gram.	Taramira.
JHEJUM.	1887-1891	25	32	71	29	35	23	29	43
	1909-1913	41	42	107	38	47	35	36	61
	Rise per cent.	64	31	50	31	34	52	24	52
THAL.	1887-1891	28	33	60	33	37	25	29	40
	1909-1913	41	43	...	39	52	36	32	58
	Rise per cent.	46	30	...	18	40	52	10	45
MOSAB.	1887-1891	25	31	85	27	35	23	28	40
	1909-1913	41	40	128	40	47	35	35	61
	Rise per cent.	64	30	50	48	34	52	24	52
BIRA.	1887-1891	28	31	67	33	33	22	...	41
	1909-1913	33	41	131	45	46	34	39	62
	Rise per cent.	64	30	50	40	34	52	...	52

*In the Jhelum circle, I have valued miscellaneous *barani* crop (i.e., "water melons") at Rs. 1 per acre; in this circle a rather superior kind is grown, which sells in considerable quantities in Khushab and Giroi bazaars. In the other circles I have considered these melons to be without value, as was done in Mianwali, and as was ordered by Sir James Dowie in connection with the forecast report.

For the Tahsil as a whole, we find an all round rise in prices of 32½ per cent. which is probably fairly near the truth :—

1	2	3	4	5	6
Staple crops.	Percentage of total crops matured.	Average out-turn per acre in maunds.	Column 2 × column 3.	Rise per cent.	Column 4 × column 5.
Wheat	33.5	7	234.5	34	7,973
Bajra	21.75	5	108.5	80	3,255
Grain	15.75	8	126	24	3,024
Pulses	7	8	21	33	693
Jowar	4.25	5	21.5	64	1,376
Taramira	8.5	2	7	52	364
Barley	1	7	7	52	364
Cotton ... ..	.75	8½	2.5	50	125
Total	87.5	...	528	32.5	17,174

Similar circulations for each circle give the following rises: Jhelum circle 35, Thal 12, Mohar 33, Hill 35, but in the case of the Thal it must be remembered that at Settlement practically all grain except *bajra* and *moth* had to be brought from outside, now considerable quantities of gram are exported.†

53. The fifth stage of the estimate gives the value in rupees of the gross produce :—

CIRCLE.	Class of soil.	Kharif.			Rabi.			TOTAL.			
		Area matured.	Value.	Rate per acre.	Area matured.	Value.	Rate per acre.	Area matured.	Value.	Rate per acre.	Rate per acre at Settlement.
JHELUM.	Chahi	1,050	26,600	Rs. A. P. 14 12 0	8,635	1,91,104	20 8 0	10,785	2,09,794	19 8 0	15 4 0
	Nahri	325	2,811	8 8 0	1,667	33,119	20 0 0	1,992	35,930	18 0 0	13 0 0
	Sailab	3,076	31,045	10 8 0	16,282	2,72,076	17 12 0	19,358	3,04,021	16 8 0	11 8 0
	Barani	3,454	18,594	4 0 0	3,350	46,038	13 12 0	6,810	50,632	8 12 0	5 8 0
	Total	8,905	76,950	8 12 0	20,140	5,33,027	18 4 0	37,945	6,09,977	16 0 0	12 0 0
THAL.	Total	18,176	54,648	3 0 0	16,028	2,14,950	14 4 0	33,604	2,69,607	8 0 0	3 8 0
MOHAR.	Naladar, etc.	12,295	1,52,344	12 4 0	12,400	2,28,114	18 8 0	24,695	3,80,458	15 8 0	9 4 0
	Ravidar	14,977	1,09,887	7 4 0	17,435	2,63,180	15 0 0	32,412	3,72,967	11 8 0	7 0 0
	Barani	1,864	7,152	3 12 0	3,067	53,467	13 8 0	5,831	64,619	10 8 0	4 4 0
	Total	29,136	2,69,383	9 4 0	32,902	5,44,761	16 0 0	62,938	8,18,044	13 0 0	7 4 0
HILL.	Chahi	510	11,605	23 4 0	611	17,310	28 4 0	1,121	29,115	26 0 0	18 8 0
	Abi	62	1,423	22 12 0	117	2,507	20 0 0	179	4,930	27 8 0	
	Hail	6,477	76,837	11 12 0	8,427	1,60,969	21 8 0	14,004	2,57,706	17 4 0	13 8 0
	Maira	9,653	75,616	7 12 0	14,016	1,85,964	13 4 0	23,668	2,61,580	11 8 0	7 8 0
	Barani	2,178	11,826	5 8 0	2,542	22,348	8 12 0	4,716	34,169	7 4 0	5 0 0
Total	18,874	1,77,607	9 8 0	25,714	4,09,968	16 0 0	44,288	5,27,500	13 0 0	8 8 0	
Whole Tahsil	75,391	5,78,288	7 12 0	103,064	17,02,740	16 8 0	179,075	23,21,028	12 12 0	8 8 0	

† The average export of gram from Gunjyal, Mitha Tiwana and Bahali Stations for 1912 and 1913 was 39,000 maunds.

In comparing the present rates with those of last Settlement I have added to Mr. Wilson's valuation of the gross grain produce the value of the wheat straw also: the rates in this table are in even quarter-rupees. The value of the crop per acre matured has increased for the Tahsil as a whole by 54 per cent., for the Jhelum circle 33, for the Thal 220, for the Mohar 79, and for the Hill 53. These figures show the Thal in its relation to the other circles more correctly than those in the preceding section.

54. The next stages in the estimate give items which have to be deducted from the gross produce on account of fodder on *chahi* lands, and on account of agricultural expenses on all classes.

Under the first head, I allow three-quarters of the jowar, turnips and other fodder crops, one-sixth of the wheat and all the straw in the Jhelum circle. In the Hills, where wells are so much smaller, and there are no recognized allowances, I have only deducted the straw and three-quarters of the turnips and fodder-crops.

Under the second head, I have made the same deductions as Mr Wilson,—*viz.*, one-sixth on *chahi* and one-eighth elsewhere. In the case of *chahi* wheat, the amount deducted is one-sixth of the crop not cut for fodder; in the case of garden crops not usually shared with the menials I make no deductions. I have worked out detailed calculations for various typical villages, and find that Mr. Wilson's figures are as near the truth as any other convenient fraction: they are perhaps unduly generous in the Mohar and Thal.

55. Having in this way arrived at the value of the produce left for division between the landlord and tenant, we must apply the figures brought out in paragraph 48 to give us the landlord's share. The only further adjustment that has to be made is in the case of *nahri* land, on which we have to deduct Re. 1-8-0 per acre matured on account of water-rates, which are paid entirely by the landlord. The value of the landlord's share on each class of land represents the following percentages of the value of the gross produce:—

CIRCLE.	JHELUM.					THAL.	MOHAR.				HILL.					
	Chahi.	Nahri.	Sailab.	Borani.	Total.		Total.	Nahadar, etc.	Baridar.	Barani.	Total.	Chahi.	Abi.	Hail.	Mahim.	Barani.	Total.
Value in even hundreds of rupees of	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Gross produce	2,098	859	3,046	596	6,100	2,666	3,605	3,729	606	8,140	291	49	2,577	2,616	343	5,875
2. Landlord's share	680	127	1,344	236	2,387	766	1,605	1,811	177	2,993	120	22	1,130	1,100	100	2,472
3. Percentage of 2 on 1	32	35	44	40	39	29	39	36	29	37	41	45	44	42	29	42
4. Corresponding Settlement percentage.*	38	35	44	36	38	30	36	34	3	34	41	41	39	39	39	36

* *i.e.*, including straw in the gross produce.

56. In order to reduce the figures thus arrived at to normal, we have to make the adjustments indicated in paragraph 41. This will give us the normal gross produce, normal rent, and normal net assets rates per acre matured; and in order to arrive at net assets rates per acre cultivated, we must divide the normal rent by the existing cultivated area; it has been shown in statement IX B that cross-cropping between different classes of soil is negligible:—

Circle.	Class of soil.	Cultivated area.	MATURED AREA.		GROSS PRODUCE.		VALUE OF RENT.		NET ASSETS RATES.	
			For selected period.	Normal.*	For selected period.	Normal.	For selected period.	Normal.	Per acre matured.	Per acre cultivated.
		Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs. A. P.	Rs. A. P.
JERSEY.	Chahi ...	13,128	10,785	10,500	2,09,794	2,05,000	88,007	66,200	6 4 0	5 0 0
	Nahri ...	3,761	1,902	2,000	85,830	36,000	12,741	12,750	6 6 0	8 6 0
	Sailab ...	20,101	18,358	18,350	3,04,621	3,04,500	1,34,403	1,34,400	7 6 0	6 10 0
	Barani ...	10,220	6,610	6,400	50,632	54,000	28,555	21,550	8 6 0	2 1 0
	Total ...	47,306	37,945	37,250	6,09,977	5,99,500	2,38,739	2,35,000	6 4 0	5 0 0
TEAL.	Total ...	86,112	83,604	85,750	2,69,607	3,05,000	78,636	89,000	2 8 0	1 0 0
MOHAR.	Naladar, etc. ...	41,727	24,695	22,000	3,50,458	3,39,000	1,50,500	1,34,000	6 1 0	8 4 0
	Baridar ...	63,271	32,412	29,000	3,72,867	3,37,500	1,31,103	1,16,000	4 0 0	1 13 0
	Barani ...	18,971	5,831	6,000	60,619	62,000	17,605	18,000	3 0 0	0 15 0
	Total ...	123,789	62,938	57,000	8,13,944	7,38,500	2,99,208	2,68,000	4 11 0	2 2 0
HILL.	Chahi ...	780	1,121	1,120	29,115	29,000	11,973	12,000	10 11 0	15 6 0
	Abi ...	164	179	180	4,930	5,000	2,168	2,200	12 3 0	13 6 0
	Hail ...	18,621	14,904	14,750	2,67,706	2,54,500	1,13,033	1,11,900	7 9 0	6 0 0
	Maira ...	26,778	23,668	22,900	3,01,550	2,50,500	1,09,973	1,05,300	4 10 0	3 15 0
	Barani ...	5,004	4,716	4,600	34,160	33,500	9,984	9,900	2 3 0	1 13 0
	Total ...	52,036	44,588	43,450	5,87,500	5,72,500	2,47,131	2,41,300	5 8 0	4 10 0
WHOLE TAHSIL ...	311,475	179,075	173,450	22,81,028	22,05,500	8,63,604	8,33,200	4 12 0	3 10 0	

*The normal figures here given exclude Government owned areas.

57. In a tahsil in which so large a proportion of the taxable wealth is owned in the form of live-stock, it is necessary to consider in some detail the nature and extent of the profits derived therefrom. Facts are unfortunately even more difficult to come by than in the case of crops: I have endeavoured to ascertain from the cattle-owners the results of their long experience, and have also consulted experienced officials, and experts such as the commandant of the Silladar Camel Corps. At almost every point I have allowed a wide margin for safety, and I have then worked out my results on the charitable assumption that on the whole the numbers of cattle do not decrease: that is to say, I have worked on marginal figures which can be, if necessary, established by appeal to a *reductio ad absurdum*. It is more than likely that I have under-estimated the profits very materially: it is, I think, certain that I have not exaggerated them. As it is in the Thal that cattle are most important, I consider that circle first.

Horned cattle are distributed almost exactly as follows:—Bulls and bullocks 80, cows 45, young stock 25 per cent.; normal life 10 years; average allowing for casualties 6. The following distribution must, therefore, be approximately right:—

	Under 1 year.	Under 2 years.	Under 4 years.	Under 6 years.	Under 8 years.	Over 8 years.	Total.
Bulls and bullocks ...	...	...	9	8	7	6	80
Cows ...	...	...	18	12	11	9	45
Steers ...	5	6	...	...	...	...	10
Heifers ...	8	7	...	...	...	...	15

If each of the 36 cow under 8 years old has one calf in two years, the 45 cows will produce 18 calves, 9 of each sex, so that there will be a surplus of 4 steers and 1 heifer, beyond the number of yearlings necessary to keep up the stock. For safety, we will allow 1 of each sex for extra mortality: then there are 3 steers available for sale. This must be near the truth, because we find full grown females are to males as 3 to 2, and the sexes are apparently equal at birth, and have equal chances of life: in other words 1 steer out of 3 born, is sold. Forty-five cows, therefore, produce 3 calves for sale; assuming the very low price of Rs. 5 per calf, we find the value of young stock sold to be $\frac{1}{3}$ of a rupee per cow. Buffaloes may be assessed at twice this amount.

Of 1,000 sheep, possibly about 200 are rams. Average life about 3 years: then 250 young ewes and 65 young rams are required yearly to keep up the stock. The 550 full grown ewes will produce at least as many lambs in a year, *i.e.*, 275 of each sex. Allowing 25 young ewes and 35 young rams for casualties, we have 175 young rams available for sale, at Rs. 2 each at least. The value of the young stock sold is, therefore, Rs. 350 per 1,000 sheep, or practically $\frac{1}{3}$ of a rupee per sheep.

The figures for goats are much the same, but they are less prolific; there should be at least 100 he-kids for sale, bringing in $\frac{1}{3}$ of a rupee per goat.

Of 1,000 camels about 600 are female and 400 male; normal life about 18 years; average about 11. There will be about 110 births in the year, 55 of each sex. All the females and 45 males will be required to keep up the stock. There will, therefore, be 10 for sale, worth at least Rs. 40 each, or $\frac{2}{3}$ of a rupee per camel.

Of the mature cattle, 1 in 5 will die in the year, and the hides will be worth Rs. 5 each, so the income from this source is Re. 1 per head of grown cattle.

We may ignore the dead young stock, and consider buffaloes to be equal to kine; we may also make the charitable assumption that only $\frac{1}{2}$ of the hides are sold, and call the profits from hides $\frac{1}{3}$ of a rupee per head grown cattle.

Of the sheep and goats about $\frac{1}{3}$ die in the year; the skins are worth 8 annas each on an average; so, allowing a quarter of the skin for local use, the profits may be taken as $\frac{1}{3}$ of a rupee per head.

One camel in 11 dies every year; the hides are worth Rs. 6 each; assuming that a tenth of the hides are used locally, the profits may be taken as practically $\frac{1}{3}$ a rupee per camel.

Of 45 cows, 36 will survive till the end of the year, and a third of these will probably be in milk at any given moment. It is admitted by the peasants themselves that, after making any necessary deductions for feed, annas 8 per

(a) Sale of young stock—

(i) Cattle.

(ii) Sheep and goats.

(iii) Camels.

(b) Sale of hides.

(c) Milk and fat.

cow per month is a modest estimate of the value of the *ghi* produced. The 36 cows will thus give Rs. 72 worth of *ghi* in the year; the 9 cows that die during the year will also give some return, but we may assume that all their milk, as well as Rs. 42 worth of the *ghi*, is consumed at home. This leaves a profit of Rs. 30 on 45 cows, or $\frac{2}{3}$ of a rupee per cow.

Of the 300 full grown ewes that live through the year, all will give milk for 4 months, yielding 1 seer of *ghi* each, or Rs. 300 in the year. The 250 ewes that die during the year will yield about Rs. 125 worth of *ghi* before death; the value of the *ghi* will then be Rs. 425, of which a fifth may be allowed for local consumption. The profits on a flock of 1,000 sheep will then be Rs. 340 or practically $\frac{1}{3}$ of a rupee per head.

Little *ghi* is made from goats' milk, and we may assume that this is all 'consumed on the premises.'

Cow buffaloes may be considered to yield Rs. 2 $\frac{1}{2}$ per head, which is half what they were found to yield in Bhera.

Lambs are not shorn till they are a year old; full grown sheep are shorn twice in the year; half those that die during the year will be shorn once on an average. Rams' and ewes' fleeces sell at a rupee for 2 and 3 respectively; of 1,000 sheep, 250 will be ewe-lambs, 300 ewes surviving, and 250 dying; 65 will be young rams, 70 rams surviving and 65 dying; the income will be Rs. 444, of which we may say, somewhat recklessly, that a quarter represents home consumption. This leaves a profit of $\frac{1}{3}$ of a rupee to every sheep.

Full grown goats yield $\frac{1}{4}$ seer of hair, worth $\frac{1}{10}$ of a rupee, at the end of each year. The kids will have replaced the losses by death, so out of 1,000 goats, 700 will yield hair worth Rs. 70; allowing Rs. 20 for home use, we get a profit of $\frac{1}{20}$ of a rupee per head.

Out of 1,000 camels, 400 are males, of which about two-thirds, or 266 will be fit for hire at a time; working for 9 months in the year, they will earn at least Rs. 72 each, from which must be deducted the wage of the driver, and the cost of saddles, ropes, bags, etc., which cannot exceed Rs. 25. The profit will be Rs. 12,502 per 1,000 camels, or exactly Rs. 12-8-0 each.*

The various items taken into account may be compared with the results arrived at by Mr. Wilson and by Mr. Hailey in the Bhakkar Thal:—

Value of profits in fractions of a rupee per head of	Fale of young stock.	Hides.	Milk and <i>ghi</i> .	Hair and wool.	Hire.	Total profits.	Mr. Wilson's estimate.	Mr. Hailey's estimate.
He-buffaloes, bulls and bullocks	...	8	...	...	...	8	12	8
Cows	3	3	6	...	...	13	12	8-8
Cow-buffaloes	6	3	2-8	...	...	3-3	?	?
Sheep	3	12	8	3	...	1-12	6	1
Goats	2	12	...	05	...	37	25	8
Camels	4	5	...	...	12-5	13-4	?	?

*This result can be checked by another calculation, based on an interesting system of profit sharing, known as "*Shah-gumashit*": the *Shah* or capitalist, whom I will call Isaac, takes a different percentage of the profits, according to the amount of capital invested in a joint-purchase by the grazier, or *gumashita*, whom I will call Ishmael.

(a) Isaac pays the whole price (say Rs. 120); then Isaac takes $\frac{1}{3}$ of the profits and Ishmael $\frac{2}{3}$.

(b) Isaac pays $\frac{1}{3}$ of price, and lends Ishmael $\frac{2}{3}$ at 12 per cent interest; then Isaac takes $\frac{1}{3}$ profits + $\frac{12}{100} \times 80$.

Ishmael gets $\frac{2}{3}$ profits less $\frac{12}{100} \times 80$.

(c) Isaac pays $\frac{1}{3}$ of price, and lends Ishmael $\frac{2}{3}$, free of interest; then Isaac takes $\frac{1}{3}$ profits and Ishmael takes $\frac{2}{3}$.

(d) Isaac pays $\frac{1}{3}$ price and Ishmael pays $\frac{2}{3}$ price; then Isaac takes $\frac{1}{3}$ profits and Ishmael takes $\frac{2}{3}$.

Comparing (d) with (c), we find the difference between $\frac{1}{3}$ and $\frac{2}{3}$ of the profits = interest on Rs. 80.
 $\frac{\text{Profits}}{6} = \frac{12}{100} \times 60$. The profits are therefore $\frac{6 \times 12 \times 60}{100} = 43.2$ rupees per male camel; according to the

previous calculation, the profits per male camel was 81 and per male camel exclusive of invalids = 47. If we compare (a) with (b), or with (c), we find the estimated profits to be only 21-8 rupees, but it is possible to reconcile the two results, when we remember that it is only to a *Gumashita* that a *Shah* would lend money at less than 12 per cent; in the case of the *Gumashita* he has at least the camels as security. At any rate 12-5 per camel, male and female, seems a pretty safe estimate.

In his review of the Bhera-Shahpur report, the Financial Commissioner held that it would be reasonable to deduct 25 per cent. of the profits for miscellaneous expenses of herding; including under this head the sum paid to Government for Rakh contracts (which comes to Rs. 6,595 for the Thal circle), and the exactions of cattle-thieves, I think we may fairly make the same deduction here.

We shall then get the following rates and half-net-assets:—

	Profits per head in rupees.		JHELUM.		THAL.		MOHAR.		HILL.	
		Half-net assets rate in rupees.	Number.	Half-net assets.						
Bulls, bullocks, and he-buffaloes.	25	12	11,000	1,375	13,100	1,685	19,400	2,425	13,300	1,663
Cows ...	1	5	12,350	6,175	19,350	9,675	24,000	12,000	12,100	6,050
Cow-buffaloes ...	25	125	4,100	5,125	100	125	2,900	3,685	2,200	2,750
Sheep ...	8	4	18,100	7,340	127,800	51,120	51,300	20,520	19,700	7,580
Goats ...	25	12	8,450	1,055	21,800	2,725	28,000	3,500	26,500	3,245
Camels ...	10	5	1,000	5,000	5,600	28,000	2,300	11,500	250	1,250
Total ...	...	...	...	25,970	...	93,280	...	53,630	...	22,830

In paragraph 30 it was shown that the proportion of cattle to population was considerably higher in the Thal than elsewhere, so it will be fair to take a higher percentage of the half-net assets as calculated in this table for that circle than for the other three. Comparing the totals thus arrived at with the areas shown in Statement III A as culturable waste (to which in the case of the Mohar and Hill circles must be added the bulk of the unculturable) we find half the profits per acre of grazing amount:—

In the Jhelum Circle to annas 4.

In the Thal Circle to annas 4.

In the Mohar Circle to annas 2½.

In the Hill Circle to annas 4.

In the whole Tahsil to annas 3½.

58. We have now determined a full and fair half-net assets on both crops and cattle, and corresponding rates for each class of soil. The results may be brought together thus:—

Class of soil.	HALF-NET ASSETS IN Rs.					HALF-NET ASSETS RATES.				
	Jhelum.	Thal.	Mohar.	Hill.	Total.	Jhelum.	Thal.	Mohar.	Hill.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Chahl ...	83,100	...	...	6,000	39,100	2 8 0	...	...	7 11 0	...
Nahri-Abi ...	6,375	...	...	1,100	7,475	1 11 0	...	...	6 11 0	...
Saifab ...	67,200	...	...	...	67,200	8 5 0	...	...	...	...
Barani I ...	...	...	67,500	55,950	1,22,950	...	...	1 10 0	3 0 0	...
Barani II ...	...	...	58,000	52,650	1,10,650	...	...	0 15 0	2 0 0	...
Barani III ...	10,825	44,500	9,000	4,900	69,223	1 0 0	0 8 0	0 8 0	0 14 0	...
Total on crops ...	1,17,500	44,500	1,34,000	1,20,600	4,16,600	2 8 0	0 8 0	1 1 0	2 5 0	1 5 0
Total on pasture ...	25,970	93,280	53,630	22,830	1,95,730	0 4 0	0 2 6	0 4 0	0 3 0	...
Total on all land in even hundreds.	1,43,500	1,37,830	1,87,600	1,43,400	6,12,800	...	...	...	...	...

These are the sums and rates which I propose for approval.

Comparing these results with those of Mr. Wilson, we find the following increases per cent. :—

	Jhelum.	Thal.	Mohar.	Hill.	Tahsil.
Present half-net-assets	1,48,500	1,87,500	1,87,500	1,48,500	6,12,000
	70,000	15,000	70,000	75,000	2,80,000
Half-net-assets at Settlement, including cattle; para-graph 52 of Assessment Report.	14,500	15,000	28,500	12,000	65,000
	84,500	80,000	98,500	87,000	2,95,000
Increase per cent.	+70	+850	+100	+65	+106

CHAPTER VII—ASSESSMENT PROPOSALS.

59. The principal results arrived at so far may be summed up in tabular form :—
Leading points for consideration.

Stage.	Para.	Difference per cent. of the Settlement figure in—	Jhelum.	Thal.	Mohar.	Hill.	Tahsil.
1	24	Cultivated area	12	166	20	7	88
2	24	Irrigated area	11	83	53	47	15
3	42	Matured area	11	180	9	-4	20
4	45	Percentage on total matured area of wheat, maize, cotton, gram and garden crops.	8	10 times.	44	...	...
5	48	Percentage of divisible produce taken by landlord.	8	...	8	7	2
6	58	Value of produce, per acre matured	33	220	79	53	54
7	52	Prices current	85	13	33	35	82.5
8	54	Sale values (estimated)	200	400	300	150	...
9	86	Mortgage values (estimated)	150	300	200	100	...
10	80	Cattle	40	119	28	28	51
11	27	Density of population, per acre cultivated.	-8	-51	-18	+18	-17
12	29	Size of holding per owner	-27	+120	-25	-8	...
13	34	Percentage of total cultivated area under mortgage.	-82	-80	-16	-29	-80
14	58	Estimated half-net-assets	70	850	100	65	106

I take it that in the Jhelum circle at least, the pitch of the assessment must be largely influenced by that which will be announced, almost simultaneously, in Shahpur : it would never do to have a great disparity of rates in villages whose fields lie side by side. So too it would not do to have very different rates on the similar barani lands of the Thal, Jhelum and Mohar

circles, or on the hill lands of the Mobar and Hill-circles. In both the Bhera and Shahpur Tahsils the Financial Commissioner's orders (not yet officially published) indicate an assessment which will absorb about 10 per cent. of the gross produce and 57 per cent. of the half-net assets, and these figures must to some extent regulate the assessment of Khushab. With these general considerations in mind, I now proceed to discuss each circle in detail.

60. The existing fixed assessment is Rs. 62,991, of which Rs. 1,100 is paid by date-groves and about Rs. 1,000 by waste: about another Rs. 1,000 is paid in the form of water-advantage rate, fluctuating. It must be remembered that all new cultivation in *nahri* and *sailab* has been already assessed.

1	2	3	4	5	6	7	8	9	10	11
	Cultivated area in acres.	Revenue rate of last Settlement.	Result of applying column 3 to column 2.	Rate of last Settlement.	Result of applying column 5 to column 2.	Ten per cent. of normal gross produce.	Half-net assets per acre cultivated.	57 per cent. of column 8.	New rate expected for Shahpur.	Result of applying column 10 to column 2.
	Acres.	Rs. A. P.	Rs.	Rs. A. P.	Rs.	Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs.
Chahi ...	18,124	1 14 0	24,616	1 11 6	22,561	20,500	2 8 0	1 8 0	1 10 0	21,333
Nahri ...	3,761	0 6 0	1,410	0 6 6	1,537	3,000	1 11 0	1 0 0	0 8 0	1,650
Sailab ...	20,101	1 12 0	25,335	1 11 9	34,653	30,450	3 5 0	1 14 0	1 12 0	35,325
Barani ...	10,229	0 6 0	3,711	0 8 0	5,114	5,400	1 0 0	0 10 0	0 8 0	5,114
Total ...	47,809	...	65,711	...	63,867	59,050	2 8 0	1 7 0	...	63,862

The full fair half-net assets on cultivation are Rs. 1,17,500, and 57 per cent of this would give Rs 67,000 of which about Rs. 2,000 would be paid as a fluctuating water-advantage rate. My tentative village assessments suggest a fixed assessment on cultivated land of Rs. 67,300, and this figure was arrived at simply by considering each village on its present merits, and in relation to its existing assessment and its neighbours on both sides of the river. Considering each soil on its own merits we arrive at practically the same results: thus the *chahi* rate cannot reasonably be less than Re. 1-14-0, the rate to which it was raised at last Settlement by Government, on the ground that it had paid that rate without apparent difficulty for the past 20 years. On the other hand, in view of the much lower rate in Shahpur, and the fact that the Khushab *chahi* is certainly not superior in quality, I do not think it would be reasonable to go higher: Re. 1-14-0 will absorb 71 per cent. of the half-net assets, which is high by the standard.

The *nahri* rate also should, I think, be maintained at Re. 0-6-0, the enhancement on this class being taken, as in Bhera and Shahpur, in the form of increased water advantage rate. This latter I would raise from annas 8 to Re. 1, as on the other Provincial and Imperial Canals. The Corbynwah is in all respects inferior to these others, but this inferiority is allowed for in the lower water-rates and fixed land revenue rate.

The *sailab* rate I would raise from Re. 1-12-0 to Re. 1-14-0; it is, as the half-net assets rate shews, somewhat better than the *chahi*, and also, owing to its even quality, than the Shahpur *sailab*. This rate will absorb nearly 57 per cent. of the half net-assets.

The *barani* rate I would leave at 6 annas; in Shahpur, the Financial Commissioner has reduced my proposed *barani* rate to the level of the fixed *nahri* rate, and doubtless it is convenient to keep them level. The Thal rate also will operate in the direction of keeping the rate on this land, which is slightly inferior to Thal average, down to this pitch.

These rates will give :—

	Cultivated area.		Proposed rate.	Result in rupees.	Water-advantage rate.	Total.	Per cent. of normal gross produce.	Per cent. of half net assets.
	Acres.	Rs. A. P.						
Chahi	18,128	1 14 0	24,615	...	24,615	12	74	
Nabri	8,761	0 6 0	1,410	2,005	3,415	9	58	
Sailab	20,191	1 14 0	37,859	...	37,859	12	56	
Barani	10,229	0 6 0	3,711	...	3,711	7	34	
Total	47,309	...	67,595	2,005	69,600	11.5	59	

In addition to this I would impose Rs. 1,200 as at last Settlement on the date-groves* round Majoka, and Rs. 4,200 on the 98,000 acres of waste or about Rs. 4 for every 100 acres. This will make the total assessment Rs. 75,000 giving a rise of 17 per cent. and absorbing 52 per cent. of the total half-net assets of land and cattle.

61. The existing assessment in the Thal is Rs. 11,830, no less than Rs. 11,123 of which is now paid on cultivation; there is only one instalment—the *kharif*. The revenue rate at Settlement was 4 annas per acre cultivated: Rs. 2 per 100 acres of waste. These rates applied to present areas would give—

	Rs.
88,112 acres at 4 annas ...	22,025
3,36,300 „ 2 per cent. ...	6,728
Total ...	28,754

The half-net-assets of cultivation amount to Rs. 44,500, of which 57 per cent. is Rs. 25,365. The gross produce is worth Rs. 305,000 of which 10 per cent. is Rs. 30,500; but rents run low in this circle. The old rate on cultivation might be raised to 5 annas, producing Rs. 27,500, which is 62 per cent. of the half-net-assets, and 9 per cent. of the gross produce: seeing that the value of the produce per acre matured has more than trebled, and the increase in matured area is greater than the increase in cultivated area, it is obviously reasonable to raise the traditional rate: the only possible objection is that this more than doubles the present revenue—a consideration which in this case cannot carry much weight.

There remains the question how much should be assessed on the grazing profits, half of which amount to Rs. 93,280. In view of the great increase in cattle and the value of pastoral produce, it would be unreasonable to adhere to the purely nominal rate of the last two settlements. In the Jhelum circle where cattle are much less numerous, and profits per owner considerably less, I have proposed Rs. 4 per hundred acres. In this circle, I think Rs. 6 may fairly be charged, this will yield Rs. 20,180, which is 22 per cent. of half the net profits from livestock. The total assessment will then be Rs. 27,500 on cultivation and Rs. 20,200 on grazing, or say Rs. 47,320 in all, which is exactly four times the present revenue, and absorbs only 34 per cent. of the total half-net assets.

*I propose to submit a separate proposal, with respect to those, which will, I think, encourage the owners of these groves to improve their stock; at present the oldest groves are deteriorating rapidly. The proposed assessment, however, is not above half-net assets, which the Economic Botanist has estimated at Rs. 1,750.

I do not think it is possible to take less than this, without making the present under-assessment of the Thal chronic. Deferred assessment (see paragraph 74) will keep the pitch of the demand absurdly low for the next 10 years, and only after 15 years will it be possible to assess these lands at the same rate as was applied to the corresponding land in the Mohar 20 years ago. A ten-year assessment, in conjunction with the ordinary rules for deferring part of excessive enhancements, would not help in any way. Fluctuation I deprecate with all possible earnestness; while revenue officials remain human and the Thal unirrigated, inspections of the *rabi girdawari* will always be very cursory.

62. The present assessment is Rs. 69,206 : we have seen that the circle generally has some suspensions outstanding, and that the revenue rates of last settlement were relatively high, especially on *naladar*.

1	2	3	4	5	6	7	8	9
	Cultivated area in acres.	Revenue rate of last Settlement.	Result of applying column 3 to column 2.	Bachh rate of last Settlement.	Result of applying column 5 to column 2.	10 per cent. of normal gross produce.	Half-net assets per acre cultivated.	57 per cent. of column 8.
	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Acres.	Rs. A. P.	Rs. A. P.
Naladar	41,572	1 0 0	41,572	0 14 8	87,025	83,900	1 10 0	0 15 0
Raridar	68,271	0 9 0	35,590	0 8 6	33,612	33,750	0 15 0	0 8 6
Barani	18,971	0 5 0	5,928	0 7 0	8,298	6,200	0 8 0	0 4 6
Total	123,769	0 11 0	83,090	0 10 6	78,935	73,850	1 2 0	0 10 0

The half-net assets on cultivation amount to Rs. 1,34,000, 57 per cent. of which is Rs 76,380. My village inspections suggested an assessment of Rs. 88,000 in all, of which about Rs. 10,000 would be assessed on the waste. Considering soils, we have to remember that *naladar* was assessed at full half-net assets at settlement, and now includes embankments, estimated to amount to 15 per cent. The half-net-assets are about a half of those on *sailab* and *hail*, and three times those on the Thal: the expenditure of labour on banks is great. I consider a rate of annas 14 appropriate. On *Raridar*, which now includes embankments estimated at 4 per cent., I would maintain the existing rate of annas 9, which is slightly higher than the *bachh* rate. On *barani* also I would maintain the old rate of annas 5; the bulk of the *barani* land now lies on the Thal side, and is not distinguishable from that of the Thal circle. At settlement, most of this land was exempted from assessment altogether in the *bachh*. These rates give the following results:—

	Cultivated area.	Proposed rate.	Result in rupes.	Percentage of normal gross produce.	Percentage of half-net-assets.
	Acres.	Rs. A. P.	Rs.		
Naladar	41,572	0 14 0	36,375	11	54
Raridar	68,271	0 9 0	35,590	10½	61
Barani	18,971	0 5 0	5,928	9½	65
Total	123,769	0 10 0	77,893	10½	58

I would also assess the culturable waste at Rs. 4 per 100 acres, as in the Jhelum circle, giving about Rs. 10,200 or Rs. 88,000 in all. This will involve an enhancement of 27 per cent. and absorb 47 per cent. of the total half-net assets.

63. The present assessment is Rs. 53,487; at last settlement the demand proposed by Mr. Wilson was lowered 10 per cent by Government, owing to the peculiar character of the cultivation and the many merits of the peasantry. The same considerations have still to be borne in mind.

2	3	4	5	6	7	8	9
Cultivated area in acres.	Revenue rate of last Settlement.	Result of applying column 3 to column 2.	Bachh rate of last Settlement.	Result of applying column 4 to column 2.	10 per cent. of normal gross produce.	Half-net assets per acre cultivated.	57 per cent. of column 8.
Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Acres.	Rs. A. P.	Rs. A. P.
780	3 10 0	2,827	2 6 0	1,853	2,900	7 11 0	4 5 0
164	3 10 0	595	1 10 0	296	500	6 11 0	3 12 0
18,021	1 9 0	29,095	1 6 0	25,305	25,450	3 0 0	1 11 0
26,776	1 0 0	26,776	1 1 0	28,450	25,750	2 0 0	1 2 0
695	0 9 0	3,234	0 14 0	4,951	3,350	0 14 0	0 8 0
62,086	1 2 0	62,197	1 2 0	61,158	57,250	2 5 0	1 5 0

The half-net assets on cultivation are Rs. 1,20,600, of which 57 per cent. is Rs. 68,750; 10 per cent. of the gross produce comes to Rs. 57,250. My tentative village assessments, which were pitched so as to allow 10 per cent. only for rise in prices, brought out Rs. 61,250, but in view of the fact that at last settlement the demand was fixed low, to allow for the special characteristics of the circle, and that the pressure on the soil has been largely relieved by the grant of Colony squares, I now think my scale of assessment was unnecessarily lenient. Considering each soil on its merits, I would assess at the following rates:—

- Chahi*.—Rupees 4 was Mr. Wilson's proposal; it was reduced 10 per cent.; the *bachh* rate was only Rs 2-6-0, but the half-net assets are Rs. 7-10-0. Rupees 4 seems suitable.
- Abi*.—Amalgamated with *chahi* by Mr. Wilson: *bachh* rate is only Re. 1-10-0, half-net assets are Rs. 6-10-0; I suggest Rs. 3-8-0.
- Hail*.—Now includes embankments, estimated to amount to 9 per cent. of the area. This soil requires the greatest expenditure of time and energy on embanking. Half-net-assets are Rs. 3. I would adhere to the settlement rate of Re. 1-9-0.
- Maira*.—Now includes embankments, calculated to amount to 4 per cent. Was assessed at Re. 1-1-0 in the *bachh*; half-net-assets are Rs. 2. I would assess at Re 1-2-0.
- Barani*.—Largely consists now of steep hillside, broken up since settlement; much of the land included in this class at Settlement has been improved into *hail* and *maira*. Half-net-assets

are annas 14, I would assess at annas 8, which is 1 anna lower than the Settlement rate. These rates give :—

—	Cultivated area.	Proposed rate.	Result in rupees.	Per cent. of normal gross produce.	Per cent. of half-net-assets.
	Acres.	Rs. A. P.	Rs.		
Chahi	760	4 0 0	3,120	10½	52
Abi	164	3 8 0	574	11½	53
Hall	19,621	1 9 0	29,495	11½	52
Maira	26,776	1 2 0	80,128	12	57
Barani	5,695	0 8 0	2,848	9	58
Total	52,036	1 4 8	65,760	11½	54

To this I would add Rs. 240 on the waste of these villages which keep a large number of camels and goats. The total assessment will then be Rs. 66,000, which is 46 per cent. of the half-net-assets, and involves an increase of 23 per cent. on the present demand.

Summary of revenue rates proposed.

64. The rates which I propose for approval, then, are these :—

—	Jhelum.	Thal.	Mohar.	Hill.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Chahi	1 14 0	...	...	4 0 0
Nabri and Abi	0 8 0	...	...	2 8 0
Sailab	1 14 0	...	...	...
Barani I ... ..	...	...	0 14 0	1 9 0
Barani II ... ..	...	...	0 9 0	2 2 0
Barani III	0 6 0	0 5 0	0 5 0	0 8 0
Banjar, per 100 acres	4 0 0	6 0 0	4 0 0	...
Other items	1,200 0 0	...	...	240 0 0

65. In his note on the Forecast Report, Sir James Douie wrote that it should be possible to raise the assessment of the Jhelum circle from Rs 61,000 to Rs. 73,000; that of the Thal from Rs. 12,000 to Rs. 20,000; that of the Hills from Rs. 55,000 to Rs. 62,000; while, in the Mohar, he did not think it would be possible to take any increase at all. It will be seen that in the Jhelum circle, after allowance is made for gains by alluvion, I have

Comparison of proposals with the Forecast Estimate.

reached almost the same conclusion; in the Thal, I have made a bold, but I think necessary, proposal. Sir James Douie does not appear to have been aware of the gram-growing possibilities of the circle. In the Mohar, the increase I propose can be justified partly by the development of gram-lands and the increased profits from cattle, and partly by the rise in prices: holdings in this circle are large enough to give the owners a good deal of marketable produce. In the Hills, I propose Rs 66,000 as against Sir James Douie's Rs. 62,000, mainly on account of the relief afforded to congested villages by the grant of land in the Colony. If my proposals are considered exorbitant, I should like reductions to be made especially for such villages as have shewn to an eminent degree those qualities of bravery, loyalty, thrift, and the temper of a "fairly united clan," which earned for the circle at last Settlement specially lenient treatment.*

66. For purposes of comparison I give a list of rates adopted in neighbouring circles:—
Comparison with neighbouring circles.

	Shahpur Jhelum.	Jhang Jhelum.	Pind Dadan Khana river.	Bhaktar Thal.	Pind Dadan Khan Thal.	Mianwali Khuddri.	Talagang.	Pind Dadan Khan Hill.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Chahi ...	1 10 0	1 9 0	2 6 0	...	} 1 5 0	{ 0 13 0	} 4 4 0	5 0 0
N.ari ...	0 8 0	...	...	...	
Sailab ...	1 12 0	1 6 0	1 12 0	...	1 12 0	...	...	...
Barani I ...	...	...	1 0 0	...	0 13 6	0 13 0	0 14 0	1 8 0
Barani II ...	...	...	0 12 0	...	} 0 6 0	{ 0 7 0	} 0 7 3	0 11 0
Barani III ...	0 8 0	...	...	(a) 0 1 6				

(a) See Mr. Hailey's report, paragraph 56.

The fluctuating rates adopted in the Mianwali Pakka circle (see Appendix V of the Final Settlement Report) were:—Naladar Re. 1-2-0; Kasledar Re. 0-11-0; Maira 0-10-0 per acre matured. These rates applied to the Mohar circle would give:—

	Rs.
22,000 × Re. 1-2-0	... = 24,750
29,000 × Re. 0-11-0	... = 19,900
6,000 × Re. 0-10-0	... = 8,850
	48,500

but I understand that it has been ascertained by experience that the rates sanctioned for that circle were unnecessarily low. In paragraph 17 of the Settlement Commissioner's Review of the Mianwali assessment report, the

*Commissioner's Review of Hill Circle Assessment Report, paragraph 16, Final Settlement Commissioner's Review of Hill circle, paragraph 19.

all-round fixed incidence on *barani* soils is said to be $8\frac{1}{2}$ annas, and this would give in the Mohar circle $1,22,037 \times 8\frac{1}{2}$ annas = Rs. 64,800. Compared with this standard, my proposals are sufficiently full.

CHAPTER VIII—FINANCIAL EFFECT OF PROPOSALS AND MISCELLANEOUS.

67. If the proposals made in the preceding chapter are accepted, the general effect of proposals. general financial effect will be as follows :—

Circle.			Jhelum.	Thal.	Mohar.	Hill.	Tahsil.
			Rs.	Rs.	Rs.	Rs.	Rs.
1	Existing fixed assessment.	On cultivation ...	61,000	11,123	60,706	53,287	1,86,116
2		On grazing and other profits...	1,091	707	8,560	200	11,398
3		Total ...	62,991	11,830	69,266	53,487	1,97,514
4.	Existing water-advantage rate (approximate) ...		1,009	...	...	...	1,009
5.	Total existing demand ...		64,000	11,830	69,266	53,487	1,98,523
6	Proposed fixed assessment.	On cultivation ...	65,600	27,600	78,000	65,750	2,38,950
7		On grazing ...	5,400	19,720	10,000	250	35,370
8		Total ...	71,000	47,320	88,000	66,000	2,74,320
9.	Proposed water-advantage rate ...		2,000	...	...	..	2,000
10.	Total proposed demand ...		73,000	47,320	88,000	66,000	2,76,320
11.	Percentage of increase column 10 on column 5 ...		+17	+300	+27	+23	+39
			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
12	Incidence per acre cultivated.	Of existing demand ...	1 6 0	0 2 2	0 9 0	1 0 6	0 10 0
13		Of proposed demand ...	1 9 0	0 8 6	0 11 4	1 4 3	0 14 3
14		Of proposed demand on cultivation.	1 7 6	0 5 0	0 10 0	1 4 3	0 12 3
15	Incidence per acre matured (normal).	Of existing demand ...	1 12 0	0 5 3	1 3 6	1 3 9	1 2 3
16		Of proposed demand ...	2 0 0	1 5 3	1 8 9	1 8 3	1 9 6
17		Of proposed demand on cultivation.	1 14 0	0 12 3	1 6 0	1 8 3	1 6 0
18	Percentage on half-net-assets of assessment.	On cultivation ...	59	62	58	54	57
19		On grazing ...	10	22	19	1	18
20		Total ...	52	34	47	46	26

68. At present Rs. 5 and Rs. 8-5-4 per cent. of the fixed land revenue and water-advantage rate are levied on account of *lambardari* fees and local rate respectively. I understand that it is not proposed to recommend any enhancement of these rates at present.

69. I have already recommended that land irrigated from the Corbyn-wah should pay water-advantage rate at 1 rupee per acre matured, as on the Bhera and Shahpur State-owned Canals. Grass may continue to pay annas 4 per acre, as agreed to by the Financial Commissioner in paragraph 22 of his orders on the Bhera-Shahpur Assessment Report. There is practically no lift irrigation at present, and, in order to encourage it, I would keep the water-advantage rate on this at the present rate of 4 annas. Water-rates on this Canal ought not in my opinion to be raised above their present level, nor, so far as I know, is there any proposal to raise them.

70. In paragraph 63 of the Bhera-Shahpur Assessment Report, I proposed a scheme for replacing at need the existing system of assessment by a fluctuating system. The Financial Commissioner ordered me (in paragraph 23 of his orders), to submit revised proposals: this I will do, so soon as the orders are received officially.

71. A separate report on the subject of the existing dialluvion rules will be submitted when orders determining the pitch of the new assessment are received.

72. In paragraph 14 of the Financial Commissioner's review of Mr. Wilson's report on the Plains circle, the orders as to assessment of waste-land irrigated by means of canals were shown to be applicable to the whole district. I recommend that these orders be extended to the term of the new Settlement; the small modification I suggested in paragraph 70 of my Bhera-Shahpur Report will be submitted separately. As it is not impossible that the Sind Sagar Doab Canal may arrive before the new Settlement expires, it is important that orders taking power to assess the irrigated area should be passed in connection with the assessment; proceedings under the Sind Sagar Doab Act in this District were abortive, and were dropped on receipt of letter No. 351, dated 21st April 1909, from Punjab Government (Revenue and Agriculture—General.)

73. In the Jhelum circle conditions are not greatly different from those prevailing in Bhera and Shahpur, and what I wrote in paragraph 71 of the Bhera-Shahpur Report holds good. In the Thal and Mohar, although wells are deep and irrigation from them very restricted, these facts will be taken into consideration in fixing the *chahi* rate in any villages where the villagers wish to differentiate *chahi* in their *bachh*: I do not think there is any necessity to grant protection for more than 20 years. In the Hills, wells are cheaper to make than in the riverain, owing to the abundance of stone, and though they only command $2\frac{1}{2}$ acres each, they are largely double-cropped, and produce valuable garden-crops: moreover, they were at last Settlement treated very lightly in the *bachh*, and there is reason to believe that they will be again; should this anticipation prove unfounded, I will submit a further report; meanwhile I consider 20 years sufficient.

74. In the Jhelum, Mohar and Hill circles I propose to apply the general orders restricting enhancements of the demand to 33 per cent. for the first 5 years, and 66 per cent. for the first 10 years. In the Thal, it will be impossible to take the whole of the proposed assessment during the next 20 years, without taking a much larger enhancement at some stage. I propose that the revenue be raised 50 per cent. immediately, and an equal enhancement be taken at the end of 5 years; the revenue will then become double what it is now; I would at the end of 10 years raise this again by 50 per cent. taking an equal enhancement at the end of 15 years; the total assessment,

including Government lands, which is now Rs. 12,000 will, therefore, be Rs. 18,000 in 1915; Rs. 24,000 in 1920; Rs. 36,000 in 1925, and Rs. 48,000 in 1930. The effect on the rates will be this:—

(a)	from 1915—1920, the rate on	{	cultivation will be—	0	2	0	per		
							acre.		
			waste	Rs. 2	per	100	acres.		
(b)	from 1920—1925	„	{	cultivation	...	0	3	0	per
									acre.
				waste	...	2	2	0	per
									100 acres.
(c)	from 1925—1930	„	{	cultivation	...	0	4	0	per
									acre.
				waste	...	4	0	0	per
									100 acres.
(d)	from 1930 onwards		{	cultivation	...	0	5	0	per
									acre.
				waste	...	6	0	0	per
									100 acres.

Unless the assessment is quadrupled within the period of this Settlement, the problem of raising the rates in the Thal to the level of those on similar lands elsewhere without an unduly large enhancement is bound to recur.

75. The period of the current Settlement has already expired in all circles, and the new demand may be introduced as soon as orders are communicated. The term of Settlement should be, I think, 20 years, as in Bhera and Shahpur. In all circles except the Hill, great developments of *barani* cultivation are to be looked for: in the Hills, re-assessment may not be necessary, but a revision of the record, with new maps, will probably be called for.

76. A separate report will be submitted on the subject of lands owned by Government, when orders on the general assessment are received. Any points that seem to call for notice in connection with the Forest Settlement will be dealt with in that report.

Orders solicited.

77. I request orders on the following subjects:—

- (1) Approval of the half-net-assets calculation and rates tabulated in paragraph 58.
- (2) Approval of the assessments proposed in paragraphs 60—63.
- (3) Approval of the revenue rates proposed in paragraph 64.
- (4) Extension of the existing rules regarding irrigation of waste by canals for the term of the new Settlement, paragraph 72.
- (5) Approval of the proposed modification of the general orders as to deferred assessment in the case of the Thal, set forth in paragraph 74.
- (6) Orders as to the introduction and term of the new assessment, *vide* paragraph 75.

MAXWELL LEIGH,

Settlement Officer.

22-11-14.

GLOSSARY OF VERNACULAR TERMS USED IN THE REPORT
AND STATEMENTS.

<i>Vernacular term.</i>	<i>Meaning or explanation.</i>
Abi ... ..	... Irrigated by a stream or spring.
Akk ... ..	... A shrub (<i>calotropis procera</i> , or <i>gigantea</i>).
Bachh ... ..	... Distribution of the assessment of an estate over holdings.
Bahakar ... ..	... A shrub (<i>adhatoda vasica</i>); also called <i>vahakar</i> .
Bajra ... ..	... A millet (<i>panicillaria spicata</i>).
Banjar ... ..	... Culturable waste land.
Barani ... ..	... Land dependent on rainfall.
Ber ... ..	... A tree (<i>sizyphus juinha</i>).
Bhakkra ... ..	... A creeping plant (<i>tribulus arat</i>
Bui ... ..	... A plant (<i>panderiz pilosa</i>).
Chahi ... ..	... Irrigated by a well or <i>jhali</i> .
Chari ... ..	... <i>Jowar</i> grown for fodder.
Chbachh ... ..	... Level plain.
Chhembar ... ..	... A grass (<i>cleusine flagellifera</i>).
China ... ..	... A cereal (<i>panicum melioccoum</i>).
Cho ... ..	... A hill-torrent.
Danda ... ..	... The high bank of the Jhelum river.
Ghi ... ..	... Clarified butter.
Girdawari ... ..	... Crop inspection.
Hail ... ..	... Land in the hills getting water from a torrent or hill-side.
Harmal ... ..	... A plant (<i>peganum harmala</i>).
Jagirdar ... ..	... A person to whom land-revenue is assigned.
Jand ... ..	... A tree (<i>prosopis spicigera</i>).
Jhalar ... ..	... A Persian wheel for irrigation from some source other than a well.
Jowar ... ..	... Great millet (<i>holcus sorgum</i>).
Kangni ... ..	... A small cereal (<i>sitaria italica</i>).
Kari ... ..	... A leafless shrub (<i>cannaris aphylla</i>).
Khabbal ... ..	... A grass (<i>cynodon dactylon</i>).
Khalsa ... ..	... Revenue paid to Government.
Kharif ... ..	... Autumn harvest.
Khavi ... ..	... Lemon-grass.
Khipp ... ..	... A small broom shrub (<i>cotalaria burhia</i>).
Kikar ... ..	... A tree (<i>acacia arabica</i>).
Lagha ... ..	... A cup of clay soil between sand hills.
Labura ... ..	... A tree (<i>tesoma undulata</i>).
Lana ... ..	... A plant; <i>salsola foetida</i> or <i>haloxylon recidivum</i> in the Mohar; <i>haloxylon silicornicum multiflorum</i> in the Thal.
Lambardari ... ..	... The village headman's fee.
Maina ... ..	... A small trefoil (<i>melilotus parviflora</i>).
Maira ... ..	... Land in the Hill circle which gets its water second hand.
Malik ... ..	... A local aristocrat.