

9. No.40. Family Budgets, 1932-33,  
 of Four Tenant-Cultivators  
 in the Lyallpur District.  
 By Sardar Kartar Singh.  
 1934. X9(J): 16(Y2).236<sub>5</sub> pp.278-298.  
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10. 44. Family Budgets, 1933-34,  
 of six Tenant-Cultivators  
 in the Lyallpur District.  
 By Kartar Singh and Ajaib  
 Singh. 1935. pp.299-323.  
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**The Board of Economic Inquiry**  
**Punjab.**

**RURAL SECTION PUBLICATION—22.**

**REPORT**

**ON A**

**PRELIMINARY SURVEY**

**OF THE**

**MILK SUPPLY OF LYALLPUR**

**IN**

**1927.**

**BY**

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[The Board of Economic Inquiry, Punjab, does not hold itself responsible for any opinions expressed or conclusions reached by the writers.]

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## FOREWORD.

It may be thought by some that this little brochure deals with too limited a subject to deserve attention, but a careful reading suggests much matter for thought. Without in any way suggesting that conditions in Lyallpur are representative of conditions in other Punjab towns, we may at least point out that the investigation ought to stimulate public-spirited men to insist upon similar inquiries into the milk supply of their own towns. The major portion of the milk consumed is presumably pure, and the portion found to be definitely adulterated is but a fraction of the whole, but, unfortunately this comforting conclusion provides an argument to those who resist all attempts to restrict the keeping of milch cattle inside towns; an insanitary practice which can be defended on the ground that its results are probably less damaging to health than the obvious alternative.

The monetary loss accruing from the purchase of dirty water at the price of milk is clearly brought out and should go far to reconcile those who oppose municipal regulation on the ground of expense. Powers now exist under the Punjab Pure Food Act of 1929 to control milk supply and this brochure will prove its value if it leads to a more full use of those powers. It shows that adulteration can be easily detected, and that there should be little difficulty in bringing home the crime to the culprit; what is required is a public opinion sufficiently strong to ensure the adoption of suitable measures. The Board of Economic Inquiry may reasonably hope that, by the publication of this brochure, it is assisting the development of public opinion.

Bhai Labh Singh has carried through this inquiry entirely on his own responsibility and without any pecuniary assistance from the Board, and so deserves credit for his public-spirited effort to bring to light the truth on a subject of general interest.

H. CALVERT.

20th November 1930.

## INTRODUCTION.

I. *Scope*.—It is generally believed that milk sold by *gujars* or *gawalas*\* is poor in fat on account of the cheap food-stuffs which they feed to their animals. Such food-stuffs include rice, bran, gram husk, dusty wheat flour, etc. It is further believed that the *gujars* increase the yield of milk at the expense of its quality. This belief is based merely on observation and not on any scientific analysis. All investigations that have so far been conducted show that the quality of milk cannot be changed by feeding to such an extent as to render the change detectable by taste or sight. *Gujars* are defrauding the people on account of this belief and sell adulterated milk as pure milk. The enquiry under review was primarily undertaken to find out if there was any truth in this belief and to obtain definite information on the point in the hope that it may be of interest and benefit to the public. Lyallpur was the most convenient centre to work in, hence the choice of this city.

II. *Method*.—The investigation commenced in May, 1927 and continued until the beginning of July. During this period the Agricultural College was closed so that the services of certain members of the Agricultural Teaching Staff were utilised for making enquiries and recording the data obtained. Most of the *gujars* live at a place called *Gawalmandi*† at a distance of a quarter of a mile from the city. All of them take their cows to the city bazar and milk them in the presence of their customers. In these circumstances great difficulty was, therefore, experienced in taking milk samples for testing. The assistants employed on the work had to follow each *gujar* through the town both morning and evening. Usually the cows are not milked completely at one time, only as much milk being taken out of the udder at a time as is required by the customers then present. In order to obtain a representative sample each cow had to be milked completely at one time. When this was done customers would not take the milk from the *gujars* until they were assured by the assistant of its purity, as the *gujar* does not enjoy the confidence of his customers. The assistant had, therefore, to wait for this purpose until the whole of the milk drawn in his presence was disposed off. The process of taking samples was thus very slow. Otherwise a much larger number of samples could have been taken and examined.

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\* Professional milk sellers who keep their own milch animals.

† Literally the market place of milk sellers.

It was interesting and surprising to learn that in spite of all the precautions taken by customers to obtain a pure milk supply the *gujars* were selling one seer of water to every four seers of milk. It is this trickery of the *gujars* which is responsible for the popular belief that *gujars'* milk is inherently poor on account of the so-called bad methods of feeding.

Milk was tested in the College Dairy for fat by Gerber's method and its specific gravity was determined by the ordinary lactometer. The total solids were calculated by the Richmond scale and solids-not-fat were found by the difference between these two figures (total solids minus fat).

A drop of formaline was added to each sample of milk kept over-night for testing in order to prevent it from going bad.

III. *Comparison of fat percentage in milk obtained from gujars' cows with that in milk produced in the Agricultural College Dairy.*—Almost all the *gujars'* cows and all those of the College Dairy herd belong to the Montgomery breed. If there be any difference between the composition of *gujars'* milk and the College Dairy milk, it may be ascribed to differences in feeding. The following table gives the yield and composition of milk obtained from the various kinds of animals examined during the investigation.

No.	Kind of animals.	No. of animals.	Average daily milk yield.	Fat percentage.	Percentage of solids-not-fat.
			Seers.		
1	<i>Gujars'</i> cows ..	50	6.14 ±0.16	4.50 ±0.07	8.03 ±0.034
2	<i>Ahatawalas'</i> * cows ..	35	6.21 ±0.27	4.90 ±0.103	8.25 ±0.035
3	Buffaloes of <i>Ahatawalas</i> ..	29	7.90 ±0.42	6.74 ±0.15	8.88 ±0.048
4	Agricultural College Dairy cows.	19	7.00 ±0.75	4.67 ±0.12	8.20 ±0.032
5	Goats kept by the professional goatkeepers ( <i>Jallies</i> )	32	1.47 ±0.032	4.40 ±0.092	8.15 ±0.046

\* Private dairies with animals in the yards inside the city.

For further details regarding these figures see Statements Nos. 1 to 5.

*Ahatawalas* and *gujars* feed their cows on similar food-stuffs. Their cows also are almost invariably of the same breed, i.e., Montgomery. The cows of both *gujars* and *ahatawalas* have, therefore, been treated as one class. The average fat percentage of the milk obtained from them comes to 4.70, which is almost the same as that of College Dairy cows, viz., 4.67 per cent.

IV. On further comparing milk of *gujars*' cows with that of the College Dairy cows we find a difference of 0.17 in their fat percentage. The probable error of this difference is 0.138. The difference is therefore only 1.37 times its own probable error, hence it is insignificant. Cows kept by private individuals are fed on similar food-stuffs as those given to *gujars*' cows and the milk of both contains a higher fat percentage than the milk produced in the College Dairy.

The foregoing figures clearly show that there is nothing wrong with *gujars*' milk as drawn from the cows and the belief that even pure *gujars*' milk is poor in quality is due to its being cleverly adulterated. The flavour of *gujars*' milk is usually not good on account of the dirty milk pails used and to the fact that they do not clean the cows' udders properly before milking. For details see Statement No. 6.

A brief account of the way in which *gujars* practise adulteration is given below :—

Every *gujar* carries two or three milk pails with him : one or two of these pails contain highly adulterated milk which he brings from his home. This milk when analysed contained on an average  $1.90 \pm 0.97$  per cent. fat, the limits of variation being 0.07 per cent. to 2.0 per cent. It was so highly adulterated that in some cases its specific gravity could not be ascertained by the use of the lactometer as the instrument would not even float in the liquid. This shows that only water was used for its adulteration. Also solids other than fat could not be estimated. Such *gujars*' milk is not always cows' milk. Some of them buy goats' milk for this purpose as it is cheaper. Goats' milk has a peculiar flavour and the undesirable taste of *gujars*' milk is partly due to this cause. All *gujars* whose cows were examined were found bringing milk from their homes. In two cases adulterated milk was actually brought, but the *gujars* managed to avoid giving samples of it to the assistant by handing it over to some of their shopkeeper friends. It was said that this milk had been sold and the shopkeepers refused to give a sample.

The *gujar* cheats his customer in any or all of the following ways :—

(a). He keeps some milk brought from home in the milking pail when he milks a cow in presence of his customers.

(b). He takes less milk than is required by a customer from the cows' udder and makes up the required quantity by adding some of the adulterated milk brought from home, telling the customer that the cow can yield no more.

## MILK SUPPLY OF LYALLPUR.

## 1.—Number of Milch Cattle in Lyallpur.

Milk consumed in the city comes from two main sources, namely:—

1. Milk produced in the town.
2. Milk brought from neighbouring villages.

The number of milch animals of each kind in Lyallpur together with their milk yields are given in the following table. The number of dry animals in each class is also given.

No.	Owners.	Animals.	No. of ANIMALS.		TOTAL.	PERCENTAGE OF ANIMALS TO TOTAL.		MILK YIELD PER DAY.		
			Wet.	Dry.		Wet.	Dry.	Average per wet animal.	TOTAL.	
								Seers.	Mds.	Srs.
1	Cujars ..	Cows ..	105	44	149	70	30	6-14	16	5
2	" ..	Buffaloes ..	19	15	34	56	44	7-9	3	30
3	Jallies ..	Goats ..	535	265	800	67	33	1-47	19	26
4	Ahalawalas ..	Cows ..	91	23	114	80	20	6-21	14	5
5	" ..	Buffaloes ..	35	33	68	51	49	7-90	6	36
6	Private ..	Cows ..	385	111	496	78	22	4-48	43	5
7	" ..	Buffaloes ..	467	68	535	87	13	6-36	74	10
8	Agricultural College Dairy	Cows ..	19	4	23	83	17	7-00	3	13

	Percentage of wet animals to total.	Percentage of dry animals to total.
Average for cows of all classes .. ..	77	23
Average of buffaloes of all classes .. ..	82	18
Average of goats of all classes .. ..	67	33
Total number of cows kept in the town ..		762
Total number of buffaloes kept in the town ..		637
Total number of goats kept in the town ..		800

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No.	Owners.	Animals.	No. of ANIMALS.		TOTAL.	PERCENTAGE OF ANIMALS TO TOTAL.		MILK YIELD PER DAY.			
			Wet.	Dry.		Wet.	Dry.	Average per wet animal.	TOTAL.		
									Seers.	Mds.	Srs.
1	Gujars ..	Cows ..	105	44	149	70	30	8-14	16	5	
2	" ..	Buffaloes ..	19	15	34	56	44	7-9	3	30	
3	Jallies ..	Goats ..	535	265	800	67	33	1-47	19	28	
4	Ahatawales ..	Cows ..	91	23	114	80	20	6-21	14	5	
5	" ..	Buffaloes ..	35	33	68	51	49	7-90	6	36	
6	Private ..	Cows ..	385	111	496	78	22	4-48	43	5	
7	" ..	Buffaloes ..	467	68	535	87	13	6-36	74	10	
8	Agricultural College Dairy	Cows ..	19	4	23	83	17	7-00	3	13	

	Percentage of wet animals to total.	Percentage of dry animals to total.
Average for cows of all classes .. ..	77	23
Average of buffaloes of all classes .. ..	82	18
Average of goats of all classes .. ..	67	33
Total number of cows kept in the town ..	782	
Total number of buffaloes kept in the town ..	637	
Total number of goats kept in the town ..	800	

The number of animals given in the above table is the result of an actual survey carried out by the investigators and not taken from the cattle census reports.

The total quantity of milk given by each class of animals has been estimated by multiplying the number of wet animals by the actual average daily yield of that class as found by actual observations and already given on page 2. It will be further seen that the percentage of dry animals is rather low in the case of buffaloes and of cows owned by private individuals. This is due to the fact that many of the dry animals are sent by their owners to friends outside the city and are only brought back when they have actually calved or are about to calve.

Statement No. 7 gives details of milk brought to Lyallpur from neighbouring villages on the day of examination. All the city roads and entrances were patrolled that day early in the morning by the investigators. No milk was allowed to enter the city either during the morning or evening without a sample being taken, and every possible precaution was taken to ensure that the samples were representative. In all the cases the milk was mixed in two separate vessels: a sample was then taken and other information connected therewith entered in Statement No. 7. Most of the milk came from villages within a radius of 5 miles from the city. The most common means of conveyance was pack ponies. Milk was mostly brought in kerosine oil tins. Purchase and sale prices were ascertained and recorded in each case. Too much reliance cannot, however, be placed on these figures as they are considered to be trade secrets. According to the statement of the middlemen who brought this milk, it was bought at the rate of 6 to 8 seers to the rupee depending upon the quality of milk (whether cows or buffaloes) and the distance of the place of purchase from the town. It was sold at from 4 to 7 seers per rupee.

## 2.—*Milk Consumption per Head of Population per Day.*

The total quantity of milk consumed per day in Lyallpur was estimated to be 215 maunds 3 seers. (This does not include the consumption of 2 to 2½ maunds of *khoa* (dessicated milk) which was brought to our notice the day after we took samples of milk from outside.)

Of this quantity 181 maunds 9 seers was produced within the town and 33 maunds 34 seers came from outside.

The population of Lyallpur was 28,136 in 1921, while the present population is estimated to be 32,000 by the revenue authorities. Dividing the total quantity of milk consumed daily by the population, consumption of liquid milk, butter, curd, etc., comes to

0.54 lbs. per head per day. Similar figures for a few other Indian cities, where such an enquiry was conducted, are given below for comparison :—

Town.	Year during which the enquiry was conducted.	Milk consumption per head of population per day.
Lyallpur (Summer) .. ..	1927	Lbs. 0.54
Lahore .. .. .	1921	0.21
Bombay .. .. .	1921	0.16
Calcutta .. .. .	1913-14	0.26
Poona .. .. .	1913-14	0.22

It will be noticed from these figures that the milk consumption in Lyallpur is more than twice that of any of the other Indian cities named. Below are given some figures of milk consumption in some western countries.\*

	Milk consumption per head of population per day.
	Lbs.
London .. .. .	0.38
Glasgow .. .. .	0.32
Edinburgh .. .. .	0.27
Great Britain .. .. .	0.32
New York (U.S.A.).. ..	0.68

It will be seen from the above figures that Lyallpur comes second only to New York and that all the other towns lag behind. One thing to be noticed in this respect is that in all the Western countries given above the people are non-vegetarian and do not depend upon milk alone for animal food, whereas the major portion of the Hindu population of Lyallpur is vegetarian. The figures, therefore, have not any quantitative dietetic value. The high milk consumption in Lyallpur gives an indication of the prosperity of its population.

\* "Milk supply of Lahore in 1921", by Shiva Datta : Board of Economic Inquiry Punjab, Rural Section Publication No. 2. (First edition, page 28).

3.—*Adulteration.*

The total quantity of milk consumed daily in Lyallpur was estimated to be 215 maunds. This comes from the following sources :—

	<i>Mds.</i>	<i>Seers.</i>	<i>Percentage of the total supply.</i>
1. Private animals kept in the city ..	117	15	54·7
2. Obtained from neighbouring villages	33	34*	15·7
3. <i>Ahatas</i> or small private dairies inside the town.	21	1	9·8
4. <i>Gujars'</i> cows and buffaloes ..	19	34	9·2
5. Goats .. .. .	19	26	9·1
6. College Dairy .. .. .	3	13	1·5
<i>Total</i> ..	<i>215</i>	<i>3</i>	<i>100·0</i>

Some of the private individuals who keep milch animals sell a part of the milk to their neighbours. Usually there is not much adulteration in such cases; if there is, it has not been possible to estimate it.

Milk produced in the College Dairy is sold pure. Goats' milk forming 9·1 per cent. of the total milk supply is sold without any adulteration. The goat-keepers hawk milk in the town but do not carry additional pails with them containing adulterated milk as do the *gujars*. Thus milk coming only from sources 2, 3 and 4 is adulterated; we now take them separately.

4.—*Milk Imported from the Neighbouring Villages.*

Statement No. 7 gives the details of the milk coming from this source. It has been classed as buffaloes', cows' or mixed milk according to the statements of those who brought it. The average percentage of fat and solids other than fat have been calculated for the whole mixed milk by multiplying the actual average figures of these constituents as given on page 2 by the total quantity of each kind of milk given in Statement No. 7. According to the statements of middlemen who brought milk from outside, the mixed milk

\*Does not include 2 to 2½ maunds of *khoa* that came to our notice afterwards. It takes approximately 4 maunds of milk to make one maund of *khoa*. *Khoa* is brought to the town from outside almost daily, but it escaped our notice on the day we took samples of milk coming from outside, as it is brought in such a way that one cannot suspect it to be a milk product.

ought to have contained  $8.7 \pm 0.04$  per cent. of solids other than fats. It was, however, actually found to contain  $8.1 \pm 0.065$  per cent. solids not fat. The difference in solids not fats is equal to 0.6 per cent.  $\pm 0.07$ . The difference, therefore, is more than eight times its own probable error, so the figure is very significant.

The quantity of water added was calculated on the basis of solids not fat. The percentage of adulteration comes to 6.9 (see Statement No. 8.) In reality the adulteration may be a little more than what the above figures show as some of the middlemen when they saw us taking samples for analysis might have wrongly stated adulterated buffaloes' milk as cows' milk or mixed milk. Besides we could not test the milk for soluble adulterants by means of which milk can be adulterated without altering its specific gravity.

As already noted the middlemen who bring milk from outside do not adulterate it to any great extent, because the *halwais* (sweetmeat sellers) who buy it cannot be so easily cheated. They frequently test the purity of such milk from the percentage of *khoa* (dessicated milk) which it contains.

Milk brought from outside is chiefly adulterated by city shopkeepers before it is delivered to consumers. Adulteration practised by such shopkeepers has also been estimated on the basis of solids other than fat. The milk is invariably boiled before being sold so the cream comes to the top : it is then very difficult to take a representative sample for a fat test.

As delivered by the middlemen milk contains  $8.1 \pm 0.065$  per cent. solids not fat. Milk sold from the shops was actually found to contain on an average  $7.6 \pm 0.13$  per cent. solids not fat. The difference between solids not fat contained in the milk delivered to the shopkeepers and milk sold to the consumers comes to 0.5 per cent. The probable error of this difference is 0.136. This is therefore 3.6 times its probable error which shows that it is fairly significant.

Adulteration from this source thus works out to be 5.7 per cent.

#### 5.—*Ahatawalas or Private Dairies.*

Buffaloes' milk from such sources is generally sold to city milk shops unadulterated. On the other hand cows' milk is adulterated to the extent of 5.8 per cent.

#### 6.—*Gujars' Milk.*

Although *gujars* invariably milk their cows in the streets in front of their customers yet their milk is generally adulterated more than milk obtained from any other source. As already stated,

one seer of water is added to every four seers of milk. Adulteration is practised by mixing home milk with the milk taken from the cow's udder in the streets. Solids not fat could not be estimated in milk brought from home by the specific gravity method as it was too dilute. Adulteration has, therefore, been estimated on the basis of fat percentage. The average fat percentage in *gujars'* milk was found to be  $4.50 \pm 0.07$  as a result of fifty tests. Milk brought from *gujars'* homes contained on an average  $1.90 \pm 0.097$  per cent. fat. The difference in the fat percentage between the genuine and the adulterated milk is  $2.6 \pm 0.119$ . The difference is thus 21.8 times its own probable error. Speaking statistically the odds are almost infinity to one that this difference is real and not due to any chance. Statement No. 8 gives the quantitative details of the adulteration practised by various classes of men engaged in this business.

It will thus be seen that according to our estimate water is sold daily as milk in Lyallpur at a price of Rs. 70/8/0. The consumers are consequently cheated to the extent of Rs. 2,115/- in one month and Rs. 25,732/8/0 per annum. Apart from the financial loss which the milk-consuming public suffers there is a still more serious aspect of the question; that the water used to adulterate milk is seldom if ever pure. The dirty water thus added is likely to contain the germs of any and every harmful disease. But thanks to the existing practice of heating milk before using, this danger is considerably minimised. Even heating such adulterated milk does not render it free of milk-born diseases. Such milk is not suitable for children.

### 7.—*Suggestions for Improvement.*

1. One of the most important points in the improvement of any milk supply is the education of the milk-consuming public. They should be made to realise the necessity and to appreciate the advantages of a pure milk supply. This can only be done by health officers and other bodies interested in public welfare. Such bodies should arrange lectures in schools and other public places and distribute free literature on the subject. No kind of legislation or compulsion in the matter can ever succeed to any great extent unless it has public opinion behind it.

2. The *gujar* in spite of adding to his income by such illicit means is not well-off. The cost of production to him is greater than that of his competitor in the village where fodder is much cheaper. In his present unorganized state he is further hampered by not being able to get cheap credit. He also wastes a good deal of his time when he goes hawking in the streets with his

cows. The *gujars* should be organized into a co-operative society and a place given to them at some distance from the town where the feeding and keeping of cows could be done more cheaply than in the city. They would thus be able to get money at a lower rate of interest, which would appreciably reduce their costs of production. The milk could also be brought to the city and sold in their own co-operative shops, and a great waste of time avoided. The time saved would enable them to look after more cattle than they can do under present circumstances.

3. The sale of adulterated milk ought to be penalised by legislation, although most of the previous investigators of the problem are not in favour of such action at present. Their chief objection is that the quantity of milk at present is insufficient and if any restriction is placed on its sale prices are likely to rise with a consequent restriction in the demand from the masses whom it is intended to benefit. We, however, are not prepared to share this view in the case of Lyallpur where milk consumption is 0·54 lbs. per head of the population, a figure which is higher than any of the cities of Great Britain afore-mentioned where the sale of milk is controlled by legislation.

According to previous investigators on the subject adulteration of milk was found to be proportional to the price paid for it. We have not found this so in Lyallpur and even if it were it would be a distinct advantage. In that case a man would know that he was obtaining value for his money and would be more satisfied than at present. There is more chance of being cheated in buying an impure, cheap article than is the case when buying a standard article even at a higher price. It should be compulsory for buffaloes' and cows' milk to be sold separately. As it is difficult to determine the purity of mixed milk, a suitable standard of quality for cows' and buffaloes' milk respectively might be fixed with advantage to the purchasing public.

#### 8.—*Summary.*

1. This enquiry was undertaken primarily to investigate if there is any truth in the popular belief that *gujars* could increase the milk yield at the expense of its quality by feeding the cattle on certain foodstuffs.

2. The result of our investigations is entirely against this view. The idea seems to have originated from the fact that *gujars* are able to cheat their customers in their presence by bringing with them from their homes some highly adulterated milk. Sometimes it is adulterated with goats' milk which the *gujars* can buy at a cheap rate. On an average this adulterated milk contained less than 2 per cent. fat (1·90 actual figure). Pure cows' milk

obtained from *gujars* was found to contain 4·5 per cent. fat. The *gujars* in Lyallpur were found to be selling one seer of water with every four seers of milk.

3. Incidentally the milk supply of Lyallpur was studied at the same time. The total milk consumed in a day was found to be 215 maunds. Milk consumption per head of the population works out at 0·54 lbs. per day. This is more than double that of Lahore, and considerably more than that consumed in some important cities in Great Britain, and is an indication of the prosperity of Lyallpur.

4. Milk coming from outside is adulterated to the extent of 6·9 per cent. by middlemen and 5·7 per cent. by city shopkeepers. *Gujars* adulterate their milk to the extent of 20 per cent. and *ahata-walas* (small private dairies) to 5·8 per cent. Goats' milk is usually sold unadulterated. The financial loss suffered by Lyallpur consumers, due to adulteration, works out to be approximately seventy rupees per day or over twenty-five thousand rupees per annum.

5. It is suggested that *gujars* be prohibited from bringing adulterated milk from their homes and that the public should be made familiar with the ways in which the *gujars* cheat them. The danger of an adulterated milk supply should also be brought to the notice of the people.

6. At present the cost of producing milk is higher in the towns than in villages, so that the *gujar*, not being able to compete on equal terms with the village producers, resorts to adulteration. *Gujars* should, therefore, be removed from towns and given a place some distance away where cheap feeding stuffs are available. Cheap credit should also be provided for them and better marketing through co-operative action. By better marketing facilities *gujars* will save much of the time which they waste at present in hawking their milk about in the streets.

7. The sale of milk should be under legislative control. The plea that there is not sufficient milk produced at present and that if the standard of purity is raised, the price will be increased does not hold good in the case of Lyallpur. Milk consumption per head of the population in this town is higher than that of the chief towns in Great Britain, where the sale of milk is regulated by food laws. Cows' and buffaloes' milk should be sold separately and the sale of mixed milk prohibited, as it is possible to sell adulterated mixed milk without detection.

#### 9.—Acknowledgments.

I was assisted in the work by the following members of the College Teaching Staff to whom my thanks are due. It was a task

which required much tact and persistence in order to achieve any useful results, and for these they are to be congratulated.

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S. Kartar Singh, B. Sc.

S. Arjan Singh, B. Sc.

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## STATEMENT No. 1.

Statement showing the Quality and Quantity of Milk produced by Gujars' Cows in Lyallpur.

Serial No.	Age of cow.	Months since last calved.	MILK YIELD		FAT PERCENTAGE.		SOLIDS-NOT-FAT PERCENTAGE.	
			Morning.	Evening.	Morning.	Evening.	Morning.	Evening.
	Years		Seers.	Seers.				
1†	6½	5½	3	2½	5.2	4.7	..	8.30
2†	7	14	2	3	5.0	5.1	..	7.65
3†	5½	4	2½	3½	5.8	4.3	..	7.95
4†	8	5	3	4	5.4	3.8	..	7.90
5†	6	5	3	4	4.0	4.1	..	7.80
6†	7	5	2	3½	5.0	4.4	..	7.65
7†	5	3	..	3	..	3.6	..	7.55
8	8	4	6	6½	4.5	3.1	7.74	8.12
9	7½	4	4	5	4.2	3.1	7.10	8.12
10	7	7	3½	3½	4.4	4.0	7.60	8.50
11	6	1½	2½	2½	4.4	3.6	8.70	8.50
12	7½	3	4½	5	4.1	4.9	8.12	8.85
13	6½	3	2½	2½	4.0	4.6	8.14	8.54
14	5	8	3	3½	4.2	4.0	7.77	8.28
15	8	4	3	3½	2.8	3.7	7.90	8.40
16	3	5	2½	3	5.2	3.3	7.72	7.77
17	7½	1½	5	5	4.2	3.5	7.75	7.44
18	6	8	2½	3	6.0	4.8	8.62	8.50
19	4	5	3½	3½	5.2	4.4	8.30	8.30
20	6½	3	4	4½	3.0	4.2	8.50	8.10
21	7½	6½	2½	3	5.7	4.0	8.30	8.48
22	5½	2	1½	2	5.4	4.0	7.95	7.93
23	6	4	1½	2	5.7	3.7	8.00	8.23
24	7½	4	3	3	4.7	4.6	7.68	8.25
25	5½	2½	3½	3½	3.9	3.9	8.03	8.30
26	6	6	3½	3½	6.0	5.3	8.20	8.20
27	5½	6	2½	3	7.0	5.0	8.16	8.58
28	8	6½	2½	2½	5.7	4.2	8.30	7.75
29	6	2½	4	2	3.1	5.1	8.30	8.40
30	10	14	2½	2½	6.3	5.6	8.40	8.52
31	7½	18	2	2	6.7	6.4	8.55	8.34
32	4	3	5	4½	5.0	4.6	7.90	7.80
33	6½	9	3½	3	4.3	4.5	7.75	7.60
34	7½	2	3½	3½	3.9	2.8	8.10	7.85
35	3½	9	1½	1½	4.3	6.0	8.15	8.26
36	7½	3	1½	3	3.9	3.9	7.35	7.60
37	3½	4	3	4½	4.1	3.8	..	8.70
38	8	2	4½	4½	4.7	4.2	8.10	8.22
39	9½	8	4	2½	3.3	4.2	7.85	7.75
40	7½	8	2½	2	5.9	3.5	8.20	7.19
41	6	10	2	3	4.3	3.4	7.31	8.50
42	7	5	2½	4½	3.2	4.4	8.70	7.90
43†	8½	11½	3½	..	5.4	..	8.20	..
44†	7	7½	3½	..	5.4	..	8.32	..
45†	4	10	1½	..	5.8	..	8.50	..
46†	7	6	2½	..	4.2	..	7.85	..
47†	8½	5	4½	..	4.0	..	7.70	..
48†	3½	5	3½	..	5.0	..	8.00	..
49†	9	1½	4	..	4.2	..	7.55	..
50†	5	3	3	..	3.6	..	7.55	..
Average for 50 cows.			3.04	3.10	4.77	4.24	8.02	8.05
			6.14		4.50		8.04	

†Samples were small solids-not-fat and could not be estimated.

\*Calf suckled in the morning and no milk was obtained.

†Milked once a day; sample taken in the morning.

## STATEMENT NO. 2.

Statement showing the Quantity and Quality of Milk obtained from Cows kept in Ahatas (Small Private Dairies) in Lyallpur.

Serial No.	Age of cows.	Months since last calved.	MILK YIELD.		FAT PERCENTAGE.		SOLIDS-NOT-FAT PERCENTAGE.	
			Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.
	Years.		Seers.	Seers.				
1	4½	3	4½	5	4.1	3.7	7.50	7.75
2	5	3	2	3	3.5	3.6	8.00	8.25
3	7	2½	2	2½	4.7	4.3	7.90	7.85
4	4	2½	4	4½	5.0	4.9	8.20	8.10
5	4½	3½	3½	3	4.5	7.1	8.20	7.50
6	4	1	2½	2	4.2	4.2	8.00	8.10
7	5	2	3½	4½	4.2	3.4	8.45	8.25
8	4½	4	3	3½	4.9	4.8	8.00	8.00
9	8	2½	3½	4	3.4	3.6	7.80	8.00
10	4	4	2½	2½	6.3	4.7	7.97	8.00
11	7½	8	1½	2½	5.8	5.3	8.40	7.65
12	9	1	1½*	3½	2.5	4.5	7.95	8.30
13	6	3½	3	3½	4.0	4.6	8.45	8.20
14	5	3	4½	5½	4.7	4.5	8.30	7.80
15	8	11	1	1½	5.3	4.1	8.65	8.30
16	4½	2½	4	5	5.6	5.7	8.20	8.50
17	7	4	3	4	5.6	5.0	8.20	8.15
18	8	3	5	5	5.8	4.4	8.80	8.75
19	6½	5	1½	2	5.7	5.1	8.23	8.42
20	5	3	3½	4	5.3	6.2	8.42	8.12
21	9	6	2½	3	5.0	4.8	7.60	8.20
22	6	6	4	4	5.5	5.7	8.47	8.50
23	4½	2	2½	4	3.3	3.8	8.70	8.50
24	4	5½	2½	3	4.5	5.5	8.10	8.30
25	9	5	4½	5	5.8	5.0	8.60	9.00
26	4½	5½	2½	3	5.5	4.7	9.00	8.20
27†	6½	6	½	½	7.6	7.2	8.60	..
28†	7	12	½	½	7.0	6.4	8.06	..
29	3½	5	3½	4½	4.0	4.0	8.40	8.20
30	3½	1½	1½	1½	3.2	2.6	8.60	8.55
31	7	4	3	4	5.6	5.0	8.20	8.15
32	6½	5	1½	2	5.7	5.1	8.23	8.42
33	6	1	4	4	4.5	4.0	8.92	8.70
34	7½	10	2	2	5.9	6.2	8.70	8.63
35	8	8	4	4½	5.2	5.6	8.70	8.50
Average for 35 cows.			2.9	3.31	4.95	4.84	8.5	8.0
			6.21		4.9		8.25	

\*Cow gave very little milk in the morning due to sickness.

†Samples were spoilt after fat was tested.

## STATEMENT NO. 3.

Statement showing the Quantity and Quality of Buffaloes' Milk produced in Lyallpur.

Serial No.	Age of buffalo.	Months since last calved.	MILK YIELD		FAT PERCENTAGE.		SOLIDS-NOT-FAT PERCENTAGE.	
			Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.
	Years.		Seers.	Seers.				
1	6	5	4	3	8.1	8.1	9.43	8.51
2	6½	6	4½	5	6.5	4.7	8.94	8.50
3	10	20 days	7½	7½	5.4	5.8	8.10	8.57
4	7	4½	3	4	5.3	4.6	8.30	8.65
5	9	22 days	6	6½	6.2	4.0	8.48	8.40
6	11	25 "	5½	6¼	5.8	..	8.60	..
7	6½	1½	6	6	7.1	..	9.00	..
8	11	1	6	6½	5.9	5.3	8.95	9.00
9	9	5	5	5½	6.5	7.0	9.91	9.29
10*	12	7	4½	..	7.6	..	8.86	..
11	9	4	6	6½	6.5	5.0	8.86	9.02
12	10	5	4½	5	6.0	5.0	8.75	9.02
13	13	3	3½	4	8.6	7.6	9.21	9.01
14	14	8	4	4½	8.4	7.9	9.67	9.47
15	12	3	5	5	7.4	6.8	9.47	8.76
16	10	11	4½	4	8.2	7.5	8.98	8.46
17	7½	2½	3½	4½	7.7	6.1	9.40	9.46
18	8	3	1½	2	6.7	6.7	9.15	8.73
19	9½	7	4	4½	7.5	7.3	9.06	9.20
20	8	5½	2	2½	7.6	7.0	8.96	9.04
21*	6	4	..	6	..	6.4	..	9.47
22*	7	8	..	8½	..	9.4	..	9.50
23*	6½	7	..	1½	..	7.9	..	8.72
24*	7½	6	..	1½	..	6.9	..	8.22
25*	8	8	..	2	..	9.5	..	8.24
26*	10	8	..	4	..	7.9	..	8.89
27	5½	6	3	3	8.0	4.0	8.72	8.04
28	8	1½	5	5	5.6	6.3	8.85	8.35
29	3½	4	4	4	5.6	5.5	8.85	8.90
Average for 29 buffaloes.			3.50	4.40	6.88	6.60	8.90	8.86
			7.90		6.74		8.88	

\* Milked once only.

## STATEMENT No. 4.

*Statement showing the Quality and Quantity of Milk obtained from Cows in the Agricultural College Dairy at Lyallpur.*

No.	Name of the cow.	Date of birth of cow.	Age of cow.	When calved last.	Milk yield.	Average fat percentage.	Average solid-not-fat.
			Years.	Months.			
1	Lelan ..	1-7-23	4	5	9-00	4-50	8-340
2	Landi ..	20-9-20	6½	11	1-25	4-35	7-745
3	Zulekhan ..	20-1-21	6½	5½	8-00	4-70	8-080
4	Ratno ..	16-6-22	5	7	8-00	4-70	8-080
5	Nasibo ..	25-5-19	8	11	2-75	5-70	8-300
6	Gauhar Jan ..	13-12-20	6½	4½	12-00	4-20	8-050
7	Malkan ..	29-5-15	12	1½	9-00	3-50	7-600
8	Harnamó ..	28-9-17	9½	4	11-50	4-15	8-375
9	Gujri ..	11-1-22	5½	3½	9-50	4-30	8-270
10	Mary ..	19-4-21	6½	5	8-50	3-85	7-970
11	Durgo ..	20-5-22	5	4½	8-25	4-70	8-100
12	Kamla ..	5-1-19	8½	4½	10-00	4-00	8-065
13	Shirin ..	3-1-18	9½	3½	13-00	4-25	8-125
14	Krishna ..	7-12-21	5½	8	3-00	6-65	8-160
15	Lachmi ..	9-2-16	11½	7	1-50	4-35	7-935
16	Rose ..	13-2-23	4½	5	6-00	4-25	8-250
17	Mastani ..	2-7-19	8	7½	4-25	6-60	8-300
18	Biddy ..	21-2-23	4½	6	6-25	4-60	8-325
19	Davi ..	12-11-22	4½	5½	1-50	4-35	8-310
Average ..		..	..	..	7-0	4-67	8-20

## STATEMENT No. 5.

Showing the Quantity and Quality of Goats' Milk obtained in Lyallpur.

No.	Age of goat.	Months since last kidded.	MILK YIELD.		FAT PERCENTAGE.		SOLIDS-NOT-FAT PERCENTAGE.	
			Morn-ing.	Even-ing.	Morn-ing.	Even-ing.	Morn-ing.	Even-ing.
	Years.		Seers.	Seers.				
1	3½	3	1½	1	8.0	3.5	7.71	7.90
2	6	5	2	1½	3.6	4.1	8.80	7.48
3	3	4½	2½	1	4.0	4.6	7.90	7.55
4	2½	4½	1	1	4.9	4.9	8.05	8.12
5*	2½	2	1	..	4.4	..	8.22	..
6	1½	5	2½	2	4.0	3.5	8.40	7.90
7	2	3	2½	1	3.4	4.5	8.45	7.86
8	2½	3½	1½	1½	3.5	3.5	8.35	7.93
9	3½	4	1	2	4.9	3.5	8.15	7.93
10	4½	2	2	2	4.7	5.2	8.30	8.00
11	2	4	2	1½	4.8	4.0	7.73	8.25
12	7½	8	2	2	4.3	4.6	7.65	8.10
13	4	2	1	1½	4.0	4.6	8.10	8.39
14	3½	8	2	2	4.6	4.1	7.75	8.25
15	3½	9	1	1	5.1	4.7	8.16	8.40
16	6	2	1	1	3.1	3.9	7.80	8.00
17	2	2½	1	1	4.4	3.5	7.90	8.80
18	1½	2	1	1	6.2	4.6	8.13	8.10
19	6½	6½	1	1	4.7	3.9	8.33	8.66
20	5½	6½	1	1	4.7	3.0	7.98	7.90
21	1½	7	1	1	3.7	4.0	8.05	8.24
22	1½	7	1	1	4.1	5.1	8.25	8.33
23	4	8	1	1	5.2	5.3	8.70	9.20
24	3	9	1	1	3.0	3.2	7.55	7.70
25	4½	3	1	1	4.9	5.0	8.18	8.06
26	2½	3	1	1	4.7	5.1	8.50	8.70
27	5½	6	..	1	..	3.8	..	8.25
28†	1½	4	1	..	4.0	..	9.00	..
29†	1½	3	1	..	5.0	..	8.25	..
30†	1	3	1	..	5.0	..	8.60	..
31	2	5	1	1	4.3	5.0	..	7.82
32	2½	3	1	1½	5.3	7.1	..	7.50
Average for 32 goats.			0.70	0.77	4.5	4.3	8.2	8.1
			1.47		4.4		8.15	

\* Owner was sent to jail in the evening for some offence.

† Sample not taken in the evening.

## STATEMENT No. 6.

Statement showing the Quality of Milk brought by Gujars from their Homes to Lyallpur.

Serial No.	Amount of milk brought in different vessels from home.	Amount of pure milk to which it was added.	Percentage of fat in milk brought from home.	Percentage of solids-not-fat in milk brought from home.
	Srs. Chs.	Srs. Chs.		
1	{ 7 0 8 0 }	{ 20 0 }	{ 2.1 1.6 }	3.56 ..
2	{ 7 0 7 0 }	{ 30 0 }	{ 2.6 2.6 }	3.9 3.9
3	{ 6 0 7 0 }	{ 18 8 }	{ 2.8 2.3 }	.. ..
4	{ 6 0 6 0 }	{ 13 8 }	{ 2.8 2.8 }	5.9 ..
5	{ 5 8 3 0 }	{ 18 8 }	{ 1.7 2.9 }	.. 7.52
6	{ 4 8 2 8 }	{ 31 4 }	{ 2.1 2.6 }	.. 6.45
7	{ 5 0 5 0 }	{ 27 4 }	{ 2.0 2.0 }	6.28 6.28
8	{ 5 0 4 0 }	{ 30 0 }	{ 1.8 2.0 }	.. ..
9	{ 4 0 5 0 }	{ 26 0 }	{ 1.4 1.1 }	.. ..
10	{ 7 0 8 0 3 0 3 0 }	{ 43 8 }	{ 1.1 0.7 1.2 0.7 }	.. .. .. ..
Total	118 8	258 8	..	..

Average fat percentage in the adulterated milk ..  $1.90 + 0.097$

" " " " pure " .. 4.50

" " " " mixed " .. 3.60

Percentage of adulteration ..  $\frac{3.6 \times 100}{4.5}$ , i.e., 20 per cent. water.

All the *gujars* bring milk from their homes. A few of them brought it but did not allow a sample to be taken, saying that it was not for sale. They gave it to shopkeepers, who defended them in their action.

STATEMENT No. 7.

Statement showing the Quantity of Milk brought to Lyallpur from Villages.

No.	Name of village.	Distance from the town.	Means of conveyance.	Kind of milk	QUANTITY.		Fat percentage.	Total solids percentage.	RATE AT SEERS PER RUPEE.	
					Morn-ing.	Even-ing.			Purchase.	Sale.
1	Gowahala ..	Miles. $\frac{1}{2}$	Man ..	Cows'	1 3 0	0 37	4.1	12.96	Seers.	Seers.
2	Phatak on Railway line ..	$\frac{1}{2}$	Woman	Mixed	0 12 8	..	6.5	15.01	Home produced	5 $\frac{1}{2}$
3	" ..	$\frac{1}{2}$	"	"	0 7 4	0 7	6.5	15.01	"	5 $\frac{1}{2}$
4	Nawabanwala, Sheikhanwala	5	Horse	"	0 32 0	..	7.2	15.73	Cows' milk 7 $\frac{1}{2}$	6
5	" ..	5	"	"	1 10 0	..	6.0	14.04	Bufs.' .. 6 $\frac{1}{2}$	5 $\frac{1}{2}$
6	Dogranwala, Asa Singhwala and Ghulamanwala.	4 to 5	"	Buffaloes'	1 30 0	..	5.7	..	" 6 $\frac{1}{2}$	5
7	Nawabanwala, Risalewala 12..	2 $\frac{1}{2}$	"	Mixed	1 20 0	..	7.2	15.73	Cows' milk 7 $\frac{1}{2}$	6 $\frac{1}{2}$
8	Bakhshish Singhwala ..	$\frac{1}{2}$	Man	Buffaloes'	0 6 0	0 6	5.6	13.91	Home produced	5 $\frac{1}{2}$
9	Risalewala 12 ..	2 $\frac{1}{2}$	Behngi §	"	1 4 0	..	5.8	13.60	6 $\frac{1}{2}$	5 $\frac{1}{2}$
10	" ..	2 $\frac{1}{2}$	"	Cows'	0 10 0	..	3.8	11.65	7 $\frac{1}{2}$	6 $\frac{1}{2}$
11	Chak " 224 R. B. ..	3	Man	Buffaloes'	0 6 4	..	5.1	13.60	8	5
12	" Mehr Hakim Din ..	2	"	"	0 5 0	..	8.0	15.90	Home produced	5
13	Mananwala, Malakpur	4	"	Mixed	0 12 0	..	2.9	8.77	7 $\frac{1}{2}$	6 $\frac{1}{2}$
14	" ..	4	Tonga	Buffaloes'	2 20 0	..	6.2	14.75	Home produced	5 $\frac{1}{2}$
15	Fakki Mari ..	1	Woman	"	0 6 0	..	9.0	17.59	"	5
16	Chak 213 ..	2 $\frac{1}{2}$	Man	Goats'	0 8 0	..	..	..	8	7
17	" ..	2 $\frac{1}{2}$	"	Buffaloes'	0 4 0	..	..	..	6	5
18	Chak " 224 ..	3	"	"	0 15 0	..	6.5	14.60	6 $\frac{1}{2}$	5 $\frac{1}{2}$
19	" ..	3	"	"	0 15 0	..	6.1	14.01	6 $\frac{1}{2}$	5 $\frac{1}{2}$
20	" ..	3	"	"	0 10 0	..	7.6	16.03	6 $\frac{1}{2}$	5 $\frac{1}{2}$
21	Chak " 207 ..	4	Horse	Goats'	0 16 0	..	3.2	8.93	8	7
22	" 100 J. B. ..	4	"	Buffaloes'	0 14 0	..	5.8	14.22	6	5
23	" 195 R. B. ..	4	"	"	1 10 0	..	6.0	14.50	6	5
24	Sidhpura ..	2 $\frac{1}{2}$	"	"	0 20 0	..	6.0	14.16	6	5
25	" ..	2 $\frac{1}{2}$	"	"	0 17 0	..	6.3	14.62	6	5

(Continued on the next page).

26	Chak 6 J. B. ..	4	Horse	Goats'	0 20 0	..	7-2*	15-58	8	7
27	Panjurur ..	5	"	Buffaloes'	0 20 0	..	6-2	13-90	6	5
28	" ..	4	"	"	1 0 0	..	4-5	12-24	6	5
29	Chak 100 J. B. ..	4 to 5	"	"	2 0 0	..	3-5	11-29	6	5
30	" 7 J. B. ..	5	"	Cows'	1 0 0	..	6-7	15-50	7½	6½
31	" 6 Panjwar ..	4	"	Buffaloes'	0 32 0	..	7-6	15-88	6	5½
32	" ..	4	"	Goats'	0 22 0	..	3-2	10-19	10	8
33	" ..	4	"	Cows'	0 2 0	..	..	..	7½	6½
34	Chak 279 ..	1	Man	Buffaloes'	0 5 0	0 13	5-0	12-59	6	5
35	Gujar Basti ..	½	"	"	0 5 0	..	6-0	13-29	6	5
36	Chak 279 ..	1	"	"	0 4 0	..	7-2	15-89	6	5
37	Gujar Basti ..	½	"	"	0 7 0	..	5-8	14-30	6	5
38	Chak 279 ..	1	"	"	0 8 0	..	5-5	12-69	6	5
39	Karnailwala ..	4	Horse	Cows'	0 12 0	..	5-2	13-90	8	7
40	" ..	4	"	Buffaloes'	0 18 0	..	6-2	14-00	6	5½
41	" ..	4	"	Mixed	1 0 0	..	6-5	14-50	6	4½
42	Nawabad and Risalewala 12	4	"	"	1 10 0	..	7-4	15-30	6	5
43	Risalewala 15	3	"	"	0 25 0	..	6-3	14-12	6½	4½
44	" ..	3	"	Goats'	0 22 0	..	4-5	12-49	8	4
45	Chak 230 ..	5	"	Buffaloes'	1 20 0	..	7-2	15-73	6	5½
46	" ..	5	"	Cows'	0 20 0	..	4-5	12-11	8	7
47	Chak 219 and 230	5	"	Buffaloes'	0 30 0	..	6-3	14-40	6	5½
48	Bakhshieh Singhpura	½	"	"	0 25 0	..	5-1	11-33	6	4½
49	Telianwala ..	3½	"	"	1 0 0	..	6-4	14-89	Home produced	5
50	Pathanwala ..	4 to 5	"	"	0 24 0	..	6-1	14-53	"	5
51	Karnailwala ..	4	"	Mixed	0 7 0	..	8-0	16-40	7	6
<b>Total</b>		..	..	..	<b>32 11 0</b>	<b>1 23</b>	<b>5-9</b>	<b>8-1+085</b>	..	..

\* For home consumption.

§ *Behngi*: A pole carried on the shoulder from the ends of which are suspended by means of ropes two wooden frames on which milk vessels are carried.

† 4 or 5 families combined.

‡ He is a shopkeeper and sells this milk at his own shop.

Note — This table does not include 2 to 2½ maunds of *khes* brought from the neighbouring villages by two dealers as this did not come to our notice on the day of examination.

STATEMENT No. 8.

Showing the Adulteration of Milk in Lyallpur.

No.	Source.	SOLIDS-NOT-FAT PERCENTAGE.		Percentage of water in the adulterated milk.	Quantity of milk to which water is added.	Amount of water added.	Rate at which milk is sold (in annas).	Total value of water sold as milk in a day.
		Pure milk.	Adulterated milk.					
				Per cent.	Mds. Srs.	Mds. Srs.	Per seer.	Rs. a. p.
1	Gujars' Cows .. ..	4.60†	3.6†	20.0	16 4	4 1	3	30 3 0
2	Ahatas' Cows .. ..	8.25	7.77	5.8	14 8	0 35	3	6 9 0
3	„ Buffaloes .. ..	8.88	8.82	0.7	10 26	0 3	4	0 12 0
4	Middlemen .. ..	8.7	8.1	6.9	33 34†	2 13	} 4	33 0 0*
5	Shopkeepers .. ..	8.7	7.6	5.7	33 24	0 39		
Total value of water sold as milk in a day.		..	..	..	..	..	..	70 8 0

22

†Adulterated milk brought by the *gujars* from their homes was highly adulterated. Solids-not-fat being very low could not, therefore, be determined by the lactometer since adulteration in this case has been calculated from fat. In other cases adulteration has been calculated on the basis of solids-not-fat.

‡Adulterated milk.

\*It has been estimated that about 40 per cent. of the milk coming from outside is made into curd, *khas*, etc. But to be on the safer side we have calculated adulteration on half of the milk imported from outside.

## STATEMENT NO. 9.

*Statement showing the Total Milk Supply of Lyallpur.*

No.	Particulars.	Quantity of milk.
		Mds. Srs.
1	Produced in the town .. .. .	181 9
2	Brought from outside .. .. .	33 34
	<i>Total</i> ..	215 3

Present population estimated at 32,000\*

Total milk supply per day .. 215·1 maunds.

Milk per head per day .. 27 seers.

---

\* According to the census of 1921 the population of Lyallpur stood at 28,136, of which 12,922 were Hindus, 11,116 Mohammedans, and 4,098 of other religions.

## STATEMENT No. 10.

Statement showing the Quantity of Milk sold at Milkshops in Lyallpur.

No. of shop-keeper.	Kind of milk.	Fat percentage.	Total solids percentage.	Solids-not-fat percentage.	REMARKS.
1	Buffalo	5.1	12.40	7.3	Being heated for curd.
2	Cow	3.0	9.20	6.2	" " " sale.
3	Buffalo	7.4	15.47	8.07	" " " curd.
4	"	5.7	14.04	8.34	" " in a <i>karahi</i> .*
5	"	7.5	15.84	8.34	In <i>karahi</i> not yet heated.
6	"	6.7	14.93	8.23	Being heated in a <i>karahi</i> .
7	"	8.1	14.59	8.09	" " for <i>khoe</i> .
8	"	6.5	16.66	8.56	" " " "
9	"	6.5	14.20	7.70	For sale in <i>karahi</i> .
10	Cow	3.0	10.26	7.26	For <i>lassi</i> † not heated.
11	"	4.9	13.07	8.17	" " " "
12	"	3.9	11.22	7.32	In <i>karahi</i> for sale.
13	Buffalo	6.4	14.97	8.57	" " being heated.
14	Cow	3.4	9.92	6.52	For sale in <i>lassi</i> , etc.
15	"	4.4	13.12	8.72	For <i>lassi</i> .
16	Buffalo	7.5	15.31	7.81	"
17	"	6.2	15.38	9.18	In <i>karahi</i> not yet heated.
18	Cow	4.6	12.58	7.98	In a vessel.
19	Buffalo	6.1	14.63	8.53	" " for sale.
20	"	4.2	10.43	6.28	" " " <i>lassi</i> .
21	"	6.2	14.75	8.55	" " " sale.
22	"	6.6	15.08	8.48	In <i>karahi</i> not yet heated.
23	Cow	4.1	11.40	7.30	" " being heated.
24	Buffalo	5.9	11.99	6.09	In a vessel.
25	Cow	2.4	7.54	5.14	"
26	"	4.7	12.95	8.25	"
27†	"	5.4	11.17	5.77	"
Average for cows' milk		3.84	11.12	7.28	
" " buffaloes' milk		6.4	14.4	8.0	
" " all the samples		5.4	13.0	7.6	+0.13

\**Karahi*: A large iron vessel shaped like a bowl used by sweetmeat sellers to boil milk, oil, etc.

† *Lassi*: Butter-milk.

‡ The shopkeeper did not know which kind of milk it was as he had bought it from some one else. The figures against him have, therefore, been excluded in calculating the averages.

## STATEMENT NO. 11.

*Statement showing the Quality of Milk sold in Ahatas (Private Dairies)  
in Lyallpur.*

Serial No.	Fat percentage.	Solids-not-fat percentage.
Buffaloes.		
1	5.3	7.8
2	6.7	8.2
3	7.7	9.28
4	5.8	10.00
<i>Average ..</i>	6.39	8.82
Cows.		
5	3.2	6.1
6	4.1	7.0
7	4.2	8.1
8	2.7	5.8
9	3.5	7.8
10	4.0	8.0
11	4.7	8.5
<i>Average ..</i>	3.77	7.33

*Note.*—These samples were taken from the vessels from which the milk was sold.

## STATEMENT No. 12.

Statement showing the Average Yield, Fat Percentage and Solids other than Fats in the Various Kinds of Milk Analysed in Lyallpur.

No.	Owner.	Kind of animals.	No. of animals tested.	Average daily yield during wet period.	Fat percentage.	Solids-not-fat percentage.*
				Seers.		
1	Gujars ..	Cows ..	50	6.14	4.50	8.03
2	Ahatas or small private dairies.	" ..	34	6.25	4.90	8.25
	"	Buffaloes ..	29	7.9	6.74	8.88
3	College Dairy	Cows ..	19	7.0	4.67	8.20
4	Goat owners..	Goats ..	32	1.47	4.40	8.15
			Samples			
5	Outsiders ..	Mixed milk	48	..	5.90	8.10
6	Milk shops ..	" ..	27	..	5.40	7.60
			Tests			
7	Gujars* (milk brought from homes).	..	15	..	1.90	..
			7	..	3.77	7.33
8	Milk issued from Ahatas.	Cows ..				
	" ..	Buffaloes ..	4	..	6.39	8.82

\* Solids-not-fat percentage could not be estimated in all samples as the fluid was too thin.

# **The Board of Economic Inquiry, Punjab.**

**RURAL SECTION PUBLICATION—23.**

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## **A Note on SALES OF LAND**

**2**

**between the Notified Agricultural Tribes  
in the Punjab during the Quinquennium  
1922-23 to 1926-27.**

**BY**

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## FOREWORD.

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By one of those curious chances which play such unexpected parts in politics the Punjab Alienation of Land Act has come to be regarded as a communal measure. Actually, those whose full power of proprietary right is curtailed belong to all communities and the opportunities for purchase are curtailed for all. There are similar Acts where communal differences hardly exist and the Hindu law affecting family property, which makes such an Act unnecessary in Madras, has nothing to do with agriculturist and non-agriculturist as such.

In the Punjab, the problem arose with alienations of proprietary rights; in other provinces in India the laws deal with alienations of occupancy rights in the permanently settled tracts and with proprietary rights of backward tribes in others. Nowhere is there any suggestion of communalism, and the various laws appear to be generally accepted as suitable.

In this province, the area is over 56 million acres; of this 16 million acres represent common lands, village sites, forests and government property; the remaining 40 million acres is divided into about 35 million acres owned by agricultural tribes and over 5 million acres owned by those who have not been notified as agricultural tribes. The Act deprives the owners of 35 million acres of their full right of alienation.

Of the many controversial statements made by those who disapprove of the policy underlying the Act, one is that large owners are buying up smaller owners; "swallowing up" is the more popular phrase. The inquiry here dealt with was made specifically to see whether there was any ground for such a statement. It was directed to owners—(a). paying from Rs. 100/- to Rs. 500/- land revenue, and (b). paying more than Rs. 500/- land revenue. The figures collected related to five years, 1922-27; where an owner who sold land retained one hundred acres after the sale, he could not be described as having been "swallowed up" and so his case was omitted. The information collected relates to the small proportion of owners paying Rs. 100/- and over, who might be understood to represent the large owners who were supposed to be doing the "swallowing." It will be seen that different results might be obtained by taking another quinquennium or by taking another definition for "large owners" and so on, and therefore the result must be taken as indicating a general tendency only and not as being

an incontrovertible fact. However, the inquiry is the most comprehensive hitherto carried out, and as all the facts collected are given in detail it will be open to anyone to examine the figures and extract from them such results as they may be found to justify.

The figures have been compared with the general figures for sales of land in the same period, and a basis for some comparisons has been provided.

It is no part of the object of the Board of Economic Inquiry to justify policies or to make deductions of a controversial nature ; it is chiefly concerned with the collection of as accurate data as conditions permit on the subject under investigation.

It is inevitable that where data disagree with or do not support preconceived opinions, they should be challenged, but if the challenge results in the collection of data more reliable than only good can result.

Briefly, the main fact brought to light by the inquiry is that in the five years 3,038 vendees bought from 5,791 vendors some 58,393 acres of land at a cost stated to be nearly 136 lakhs of rupees.

Very little consideration is needed to show that the large landowners are buying large plots from large landowners and that there is no evidence to show that there is any general tendency to the process called "swallowing." The small landowners sell small plots to small landowners. The small landowners cannot afford to buy large plots, while the larger owners with larger sums to invest prefer larger plots than the small man has to sell.

There is reason to believe that small owners are being bought out in the south-west districts and a further detailed inquiry is being made into this ; but apart from this, the general result is that most purchasers have bought less than two plots in the five years. That there may be cases of large owners buying a number of plots is clear from the figures, but it is equally clear that outside the south-western districts, this is not a marked feature of the province.

It may perhaps be worth while to add that the Act was not designed to protect individuals but the hereditary landowning and cultivating tribes ; that it never aimed at interfering with sales between hereditary cultivating classes, and that if some thrifty people are buying from their neighbours, this is not in any way a reflection on the Act. For many years past full opportunity to purchase agricultural land has been provided for all by the auctions held in the Canal Colonies ; these auctions are open to all and the results afford interesting comment on some aspects of the problem which faced the framers of the Act.

6th May, 1931.

H. CALVERT.

**NOTE.**

## 1.—INTRODUCTION.

On 8th June 1901, the Punjab Alienation of Land Act came into force. The Act, amongst other things, restricts members of agricultural tribes from selling their lands to any except members of their own tribes or of tribes within the same group (usually within a district), except with the permission of the Deputy Commissioner. The area of land for sale within the province in any year forms a very small proportion of the total area, and the average cultivated plot sold in any transaction is only a little above two acres. This is usually ascribed not to lack of willing purchasers but to the absence of any general readiness of owners to part with their acres. The rapidly increasing prosperity of the province, following on the expansion of canal irrigation and the opening up of communications has enabled many agriculturists to accumulate savings which they usually try to invest in the purchase of land, and it has been alleged in some quarters that the larger owners have begun to buy out the smaller. This allegation must not be confused with a charge that the richer are buying out the poorer; with such a charge the present inquiry has nothing whatever to do except in so far as the riches of the owner are connected with the area of land owned. The inquiry was limited to purchases of land by large owners, whether rich or in debt, and aimed at discovering whether in fact the large were, to any considerable extent, expropriating small owners.

## 2.—SCOPE AND METHOD OF THE INQUIRY.

The inquiry was conducted through the agency of the revenue staff of the province under the supervision of R. B. Lala Arjun Dass Vasudev, M.A., LL.B., P.C.S., the Director of Land Records. Its scope was confined to landowners of only those tribes which, under section 4 of the Punjab Alienation of Land Act,\* were notified as "Agricultural tribes." Figures of sales of land for the five years, 1922-23 to 1926-27, were collected separately for two classes of vendees who, according to the list of voters prepared in 1927 for the Provincial Legislative Council elections, paid land revenue between Rs. 100/- to Rs. 500/- (Class A.), and over Rs. 500/- (Class B.), respectively†. Class A. was, however, supplemented by those owners, who, though paying land revenue below Rs. 100/- were, according to local knowledge, known to be acquiring land frequently from petty owners. For vendors, only such were taken into account as owned an area of 100 acres and less of cultivated

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\* See Appendix A.

† The instructions issued to the revenue staff are reproduced in Appendix B.

land, after excluding the land sold by them but including any purchases of land made by them during the period under reference. *The inquiry was, therefore, limited to the amount of land purchased during the quinquennium 1922-23 to 1926-27, by owners of notified agricultural tribes who paid about Rs. 100/- or more land revenue from the owners of the same tribes who were left with 100 acres and less of cultivated land at the end of the quinquennium.*

Statements I., II. and III. at the end of the note give separately the results of the inquiry as a whole and for Classes A. and B. The inquiry shows that during the quinquennium under reference 3,038 vendees bought from 5,791 vendors, 58,393 acres of land, of which 36,866 acres were cultivated, at a cost of Rs. 1,53,85,713/-. In Class A., 2,672 vendees purchased from 4,226 vendors, 38,988 acres of land, including 28,610 acres cultivated, for Rs. 1,26,66,866/-. In Class B., there were 366 vendees and 1,565 vendors; the land purchased was 19,405 acres, of which 8,256 acres were cultivated, and the price paid Rs. 27,18,847/-. To correlate the figures of the inquiry with provincial totals, relevant statements in the annual reports of the *Land Revenue Administration in the Punjab* for the years 1922-23 to 1926-27, have been examined and the results are presented in the Statements at the end.

### 3.—VENDORS AND VENDEES.

The inquiry embraces in all 3,038 vendees and 5,791 vendors. Thus, assuming that no owner appears twice, the transactions are between 8,829 owners, which represents 0·24 per cent. of the provincial estimated total of 3,688,344 owners and shareholders of the notified agricultural tribes; the corresponding percentages for vendors and vendees are 0·16 and 0·08, respectively: the annual percentages come to one-fifth of these. It may, however, be added that, whereas the provincial total includes shareholders as well, no cognisance has been taken of them in the inquiry. But even if allowance were made for them it is doubtful if the percentages would increase to any appreciable extent.

Statement IV. gives district figures for the number of owners (vendors and vendees) involved in the inquiry during the quinquennium 1922-23 to 1926-27, and the percentages these bear to the total number of all owners and shareholders belonging to the notified agricultural tribes in the respective districts. It will be noticed that Multan with the largest total number of vendors and vendees (1,560) shows a percentage of only 2·07, and Lyallpur, Jhang, Shahpur and Sheikhpura, which follow Multan, of 1·90, 1·05, 0·71 and 0·59 per cent; the percentage for the inquiry is 0·24. These figures, therefore, signify that during the period under review only a small portion of the owners of the notified agricultural tribes of the province were effected by the transference of ownership of land.

Of the 8,829 owners in the inquiry the Multan Division accounts for the largest number (62·9 per cent.) and is followed by Rawalpindi (11·7), Lahore (10·4), Jullundur (8·3) and Ambala (6·7). Among districts Multan leads with 17·7 per cent., followed by Lyallpur (14·7), Dera Ghazi Khan (11·7), Jhang (9·2), Muzaffargarh (8·8), Shahpur (5·8), Ferozepur (4·4) and Sheikhpura (4·3). The table below shows the districts which have the largest number of vendors and vendees. For the former, Multan, Dera Ghazi Khan, Lyallpur and Muzaffargarh show the highest percentages and for the latter, Lyallpur, Multan and Jhang.

*Table showing the Districts with the highest Percentages of Vendors and Vendees.*

<i>District.</i>	<i>Total.</i>	<i>Class A.</i>	<i>Class B.</i>
VENDORS.			
Multan .. ..	16·1	16·5	14·8
Dera Ghazi Khan .. ..	16·0	5·6	44·2
Lyallpur .. ..	11·3	14·4	2·6
Muzaffargarh .. ..	10·1	9·5	11·5
Jhang .. ..	7·9	10·1	2·2
Shahpur .. ..	5·3	4·9	6·2
Ferozepur .. ..	4·6	5·1	3·5
Sheikhpura .. ..	3·7	4·8	..
VENDEES.			
Lyallpur .. ..	21·2	22·9	9·2
Multan .. ..	20·7	26·2	31·6
Jhang .. ..	11·4	12·1	6·1
Shahpur .. ..	6·9	6·3	11·0
Sheikhpura .. ..	5·5	6·0	1·7
Muzaffargarh .. ..	4·3	4·3	4·7
Ferozepur .. ..	4·0	4·0	4·4
Dera Ghazi Khan .. ..	3·5	2·2	13·1

The proportion between the buyers and sellers is interesting as the figures to a certain extent corroborate the general assumption regarding wealth in the rural districts of the province. Where the standard of living is high and holdings are large, there are few outstanding buyers: the numbers of vendors and vendees tend to be equal. Thus Lyallpur, the richest and the most flourishing Canal Colony district in the Punjab, shows the low proportion of one vendor to every vendee—in Class A. there appear to be actually more buyers than sellers. On the other hand, in the poorer districts a few of the more favoured owners are apt to dominate over the others; thus Dera Ghazi Khan, Muzaffargarh and Kangra, which

are among the poorest districts in the province, have as many as 8·6, 4·4 and 5·4 vendors, respectively, to each vendee. The following table shows the proportions for each district of the province.

*Table showing the Number of Vendors to every Vendee.*

District.	Total.	Class A.	Class B.
<b>AMBALA—</b>			
Hissar .. ..	3·0	2·8	5·5
Rohtak .. ..	1·8	1·9	1·0
Gurgaon .. ..	1·7	1·6	1·0
Karnal .. ..	1·4	1·4	1·0
Ambala .. ..	1·7	1·7	1·5
Simla .. ..	..	..	..
<b>JULLUNDUR—</b>			
Kangra .. ..	5·4	6·5	4·3
Hoshiarpur .. ..	1·4	1·4	4·0
Jullundur .. ..	2·0	2·0	3·5
Ludhiana .. ..	2·1	2·0	..
Ferozepur .. ..	2·2	2·0	3·4
<b>LAHORE—</b>			
Lahore .. ..	1·6	1·6	1·6
Amritsar .. ..	2·4	2·5	2·3
Gurdaspur .. ..	1·3	1·2	3·0
Sialkote .. ..	2·8	1·9	7·3
Gujranwala .. ..	2·0	1·8	3·4
Sheikhupura .. ..	1·2	1·2	1·2
<b>RAWALPINDI—</b>			
Gujrat .. ..	1·9	1·9	7·0
Shahpur .. ..	1·4	1·2	2·4
Jhelum .. ..	2·8	2·7	..
Rawalpindi .. ..	2·8	2·8	..
Attock .. ..	2·1	1·6	3·0
Mianwali .. ..	2·7	2·6	3·3
<b>MULTAN—</b>			
Montgomery .. ..	2·1	1·6	5·4
Lyallpur .. ..	1·0	0·9	1·2
Jhang .. ..	1·3	1·3	1·5
Multan .. ..	1·5	1·3	2·0
Muzaffargarh .. ..	4·4	3·5	10·6
Dera Ghazi Khan .. ..	8·6	3·9	14·6
<i>Provincial</i> .. ..	<i>1·9</i>	<i>1·6</i>	<i>4·3</i>

## 4.—AREA SOLD.

The area sold in the inquiry is as follows :—

Sold by—	CULTIVATED.		TOTAL.	
	Acres.	Per cent.	Acres.	Per cent.
Class A. ..	28,610	77·6	38,988	66·8
Class B. ..	8,256	22·4	19,405	33·2
<i>Total</i> ..	<i>36,866</i>	<i>100·0</i>	<i>58,393</i>	<i>100·0</i>

The areas should really be slightly more than those shown above because, except in seven cases, the statements received from districts did not mention the exact areas of land sold in transactions of less than one acre. Statement XII. shows the number of such transactions of less than an acre, but the *caveat* should be put in that transactions where no land at all was sold, could not be distinguished from those where the area sold was less than one acre, as columns in both the cases were shown blank. The number of such transactions for the whole inquiry is 2,616 for the cultivated land, and 1,216 for total land. For Class A., the figures are 1,393 and 853, and for Class B., 1,223 and 363, respectively. As details for these transactions were not available they have been ignored in this note.

The total area owned before sale by vendors considered in this inquiry (176,948 acres) comes to 0·5 per cent. of the provincial average total of 35,029,035 acres, owned by members of the agricultural tribes for the quinquennium 1922-23 to 1926-27 ; and this percentage is repeated in the case of the cultivated area (106,915 acres) to the provincial figure of 21,187,925—(see Statements VI. and VII). The annual percentages also work out to 0·1. Statement V. gives the areas shown as sold in the inquiry expressed as percentages, of the total land sold by the agricultural tribes in the different districts during the quinquennium under reference. It may be mentioned that the amount of land shown in the statement is sold to agricultural tribes only as, according to the Alienation of Land Act, these tribes are restricted to selling to agricultural tribes. Thus the amount of land shown as sold within the inquiry is only 6·9 per cent. of the sales by the agricultural tribes in the province, or in other words, of the total area of land sold annually over 93 per cent. goes to smaller owners. The figures for the following districts reveal a relatively higher proportion to the total sales in their respective areas :—

<i>District.</i>	<i>Per cent.</i>	<i>District.</i>	<i>Per cent.</i>
Lyallpur ..	41·1	Shahpur ..	12·8
Jhang ..	21·6	Multan ..	12·5
Dera Ghazi Khan ..	13·4	Sheikhpura ..	10·6

The following table shows the position of each district within the inquiry itself according to the amount of land sold in it. For cultivated land sold, Lyallpur accounts for 23·2 per cent., Multan 10·2, Shahpur 9·8, Ferozepur 7·0, Dera Ghazi Khan 6·5, Hissar 6·0 and Sheikhupura 5·9. For total land sold, Dera Ghazi Khan leads with 16·7 per cent., followed by Lyallpur (15·1), Multan (12·0), Shahpur (7·5), Ferozepur (5·2), Sheikhupura (4·9) and Hissar (4·5).

*Table showing the Amount of Land Sold in each District.*

Division and District.	CULTIVATED.		TOTAL.	
	Area in acres.	Per cent.	Area in acres.	Per cent.
<b>AMBALA—</b>				
Hissar .. ..	2,227	6·0	2,644	4·5
Rohtak .. ..	108	0·3	218	0·4
Gurgaon .. ..	860	2·3	1,194	2·0
Karnal .. ..	535	1·5	760	1·3
Ambala .. ..	251	0·7	328	0·6
Simla .. ..	..	..	..	..
<b>JULLUNDUR—</b>				
Kangra .. ..	120	0·3	155	0·3
Hoshiarpur ..	225	0·6	531	0·9
Jullundur ..	197	0·5	233	0·4
Ludhiana ..	48	0·1	57	0·1
Ferozepur ..	2,597	7·0	3,038	5·2
<b>LAHORE—</b>				
Lahore .. ..	555	1·5	749	1·3
Amritsar .. ..	352	1·0	401	0·7
Gurdaspur ..	280	0·8	303	0·5
Sialkote .. ..	320	0·9	378	0·7
Gujranwala ..	657	1·8	987	1·7
Sheikhupura ..	2,188	5·9	2,860	4·9
<b>RAWALPINDI—</b>				
Gujrat .. ..	471	1·3	674	1·2
Shahpur .. ..	3,610	9·8	4,435	7·5
Jhelum .. ..	119	0·3	127	0·2
Rawalpindi ..	108	0·3	123	0·2
Attock .. ..	244	0·7	374	0·6
Mianwali .. ..	916	2·5	1,632	2·9
<b>MULTAN—</b>				
Montgomery ..	1,531	4·1	2,345	4·0
Lyallpur .. ..	8,560	23·2	8,841	15·1
Jhang .. ..	2,331	6·3	4,056	6·9
Multan .. ..	3,750	10·2	7,016	12·0
Muzaffargarh ..	1,328	3·6	4,189	7·2
Dera Ghazi Khan ..	2,378	6·5	9,724	16·7
<b>Provincial Total ..</b>	<b>36,866</b>	<b>100·0</b>	<b>58,393</b>	<b>100·0</b>

In the following table, the area sold is shown as a percentage of the area owned before sale. The figures indicate that the area sold by vendors represents about a third of the area owned by them previous to sale.

				Area owned	Area sold	Per cent.
				Acres.	Acres.	
<b>CULTIVATED LAND</b>						
Total	..	..	..	106,915	36,866	34
Class A.	..	..	..	84,185	28,610	34
Class B.	..	..	..	22,730	8,256	39
<b>TOTAL LAND</b>						
Total	..	..	..	176,948	58,393	33
Class A.	..	..	..	126,886	38,988	30
Class B.	..	..	..	50,062	19,405	36

Statement IX. gives the areas sold expressed as percentages of the areas owned before sale. Below are given the districts in which the vendors in question have sold more than a third of their land :—

*Table showing Districts in which Vendors have Sold more than 33 per cent. of their Land.*

CULTIVATED.				TOTAL.			
District.		Percentage.		District.		Percentage.	
<b>TOTAL.</b>							
Montgomery	..	..	52	Montgomery	}	..	..
Sheikhupura	..	..	51	Lyallpur			
Lyallpur	..	..	50	Lahore			
Lahore	}	..	49	Sheikhupura	..	..	48
Mianwali				..	..	47	
Hissar	..	..	45	Mianwali	..	..	44
Karnal	}	..	43	Ferozepur	..	..	43
Ferozepur				..	..	41	
Dera Ghazi Khan	..	..	38	Karnal	..	..	40
Gurgaon	..	..	37	Gurgaon	..	..	39
				Dera Ghazi Khan	..	..	39
				Hissar	..	..	34
<b>CLASS A.</b>							
Lahore	..	..	51	Lahore	..	..	55
Montgomery	}	..	49	Montgomery	..	..	49
Lyallpur				..	..	48	
Sheikhupura				..	..	48	
Hissar	..	..	45	Ferozepur	..	..	43
Karnal	..	..	42	Karnal	..	..	40
Ferozepur	..	..	41	Rohtak	..	..	39
Shahpur	..	..	38	Hissar	..	..	38
Gurgaon	..	..	37	Shahpur	}	..	..
Gurdaspur	..	..	33	Gurgaon			
				Gurdaspur	..	..	33

(Continued).

(Concluded).

CULTIVATED.			TOTAL.		
District.	Percentage	District	Percentage.		
CLASS B.					
Rohtak	.. 100	Rohtak	.. 100		
Karnal	.. 74	Karnal	.. 69		
Sheikhupura	.. 69	Mianwali	.. 65		
Mianwali	.. 64	Lyallpur	.. 60		
Lyallpur	.. 61	Ambala	.. 54		
Ambala	.. 50	Montgomery	.. 50		
Montgomery	.. 48	Dera Ghazi Khan	.. 48		
Gurgaon	.. 48	Gurgaon	.. 34		
Hissar	.. 48	Sheikhupura	.. 48		
Ferozepur	.. 48	Ferozepur	.. 48		
Dera Ghazi Khan	.. 48	Muzaffargarh	.. 34		
Sialkote	.. 48				

## 5.—AREA OWNED BEFORE SALE.

The area owned before sale was 176,948 acres, of which 106,915 acres were cultivated. These figures represent 0·5 per cent. in each case of the provincial total of 35,029,035 acres of all land and 21,187,925 acres of cultivated land, owned by members of the agricultural tribes. Column 9 in Statements VI. and VII. shows respectively, the percentages that the figures of the inquiry bear to the average of cultivated land, and the average of total land, owned by the members of agricultural tribes during the quinquennium under reference. It is thus seen that the land involved in the inquiry is an extremely low fraction of the provincial total, being only 0·5 per cent. for the five years' transactions. Only the districts of the Multan Division and the Shahpur, Sheikhupura and Gujranwala Districts show a relatively high percentage when compared with their respective general district averages. This is shown below :—

District.	Cultivated.	Total.
	Per cent.	Per cent.
Multan	1·79	1·69
Lyallpur	1·58	1·53
Jhang	1·44	1·41
Shahpur	1·31	1·11
Muzaffargarh	·93	·84
Dera Ghazi Khan	·88	·95
Sheikhupura	·58	·57
Montgomery	·55	·50
Gujranwala	·47	·37

Statement VIII shows the average area owned by vendors before sale. The average total area owned by a vendor works out to 30.6 acres, and the average cultivated area to 18.5 acres; figures for Class A. are 30.0 and 19.9 acres, respectively, and for Class B. 31.9 and 14.5 acres. By districts, however, the largest class of sellers are those owning between 15 and 35 acres. Below are classified the districts according to vendors owning land from—(a). 5 to less than 15 acres, (b). 15 to less than 25 acres, (c). 25 to less than 35 acres, and (d). 35 acres and over.

*Table showing Average Area Owned by Vendors in Different Districts.*

5—15 acres.	15—25 acres.	25—35 acres.	Over 35 acres.
<b>CULTIVATED.</b>			
D. G. Khan .. 6.7	Amritsar .. 15.4	Gurdaspur .. 25.8	Shahpur .. 37.5
Rohtak .. 7.3	Multan .. 16.5	Lyallpur .. 26.1	
Rawalpindi .. 9.3	Gurgaon .. 17.2	Attock .. 26.3	
Ludhiana .. 9.4	Sheikhupura.. 20.3	Gujranwala .. 26.6	
Muzaffargarh .. 9.5	Jhang .. 20.8	Lahore .. 27.8	
Jullundur .. 10.9	Ambala .. 20.9	Karnal .. 29.1	
Kangra .. 10.4	Hoshiarpur .. 21.1	Montgomery.. 31.6	
Sialkote .. 14.6	Gujrat .. 22.3	Hissar .. 33.7	
	Ferozepur .. 22.2		
	Jhelum .. 22.8		
	Mianwali .. 23.8		
<b>TOTAL</b>			
Ludhiana .. 9.9	Kangra .. 15.5	Ferozepur .. 25.5	Lahore .. 35.5
Rohtak .. 10.3	Amritsar .. 16.8	Muzaffargarh 26.1	Jhelum .. 38.3
Rawalpindi .. 12.0	Sialkote .. 19.8	Lyallpur .. 26.7	Hoshiarpur .. 38.7
Jullundur .. 12.9	Gurgaon .. 22.0	D. G. Khan .. 26.8	Jhang .. 39.6
	Ambala .. 22.9	Gurdaspur } 28.2	Karnal .. 43.4
		Sheikhupura } 28.9	Mianwali .. 44.4
		Multan .. 29.0	Muzaffargarh.. 49.1
		Gujrat .. 29.0	Shahpur .. 52.7
		Gujranwala .. 31.5	Hissar .. 53.4
			Attock .. 60.8

To economise space classification of Classes A and B have been omitted. The following is a summary of the number of districts in the different groups:—

	5—15 acres.	15—25 acres.	25—35 acres.	Over 35 acres.
<b>CULTIVATED</b>				
Total .. .. .	8	10	8	2
Class A. .. .. .	8	11	7	2
Class B. .. .. .	9	7	5	5
<b>TOTAL</b>				
Total .. .. .	4	5	9	10
Class A. .. .. .	4	7	7	10
Class B. .. .. .	4	5	7	10

*Note.*—The mountainous district of Simla is not included in the above classification.

## 6.—PRICE OF LAND.

The total price of the land sold comes to Rs. 1,53,85,713/-, which represents 5·91 per cent. of the provincial total of Rs. 25,78,16,660/- for sales and permanent transfers of land between agricultural tribes for the five years under reference. The remaining 24 crores relate to purchases by smaller owners. Statement X. gives the relation between the two sets of figures. It will be seen that Lyallpur tops the list with 29·88 per cent. of the total sale proceeds in that district; Shahpur comes next with 14·66, followed by Sheikhpura 11·03, Jhang 11·0, and Multan 8·22.

The table below shows the position each district occupies within the inquiry itself as regards the price realised for land sold. Lyallpur accounts for as much as 42·52 per cent. of the total amount, followed by Shahpur with 10·89, and Multan 9·53.

*Table showing the Price of Land.*

Division and District.				Price.	Percentage.
				Rs.	
<b>AMBALA—</b>					
Hissar	..	..	..	1,40,008	·91
Rohtak	..	..	..	60,450	·39
Gurgaon	..	..	..	1,65,234	1·07
Karnal	..	..	..	59,083	·41
Ambala	..	..	..	70,259	·46
Simla	..	..	..	..	..
<b>JULLUNDUR—</b>					
Kangra	..	..	..	46,899	·30
Hoshiarpur	..	..	..	74,968	·49
Jullundur	..	..	..	1,26,534	·82
Ludhiana	..	..	..	29,430	·19
Ferozepur	..	..	..	6,87,641	4·46
<b>LAHORE—</b>					
Lahore	..	..	..	1,61,598	1·05
Amritsar	..	..	..	1,52,487	·99
Gurdaspur	..	..	..	69,030	·44
Sialkote	..	..	..	1,05,191	·68
Gujranwala	..	..	..	1,56,739	1·01
Sheikhpura	..	..	..	10,62,132	6·90

(Continued).

(Concluded).

Division and District.	Price.	Percentage.
<b>RAWALPINDI—</b>		
	Rs.	
Gujrat .. .. .	1,48,046	·96
Shahpur .. .. .	16,76,075	10·89
Jhelum .. .. .	24,121	·15
Rawalpindi .. .. .	56,726	·36
Attock .. .. .	34,702	·22
Mianwali .. .. .	1,42,575	·92
<b>MULTAN—</b>		
Montgomery .. .. .	5,26,757	3·42
Lyallpur .. .. .	65,42,362	42·52
Jhang .. .. .	9,77,897	6·35
Multan .. .. .	14,67,620	9·53
Muzaffargarh .. .. .	2,59,980	1·66
Dera Ghazi Khan .. .. .	3,57,169	2·32
<i>Provincial Total</i> .. .. .	<i>1,53,85,713</i>	<i>100·00</i>

Statement XI. gives the average price per acre of land included in the inquiry for each district. Lyallpur, it will be seen, again leads with Rs. 626·8 per acre. Other districts with a high price per acre are Jullundur Rs. 542·6, Ludhiana 516·3, Rawalpindi 461·1, Amritsar 380·2, Shahpur 377·8 and Sheikhpura 371·3. On the other hand Dera Ghazi Khan shows the lowest price of Rs. 36·6 per acre; Hissar comes next above with Rs. 52·9, preceded by Muzaffargarh with Rs. 62·1. The average sale price per acre for the inquiry comes to Rs. 206·3, and for Classes A. and B., Rs. 324·9 and Rs. 140·1, respectively.

#### 7.—OWNERS WHO BECAME LANDLESS.

It is interesting to note that as many as 2,134 or 36·9 per cent. of the vendors sold off the whole of their land and became landless. It is to be regretted that the inquiry did not disclose how many of these were without sons. The number of vendees in such transactions is 1,275 (42 per cent.), and the area involved 25,997 acres (44·5 per cent.), of which 18,776 acres (50·9 per cent.) is cultivated; the price is Rs. 80,24,208/- (52·2 per cent.). Statements XIII., XIV. and XV. give details for such owners for the inquiry as a whole and for Classes A. and B., separately. It must be remembered that the figures relate to a minute proportion of total owners and cover transactions for five years only.

The following table shows the districts where more than 33 per cent. of the vendors in question became landless :—

District.	Total.	Class A.	Class B.
	Per cent.	Per cent.	Per cent.
Dera Ghazi Khan .. ..	59·9	42·0	66·1
Sheikhupura .. ..	50·0	50·2	42·9
Lahore .. ..	48·8	47·2	60·0
Lyallpur .. ..	44·7	44·0	56·1
Amritsar .. ..	44·2	47·7	33·3
Ferozepur .. ..	41·1	44·1	35·4
Gurgaon .. ..	37·7	38·1	..
Muzaffargarh .. ..	35·3	37·7	..
Montgomery .. ..	35·0	33·3	40·7
Mianwali .. ..	34·6	37·0	..
Shahpur .. ..	32·5	35·6	..
Multan .. ..	32·5	..	..
Kangra .. ..	..	..	50·0
Hissar .. ..	..	..	36·4
<i>Provincial</i> .. ..	<i>36·9</i>	<i>33·1</i>	<i>47·1</i>

In Class B. we also have one vendor each in the Rohtak and Karnal districts, who became landless after the sale: in Ambala two out of three sold out completely; these districts are not included in the above table as the percentages in these cases would be misleading.

Cultivated land sold by such owners represents 50·9 per cent. and total land 44·5 per cent. of the land taken into account in the inquiry. Thus a larger portion of the former has passed away from the hands of vendors. The following table shows where the land sold is more than 50 per cent. of the respective totals in the inquiry :—

District.	Cultivated.	Total.
	Per cent.	Per cent.
Lahore .. ..	84·7	88·1
Shahpur .. ..	74·6	68·5
Sheikhupura .. ..	73·6	..
Hissar .. ..	63·3	60·2
Ferozepur .. ..	54·5	56·4
Montgomery .. ..	56·8	..
Lyallpur .. ..	54·3	54·2
Gurgaon .. ..	51·6	51·8
Karnal .. ..	..	51·6

In Class A., Lahore and Shahpur show the highest percentages for cultivated as well as for total land. In Class B., omitting the single vendors in Rohtak and Karnal, who sold off all their land, and also Ambala, where two out of three sold out, Lyallpur leads for both cultivated and total areas. (See Statements XIV. and XV.)

The sale price represents 52·2 per cent. of the total for the inquiry. The following table shows the districts where the price obtained by these vendors is more than half that realised in the inquiry in that district :—

District.		Total.	Class A.	Class B.
		Per cent.	Per cent.	Per cent.
Montgomery	.. ..	93·2	69·3	72·4
Sheikhupura	.. ..	82·7	82·9	80·5
Lahore	.. ..	74·2	79·5	..
Shahpur	.. ..	70·9	80·7	..
Lyallpur	.. ..	61·6	..	81·0
Karnal	.. ..	57·7	57·1	100·0
Ferozepur	.. ..	54·2	56·1	..
Dera Ghazi Khan	.. ..	..	..	51·8
Ambala	.. ..	..	..	94·1
Gurgaon	.. ..	..	..	100·0
Kangra	.. ..	..	..	77·5

In Class B., Karnal and Gurgaon, of course, represent the single vendors who sold off all their land, and Ambala where two out of three sold out.

### 8.—CONCLUSION.

So far as figures for this quinquennium go there seems to be little foundation in fact for the suggestion that the larger landowners belonging to the notified agricultural tribes are buying out the smaller owners of such tribes to any appreciable degree; indeed the figures seem to imply that the majority of transactions are between owners of the same classes, *i.e.*, small owners sell to small owners and large to large. When compared with the provincial figures the figures of the inquiry represent such a low fraction as to justify their being taken as *natural* transactions. There is no sign whatever of larger owners swallowing up the smaller ones. The following table gives the perspective clearly :—

	No.	Percentage to provincial figures.
1. Number of owners .. ..	8,829	0·24
2. Land sold in 5 years in acres ..	58,393	6·90
3. Cultivated area owned in acres ..	106,915	0·50
4. Total area owned in acres ..	176,948	0·50
5. Price of land .. ..	Rs. 1,53,85,713	5·91

Within the inquiry itself the districts which seem to show in some measure a tendency for the alienation of land from small to large owners are those of the Multan Division, and Shahpur, Sheikhupura and Ferozepur. The provincial figures are swelled

considerably by those for the Multan Division, the position of which with reference to the other divisions is interesting. It heads the province on every point, as the following table shows :—

Division.	Vendees.	Vendors.	AREA SOLD.		Price.
			Cul- tivated.	Total.	
			Acres.	Acres.	Rs.
Multan .. ..	1,903	3,649	19,878	36,192	10,131,785
Rawalpindi .. ..	366	670	5,468	7,364	2,082,245
Lahore .. ..	341	573	4,352	5,678	1,707,177
Jullundur .. ..	229	507	2,187	4,014	965,472
Ambala .. ..	199	392	3,981	5,144	499,034

It is interesting to see how the movement towards alienation seems to lose ground steadily as we move eastwards. The Multan Division in the west heads the list, while Ambala in the east, except for the area sold, is at the bottom. It may, however, be added that three vendors in the Hissar district between them alone sold off 1,929 acres (1,628 acres being cultivated) for sixty-seven thousand rupees. If such transactions, which can be taken as exceptional, be ignored, Ambala will be at the bottom of the list.

The following table gives the summary of the districts affected : (the figures in brackets represent the percentage position of each district within the inquiry).

Division and District.	Vendees.	Vendors.	LAND SOLD.		Price of land.
			Cultivated.	Total	
<b>MULTAN—</b>			Acres.	Acres.	Rs.
Montgomery .. ..	45 (1·5)	93 (1·6)	1,531 (4·1)	2,345 (4·0)	526,757 (3·4)
Lyallpur .. ..	646 (21·2)	653 (11·3)	8,560 (23·2)	8,841 (15·1)	6,542,362 (42·5)
Jhang .. ..	346 (11·4)	462 (9·7)	2,331 (6·3)	4,066 (6·9)	977,897 (6·3)
Multan .. ..	628 (20·7)	932 (16·1)	3,750 (10·2)	7,016 (12·0)	1,467,620 (9·5)
Muzaffargarh .. ..	131 (4·3)	583 (10·1)	1,328 (3·6)	4,159 (7·2)	259,980 (1·6)
Dera Ghazi Khan .. ..	107 (3·5)	926 (16·0)	2,378 (6·5)	9,745 (16·7)	357,169 (2·3)
<b>RAWALPINDI—</b>					
Shahpur .. ..	210 (16·9)	305 (5·3)	3,610 (9·3)	4,435 (7·5)	1,876,075 (10·9)
<b>LAHORE—</b>					
Sheikhupura .. ..	168 (5·5)	212 (3·7)	2,188 (5·9)	2,860 (4·9)	1,062,132 (6·9)
<b>JULLUNDUR—</b>					
Ferozepur .. ..	123 (4·0)	270 (4·7)	2,597 (7·0)	3,038 (5·3)	687,641 (4·4)
<i>Provincial Total</i> .. ..	<i>3,038</i> (100·0)	<i>5,791</i> (100·0)	<i>36,866</i> (100·0)	<i>58,393</i> (100·0)	<i>15,385,173</i> (100·0)

Below is shown the position of the above districts with reference to *all* transactions relating to agricultural tribes in those districts:—

Division and District.	Owners and share-holders.	Sales by agricultural tribes.	AREA OWNED.		Sale price.
			Cultivated.	Total.	
<b>MULTAN—</b>					
Montgomery .. ..	0.27	8.3	0.55	0.50	4.76
Lyallpur .. ..	1.90	41.1	1.58	1.53	29.38
Jhang .. ..	1.05	21.6	1.44	1.41	11.00
Multan .. ..	2.07	12.5	1.79	1.69	8.22
Muzaffargarh .. ..	0.56	3.6	0.93	0.84	3.39
Dera Ghazi Khan .. ..	0.55	13.4	0.88	0.95	5.68
<b>RAWALPINDI—</b>					
Shahpur .. ..	0.71	12.8	1.31	0.30	14.66
<b>LAHORE—</b>					
Sheikhupura .. ..	0.59	10.6	0.58	0.27	11.03
<b>JULLUNDUR—</b>					
Ferozepur .. ..	0.29	6.2	0.32	0.14	3.25
<i>Provincial</i> .. ..	<i>0.24</i>	<i>6.9</i>	<i>0.50</i>	<i>0.50</i>	<i>5.91</i>

Lyallpur seems to be the district with the most active land market. It has the largest number of sellers, the greatest amount of land sold, and the highest price received; and this position is maintained when transactions between agricultural tribes alone are considered. Next comes Multan, followed by Dera Ghazi Khan, Shahpur, Jhang, Muzaffargarh, Sheikhupura and Montgomery. As regards owners who have sold all their land, Dera Ghazi Khan shows the largest number, but Sheikhupura and Lahore seem to have not only a large number of such vendors, but the area sold and the prices received by them are also high. It will be noticed that here again the Multan Division and the Shahpur, Sheikhupura and Ferozepur districts are prominent. Without the necessary information it would be unsafe to hazard any conclusions as to the causes leading up to the sales.

It may, however, be suggested that, if a closer examination is to be made, or if the trend of the movement towards land alienation among agricultural tribes is to be studied in the future, attention should be directed chiefly to these districts which, relatively to the other districts, show the movement in some measure of importance

**STATEMENTS  
AND  
APPENDICES.**

## STATEMENT

Land Sold to Vendees Paying Land Revenue of Rs. 100/- and over

No.	Division and District.	Vendees.	Vendors.	AREA SOLD.		AREA
				Cultivated.	Total.	Cultivated.
	1	2	3	4	5	6
	<b>AMBALA.</b>			Acres.	Acres.	Acres.
1	Hissar .. ..	48	145	2,227	2,644	2,664
2	Rohtak .. ..	11	20	108	218	251
3	Gurgaon .. ..	81	135	860	1,194	1,464
4	Karnal .. ..	30	43	535	760	719
5	Ambala .. ..	29	49	251	328	649
6	Simla .. ..	..	..	..	..	..
		<b>199</b>	<b>392</b>	<b>3,931</b>	<b>5,144</b>	<b>5,747</b>
	<b>JULLUNDUR.</b>					
7	Kangra .. ..	12	65	120	155	559
8	Hoshiarpur .. ..	33	46	225	531	745
9	Jullundur .. ..	48	99	197	233	893
10	Ludhiana .. ..	13	27	48	57	205
11	Ferozpur .. ..	123	270	2,597	3,038	3,409
		<b>229</b>	<b>507</b>	<b>3,187</b>	<b>4,014</b>	<b>5,801</b>
	<b>LAHORE.</b>					
12	Lahore .. ..	25	41	555	749	583
13	Amritsar .. ..	35	86	352	401	969
14	Gurdaspur .. ..	25	34	280	303	597
15	Shikote .. ..	25	70	320	378	914
16	Gujranwala .. ..	63	130	657	987	2,798
17	Sheikhupura .. ..	168	212	2,188	2,860	2,118
		<b>341</b>	<b>573</b>	<b>4,352</b>	<b>5,678</b>	<b>7,979</b>
	<b>RAWALPINDI.</b>					
18	Gujrat .. ..	65	129	471	674	2,412
19	Shahpur .. ..	210	305	3,610	4,435	7,836
20	Jhelum .. ..	14	39	119	127	772
21	Rawalpindi .. ..	22	63	108	123	477
22	Attock .. ..	26	56	244	374	1,231
23	Mianwali .. ..	29	78	916	1,632	942
		<b>366</b>	<b>670</b>	<b>5,468</b>	<b>7,365</b>	<b>13,670</b>
	<b>MULTAN.</b>					
24	Montgomery .. ..	45	93	1,531	2,345	1,412
25	Lyallpur .. ..	646	653	8,560	8,841	8,498
26	Jhang .. ..	346	462	2,331	4,058	7,279
27	Multan .. ..	628	932	3,750	7,016	11,629
28	Muzaffargarh .. ..	131	583	1,323	4,189	4,202
29	Dera Ghazi Khan .. ..	107	926	2,378	9,745	3,832
		<b>1,903</b>	<b>3,649</b>	<b>19,378</b>	<b>36,192</b>	<b>35,352</b>
	<b>Provincial Total ..</b>	<b>3,038</b>	<b>5,791</b>	<b>38,866</b>	<b>68,393</b>	<b>70,049</b>

I.

by Vendors Owning 100 Acres and less of Cultivated Land.

LEFT.	AREA OWNED BEFORE SALE.		Sale Price.	Division and District.	No.
	Total.	Cultivated.			
7	8	9	10	1	
Acres.	Acres.	Acres.	Ra.		
5,093	4,891	7,736	1,40,008	<b>AMBALA.</b>	
287	359	505	60,450	Hissar .. .. .	1
1,770	2,324	2,964	1,65,234	Rohtak .. .. .	2
1,107	1,254	1,867	63,083	Gurgaon .. .. .	3
759	900	1,087	70,259	Karnal .. .. .	4
..	..	..	..	Ambala .. .. .	5
..	..	..	..	Simla .. .. .	6
<b>9,015</b>	<b>9,728</b>	<b>14,159</b>	<b>4,99,034</b>		
855	679	1,010	46,988	<b>JULLUNDUR.</b>	
1,251	970	1,782	74,968	Kangra .. .. .	7
1,048	1,080	1,281	1,26,534	Hoshiarpur .. .. .	8
210	253	267	29,430	Jullundur .. .. .	9
3,847	6,006	6,885	6,87,641	Ludhiana .. .. .	10
..	..	..	..	Ferozepur .. .. .	11
<b>7,211</b>	<b>8,988</b>	<b>11,225</b>	<b>9,65,472</b>		
708	1,138	1,457	1,61,598	<b>LAHORE.</b>	
1,040	1,321	1,441	1,52,487	Lahore .. .. .	12
658	877	961	69,030	Amritsar .. .. .	13
1,008	1,234	1,386	1,05,191	Gurdaspur .. .. .	14
3,107	3,455	4,094	1,56,739	Sialkote .. .. .	15
3,124	4,306	5,984	10,62,132	Gujranwala .. .. .	16
..	..	..	..	Sheikhpura .. .. .	17
<b>9,645</b>	<b>12,331</b>	<b>15,323</b>	<b>17,07,177</b>		
3,070	2,883	3,744	1,48,046	<b>RAWALPINDI.</b>	
11,851	11,446	16,086	16,76,075	Gujrat .. .. .	18
1,367	891	1,494	24,121	Shahpur .. .. .	19
634	585	757	56,726	Jhelum .. .. .	20
3,030	1,475	3,404	34,702	Rawalpindi .. .. .	21
1,829	1,858	3,461	1,42,575	Attock .. .. .	22
..	..	..	..	Mianwali .. .. .	23
<b>21,581</b>	<b>19,138</b>	<b>28,246</b>	<b>20,82,245</b>		
2,219	2,943	4,564	5,26,757	<b>MULTAN.</b>	
8,629	17,058	17,470	65,42,362	Montgomery .. .. .	24
14,259	9,610	18,315	9,77,897	Lyallpur .. .. .	25
19,890	15,379	26,906	14,67,620	Jhang .. .. .	26
11,033	5,530	15,222	2,59,960	Multan .. .. .	27
15,073	6,210	24,818	3,57,169	Muzaffargarh .. .. .	28
..	..	..	..	Dera Ghazi Khan .. .. .	29
<b>71,103</b>	<b>56,730</b>	<b>107,295</b>	<b>1,01,31,785</b>		
<b>118,555</b>	<b>106,915</b>	<b>176,948</b>	<b>1,63,85,713</b>	<b>Provincial Total.</b>	

## STATEMENT

A.—Vendees who pay Rs. 100/-

No.	Division and District.	Vendees.	Vendors.	AREA SOLD.		AREA
				Cultivated.	Total.	Cultivated.
	1	2	3	4	5	6
	<b>AMBALA.</b>			Acres.	Acres.	Acres.
1	Hissar .. ..	44	123	2,036	2,341	2,469
2	Rohtak .. ..	10	19	78	186	251
3	Gurgaon .. ..	80	134	854	1,188	1,458
4	Karnal .. ..	29	42	524	743	719
5	Ambala .. ..	27	46	237	313	641
6	Simla .. ..	..	..	..	..	..
		<b>190</b>	<b>364</b>	<b>3,728</b>	<b>4,771</b>	<b>5,628</b>
	<b>JULLUNDUR.</b>					
7	Kangra .. ..	6	39	84	113	295
8	Hoshiarpur .. ..	29	42	216	526	716
9	Jullundur .. ..	46	92	182	215	792
10	Ludhiana .. ..	13	27	48	57	205
11	Ferozepur .. ..	107	216	1,957	2,334	2,711
		<b>201</b>	<b>416</b>	<b>2,487</b>	<b>3,239</b>	<b>4,718</b>
	<b>LAHORE.</b>					
12	Lahore .. ..	22	36	522	709	496
13	Amritsar .. ..	26	65	215	220	447
14	Gurdaspur .. ..	24	31	278	301	566
15	Sialkote .. ..	21	41	186	250	551
16	Gujranwala .. ..	56	106	543	793	2,483
17	Sheikhupura.. ..	162	205	1,941	2,568	2,030
		<b>311</b>	<b>484</b>	<b>3,685</b>	<b>4,821</b>	<b>6,573</b>
	<b>RAWALPINDI.</b>					
18	Gujrat .. ..	64	122	455	657	2,346
19	Shahpur .. ..	170	208	2,029	3,196	4,859
20	Jhelum .. ..	14	39	119	127	772
21	Rawalpindi .. ..	22	63	108	123	477
22	Attock .. ..	16	26	96	134	797
23	Mianwali .. ..	19	57	216	354	626
		<b>306</b>	<b>515</b>	<b>3,923</b>	<b>4,591</b>	<b>9,877</b>
	<b>MULTAN.</b>					
24	Montgomery.. ..	40	60	1,083	1,724	1,120
25	Lyallpur .. ..	613	612	7,621	7,841	8,051
26	Jhang .. ..	324	427	2,009	3,643	6,503
27	Multan .. ..	514	701	2,580	4,791	8,317
28	Muzaffargarh .. ..	114	403	751	2,214	2,825
29	Dera Ghazi Khan .. ..	60	238	743	1,353	2,063
		<b>1,666</b>	<b>2,447</b>	<b>14,787</b>	<b>21,566</b>	<b>28,879</b>
	<b>Provincial Total</b> .. ..	<b>2,672</b>	<b>4,226</b>	<b>28,610</b>	<b>38,988</b>	<b>56,576</b>

## II.

to Rs. 500/- Land Revenue.

LEFT.	ARMA OWNED BEFORE SALE.		Sale Price.	Division and District.	No.
	Total.	Cultivated.			
7	8	9	10	1	
Acres.	Acres.	Acres.	Rs.		
3,866	4,494	6,227	1,28,431	<b>AMBALA</b>	
287	329	473	50,950	Hissar .. .. .	1
1,764	2,312	2,952	1,57,234	Rohtak .. .. .	2
1,107	1,243	1,850	62,083	Gurgaon .. .. .	3
751	878	1,064	66,859	Karnal .. .. .	4
..	..	..	..	Ambala .. .. .	5
..	..	..	..	Simla .. .. .	6
<b>7,795</b>	<b>9,256</b>	<b>12,566</b>	<b>4,65,557</b>		
490	379	593	16,712	<b>JULLUNDUR</b>	
1,212	931	1,732	69,665	Kangra .. .. .	7
896	974	1,111	1,24,576	Hoshiarpur .. .. .	8
210	253	267	29,430	Jullundur .. .. .	9
3,075	4,668	5,409	5,35,453	Ludhiana .. .. .	10
..	..	..	..	Ferozepur .. .. .	11
<b>5,873</b>	<b>7,205</b>	<b>9,112</b>	<b>7,75,837</b>		
683	1,018	1,292	1,30,599	<b>LAHORE</b>	
473	662	693	1,00,628	Lahore .. .. .	12
611	844	912	87,670	Amritsar .. .. .	13
630	737	860	72,850	Gurdaspur .. .. .	14
2,583	3,026	3,376	1,34,252	Sialkote .. .. .	15
2,830	3,971	5,398	9,49,832	Gujranwala .. .. .	16
..	..	..	..	Sheikhupura .. .. .	17
<b>7,710</b>	<b>10,258</b>	<b>12,531</b>	<b>14,54,831</b>		
2,993	2,801	3,650	1,44,966	<b>RAWALPINDI</b>	
6,171	7,788	9,367	12,54,532	Gujrat .. .. .	18
1,367	891	1,494	24,121	Shehpur .. .. .	19
634	585	757	56,726	Jhelum .. .. .	20
2,057	893	2,191	15,056	Rawalpindi .. .. .	21
1,261	842	1,615	59,005	Attock .. .. .	22
..	..	..	..	Mianwali .. .. .	23
<b>14,483</b>	<b>13,800</b>	<b>19,074</b>	<b>15,54,406</b>		
1,811	2,203	3,535	3,87,233	<b>MULTAN.</b>	
8,179	15,672	16,020	58,55,958	Montgomery .. .. .	24
13,037	8,512	16,680	9,53,193	Lyallpur .. .. .	25
14,055	10,897	18,346	9,96,626	Jhang .. .. .	26
7,121	3,578	9,335	1,80,236	Multan .. .. .	27
7,834	2,806	1,187	1,32,990	Muzaffargarh .. .. .	28
..	..	..	..	Dera Ghazi Khan .. .. .	29
<b>52,037</b>	<b>43,666</b>	<b>73,603</b>	<b>84,06,236</b>		
<b>87,898</b>	<b>84,136</b>	<b>126,886</b>	<b>1,26,66,866</b>	<b>Provincial Total.</b>	

## STATEMENT

B.—Vendees who pay over

No.	Division and District.	Vendees.	Vendors.	AREA SOLD.		AREA
				Cultivated.	Total.	Cultivated.
	1	2	3	4	5	6
	<b>AMBALA.</b>			<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>
1	Hissar .. ..	4	22	192	303	205
2	Rohtak .. ..	1	1	30	32	..
3	Gurgaon .. ..	1	1	6	6	6
4	Karnal .. ..	1	1	11	17	..
5	Ambala .. ..	2	3	14	15	8
6	Simla .. ..	..	..	..	..	..
		<b>9</b>	<b>28</b>	<b>253</b>	<b>373</b>	<b>219</b>
	<b>JULLUNDUR.</b>					
7	Kangra .. ..	6	26	36	42	264
8	Hoshiarpur .. ..	4	4	9	11	30
9	Jullundur .. ..	2	7	15	18	91
10	Ludhiana .. ..	..	..	..	..	..
11	Forozepur .. ..	16	54	640	704	698
		<b>28</b>	<b>91</b>	<b>700</b>	<b>775</b>	<b>1,083</b>
	<b>LAHORE.</b>					
12	Lahore .. ..	3	5	33	40	87
13	Amritsar .. ..	9	21	137	181	522
14	Gurdaspur .. ..	1	3	2	2	31
15	Sialkote .. ..	4	29	134	148	363
16	Gujranwala .. ..	7	24	114	194	315
17	Sheikhpura .. ..	6	7	247	292	88
		<b>30</b>	<b>89</b>	<b>667</b>	<b>857</b>	<b>1,406</b>
	<b>RAWALPINDI.</b>					
18	Gujrat .. ..	1	7	16	17	66
19	Shahpur .. ..	40	97	691	1,239	2,977
20	Jhelum .. ..	..	..	..	..	..
21	Rawalpindi .. ..	..	..	..	..	..
22	Attock .. ..	10	30	148	240	434
23	Mianwali .. ..	10	21	700	1,278	316
		<b>61</b>	<b>155</b>	<b>1,545</b>	<b>2,774</b>	<b>3,793</b>
	<b>MULTAN.</b>					
24	Montgomery .. ..	5	27	448	621	292
25	Lyallpur .. ..	33	41	939	1,000	447
26	Jhang .. ..	22	35	322	413	776
27	Multan .. ..	114	231	1,170	2,225	3,313
28	Muzaffargarh .. ..	17	180	577	1,975	1,377
29	Dera Ghazi Khan .. ..	47	688	1,635	8,392	1,769
		<b>223</b>	<b>1,202</b>	<b>5,091</b>	<b>14,626</b>	<b>7,973</b>
	<b>Provincial Total</b> .. ..	<b>368</b>	<b>1,565</b>	<b>8,256</b>	<b>19,405</b>	<b>14,474</b>

## III.

## Rs. 500]- Land Revenue.

LEFT.	AREA OWNED BEFORE SALE.		Sale Price.	Division and District.	No.
	Total.	Cultivated.			
7	8	9	10	1	
Acres.	Acres.	Acres.	Rs.		
1,206	397	1,509	11,577	<b>AMBALA.</b>	
..	30	32	9,500	Hissar .. ..	1
6	12	12	8,000	Rohtak .. ..	2
..	11	17	1,000	Gurgaon .. ..	3
8	22	23	3,400	Karnal .. ..	4
..	..	..	..	Ambala .. ..	5
..	..	..	..	Simla .. ..	6
<b>1,220</b>	<b>472</b>	<b>1,593</b>	<b>33,477</b>		
				<b>JULLUNDUR.</b>	
375	300	417	30,187	Kangra .. ..	7
39	39	50	5,303	Hoshiarpur ..	8
152	106	170	1,958	Jullundur ..	9
..	..	..	..	Ludhiana ..	10
772	1,338	1,476	1,52,188	Ferozepur ..	11
<b>1,338</b>	<b>1,783</b>	<b>2,113</b>	<b>1,89,736</b>		
				<b>LAHORE.</b>	
125	120	165	21,999	Lahore .. ..	12
567	659	748	51,859	Amritsar ..	13
47	33	49	1,360	Gurdaspur ..	14
378	282	741	32,341	Sialkote ..	15
524	429	718	22,487	Gujranwala ..	16
294	335	586	1,12,300	Sheikhupura..	17
<b>1,935</b>	<b>2,073</b>	<b>2,792</b>	<b>2,42,346</b>		
				<b>RAWALPINDI.</b>	
77	82	94	3,080	Gujrat .. ..	18
5,480	3,658	6,719	4,21,543	Shahpur ..	19
..	..	..	..	Jhelum .. ..	20
..	..	..	..	Rawalpindi ..	21
973	592	1,213	19,646	Attock .. ..	22
568	1,016	1,846	83,570	Mianwali ..	23
<b>7,098</b>	<b>5,338</b>	<b>9,372</b>	<b>5,27,839</b>		
				<b>MULTAN.</b>	
408	740	1,029	1,39,524	Montgomery..	24
450	1,398	1,450	6,86,404	Lyallpur ..	25
1,222	1,098	1,635	1,24,704	Jhang .. ..	26
5,835	4,482	8,060	4,70,994	Multan .. ..	27
3,912	1,954	5,887	79,744	Muzaffargarh	28
7,239	3,494	15,031	2,24,179	Dera Ghazi Khan	29
<b>19,068</b>	<b>13,064</b>	<b>33,092</b>	<b>17,26,549</b>		
<b>30,657</b>	<b>22,730</b>	<b>50,062</b>	<b>27,18,847</b>	<b>Provincial Total.</b>	

## STATEMENT

*Number of Owners and Shareholders belonging to the Notified*

No.	Division and District.	1922-23.	1923-24.	1924-25.	1925-26.
	1	2	3	4	5
<b>AMBALA.</b>					
1	Hissar .. ..	97,751	98,447	99,362	100,732
2	Rohtak .. ..	143,319	144,346	145,319	145,345
3	Gurgaon .. ..	133,220	133,862	134,484	135,950
4	Karnal .. ..	140,804	140,882	142,703	142,937
5	Ambala .. ..	119,980	119,934	119,779	120,446
6	Simla .. ..	4,793	4,821	4,830	4,920
<b>JULLUNDUR.</b>					
7	Kangra .. ..	282,709	293,874	298,011	297,371
8	Hoshiarpur .. ..	156,304	159,125	160,220	162,460
9	Jullundur .. ..	159,328	160,971	162,737	166,112
10	Ludhiana .. ..	111,438	95,744	112,419	113,176
11	Ferozepur .. ..	131,275	133,328	134,616	136,980
<b>LAHORE.</b>					
12	Lahore .. ..	95,436	97,410	99,110	100,845
13	Amritsar .. ..	125,614	125,768	126,998	128,432
14	Gurdaspur .. ..	116,975	117,178	119,010	122,514
15	Sialkote .. ..	139,464	170,876	141,153	142,596
16	Gujranwala .. ..	1,074	62,367	61,799	63,165
17	Sheikhpura .. ..	62,750	63,853	62,205	67,107
<b>RAWALPINDI.</b>					
18	Gujrat .. ..	148,598	150,934	152,849	154,684
19	Shahpur .. ..	78,804	69,256	70,087	70,859
20	Jhelum .. ..	109,709	111,547	113,209	114,371
21	Rawalpindi .. ..	144,644	147,289	150,160	151,396
22	Attock .. ..	80,635	80,511	81,970	83,976
23	Mianwali .. ..	94,336	96,567	99,238	99,238
<b>MULTAN.</b>					
24	Montgomery .. ..	47,797	49,840	50,343	51,750
25	Lyallpur .. ..	63,929	65,987	68,136	70,604
26	Jhang .. ..	73,747	74,220	74,976	80,137
27	Multan .. ..	73,591	73,286	75,319	75,967
28	Muzaffargarh .. ..	123,982	127,236	127,236	129,257
29	Dera Ghazi Khan .. ..	174,195	181,152	186,741	189,135
<i>Provincial Total</i> ..		<i>4,059,696</i>	<i>3,350,212</i>	<i>4,157,315</i>	<i>3,422,464</i>

*Note.*—Figures have been taken from Statement III.—“General Statement of Area reports on the Land Revenue Administration

## IV.

*Agricultural Tribes for the Quinquennium 1922-23 to 1926-27.*

1926-27.	Average for 5 years.	No. of owners in the inquiry.	Percentage of owners (col. 8) to average (col. 7).	Division and District.	No.
6	7	8	9	1	
<b>AMBALA.</b>					
101,701	99,599	193	·19	Hissar .. .. .	1
146,153	144,896	31	·02	Rohtak .. .. .	2
136,139	134,691	216	·16	Gurgaon .. .. .	3
143,401	142,117	73	·05	Karnal .. .. .	4
122,080	120,446	78	·06	Ambala .. .. .	5
4,872	4,847	..	..	Simla .. .. .	6
<b>JULLUNDUR.</b>					
299,124	293,818	77	·03	Kangra .. .. .	7
162,460	160,630	79	·05	Hoshiarpur .. .. .	8
166,112	163,405	147	·09	Jullundur .. .. .	9
113,176	109,300	40	·04	Ludhiana .. .. .	10
138,928	135,025	393	·29	Ferozepur .. .. .	11
<b>LAHORE.</b>					
102,591	99,078	66	·07	Lahore .. .. .	12
130,002	127,364	121	·10	Amritsar .. .. .	13
123,420	119,820	59	·05	Gurdaspur .. .. .	14
142,994	145,416	95	·07	Sialkote .. .. .	15
63,659	62,293	193	·31	Gujranwala .. .. .	16
68,073	64,798	380	·59	Sheikhupura .. .. .	17
<b>RAWALPINDI.</b>					
155,574	152,528	194	·13	Gujrat .. .. .	18
71,098	72,221	515	·71	Shahpur .. .. .	19
115,530	112,873	53	·05	Jhelum .. .. .	20
147,468	135,733	85	·06	Rawalpindi .. .. .	21
85,174	82,453	82	·09	Attock .. .. .	22
99,602	97,796	107	·11	Mianwali .. .. .	23
<b>MULTAN.</b>					
51,879	50,282	138	·27	Montgomery .. .. .	24
72,525	68,236	1,299	1·90	Lyallpur .. .. .	25
80,668	76,750	808	1·05	Jhang .. .. .	26
77,041	75,041	1,560	2·07	Multan .. .. .	27
131,291	127,800	714	·56	Muzaffargarh .. .. .	28
195,009	185,246	1,033	·56	Dera Ghazi Khan .. .. .	29
<b>3,452,035</b>	<b>3,668,344</b>	<b>3,829</b>	<b>·24</b>	<i>Provincial Total.</i>	

Owned with Detail of portion thereof held on Usufructuary Mortgage," Column 8, of the in the Punjab, for the respective years.

## STATEMENT

## Sales of Land by Members of Agricultural Tribes for

No.	Division and Districts.	1922-23.	1923-24.	1924-25.	1925-26.
	1	2	3	4	5
	<b>AMBALA.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>
1	Hissar .. ..	8,659	8,202	11,463	10,429
2	Rohtak .. ..	2,138	1,798	2,079	1,782
3	Gurgaon .. ..	2,769	3,466	2,992	2,193
4	Karnal .. ..	5,218	5,426	3,906	6,018
5	Ambala .. ..	3,619	2,802	3,013	2,586
6	Simla .. ..	184	103	69	125
	<b>JULLUNDUR.</b>				
7	Kangra .. ..	3,336	3,769	3,062	2,714
8	Hoshiarpur .. ..	2,021	2,630	3,173	2,390
9	Jullundur .. ..	2,326	2,442	2,667	2,664
10	Ludhiana .. ..	1,843	2,283	2,073	2,083
11	Ferozepur .. ..	7,282	8,058	12,149	9,310
	<b>LAHORE.</b>				
12	Lahore .. ..	3,330	2,186	3,436	2,342
13	Amritsar .. ..	1,474	1,272	1,332	1,502
14	Gurdaspur .. ..	2,058	1,855	1,730	2,032
15	Sialkote .. ..	2,317	1,936	1,661	2,581
16	Gujranwala .. ..	3,339	4,644	3,042	3,744
17	Sheikhupura .. ..	5,048	4,926	4,397	5,660
	<b>RAWALPINDI.</b>				
18	Gujrat .. ..	3,181	2,452	3,302	3,427
19	Shahpur .. ..	7,843	8,029	6,859	6,560
20	Jhelum .. ..	4,595	4,104	5,469	5,892
21	Rawalpindi .. ..	7,399	5,749	6,138	5,535
22	Attock .. ..	13,607	8,395	11,849	8,531
23	Mianwali .. ..	8,776	10,314	17,335	10,383
	<b>MULTAN.</b>				
24	Montgomery .. ..	2,866	10,924	4,700	4,661
25	Lyalpur .. ..	2,523	3,767	4,744	5,453
26	Jhang .. ..	3,919	2,961	4,202	4,284
27	Multan .. ..	9,354	15,400	11,806	10,709
28	Muzaffargarh .. ..	18,162	23,203	27,128	31,350
29	Dera Ghazi Khan .. ..	14,759	12,225	16,896	16,694
	<i>Provincial Total</i> .. ..	<i>153,945</i>	<i>163,321</i>	<i>182,662</i>	<i>172,894</i>

*Notes.*—Figures have been taken from Statement XXV.—“Abstract of Mortgages, Sales Punjab, for the

V.

the Quinquennium 1922-23 to 1926-27.

1926-27.	Total for 5 years.	Land sold in the inquiry (total land).	Percentage of land sold (col. 8) to total (col. 7).	Division and District.	No.
6	7	8	9	1	
Acres.	Acres.	Acres.			
<b>AMBALA.</b>					
11,705	50,458	2,644	5.2	Hissar .. ..	1
2,377	10,174	216	2.1	Rohtak .. ..	2
4,262	15,682	1,194	7.6	Gurgaon .. ..	3
4,844	25,302	760	3.0	Karnal .. ..	4
2,712	14,732	328	2.2	Ambala .. ..	5
198	679	..	..	Simla .. ..	6
<b>JULLUNDUR.</b>					
3,714	16,585	155	0.9	Kangra .. ..	7
2,237	12,460	531	4.3	Hoshiarpur .. ..	8
2,985	13,084	233	1.8	Jullundur .. ..	9
2,346	10,628	57	0.5	Ludhiana .. ..	10
12,142	48,941	3,038	6.2	Ferozepur .. ..	11
<b>LAHORE.</b>					
3,233	14,527	749	5.2	Lahore .. ..	12
1,937	7,517	401	5.3	Amritsar .. ..	13
2,250	9,925	303	3.0	Gurdaspur .. ..	14
2,218	10,713	378	3.5	Sialkote .. ..	15
5,730	20,499	987	4.8	Gujranwala .. ..	16
6,738	26,969	2,860	10.6	Sheikhupura .. ..	17
<b>RAWALPINDI.</b>					
2,826	15,188	674	4.4	Gujrat .. ..	18
7,289	34,580	4,435	12.8	Shahpur .. ..	19
5,157	25,217	127	0.5	Jhelum .. ..	20
5,751	30,572	123	0.4	Rawalpindi .. ..	21
8,761	51,143	374	0.7	Attock .. ..	22
15,536	62,344	1,632	2.6	Mianwali .. ..	23
<b>MULTAN.</b>					
5,119	26,270	2,345	8.8	Montgomery .. ..	24
5,906	21,523	8,841	41.1	Lyallpur .. ..	25
3,375	18,739	4,056	21.6	Jhang .. ..	26
8,728	55,997	7,016	12.5	Multan .. ..	27
16,352	116,225	4,189	3.6	Muzaffargarh .. ..	28
13,167	72,741	9,745	13.4	Dera Ghazi Khan .. ..	29
<b>168,495</b>	<b>841,317</b>	<b>58,393</b>	<b>6.9</b>	<b>Provincial Total.</b>	

and Redemptions," Column 7, of the reports on the *Land Revenue Administration in the respective years.*

## STATEMENT

Area Owned by Members of the Agri-

CULTIVATED

No.	Division and District.	1922-23.	1923-24.	1924-25.	1925-26.
	1	2	3	4	5
	<b>AMBALA.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>
1	Hissar .. ..	2,066,625	2,093,210	2,105,164	2,121,068
2	Rohtak .. ..	1,046,033	1,053,414	1,054,680	1,054,933
3	Gurgaon .. ..	911,143	920,401	927,853	952,882
4	Karnal .. ..	936,064	948,751	961,499	963,608
5	Ambala .. ..	610,011	613,640	615,774	616,228
6	Simla .. ..	6,611	6,528	6,626	6,661
	<b>JULLUNDUR.</b>				
7	Kangra .. ..	475,774	477,822	478,412	477,879
8	Hoshiarpur .. ..	620,695	623,616	628,594	630,210
9	Jullundur .. ..	583,456	586,464	588,617	589,474
10	Ludhiana .. ..	652,359	655,455	658,027	660,985
11	Ferozepur .. ..	1,839,801	1,860,568	1,866,323	1,910,273
	<b>LAHORE.</b>				
12	Lahore .. ..	972,435	991,141	1,006,660	1,019,756
13	Amritsar .. ..	682,675	686,102	697,431	699,605
14	Gurdaspur .. ..	681,763	686,738	694,205	697,051
15	Sialkote .. ..	694,278	698,587	701,717	704,558
16	Gujranwala .. ..	724,549	744,439	747,303	750,097
17	Sheikhupura .. ..	710,606	728,392	719,021	761,861
	<b>RAWALPINDI.</b>				
18	Gujrat .. ..	833,754	844,817	859,281	866,611
19	Shahpur .. ..	1,076,611	796,615	821,394	829,441
20	Jhelum .. ..	618,939	625,694	629,406	630,228
21	Rawalpindi .. ..	491,591	493,576	492,859	492,289
22	Attock .. ..	983,768	983,768	982,267	983,120
23	Mianwali .. ..	523,353	546,369	559,107	559,107
	<b>MULTAN.</b>				
24	Montgomery .. ..	497,347	531,263	542,770	540,856
25	Lyallpur .. ..	1,055,876	1,066,916	1,072,911	1,085,531
26	Jhang .. ..	640,469	644,327	650,181	698,588
27	Multan .. ..	818,006	806,195	855,284	893,565
28	Muzaffargarh .. ..	526,631	833,743	533,743	531,282
29	Dera Ghazi Khan .. ..	736,373	653,909	701,595	711,190
	<b>Provincial Total</b> .. ..	<b>23,017,596</b>	<b>22,399,360</b>	<b>13,190,704</b>	<b>23,433,877</b>

Notes.—Figures have been taken from Statement III.—“General Statement of Area reports on the Land Revenue Administration

## VI.

## cultural Tribes in the Punjab.

## AREA.

1926-27.	Average for 5 years.	Area owned in the inquiry.	Percentage of area owned (col. 8) to average area (col. 7).	Division and District.	No.
6	7	8	9	1	
Acres.	Acres.	Acres.			
<b>AMBALA.</b>					
2,124,801	2,102,174	4,891	·23	Hissar .. ..	1
1,049,829	1,051,778	359	·03	Rohtak .. ..	2
929,152	927,866	2,324	·25	Gurgaon .. ..	3
942,638	950,522	1,254	·13	Karnal .. ..	4
615,054	614,141	900	·14	Ambala .. ..	5
6,599	6,605	..	..	Simla .. ..	6
<b>JULLUNDUR.</b>					
477,736	477,526	679	·14	Kangra .. ..	7
631,039	630,831	970	·15	Hoshiarpur .. ..	8
591,861	583,740	1,080	·19	Jullundur .. ..	9
660,814	657,488	253	·04	Ludhiana .. ..	10
1,901,150	1,875,623	6,006	·32	Ferozepur .. ..	11
<b>LAHORE.</b>					
1,019,145	1,001,827	1,138	·11	Lahore .. ..	12
699,454	693,953	1,321	·19	Amritsar .. ..	13
695,873	691,726	877	·13	Gurdaspur .. ..	14
695,700	690,966	1,234	·18	Sialkote .. ..	15
739,229	740,723	3,455	·47	Gujranwala .. ..	16
777,156	739,407	4,306	·58	Sheikhupura .. ..	17
<b>RAWALPINDI.</b>					
866,375	853,568	2,883	·34	Gujrat .. ..	18
831,773	871,167	11,446	1·31	Shahpur .. ..	19
634,120	627,677	891	·14	Jhelum .. ..	20
492,852	492,633	585	·12	Rawalpindi .. ..	21
965,548	978,654	1,475	·15	Attock .. ..	22
557,926	549,172	1,858	·34	Mianwali .. ..	23
<b>MULTAN.</b>					
543,329	531,113	2,943	·55	Montgomery .. ..	24
1,104,156	1,077,078	17,058	1·58	Lyalpur .. ..	25
701,852	667,083	9,610	1·44	Jhang .. ..	26
906,118	855,834	15,379	1·79	Multan .. ..	27
524,541	589,988	5,530	·93	Muzaffargarh .. ..	28
710,588	702,719	6,210	·88	Dera Ghazi Khan .. ..	29
<b>23,393,036</b>	<b>21,187,926</b>	<b>1,06,915</b>	<b>·50</b>	<b>Provincial Total.</b>	

Owned with Detail of portion thereof held on Usufructuary Mortgage," Column 7, of the in the Punjab, for the respective years.

## STATEMENT

Area Owned by Members of the Agri-

TOTAL

No.	Division and District.	1922-23.	1923-24.	1924-25.	1925-26.
	1	2	3	4	5
	<b>AMBALA.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>	<b>Acres.</b>
1	Hissar .. ..	2,395,429	2,389,418	2,380,211	2,384,747
2	Rohtak .. ..	1,147,228	1,146,458	1,145,776	1,143,692
3	Gurgaon .. ..	1,102,089	1,102,083	1,101,834	1,100,674
4	Karnal .. ..	1,279,847	1,279,893	1,281,031	1,279,811
5	Ambala .. ..	736,602	791,242	803,805	804,445
6	Simla .. ..	13,165	12,865	13,530	13,592
	<b>JULLUNDUR.</b>				
7	Kangra .. ..	840,256	844,607	844,913	843,253
8	Hoshiarpur .. ..	752,117	956,642	962,984	967,791
9	Jullundur .. ..	688,973	689,138	689,334	691,436
10	Ludhiana .. ..	739,304	739,479	739,077	738,868
11	Ferozepur .. ..	2,133,759	2,133,877	2,128,542	2,124,945
	<b>LAHORE.</b>				
12	Lahore .. ..	1,296,833	1,305,520	1,314,786	1,322,039
13	Amritsar .. ..	843,929	857,559	847,734	846,719
14	Gurdaspur .. ..	817,539	816,483	817,869	813,019
15	Sialkote .. ..	816,213	815,454	814,831	815,323
16	Gujranwala .. ..	1,095,576	1,100,364	1,104,508	1,108,455
17	Sheikhupura .. ..	1,036,458	1,037,764	1,010,427	1,054,973
	<b>RAWALPINDI.</b>				
18	Gujrat .. ..	1,082,422	1,084,032	1,087,205	1,079,787
19	Shahpur .. ..	1,675,888	1,361,825	1,389,692	1,383,301
20	Jhelum .. ..	1,096,270	1,095,679	1,097,359	1,097,431
21	Rawalpindi .. ..	835,336	837,322	785,717	786,788
22	Attock .. ..	1,937,010	1,937,010	1,935,951	1,944,850
23	Mianwali .. ..	1,302,501	1,305,443	1,263,625	1,263,625
	<b>MULTAN.</b>				
24	Montgomery .. ..	917,700	949,201	950,818	944,246
25	Lyallpur .. ..	1,122,545	1,131,828	1,136,274	1,147,767
26	Jhang .. ..	1,290,207	1,293,808	1,298,218	1,301,041
27	Multan .. ..	1,541,799	1,504,591	1,618,177	1,645,277
28	Muzaffargarh .. ..	1,806,071	1,836,248	1,836,248	1,816,731
29	Dera Ghazi Khan .. ..	2,623,790	2,631,449	2,635,992	2,623,059
	<b>Provincial Total</b> .. ..	<b>34,953,783</b>	<b>34,985,928</b>	<b>35,036,266</b>	<b>35,087,423</b>

Note.—Figures have been taken from Statement III.—“ General Statement of Area reports on the Land Revenue Administration

## VII.

## cultural Tribes in the Punjab.

## AREA.

1926-27.	Average for 5 years.	Area owned in the inquiry.	Percentage of area owned (col. 8) to average area (col. 7).	Division and District.	No.
6	7	8	9	1	
Acres.	Acres.	Acres.			
<b>AMBALA.</b>					
2,390,708	2,388,103	7,736	·32	Hissar .. ..	1
1,142,509	1,145,133	505	·04	Rohtak .. ..	2
1,101,508	1,101,634	2,964	·27	Gurgaon .. ..	3
1,280,324	1,280,181	1,867	·15	Karnal .. ..	4
805,807	788,380	1,987	·14	Ambala .. ..	5
13,498	13,330	..	..	Simla .. ..	6
<b>JULLUNDUR.</b>					
844,781	823,562	1,010	·12	Kangra .. ..	7
971,960	962,299	1,782	·19	Hoshiarpur .. ..	8
693,176	690,411	1,261	·19	Jullundur .. ..	9
739,094	739,184	267	·04	Ludhiana .. ..	10
2,115,466	2,127,278	6,865	·32	Ferozepur .. ..	11
<b>LAHORE.</b>					
1,330,596	1,313,955	1,457	·11	Lahore .. ..	12
846,719	848,479	1,441	·17	Amritsar .. ..	13
812,268	815,236	981	·12	Gurdaspur .. ..	14
815,994	815,523	1,386	·17	Sialkote .. ..	15
1,107,400	1,102,825	4,094	·37	Gujranwala .. ..	16
1,072,551	1,040,458	5,984	·57	Sheikhupura .. ..	17
<b>RAWALPINDI.</b>					
1,090,754	1,084,850	3,744	·35	Gujrat .. ..	18
1,381,789	1,438,499	16,086	1·11	Shahpur .. ..	19
1,102,207	1,095,789	1,494	·14	Jhelum .. ..	20
790,442	807,121	757	·09	Rawalpindi .. ..	21
1,971,035	1,945,171	3,404	·18	Attock .. ..	22
1,262,857	1,279,610	3,461	·27	Mianwali .. ..	23
<b>MULTAN.</b>					
843,313	921,056	4,564	·50	Montgomery .. ..	24
1,166,174	1,140,917	17,470	1·53	Lyallpur .. ..	25
1,304,319	1,297,479	18,315	1·41	Jhang .. ..	26
1,645,967	1,591,162	26,906	1·69	Multan .. ..	27
1,815,518	1,822,162	15,222	·84	Muzaffargarh .. ..	28
2,623,042	2,627,466	24,918	·95	Dera Ghazi Khan .. ..	29
<b>35,981,774</b>	<b>35,029,035</b>	<b>176,948</b>	<b>·50</b>	<b>Provincial Total.</b>	

Owned with Detail of portion thereof held on Usufructuary Mortgage," Column 6, of the in the Punjab, for the respective years.

## STATEMENT VIII.

Average Area Owned by Vendors before Sale.

No.	Division and District.	TOTAL.		CLASS A.		CLASS B.	
		Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.
	1	2	3	4	5	6	7
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<b>AMBALA.</b>							
1	Hissar .. ..	33·7	53·4	36·5	50·6	18·0	68·6
2	Rohtak .. ..	7·3	10·3	17·3	24·9	30·0	32·0
3	Gurgaon .. ..	17·2	22·0	17·7	22·0	12·0	12·0
4	Karnal .. ..	29·1	43·4	29·6	44·0	11·0	17·0
5	Ambala .. ..	20·9	22·2	19·1	23·1	7·3	7·6
6	Simla .. ..	..	..	..	..	..	..
<b>JULLUNDUR.</b>							
7	Kangra .. ..	10·4	15·5	9·7	15·2	11·5	16·0
8	Hoshiarpur .. ..	21·1	38·7	22·2	41·2	9·8	12·5
9	Jullundur .. ..	10·9	12·9	10·6	12·1	15·1	24·3
10	Ludhiana .. ..	9·4	9·9	9·4	9·9	..	..
11	Ferozepur .. ..	22·2	25·5	21·6	25·0	24·8	27·3
<b>LAHORE.</b>							
12	Lahore .. ..	27·8	35·5	28·3	35·9	24·0	33·0
13	Amritsar .. ..	15·4	16·8	10·2	10·7	31·4	35·6
14	Gurdaspur .. ..	25·8	28·2	27·2	29·4	11·0	16·3
15	Sialkote .. ..	17·7	19·8	18·0	21·0	9·7	25·6
16	Gujranwala .. ..	28·6	31·6	28·5	31·8	17·9	29·9
17	Sheikhupura .. ..	20·3	28·2	19·4	26·3	47·9	83·7
<b>RAWALPINDI.</b>							
18	Gujrat .. ..	22·3	29·0	22·9	29·8	11·7	13·4
19	Shahpur .. ..	37·5	52·7	37·4	45·0	37·7	69·2
20	Jhelum .. ..	22·8	38·3	22·8	38·3	..	..
21	Rawalpindi .. ..	9·3	12·0	9·3	12·0	..	..
22	Attock .. ..	28·3	60·8	34·3	84·3	17·4	40·4
23	Mianwali .. ..	23·8	44·4	14·8	28·3	48·4	87·9
<b>MULTAN.</b>							
24	Montgomery .. ..	31·6	49·1	33·4	53·6	27·4	38·1
25	Lyalpur .. ..	26·1	26·7	25·6	26·2	33·8	35·3
26	Jhang .. ..	20·8	30·6	18·1	39·1	31·4	46·7
27	Multan .. ..	18·5	28·9	15·6	26·8	19·4	34·9
28	Muzaffargarh .. ..	9·5	26·1	8·9	23·2	10·8	32·7
29	Dera Ghazi Khan .. ..	6·7	26·8	11·8	38·6	49·6	22·7
	<i>Provincial Average</i> .. ..	<i>18·5</i>	<i>30·6</i>	<i>19·9</i>	<i>30·0</i>	<i>14·5</i>	<i>31·9</i>

## STATEMENT IX.

Areas Sold expressed as Percentages of Areas Owned before Sale.

No.	Division and District.	TOTAL.		CLASS A.		CLASS B.	
		Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.
	1	2	3	4	5	6	7
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
<b>AMBALA.</b>							
1	Hissar .. ..	45	34	45	38	48	20
2	Rohtak .. ..	30	43	24	30	100	100
3	Gurgaon .. ..	37	40	37	34	50	50
4	Karnal .. ..	43	41	42	40	100	100
5	Ambala .. ..	28	30	27	29	64	65
6	Simla .. ..	..	..	..	..	..	..
<b>JULLUNDUR.</b>							
7	Kangra .. ..	18	15	18	15	12	10
8	Hoshiarpur .. ..	23	30	23	30	23	22
9	Jullundur .. ..	18	18	19	19	14	11
10	Ludhiana .. ..	19	21	19	21	..	..
11	Ferozepur .. ..	43	44	41	43	48	48
<b>LAHORE.</b>							
12	Lahore .. ..	49	51	51	55	28	24
13	Amritsar .. ..	27	28	32	32	21	23
14	Gurdaspur .. ..	32	32	33	33	7	5
15	Sialkote .. ..	26	27	25	27	48	20
16	Gujranwala .. ..	19	24	15	23	27	27
17	Sheikhpura .. ..	51	48	49	48	74	50
<b>RAWALPINDI.</b>							
18	Gujrat .. ..	16	18	17	18	20	18
19	Shahpur .. ..	32	28	38	34	19	18
20	Jhelum .. ..	13	9	13	9	..	..
21	Rawalpindi .. ..	18	16	18	16	..	..
22	Attock .. ..	17	11	11	6	25	20
23	Mianwali .. ..	49	47	26	22	69	69
<b>MULTAN.</b>							
24	Montgomery .. ..	52	51	49	49	61	60
25	Lyallpur .. ..	50	51	49	48	69	69
26	Jhang .. ..	24	22	24	23	29	25
27	Multan .. ..	24	26	24	25	26	28
28	Muzaffargarh .. ..	24	27	21	24	30	34
29	Dera Ghazi Khan .. ..	38	39	27	14	48	54
<i>Provincial Average</i> .. ..		34	33	34	30	36	39

## STATEMENT

*Sales and Permanent Transfers of Land in the Punjab*

No.	Division and District.	1922-23.	1923-24.	1924-25.	1925-26.
	1	2	3	4	5
	<b>AMBALA.</b>				
		Rs.	Rs.	Rs.	Rs.
1	Hissar ..	1,482,483	868,718	1,028,925	1,088,629
2	Rohtak ..	618,523	577,190	660,729	706,797
3	Gurgaon ..	311,541	362,194	344,473	402,822
4	Karnal ..	786,914	632,773	625,697	843,383
5	Ambala ..	1,021,882	881,849	831,948	970,784
6	Simla ..	97,291	126,067	116,884	85,140
	<b>JULLUNDUR.</b>				
7	Kangra ..	1,177,231	1,068,991	905,881	1,048,940
8	Hoshiarpur ..	1,192,956	1,410,505	2,143,040	1,670,625
9	Jullundur ..	2,050,507	2,853,479	2,379,982	3,292,343
10	Ludhiana ..	1,440,669	1,223,615	1,200,511	1,595,379
11	Ferozpur ..	2,650,020	2,992,519	3,803,950	3,739,700
	<b>LAHORE.</b>				
12	Lahore ..	1,259,077	4,871,335	7,722,648	10,898,003
13	Amritsar ..	1,175,583	1,610,978	2,474,865	2,011,031
14	Gurdaspur ..	791,839	620,400	677,090	891,313
15	Sialkote ..	830,969	959,098	752,720	1,154,024
16	Gujranwala ..	1,534,372	1,510,223	1,081,279	1,021,351
17	Sheikhupura ..	1,491,798	1,842,951	1,625,636	1,942,833
	<b>RAWALPINDI.</b>				
18	Gujrat ..	1,265,632	1,010,972	1,507,832	1,690,504
19	Shahpur ..	1,752,321	1,738,830	2,822,137	2,657,621
20	Jhelum ..	1,318,332	1,269,550	1,721,961	1,892,114
21	Rawalpindi ..	2,127,427	1,987,356	2,390,295	2,041,288
22	Attock ..	1,346,629	1,055,987	1,242,381	1,180,747
23	Mianwali ..	888,726	1,026,851	1,062,001	941,876
	<b>MULTAN.</b>				
24	Montgomery ..	1,325,122	1,193,192	3,228,706	2,763,712
25	Lyallpur ..	2,397,127	4,298,301	4,360,909	5,915,001
26	Jhang ..	1,597,795	1,099,014	1,473,373	1,689,630
27	Multan ..	2,896,420	3,905,214	2,829,858	4,354,072
28	Muzaffargarh ..	1,180,780	1,460,046	1,418,326	1,984,745
29	Dara Ghazi Khan ..	1,443,553	1,020,009	1,477,486	1,389,592
	<b>Provincial Total ..</b>	<b>39,528,469</b>	<b>45,476,205</b>	<b>54,181,533</b>	<b>62,764,009</b>

*Note.*—Figures have been taken from Statement XXIV.—“Sales and Permanent  
*transfers in the Punjab,*

X.

during the Quinquennium 1922-23 to 1926-27.

1926-27.	Total for 5 years.	Sale price of land in the inquiry.	Percentage of sale price (col. 8) to total (col. 7).	Division and District.	No.
6	7	8	9	1	
				<b>AMBALA.</b>	
Rs.	Rs.	Rs.		Hissar ..	1
1,811,040	6,277,805	140,008	2.23	Rohtak ..	2
899,715	3,462,954	60,450	1.74	Gurgaon ..	3
508,027	1,929,057	165,234	8.56	Karnal ..	4
751,905	3,640,872	63,083	1.73	Ambala ..	5
1,142,597	2,562,570	70,259	2.74	Simla ..	6
46,875	472,257	..	..		
				<b>JULLUNDUR.</b>	
1,053,314	5,254,357	46,899	.89	Kangra ..	7
2,164,341	8,581,467	74,968	.87	Hoshiarpur ..	8
3,618,361	14,194,672	126,534	.89	Jullundur ..	9
1,738,869	7,199,043	29,430	.40	Ludhiana ..	10
4,698,951	18,089,140	687,641	3.25	Ferozepur ..	11
				<b>LAHORE.</b>	
3,532,813	28,283,876	161,598	.56	Lahore ..	12
1,521,631	8,794,088	152,487	1.73	Amritsar ..	13
1,050,682	3,431,324	69,030	2.01	Gurdaspur ..	14
971,443	4,668,254	105,739	2.34	Sialkote ..	15
1,820,943	7,868,168	156,739	2.16	Gujranwala ..	16
2,725,507	9,628,915	1,062,132	11.03	Sheikhupura ..	17
				<b>RAWALPINDI.</b>	
1,445,065	6,920,005	148,046	2.11	Gujrat ..	18
2,461,056	11,431,966	1,676,075	14.66	Shahpur ..	19
1,640,660	7,842,617	24,121	.30	Jhelum ..	20
1,937,535	10,483,901	56,726	.54	Rawalpindi ..	21
1,030,564	5,856,308	34,702	.57	Attock ..	22
1,366,952	5,286,406	142,575	2.69	Mianwali ..	23
				<b>MULTAN.</b>	
2,545,479	11,056,211	526,757	4.76	Montgomery ..	24
4,917,913	21,888,351	6,542,362	29.88	Lyallpur ..	25
1,849,538	7,979,350	977,887	11.00	Jhang ..	26
3,852,205	17,837,769	1,467,620	8.22	Multan ..	27
1,617,979	7,680,976	259,980	3.39	Muzaffargarh ..	28
947,194	6,282,832	357,169	5.68	Dera Ghazi-Khan ..	29
<b>55,866,444</b>	<b>257,816,660</b>	<b>15,385,713</b>	<b>5.91</b>	<b>Provincial Total.</b>	

"Transfers of Land for Value," Column 21, of the reports on the Land Revenue Administration for the respective years.

STATEMENT XI.  
Average Sale Price per Acre.

No.	Division and District.	Total.	Class A.	Class B.
	1	2	3	4
	<b>AMBALA.</b>			
		Rs.	Rs.	Rs.
1	Hissar .. ..	52·9	54·9	38·2
2	Rohtak .. ..	277·2	273·9	296·9
3	Gurgaon .. ..	138·3	132·4	1,333·3
4	Karnal .. ..	83·0	83·5	58·8
5	Ambala .. ..	214·2	213·3	226·7
6	Simla .. ..	..	..	..
	<b>JULLUNDUR.</b>			
7	Kangra .. ..	302·6	147·9	718·7
8	Hoshiarpur .. ..	141·1	134·0	482·1
9	Jullundur .. ..	542·6	579·4	108·8
10	Ludhiana .. ..	516·3	516·3	..
11	Ferozepur .. ..	226·3	229·4	216·2
	<b>LAHORE.</b>			
12	Lahore .. ..	215·7	198·3	550·0
13	Amritsar .. ..	380·2	457·4	286·5
14	Gurdaspur .. ..	227·8	224·8	680·0
15	Sialkote .. ..	278·2	316·7	218·5
16	Gujranwala .. ..	158·8	169·3	115·9
17	Sheikhupura .. ..	371·3	369·9	384·6
	<b>RAWALPINDI.</b>			
18	Gujrat .. ..	218·1	220·6	781·2
19	Shahpur .. ..	377·8	392·5	340·2
20	Jhelum .. ..	190·4	190·4	..
21	Rawalpindi .. ..	461·1	461·2	..
22	Attock .. ..	92·7	112·4	81·9
23	Mianwali .. ..	87·4	166·7	65·4
	<b>MULTAN.</b>			
24	Montgomery .. ..	224·6	225·2	224·7
25	Lyalpur .. ..	626·8	746·8	686·4
26	Jhang .. ..	240·5	234·2	301·9
27	Multan .. ..	209·1	208·0	211·7
28	Muzaffargarh .. ..	62·1	81·4	40·4
29	Dera Ghazi Khan .. ..	36·6	98·3	26·7
	<i>Provincial Average</i> .. ..	<i>206·3</i>	<i>324·9</i>	<i>140·1</i>

## STATEMENT XII.

Number of Transactions of Less than One Acre.

No.	Division and District.	ALL SALES.				SALES WHERE VENDORS BECAME LANDLESS.			
		Class A.		Class B.		Class A.		Class B.	
		Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.	Culti- vated.	Total.
	1	2	3	4	5	6	7	8	9
<b>AMBALA.</b>									
1	Hissar .. ..	23	9	6	..	2	..	1	..
2	Rohtak .. ..	2	..	..	..	1	..	..	..
3	Gurgaon .. ..	12	3	..	..	3	..	..	..
4	Karnal .. ..	3	1	..	..	1	1	..	..
5	Ambala .. ..	5	1	..	..	2	2	..	..
6	Simla .. ..	..	..	..	..	..	..	..	..
<b>JULLUNDUR.</b>									
7	Kangra .. ..	7	4	6	6	..	..	2	2
8	Hoshiarpur ..	13	13	2	2	2	2	1	1
9	Jullundur* ..	53	49	4	4	2	2	3	3
10	Ludhiana* ..	10	9	..	..	3	2	..	..
11	Ferozepur* ..	57	46	5	2	19	12	1	1
<b>LAHORE.</b>									
12	Lahore† .. ..	20	20	..	..	1	..	..	..
13	Amritsar* ..	47	47	5	5	25	25	3	3
14	Gurdaspur* ..	12	11	..	..	..	..	..	..
15	Sialkote .. ..	14	11	..	..	1	1	..	..
16	Gujranwala ..	28	13	4	..	3	1	..	..
17	Sheikhpura* ..	46	39	1	..	11	6	..	..
<b>RAWALPINDI.</b>									
18	Gujrat .. ..	32	23	1	..	2	1	..	..
19	Shahpur .. ..	50	41	32	3	17	15	8	..
20	Jhelum .. ..	12	10	..	..	1	1	..	..
21	Rawalpindi ..	21	17	..	..	3	2	..	..
22	Attock .. ..	..	..	11	5	..	..	9	5
23	Mianwali* ..	28	23	4	4	12	9	..	..
<b>MULTAN.</b>									
24	Montgomery ..	4	..	2	..	1	..	..	..
25	Lyallpur .. ..	1	..	1	..	1	1	1	..
26	Jhang .. ..	114	39	11	7	11	3	2	..
27	Multan .. ..	304	153	101	53	83	39	25	12
28	Muzaffargarh ..	224	94	62	20	88	32	13	4
29	Dera Ghazi Khan†	241	177	965	252	52	41	367	62
<i>Provincial Total</i> ..		<i>1,393</i>	<i>853</i>	<i>1,223</i>	<i>363</i>	<i>347</i>	<i>193</i>	<i>436</i>	<i>92</i>

Note 1.—Districts marked thus (\*) give areas for sales of less than 1 acre.

Note 2.—Districts marked thus (†) give areas for sales of less than 1 acre in only a few cases.

Note 3.—Other districts show a blank for sales below an acre in area.

## STATEMENT

Vendors who became

No.	Division and District.	Vendees.	VENDORS.		ARBA	
			No.	Per cent.	Cultivated.	
					No.	Per cent.
	I	2	3	4	5	6
	<b>AMBALA.</b>				<b>Acres.</b>	
1	Hissar ..	23	39	26·8	1,410	63·3
2	Rohtak ..	5	5	25·0	54	50·0
3	Gurgaon ..	38	51	37·7	444	51·6
4	Karnal ..	11	12	27·8	263	49·2
5	Ambala ..	11	11	22·4	51	20·0
6	Simla ..	..	..	..	..	..
	<b>JULLUNDUR.</b>					
7	Kangra ..	9	21	32·3	37	30·8
8	Hoshiarpur ..	9	9	19·6	52	35·1
9	Jullundur ..	8	10	10·1	27	12·0
10	Ludhiana ..	4	6	22·2	11	5·6
11	Ferozepur ..	70	111	41·1	1,416	54·5
	<b>LAHORE.</b>					
12	Lahore ..	17	20	48·8	470	84·7
13	Amritsar ..	17	38	44·2	130	36·9
14	Gurdaspur ..	4	4	11·8	32	11·4
15	Sialkote ..	7	8	11·4	34	10·6
16	Gujranwala ..	10	14	10·7	73	11·1
17	Shaikhupura ..	91	106	50·0	1,632	74·6
	<b>RAWALPINDI.</b>					
18	Gujrat ..	11	17	13·1	70	14·9
19	Shahpur ..	94	99	32·5	2,656	73·6
20	Jhelum ..	4	4	12·6	10	8·4
21	Rawalpindi ..	7	7	11·1	4	37·0
22	Attock ..	9	15	26·8	72	29·5
23	Mianwali ..	14	27	34·6	135	14·7
	<b>MULTAN.</b>					
24	Montgomery ..	21	33	35·0	879	56·8
25	Lyallpur ..	284	292	44·7	4,652	54·3
26	Jhang ..	106	111	24·0	877	37·2
27	Multan ..	248	303	32·5	1,692	45·1
28	Muzaffargarh ..	74	206	35·3	453	34·1
29	Dera Ghazi Khan ..	71	555	59·9	1,140	47·9
	<b>Provincial Total ..</b>	<b>1,275</b> (42·0)	<b>2,134</b>	<b>36·9</b>	<b>18,776</b>	<b>50·9</b>

Note.—Percentages are with reference to figures for the respective districts in

## XIII.

*Landless after Sale.*

SOLD.		SALE PRICE.		Division and District.	No.
<i>Total.</i>		Amount.	Per cent.		
No.	Per cent.				
7	8	9	10	1	
<b>Acres.</b>		<b>Rs.</b>		<b>AMBALA.</b>	
1,594	60·2	49,102	35·1	Hissar ..	1
61	28·0	15,780	26·1	Rohtak ..	2
619	51·8	71,495	43·3	Gurgaon ..	3
392	51·6	36,434	57·7	Karnal ..	4
62	19·0	15,626	22·2	Ambala ..	5
..	..	..	..	Simla ..	6
				<b>JULLUNDUR.</b>	
51	32·9	26,587	43·6	Kangra ..	7
132	24·9	22,440	28·7	Hoshiarpur ..	8
33	14·1	12,878	10·2	Jullundur ..	9
15	26·3	11,023	37·5	Ludhiana ..	10
1,712	56·4	372,515	54·2	Ferozepur ..	11
				<b>LAHORE.</b>	
650	88·1	119,862	74·2	Lahore ..	12
147	36·6	50,233	32·9	Amritsar ..	13
34	11·2	8,200	11·0	Gurdaspur ..	14
36	9·5	18,586	17·7	Sialkote ..	15
119	12·1	17,983	11·5	Gujranwala ..	16
1,935	11·9	877,983	82·7	Sheikhpura ..	17
				<b>RAWALPINDI.</b>	
87	12·9	25,671	17·3	Gujrat ..	18
3,036	68·5	1,188,092	70·9	Shahpur ..	19
10	7·8	1,964	8·1	Jhelum ..	20
8	6·5	2,221	3·9	Rawalpindi ..	21
109	29·1	9,656	27·7	Attock ..	22
247	15·1	24,279	17·0	Mianwali ..	23
				<b>MULTAN.</b>	
1,107	47·2	369,183	70·1	Montgomery ..	24
4,791	54·2	3,412,921	61·6	Lyallpur ..	25
1,366	33·6	364,735	37·3	Jhang ..	26
3,133	44·7	632,021	43·1	Multan ..	27
1,496	35·7	91,243	35·1	Muzaffargarh ..	28
3,015	30·9	175,495	49·1	Dera Ghazi Khan ..	29
<b>25,997</b>	<b>44·5</b>	<b>8,024,203</b>	<b>52·2</b>	<b>Provincial Total.</b>	

the inquiry as a whole as given in Statement I.

## STATEMENT

Vendors of Class A. who became

No.	Division and District.	Vendees.	VENDORS.		AREA	
			No.	Per cent.	Cultivated.	
					No.	Per cent.
	1	2	3	4	5	6
	<b>AMBALA.</b>				<b>Acres.</b>	
1	Hissar ..	21	31	25·2	1,348	66·2
2	Rohtak ..	4	4	21·1	24	30·8
3	Gurgaon ..	38	51	38·1	444	51·9
4	Karnal ..	10	11	26·2	252	48·1
5	Ambala ..	9	9	19·6	39	16·4
6	Simla ..	..	..	..	..	..
	<b>JULLUNDUR.</b>					
7	Kangra ..	4	8	20·5	21	25·0
8	Hoshiarpur ..	8	8	19·1	52	24·1
9	Jullundur ..	5	7	7·6	27	14·8
10	Ludhiana ..	4	6	22·2	11	22·9
11	Ferozepur ..	61	92	44·1	1,098	56·1
	<b>LAHORE.</b>					
12	Lahore ..	14	17	47·2	446	85·4
13	Amritsar ..	12	31	47·7	102	47·4
14	Gurdaspur ..	4	4	12·9	32	11·5
15	Sialkote ..	5	6	14·6	18	9·6
16	Gujranwala ..	8	11	10·4	64	11·8
17	Sheikhupura ..	88	103	50·2	1,511	77·8
	<b>RAWALPINDI.</b>					
18	Gujrat ..	11	17	13·9	70	15·4
19	Shahpur ..	71	74	35·6	2,346	80·1
20	Jhelum ..	4	4	12·6	10	8·4
21	Rawalpindi ..	7	7	11·1	4	3·7
22	Attock ..	2	2	7·7	13	13·5
23	Mianwali ..	11	24	37·0	122	47·7
	<b>MULTAN.</b>					
24	Montgomery ..	17	22	33·3	548	50·6
25	Lyallpur ..	265	269	44·0	3,870	50·8
26	Jhang ..	98	104	24·3	728	36·2
27	Multan ..	189	223	31·7	1,166	45·2
28	Muzaffargarh ..	62	158	37·7	298	39·7
29	Dera Ghazi Khan ..	37	100	42·0	251	33·8
	<b>Provincial Total ..</b>	<b>1,069</b> (40·0)	<b>1,397</b>	<b>33·1</b>	<b>14,919</b>	<b>52·1</b>

Note.—Percentages are with reference to figures for the respective

## XIV.

## Landless after Sale.

SOLD.		SALE PRICE.		Division and District.	No.
Total.		Amount.	Per cent.		
No.	Per cent.				
7	8	9	10	1	
Acre.		Rs.			
1,456	62.2	45,675	35.6	<b>AMBALA.</b>	
29	15.6	6,280	12.3	Hissar ..	1
619	52.1	71,495	45.5	Rohtak ..	2
375	50.5	35,434	57.1	Gurgaon ..	3
49	15.7	12,426	18.6	Karnal ..	4
..	..	..	..	Ambala ..	5
				Simla ..	6
				<b>JULLUNDUR.</b>	
30	26.5	3,192	19.1	Kangra ..	7
132	25.4	21,770	31.2	Hoshiarpur ..	8
33	15.4	12,578	10.1	Jullundur ..	9
15	26.3	11,023	37.5	Ludhiana ..	10
1,369	58.7	300,385	56.1	Ferozepur ..	11
				<b>LAHORE.</b>	
625	88.2	111,013	79.5	Lahore ..	12
118	53.7	39,888	39.4	Amritsar ..	13
34	11.3	8,200	12.1	Gurdaspur ..	14
20	8.7	11,531	15.8	Saikhot ..	15
108	11.1	16,768	12.5	Gujranwala ..	16
1,798	70.0	787,583	82.9	Sheikhupura ..	17
				<b>RAWALPINDI.</b>	
87	13.2	25,671	17.7	Gujrat ..	18
2,502	78.3	1,012,913	80.7	Shahpur ..	19
10	7.8	1,964	8.1	Jhelum ..	20
8	6.5	2,221	3.9	Rawalpindi ..	21
13	9.7	1,055	7.0	Attock ..	22
226	48.9	22,943	30.3	Mianwali ..	23
				<b>MULTAN.</b>	
730	42.3	268,212	69.3	Montgomery ..	24
3,970	50.6	2,556,621	48.8	Lyalpur ..	25
1,206	33.1	299,390	35.1	Jhang ..	26
1,856	40.8	402,765	40.4	Multan ..	27
848	38.3	67,786	37.6	Muzaffargarh ..	28
401	29.6	59,477	44.8	Dera Ghazi Khan ..	29
<b>18,767</b>	<b>48.1</b>	<b>6,516,059</b>	<b>61.4</b>	<b>Provincial Total.</b>	

districts as given in Statement II.

## STATEMENT

Vendors of Class B. who became

No.	Division and District.	Vendees.	VENDORS.		AREA	
			No.	Per cent.	Cultivated.	
					No.	Per cent.
	1	2	3	4	5	6
	<b>AMBALA.</b>				<b>Acres.</b>	
1	Hissar ..	2	8	36.4	62	31.2
2	Rohtak ..	1	1	100.0	30	100.0
3	Gurgaon ..	..	..	..	..	..
4	Karnal ..	1	1	100.0	11	100.0
5	Ambala ..	2	2	66.6	12	85.7
6	Simla ..	..	..	..	..	..
	<b>JULLUNDUR.</b>					
7	Kangra ..	5	13	50.0	16	44.4
8	Hoshiarpur ..	1	1	25.0	..	..
9	Jullundur ..	1	2	42.9	..	..
10	Ludhiana ..	..	..	..	..	..
11	Ferozepur ..	9	19	35.4	318	49.7
	<b>LAHORE.</b>					
12	Lahore ..	3	3	60.0	24	72.7
13	Amritsar ..	5	7	33.3	28	20.4
14	Gurdaspur ..	..	..	..	..	..
15	Sialkote ..	2	2	6.9	16	11.9
16	Gujranwala ..	2	3	12.5	9	7.9
17	Sheikhupura ..	3	3	42.9	121	9.0
	<b>RAWALPINDI.</b>					
18	Gujrat ..	..	..	..	..	..
19	Shahpur ..	23	25	25.8	310	45.5
20	Jhelum ..	..	..	..	..	..
21	Rawalpindi ..	..	..	..	..	..
22	Attock ..	7	13	43.3	59	39.9
23	Mianwali ..	3	3	23.0	13	2.0
	<b>MULTAN.</b>					
24	Montgomery ..	4	11	40.7	331	73.9
25	Lyallpur ..	19	23	56.1	782	83.3
26	Jhang ..	8	7	20.0	149	46.3
27	Multan ..	59	93	27.8	526	45.0
28	Musaffargarh ..	12	54	30.0	155	26.9
29	Dera Ghazi Khan ..	34	455	66.1	889	54.4
	<b>Provincial Total ..</b>	<b>206</b> (56.3)	<b>737</b>	<b>47.1</b>	<b>3,361</b>	<b>46.8</b>

Note.— Percentages are with reference to figures for the respective

## XV.

*Landless after Sale.*

SOLD.		Sale Price.		Division and District.	No.
Total.		Amount.	Per cent.		
No.	Per cent.				
7	8	9	10	1	
Acres.		Rs.		<b>AMBALA.</b>	
138	45.5	3,427	29.6	Hisar ..	1
32	100.0	9,500	100.0	Rohtak ..	2
..	..	..	..	Gurgaon ..	3
17	100.0	1,000	100.0	Karnal ..	4
13	86.6	3,200	94.1	Ambala ..	5
..	..	..	..	Simla ..	6
				<b>JULLUNDUR.</b>	
21	50.0	23,395	77.5	Kangra ..	7
..	..	670	12.6	Hoshiarpur ..	8
..	..	300	15.3	Jullundur ..	9
..	..	..	..	Ludhiana ..	10
343	48.7	72,130	47.4	Ferozepur ..	11
				<b>LAHORE.</b>	
25	62.5	8,849	40.2	Lahore ..	12
29	18.0	10,545	20.3	Amritsar ..	13
..	..	..	..	Gurdaspur ..	14
16	10.8	7,055	21.8	Sialkot ..	15
11	5.7	1,215	5.4	Gujranwala ..	16
137	46.9	90,400	80.5	Sheikhupura ..	17
				<b>RAWALPINDI.</b>	
..	..	..	..	Gujrat ..	18
534	43.0	175,179	41.6	Shahpur ..	19
..	..	..	..	Jhelum ..	20
..	..	..	..	Rawalpindi ..	21
96	40.0	8,601	43.8	Attock ..	22
21	1.8	1,336	3.0	Mianwali ..	23
				<b>MULTAN.</b>	
377	60.7	100,971	72.4	Montgomery ..	24
821	82.1	556,300	81.0	Lyallpur ..	25
160	38.5	65,345	52.4	Jhang ..	26
1,177	52.4	229,256	48.9	Multan ..	27
648	32.8	23,457	29.0	Muzaffargarh ..	28
2,614	40.7	116,018	51.8	Dera Ghazi Khan ..	29
<b>7,339</b>	<b>37.3</b>	<b>1,508,149</b>	<b>55.6</b>	<b>Provincial Total ..</b>	

districts as given in Statement III.

## APPENDIX A.

**THE PUNJAB ALIENATION OF LAND ACT  
ACT XIII OF 1900.**

SECTIONS RELATING TO SALES OF LAND ONLY.

AN ACT TO AMEND THE LAW RELATING TO AGRICULTURAL LAND IN THE PUNJAB.

WHEREAS it is expedient to amend the law relating to agricultural land in the Punjab ; it is hereby enacted as follows :—

PRELIMINARY.

Short title,  
extent and  
commence-  
ment.

1. (1). This Act may be called the Punjab Alienation of Land Act, 1900.

(2). It extends to all the territories for the time being administered by the Governor of the Punjab ; and

(3). It shall come into force on such day as the Governor-General in Council may, by notification in the Gazette of India, direct.\*

Definitions.

2. In this Act, unless there is anything repugnant in the subject, or context,—

(1). repealed ;

XVI of 1887.  
XVII of 1887.

(2). all expressions which are defined by section 4 of the Punjab Tenancy Act, 1887, or by section 3 of the Punjab Land Revenue Act, 1887, shall, subject to the provisions of this Act, have the meanings assigned to them in the said sections respectively ; and the expressions “ record-of-rights ” and “ annual record ” shall have the meanings assigned to them respectively in Chapter IV. of the said last-mentioned Act ;

(3). the expression “ land ” means land which is not occupied as the site of any building in a town or village and is occupied or let for agricultural purposes or for purposes subservient to agriculture or for pasture, and includes—

(a). the sites of buildings and other structures on such land ;

(b). a share in the profits of an estate or holding ;

(c). any dues or any fixed percentage of the land revenue payable by an inferior landowner to a superior landowners ;

---

\*The Act came into force on the 8th June, 1901.

- (d). a right to receive rent ; and
- (e). any right to water enjoyed by the owner or occupier of land as such ;
- (f). any right of occupancy.

(4). The expression " permanent alienation " includes sales, exchanges, gifts, wills and grants of occupancy rights ;

(5). the expression " usufructuary mortgage " means a mortgage by which the mortgagor delivers possession of the mortgaged land to the mortgagee and authorizes him to retain such possession until payment of the mortgage money, and to receive the rents and profits of the land and to appropriate them in lieu of interest or in payment of the mortgage-money or partly in lieu of interest and partly in payment of the mortgage-money ; and

(6). the expression " conditional sale " includes any agreement whereby in default of payment of the mortgage money or interest at a certain time the land will be absolutely transferred to the mortgagee.

2-A. Notwithstanding anything contained in sections 53 and 54 of the Punjab Tenancy Act, 1887, when a landlord makes a claim to exercise the rights thereby conferred upon him the provisions of this Act shall apply thereto.

XVI of 1887.  
Application of  
Act to sec-  
tions 53 & 54  
Act XVI.,  
1887.

#### PERMANENT ALIENATION OF LAND.

3. (1). A person who desired to make a permanent alienation of his land shall be at liberty to make such alienation where—

Sanction of  
Deputy Com-  
missioner re-  
quired to cer-  
tain perma-  
nent alien-  
ations.

- (a). the alienor is not a member of an agricultural tribe ; or

\* \* \* \*

- (c). the alienor is a member of an agricultural tribe and the alienee is a member of the same tribe or of a tribe in the same group :

\* \* \* \*

(2). Except in the cases provided for in sub-section (1), a permanent alienation of land shall not take effect as such unless and until sanction is given thereto by a Deputy Commissioner :

Provided that—

(1). sanction may be given after the act of alienation is otherwise completed, and

(2). sanction shall not be necessary in the case of—

(a). a sale of a right of occupancy by a tenant to his landlord, or

(b). a gift made in good faith for a religious or charitable purpose, whether *inter vivos* or by will.

(3). The Deputy Commissioner shall inquire into the circumstances of the alienation and shall have discretion to grant or refuse the sanction required by subsection (2).

Agricultural tribes.

(4). The local Government shall, by notification in the local official Gazette, determine what bodies of persons in any district or group of districts are to be deemed to be agricultural tribes or groups of agricultural tribes for the purposes of this Act.

Saving for rights in land alienated.

(5). When a Deputy Commissioner sanctions a permanent alienation of land, his order shall not be taken to decide or affect any question of title, or any question relating to any reversionary right or right of pre-emption.

\* \* \* \*

#### GENERAL PROVISIONS.

Effect of permanent alienation made without sanction.

14. Any permanent alienation which under section 3 is not to take effect as such until the sanction of a Deputy Commissioner is given thereto shall until such sanction is given, or if such sanction has been refused, take effect as a usufructuary mortgage in form (a), permitted by section 6 for such term not exceeding twenty years and on such conditions as the Deputy Commissioner considers to be reasonable.

Sanction of Deputy Commissioner required to certain alienations of or charges on produce of land.

15. Every agreement whereby a member of an agricultural tribe purports to alienate or charge the produce of his land or any part of, or share in, such produce for more than one year shall not take effect for more than one year from the date of the agreement unless the sanction of a Deputy Commissioner is given thereto, and shall, until such sanction is given or if such sanction is refused, take effect as if it had been made for one year.

Explanation.—The produce of land means—

(a). crops and other products of the earth standing or ungathered on the holding ;

- (b). crops and other products of the earth which have been grown on the land during the past year and have been reaped or gathered.

16. (1). No land belonging to a member of an agricultural tribe shall be sold in execution of any decree or order of any Civil or Revenue Court, whether made before or after the commencement of this Act. Execution sale of land forbidden.

(2). Nothing in this section shall affect the right of Government to recover arrears of land revenue or any dues which are recoverable as arrears of land revenue, in any manner now permitted by law.

\* \* \* \*

18. (1). Where, by reason of any transaction which under this Act requires the sanction of a Deputy Commissioner, a person claims to have acquired a right the acquisition whereof he is bound to report under section 34 of the Punjab Land Revenue Act, 1887, such person shall in making his Report, state whether the sanction required has been obtained or not, and his right so acquired shall not be entered in the record-of-rights or in any annual record until he produces such evidence of the order by which such sanction is given as may be required by any rules made under this Act. Record-of-rights and annual record.

XVII.  
of 1887.

(2). No right claimed by reason of any transaction or condition which is declared by this Act to be null and void shall be entered in the record-of-rights or in any annual record.

\* \* \* \*

21-A. (1). Notwithstanding anything contained in the Code of Civil Procedure\* or in any other Act for the time being in force, every Civil Court which passes a decree or order involving (a) the permanent alienation of his land by a member of an agricultural tribe. . . shall send to the Deputy Commissioner a copy of such decree or order. Civil Court to send copy of decree or order to Deputy Commissioner.

(2). When it appears to the Deputy Commissioner that any Civil Court has either before or after the date when this section comes into operation, passed a decree or order contrary to any of the provisions of this Act, the Deputy Commissioner may apply for the revision of such decree or order to the court, if any, to which an appeal Action to be taken by Deputy Commissioner when decree or order passed contrary to Act.

\*New Act V of 1908.

would lie from such decree or order or in which an appeal could have been instituted at the time when the decree or order was passed or in any other case to the High Court. And when the Court finds that such decree or order is contrary to any of the provisions of this Act it shall alter it so as to make it consistent with this Act. Such application shall be made within two months of the date upon which the Deputy Commissioner is informed of such decree or order.

(3). When any such appellate Court passes an order rejecting such application the Deputy Commissioner may, within two months after the date upon which he is informed of such order apply to the High Court for revision thereof.

(4). Every Civil Court which passes an order on any application made under this section shall forthwith send a copy thereof to the Deputy Commissioner.

\* \* \* \*

**Exercise of powers of Deputy Commissioners.** 23. The powers conferred by this Act upon a Deputy Commissioner may be exercised by a Revenue Officer of higher rank, or by any officer authorised by the Local Government in this behalf.

**Exemption.** 24. The local Government may, by notification\* in the local official Gazette, exempt any district or part of district or any person or class of persons from the operation of this Act or of any of the provisions thereof.

**Power to make rules.** 25. (1). The local Government may make rules† for carrying into effect the purposes of this Act.

(2). In particular and without prejudice to the generality of the foregoing power, the local Government may make rules prescribing the Revenue officers to whom applications may be made, and the manner and form in which such applications shall be made and disposed of.

\*For districts exempted under this section see Punjab Gazette, 1901, pt. I. p. 1098; *ibid*, 1902, pt. I. p. 418; and for notification exempting every area included in any Cantonment or Municipality except those in Simla District from the operation of the provisions of this Act, except sec. 1, sec. 2 (1), (2), (3) and (4), secs. 4, 10, 16 and 18 (2) and secs. 21 (2) and 24, see *ibid*.

† For the rules under this section see Punjab Gazette, 1901, pt. I. p. 1176. Gazette of India, 1904, pt. II. pp. 226-27.

## APPENDIX B.

## INSTRUCTIONS ISSUED TO REVENUE STAFF.

*Copy of a letter from the Director of Land Records, Punjab, to all the Deputy Commissioners, Settlement Officers in the Punjab and the Colonization Officer, Nilibar at Pakpattan.*

“I have the honour to forward herewith forms of a special statement about sale of agricultural land by members of notified agricultural tribes to other members of such tribes. Two sets of annual figures for the last five years are to be entered in this statement for those vendees who, according to the lists of voters prepared in 1927 for Council Elections, pay over Rs. 100/- and over Rs. 500/- land revenue, Statement A. being for the former and B. for the latter.

If there are any other members of agricultural tribes who pay less at present but who are known to be acquiring land frequently from members of agricultural tribes they should also be added. In their case the amount of land revenue paid by them will be given in column 1, the name of the other *tahsils* and districts in which they own land being also added.

The names of all those who pay over Rs. 100/- and 500/- land revenue should be sent by *Tahsildars* to *patwaris*, who can add the names of others referred to above. The *kanungos* should get these statements prepared by *patwaris* under their own supervision from the mutation registers, but *patwaris* should not be collected at one place for the purpose. The statements will be sent to *tahsils* before the middle of June next. The *Tahsildars* and *Naib Tahsildars* will examine them, make further enquiries personally during the months of June, July and August, and finally check them with reference to the mutation registers in September, when all the *patwaris* and *kanungos* will be in the *tahsil* and when the local knowledge of the whole staff can be utilised. Where



# The Board of Economic Inquiry, Punjab.

**RURAL SECTION PUBLICATION—25.**

(GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.)

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## **COST OF MILK PRODUCTION AT LYALLPUR, PUNJAB.**

BY

D. P. JOHNSTON, A.R.C.Sc.I., N.D.A.,

AND

S. KARTAR SINGH, B.Sc., N.D.D., L.A.G.

[The Board of Economic Inquiry, Punjab, does not hold itself responsible for any opinions expressed or conclusions reached by the writers.]

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## FOREWORD.

The present inquiry was suggested by the unsatisfactory state of the milk supply in certain Punjab towns where the supply had been subjected to a systematic study. These investigations indicated that the supply generally was unequal to the demand, that it was produced under most insanitary conditions, and that it was marketed in a way which left much to be desired. Before, however, making any attempt to improve matters, it was considered that a careful study of the economic side of the subject was desirable. To obtain reliable data for this purpose was, however, a difficult matter, as private producers were reluctant to keep proper records and ordinarily could only supply vague information which was of little value for our purpose. We were, therefore, forced to fall back on the Agricultural College Dairy herd in order to obtain data for working out the cost of production given in the report.

Another point in favour of conducting the inquiry in the College Dairy was the necessity of devising a working method, or scheme, which could be applied generally in subsequent inquiries. With everything under our own control and with complete, reliable data upon which to work, this was possible, whilst with data obtained from private producers it might not have been possible.

When working out labour costs, we have charged for all labour, used in the production of milk, at local rates, but have made no charge for supervision. This is the procedure followed in similar inquiries recently conducted in England; the net profit obtained from the business being looked upon as the owner's payment for his services to the business.

This, however, is only in the nature of a preliminary inquiry, which it is hoped to follow up with others, if we can interest private producers sufficiently to induce them to keep complete and accurate records for us.

D. P. JOHNSTON,  
*Principal and Professor of Agriculture,  
Punjab Agricultural College, Lyallpur.*

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## COST OF MILK PRODUCTION AT LYALLPUR, PUNJAB.

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1. *General.*—The milk supply of certain towns in the Punjab has been studied by various writers during the past few years.\* Their inquiries were mainly directed towards obtaining information on the following points :—

- (a). Sources of supply.
- (b). Quality and quantity of milk available.
- (c). Means and methods of transport and distribution.
- (d). Price of milk to the consumer.

The inquiries indicated that the supply was far from satisfactory, that the industry had been allowed to develop haphazard without any official attempt at control or regulation, and that the problem of effecting improvement was mainly an economic one.

It naturally follows that if any improvement is to be brought about production must be made profitable. As profits depend on the extent to which milk can be produced below the selling price, and as producers in their present unorganized state are unable to control the sale price, their efforts must be mainly directed towards reducing the costs of production. So far as the writers are aware, no data has yet been published in India giving detailed information on the cost of milk production.

2. *Scope of Inquiry.*—The present inquiry was taken up with a view to obtaining information which could be utilised to develop methods of recording and analysing all data entering into the cost of production.

3. *Collection of Data.*—Owing to the difficulty of obtaining reliable figures from private producers it was decided, at any rate to start with, that an inquiry should be conducted at the Agricultural College Dairy Farm, Lyallpur, where complete and accurate records could be obtained without difficulty.

- \* (i). "A paper on the Milk Supply of Lahore in 1921," by *Shiva Datta*, M.A. (Board of Economic Inquiry, Punjab, Rural Section Publication, now replaced by (iii), below).
- (ii). "Report on a Preliminary Survey of the Milk Supply of Lyallpur," by *S. Lakh Singh*, B.Sc., L. Ag. (Board of Economic Inquiry, Punjab, Rural Section Publication No. 22.)
- (iii). "Report on the Milk Supply of Lahore in 1930," by *Roshan Lal*, M.A., and *Prof. A. C. Apparwalla*, B.Sc., M.R.C.V.S. (Board of Economic Inquiry, Punjab, Rural Section Publication, in press).

4. *Period of Inquiry.*—Records were maintained during the year 1st April, 1930, to the 31st March, 1931.

5. *Strength of Herd.*—The strength of the herd at the commencement and close of the year was as follows :—

		1st April, 1930.	31st March, 1931.
Mature cows	..	21	21
Bulls	..	1	1
Young stock :—			
Below 1 year	..	10	2
1 to 2 years	..	2	9
2 „ 3 „	..	7	3
3 years and over	..	10	13
<i>Total</i>	..	<u>51</u>	<u>49</u>

6. *Breed of Cows.*—The whole herd is of the Montgomery breed.

7. *Pasturage and Fodder Supply.*—There is no real pasture land available for grazing, but the cows were taken out daily for exercise to a piece of waste land about one mile away from the dairy buildings. A block of canal irrigated land about 18 acres in area is available for the production of fodder crops, and on this area a regular supply of green fodder is available throughout the year ; the herd is thus entirely stall fed.

8. *Milk Records.*—The system of weaning calves at birth has been successfully practised in the herd for the past 17 years ; the calves are fed by hand and thus full and accurate records of the milk yield per cow can be maintained.

9. *Disposal of Calves.*—As a general rule, only calves from the best cows are reared, the others being sold at birth to the local *Gowshala* (institution for the preservation of the cow) at the rate of Re. 1/- for males and Rs. 2/- for females.

10. *Cost Methods.*—One of the following methods is usually adopted for working out the costs of production :—

*The herd basis.*—With this method the whole dairy farm is taken as the unit. The complete expenditure incurred in maintaining all animals, young and old, being included in the “Cost of production” figure. By some writers this is not considered correct as any profit or loss made in rearing the young stock will affect the cost of producing the milk.

*The cow basis.*—According to this method the rearing of the young stock and the production of milk are considered as two separate enterprises ; only the milk producing herd, consisting of all mature cows and the herd bull, being taken as the unit for milk production purposes. The value of calves at birth is credited to milk production ; the cost of feeding the cows during pregnancy and also the bull being charged to milk production.

This latter method has been used by us for working out the costs of production in this case.

11. *Analysis of Costs of Production.*—The various items entering into the cost of production are as follows :—

- (a). Feed.
- (b). Man labour.
- (c). Bullock labour.
- (d). Buildings.
- (e). Equipment.
- (f). Cow cost.
- (g). Bull cost.
- (h). Miscellaneous.

12. *Feed.*—This is the most important single item of cost ; it is further sub-divided into concentrates, green fodder, *bhusa* (straw) and salt.

Statement I. shows the quantities of the different foods consumed during the year and their cost.

#### STATEMENT I.

*Showing Quantities and Values of the Foodstuffs Used.*

Feed.	Quantity consumed.			Value.			Average price per maund.		
	Mds.	Sr.	Ch.	Rs.	a.	p.	Rs.	a.	p.
Concentrates .. ..	647	24	4	1,404	5	0	2	2	8
Green fodder .. ..	4,423	33	0	1,105	15	4	0	4	0
Bhusa .. ..	337	25	0	219	8	11	0	10	5
Salt .. ..	15	33	0	42	5	11	2	10	10
<i>Total</i> .. ..	<i>5,424</i>	<i>35</i>	<i>4</i>	<i>2,772</i>	<i>3</i>	<i>2</i>	..		

Concentrates and *bhusa* were purchased and have been valued at their cost price delivered at the farm. All the green fodder was grown on the farm and has been valued at the local market rate, *i.e.*, 4 annas per maund.

*Concentrates.*—This forms the largest item of feed cost, representing about 50 per cent. of the total expenditure under this head.

Statement II. on the next page shows the quantities and values of the various concentrates used ; also the percentage which each bears to the total for both quantity and value.

The quantity of bran fed was 54·71 per cent. of the total concentrates consumed, but being the cheapest food, it cost only 37·39 per cent. of the total amount spent. Gram was second in importance, the quantity consumed being 25·57 per cent. of the total ; but being more expensive its cost worked out at 40·67 per cent. of the total cost. The other concentrates used were *toria* (rape) cake, cotton seed, barley and maize. Barley was fed only during July, August and September, as it is supposed to have a cooling effect on the animals ; cotton seed on the other hand was fed during the winter months from December to March, as it is believed to be a heating food ; *toria* cake was fed from April to November. Maize was not considered important from a milk production point of view, and was only fed as it happened to be lying in the store surplus from the previous year. Bran and gram were fed throughout the year in the ratio of almost 2 to 1.

On the average 60·54 lbs. of concentrates costing 25·62 annas were required to produce 100 lbs. of milk. This cost for concentrates is rather higher than in England,\* but may be accounted for by the absence of pasture and lack of nourishing roughage here. *Bhusa* cannot be compared from a nutrient point of view with English hay, hence the quantity of concentrates required is greater. If more green fodder were available the quantity of concentrates required could probably be reduced.

---

\* *Vide.* "Dairy Farming in the Blackmore Vale," by *Bassett, Pringle and Thomas* (Department of Agricultural Economics, University of Reading).

## STATEMENT II.

*Showing the Quantities and Values of the Concentrates Used.*

Foodstuff.	Total quantity consumed.	Total cost.	Average price per maund.	Quantity consumed per 100 lbs. of milk produced.	Cost per 100 lbs. of milk produced.	Percentage of total quantity of concentrates consumed.	Percentage of total value of concentrates consumed.
	Md. Sr. Ch.	Rs. a. p.	Rs. a. p.	lbs.	Annas.	Per cent.	Per cent.
Wheat bran .. ..	354 12 0	525 13 1	1 7 8	33·12	9·58	54·71	37·39
Gram .. ..	165 23 14	570 7 4	3 7 1	15·48	10·42	25·57	40·07
Toria cake .. ..	49 22 0	134 11 11	2 11 6	4·63	2·46	7·65	9·60
Cotton seed .. ..	37 22 0	58 4 8	1 8 10	3·51	1·06	5·79	4·14
Maize .. ..	7 0 0	22 12 0	3 4 0	0·66	0·42	1·09	1·64
Barley .. ..	33 24 0	92 4 0	2 11 11	3·14	1·68	5·10	6·56
<i>Total</i> .. ..	<i>647 24 4</i>	<i>1,404 5 0</i>	<i>2 2 8</i>	<i>60·54</i>	<i>25·62</i>	<i>100·00</i>	<i>100·00</i>

*Green Fodder.*—Statement III. on the next page shows the quantity and value of the different fodders fed in different months during the year. Maize and *chari* were the chief fodders fed in summer with *berseem* and oats in the winter; other fodders used were turnips, *sarson* (rape-seed), and Sudan grass. The value of these fodders represents about 40 per cent. of the total feed cost; 413·58 lbs. of green fodder being required to produce 100 lbs. of milk.

*Bhusa.*—The value of the *bhusa* consumed comes to 8 per cent. of the total feed cost; 31·56 lbs. being required to produce 100 lbs. of milk.

*Salt.*—15 maunds 33 seers of salt, costing Rs. 42/5/11 was used during the year. Thus 1·48 lbs. of salt costing 0·77 annas were required for each 100 lbs. of milk produced. The value of this commodity was only 1·52 per cent. of the total feed cost.

Statement IV. below summarises the quantities and values of the foodstuffs used :—

#### STATEMENT IV.

*Showing Quantities and Values of the Foodstuffs Used per 100 lbs. of Milk.*

Foodstuffs.	Total quantity.			Total value.		Quantity per 100 lbs. of milk.	Cost per 100 lbs. of milk produced.	Percentage of total quantity of feed.	Percentage of total value of feed.
	Mds.	Srs.	Ch.	Rs.	a. p.				
						lbs.	Annas.	Per cent.	Per cent.
Concentrates ..	647	24	4	1,404	5 0	60·54	25·62	11·94	50·67
Green fodder ..	4,423	33	0	1,105	15 4	413·58	20·17	81·55	39·90
Bhusa ..	337	25	0	219	8 11	31·56	4·00	6·22	7·91
Salt ..	15	33	0	42	5 11	1·48	0·77	0·29	1·52
<i>Total</i> ..	<i>5,424</i>	<i>35</i>	<i>4</i>	<i>2,772</i>	<i>8 2</i>	<i>507·16</i>	<i>50·56</i>	<i>100·00</i>	<i>100·00</i>

These figures show that on the average the following quantities of foodstuffs were required to produce 100 lbs. of milk :—

	lbs.
Concentrates ..	60·54
Green fodder ..	413·58
Bhusa ..	31·56
Salt ..	1·48

**STATEMENT III.**  
*Showing the Quantities and Values of the Different Fodders Used.*

Month.	Berseem.	Oats.	Turnips.	Raya.	Sarson.	Maize.	Chari.	Sudan grass.	Total quantity consumed.	Total value.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Rs. a. p.
April .. ..	18,984	18,984	..	..	..	..	..	..	37,968	115 12 1
May .. ..	12,770	11,396	..	..	..	2,152	..	1,137	27,455	83 11 4
June .. ..	..	..	..	..	..	7,165	10,552	1,673	19,390	59 3 5
July .. ..	..	..	..	..	..	7,520	14,230	..	21,750	66 5 0
August .. ..	..	..	..	..	..	15,254	3,054	1,360	19,668	59 15 6
September .. ..	..	..	..	..	..	7,910	13,958	..	21,868	66 10 10
October .. ..	..	..	..	..	..	19,032	7,556	..	26,588	81 1 0
November .. ..	..	..	..	..	7,018	23,216	..	..	30,234	92 2 11
December .. ..	648	..	15,474	4,348	5,045	12,854	..	..	38,369	116 15 8
January .. ..	27,333	1,210	..	..	..	..	..	..	28,543	87 0 4
February .. ..	13,983	26,868	..	..	..	..	..	..	40,851	124 8 8
March .. ..	44,359	5,674	..	..	..	..	..	..	50,033	152 8 7
<i>Total</i> .. ..	<i>118,077</i>	<i>64,132</i>	<i>15,474</i>	<i>4,348</i>	<i>12,063</i>	<i>96,103</i>	<i>49,350</i>	<i>4,170</i>	<i>362,717</i>	<i>1,106 15 4</i>

Thus the total cost of feed required to produce 100 lbs. of milk works out at 50·56 annas. This forms 48·54 per cent. of the total cost of production as given in Statement VII. on page 11.

13. *Manual Labour.*—Six men were employed to look after the cows and do the feeding work. Their wages amounted to Rs. 1,087/5/1 or Rs. 2/15/8 per day. Taking a full working day as 8 hours, 100·39 days were required per cow, and 2·40 days per 100 lbs. of milk produced. The labour cost per 100 lbs. of milk thus amounted to 19·38 annas, and forms 19·04 per cent. of the total cost of milk production. This is considered high here but on comparing it with the average cost of labour on 107 dairy farms in the Blackmore Vale,\* viz., Rs. 2/8/0 per 100 lbs. of milk, it would seem to be low.

14. *Bullock Labour.*—Two pairs of bullocks were maintained in the Dairy; these were mainly employed in cultivating the land used for growing fodders and also for carting the fodders to the Dairy. They were also employed in working a bullock-driven chaff-cutter used for chaffing the fodder. The total time spent on this work was 37·61 days of one pair of bullocks. The cost per day works out at 45·096 annas, so the total cost debitable to milk production is Rs. 106/- or 1·93 annas per 100 lbs. of milk. This represents 1·86 per cent. of the total cost of production. It may be noted that the largest proportion of the bullock labour is debitable to the production of green fodder. This has been valued at 4 annas per maund, the average local market rate during the year.

15. *Buildings.*—The value of the buildings at present day figures is Rs. 4,601/- or nearly Rs. 220/- per cow. These are model dairy buildings constructed from brick, with brick and concrete floors, about 15 years ago. Taking interest on the capital sunk in them at 8 per cent., depreciation at 2½ per cent., and cost of repairs at 1 per cent., the total overhead charges on buildings come to Rs. 529/1/10. This works out at 9·65 annas per 100 lbs. of milk produced, and 9·26 per cent. of the total cost. This charge is also considered high and would be much lower on an ordinary commercial dairy farm where *kachcha* buildings would satisfy requirements.

16. *Equipment.*—This includes machinery and utensils of all kinds used in connection with the production of milk in a modern dairy. Their total cost was Rs. 1,613/2/3. Charging interest on capital at 8 per cent. and depreciation from 5 to 50 per cent. according to the life of the various articles; or taking the average of all at 15 per cent., the total cost was

Rs. 242/7/5 or 4.42 annas per 100 lbs. of milk. This forms 4.24 per cent. of the total cost of production.

17. *Cow Cost.*—The total value of the herd at the present time is about Rs. 3,200/- or an average of about Rs. 150/- per cow; taking interest at 8 per cent. and depreciation at 12 per cent., the cow charges come to Rs. 640/-; this figure represents 11.20 per cent. of the total cost and 11.67 annas per 100 lbs. of milk produced.

18. *Bull Cost.*—The general practice is to keep one bull for 60 cows, but as there were only 21 cows in this case, only 1/3rd of the total cost of the bull has been charged to milk production. The bull is also at the disposal of any outsider who cares to bring his animals to it for service.

The total cost of maintaining the bull during the year was Rs. 185/9/11. Details are given in Statement V. One-third of this amount is charged to milk production, *i.e.*, Rs. 61/14/0. This forms 1.08 per cent. of the total cost and 1.13 annas per 100 lbs. of milk produced.

#### STATEMENT V.

*Showing the Cost of Upkeep of the Bull.*

	<i>Value.</i>
	Rs. a. p.
Feed	.. 86 12 4
Man labour	.. 13 11 11
Bullock labour	.. 2 1 2
Buildings	.. 43 5 11
Interest on cost, and depreciation in value, .. of the bull.	50 0 0
Miscellaneous	.. 5 8 9
	<hr/>
<i>Total</i>	.. 201 8 1
<i>Deduct</i> value of manure produced	.. 15 14 2
	<hr/>
<i>Net Cost</i>	.. 185 9 11
	<hr/>

19. *Miscellaneous*.—Statement VI. gives a list of the miscellaneous articles used, together with their cost:—

**STATEMENT VI.**

*Showing Miscellaneous Articles Used and their Cost.*

		Rs. s. p.
Municipal water used for drinking .. ..	40	12 4
Coal .. ..	41	9 7
Soda .. ..	4	5 4
Gur (raw cane sugar in lumps) .. ..	7	5 6
Cotton filter mediums, bottle rings and caps, can-brushes, brush heads, etc. .. ..	67	14 1
Phenyle, kerosene oil, etc. .. ..	17	11 6
Painting milk room, repairs to utensil, etc. ..	36	13 10
Repairs and renewals to chaff-cutter, sharpening knives, oil for machinery, grease, ropes, bags, etc. .. ..	56	5 10
<i>Total</i> ..	272	14 0

The costs under this head come to Rs. 272/14/0, which is 4·78 per cent. of the total cost of production and 4·98 annas per 100 lbs. of milk produced.

20. *Income from Sources other than Milk*.—The total cost of milk production was reduced somewhat by returns from the following:—

*Calves*.—Eighteen living calves; or about 85 per 100 cows were produced during the year. A male calf is generally sold at birth for Re. 1/- and a female calf for Rs. 2/-. The total amount thus realised from the sale of calves amounted to Rs. 28/-.

*Manure*.—Leaving aside the manure dropped on the exercising ground, 2,746 maunds of manure were collected in the yard. This is equivalent to about 130 maunds per cow. Taken at Rs. 2/- per cart-load of 20 maunds (local rate) its value comes to Rs. 274/10/8 or about Rs. 13/1/3 per cow.

21. *Summary of Costs*.—Statement VII. summarises the total costs of production and gives an analysis of these costs per 100 lbs. of milk produced. Feed alone represented almost half the cost of production while labour comes next, absorbing about 20 per cent. of the total. The value of the calves and manure, was Rs. 14/6/7 per cow. Subtracting this from the total cost, the net cost per cow works out at Rs. 257/9/3.

The average milk yield, per cow, for the year was 4,176·7 lbs. The cost of production per 100 lbs. of milk therefore comes to 98·67 annas; or 0·986 annas per lb.

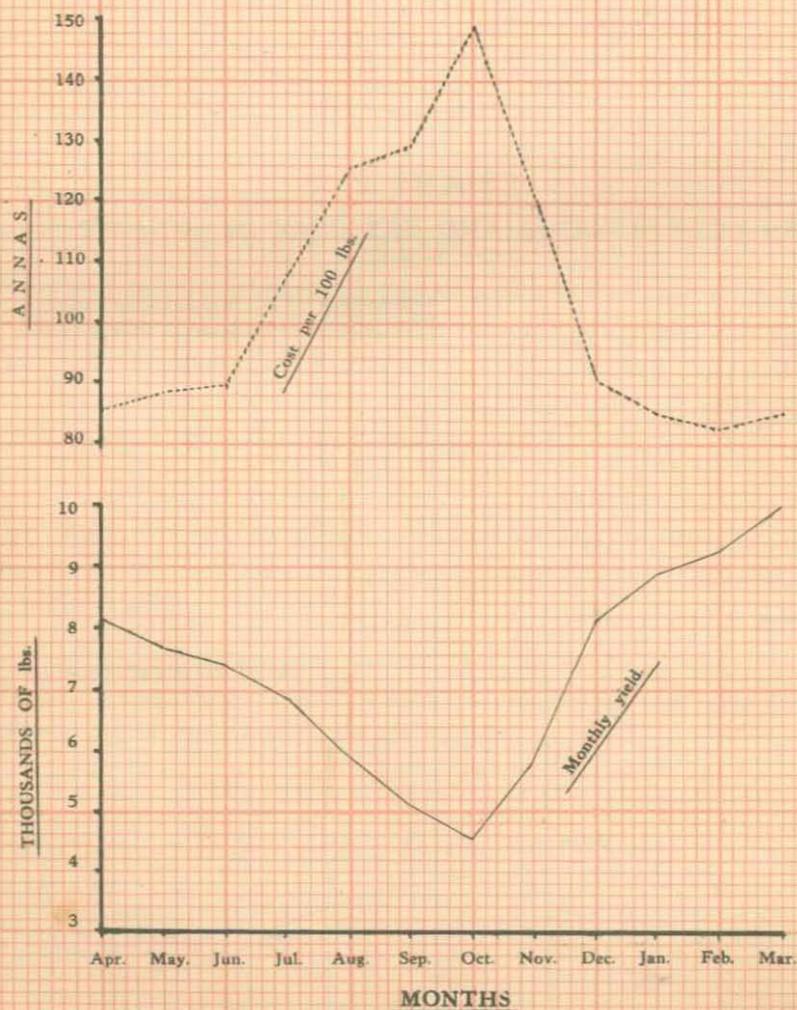
## STATEMENT VII.

*Showing a Summary of the Total Cost of Producing Milk.*

Items.	Total cost.	Percentage	Cost per cow.	Cost in annas per 100 lbs. of milk.
	Rs. a. p.		Rs. a. p.	
Feed ..	2,772 3 2	48·54	132 0 2	50·56
Man labour ..	1,087 5 1	19·04	51 12 5	19·83
Bullock labour ..	106 0 0	1·86	5 0 9	1·93
Buildings ..	529 1 10	9·26	25 3 1	9·65
Equipment ..	242 7 5	4·24	11 8 9	4·42
Cow cost ..	640 0 0	11·20	30 7 7	11·67
Bull cost ..	61 14 0	1·08	2 15 2	1·13
Miscellaneous ..	272 14 0	4·78	12 15 11	4·98
<i>Total Cost</i> ..	<i>5,711 13 6</i>	<i>100·00</i>	<i>271 15 10</i>	<i>104·17</i>
<i>Credits, not milk,</i>				
Calves ..	28 0 0	..	1 5 4	0·50
Manure ..	274 10 8	..	13 1 3	5·00
<i>Total Credits</i> ..	<i>302 10 8</i>	..	<i>14 6 7</i>	<i>5·50</i>
<i>Net Cost</i> ..	<i>5,409 2 10</i>	..	<i>257 9 3</i>	<i>98·67</i>

22. *Seasonal Variations in Cost of Production.*—The average cost for the whole year as given above is 98·67 annas per 100 lbs ; but the monthly cost varies considerably, ranging from 82·68 annas in February to 148·85 annas in October. Generally speaking, it is higher in summer, and lower in winter. This appears to be chiefly due to variations in the total production. Months of high output being months of low cost, and *vice versa*.

**GRAPH.**  
 SHOWING THE EFFECTS OF VARIATION IN YIELD  
 ON THE COST OF PRODUCTION  
 OF MILK.



23. *Graph showing Seasonal Cost of Production.*—The accompanying graph illustrates these variations in monthly costs clearly.

Statement VIII. gives the total production of milk month by month ; also the cost per 100 lbs.

#### STATEMENT VIII.

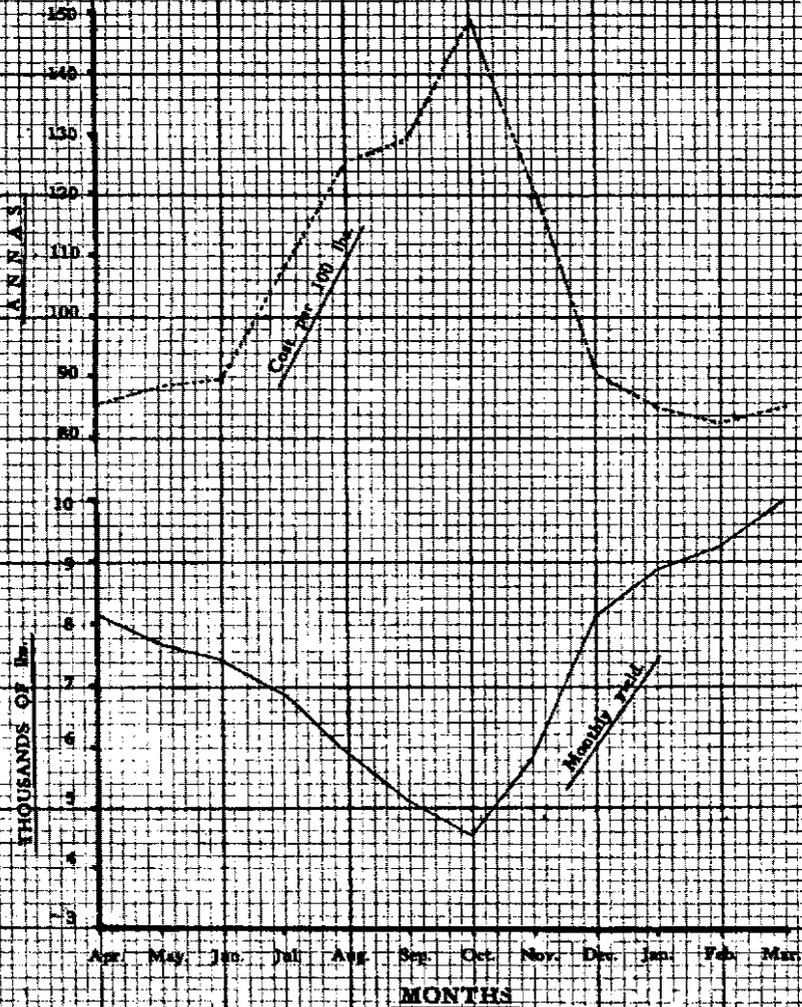
*Showing Monthly Production of Milk and Cost per 100 lbs.*

Month.	Total production in lbs.	Net cost in annas per 100 lbs. of milk
April .. .. .	8,115·25	84·94
May .. .. .	7,771·25	88·18
June .. .. .	7,494·75	88·72
July .. .. .	6,869·75	107·85
August .. .. .	5,881·75	124·27
September .. .. .	5,035·50	128·86
October .. .. .	4,576·25	148·85
November .. .. .	5,765·25	121·07
December .. .. .	8,071·00	91·19
January .. .. .	8,863·00	84·88
February .. .. .	9,328·50	82·68
March .. .. .	9,938·50	85·85
<i>Average</i> .. .. .	<i>7,309·23</i>	<i>98·67</i>

24. *Time of Calving.*—It may be of interest to mention here that under natural conditions cows in the Punjab generally calve between February and May, hence the supply of milk is greater in summer than in winter. But as there is little demand for milk at the College in summer, owing to the absence of the students on holidays, an effort was made to obtain the maximum supply in winter by keeping the bull away from the cows during the summer, so as to have them calving between August and December.

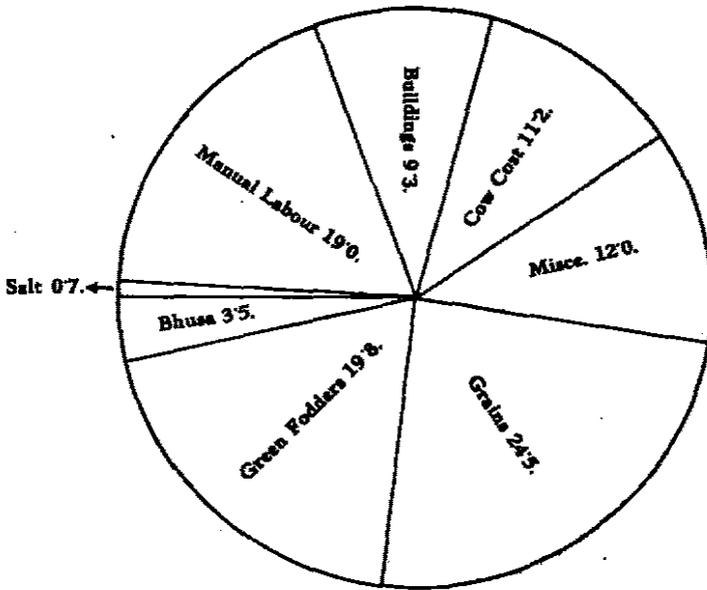
25. *Seasonal Cost Variations.*—At the present time there is some difficulty in obtaining uniform data such as can be used for working out reliable costs owing to the rapid fluctuations in the prices of foodstuffs, labour, etc. ; hence the value of the figures collected is considerably lessened. Price

**GRAPH.**  
 SHOWING THE EFFECTS OF VARIATION IN YIELD  
 ON THE COST OF PRODUCTION  
 OF MILK.



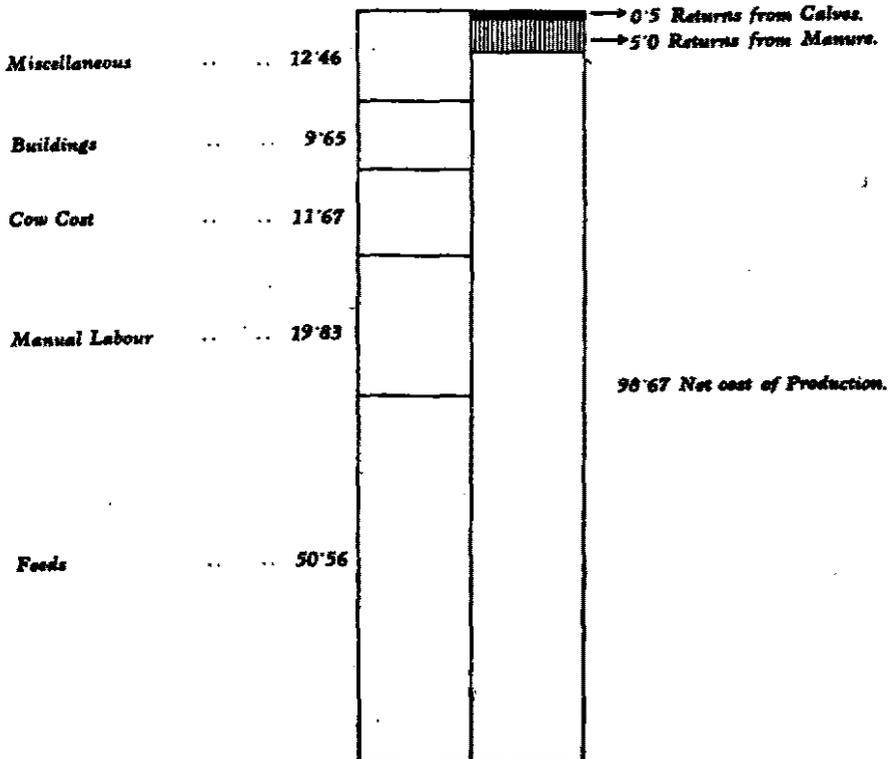
## CHART 1.

**SHOWING GROSS COSTS OF MILK PRODUCTION ON A PERCENTAGE BASIS.**



## CHART 2.

**SHOWING ACTUAL GROSS AND NET COST IN ANNAS PER 100lbs. OF MILK.**



changes have been taking place during the time the data was being collected and thus the figures will be still further out of date by the time the results come through the press. To overcome this difficulty and to make the figures applicable at any time, another statement has been prepared. This shows the unit proportions of the different items which go to make up the cost of production per 100 lbs. of milk :—

#### STATEMENT IX.

*Showing the Unit Proportions per 100 lbs. of Milk.*

Concentrates	..	60·54	lbs.
Green fodder	..	413·58	„
<i>Bhusa</i>	..	31·56	„
Salt	..	1·48	„
Man labour	..	2·40	days.
Bullock labour	..	0·30	hours.

These proportions are more or less constant, irrespective of the prices and rates paid. It is thus possible to work out the approximate cost of producing milk at any given time by taking current prices; provided of course that the average production of the herd in question is about the same; viz., 4,000 lbs. per cow per annum.

The items given in Statement IX. make up about 75 per cent. of the net cost of production and the balance may be taken as made up of the other items given in Statement VII., which gives the percentage costs and cost in annas of the various items which go to make up the total cost of production. It also gives the net cost of producing 100 lbs. of milk, viz., 98·67 annas.

26. *Charts showing Costs of Production.*—The charts opposite this page represent the position graphically, probably in a manner more convincing to the casual reader.

27. *Acknowledgments.*—Our thanks are due to Bh. Umrao Singh and Ch. Lal Chand Sikka for their assistance in collecting and tabulating the data on which our calculations are based.

*Summary.*

28. The data was collected from the herd of 21 cows maintained at the Punjab Agricultural College Dairy Farm.

The period of inquiry was from the 1st April, 1930, to the 31st March, 1931.

The cows were of the Montgomery breed and were entirely stall fed.

Complete milk records were maintained for each cow, the average being 4,176·7 lbs. per cow for the year.

Only the milk producing herd and the bull were taken as the unit for milk production purposes.

The various items entering into the cost of production were:—

- (a). Feed.
- (b). Man labour.
- (c). Bullock labour.
- (d). Buildings.
- (e). Equipment.
- (f). Cow cost.
- (g). Bull cost.
- (h). Miscellaneous.

The cost of production per 100 lbs. of milk worked out at 98·67 annas, or 0·986 annas per lb. Monthly cost of production varied from 82·68 annas in February to 148·85 annas in October.

In months of high output the cost of production is low and *vice versa*.

Feed represented about half the cost of production. Labour came next absorbing about 20 per cent. of the total.

In the Punjab under natural conditions cows generally calve between February and May and thus the supply of milk is greater in summer than in winter.

**The Board of Economic Inquiry,  
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(GENERAL EDITOR: J. W. THOMAS, B.Sc.,

*Reviewed*  
*13.12.39*

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4

**STUDIES**

IN THE

**COST OF PRODUCTION OF CROPS**

IN THE

**PUNJAB,**

BY

**PROF. KARTAR SINGH, B.Sc. (AGRI.), L.AG., N.D.D., P.A.S.,  
PUNJAB AGRICULTURAL COLLEGE,  
LYALLPUR.**

[The Board does not hold itself responsible for any opinions expressed or conclusions reached by the writers.]

1934.

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## FOREWORD.

It is a pleasure to me to write this foreword to a treatise by one of my best and most level-headed old pupils. The facts, figures and details of cultivation given here for the Risalewala Farm for the years, 1927-28 to 1931-32, are on the lines of previous work done by Mr. Stewart for many other farms in the Punjab in previous years.

To any one in close touch with agricultural work, the publication of these figures and the summarising of the research is invaluable. I had the opportunity of submitting some detailed criticisms of this report some months ago, and need not refer to them now, as adjustments which were desirable, have been made. It is only necessary to warn the public that this summary of farm accounts is for a particular farm which enjoys many advantages, not the least of which is association with a practical agriculturist like the author. I believe that, in the economic investigations now being carried out by research workers under the Imperial Council of Agricultural Research and the Indian Central Cotton Committee for 'cotton,' 'sugarcane' and other crops grown in rotation with them, the data are being presented in the form of units of time and labour, so that they can be applied in future years when economic conditions and prices may be very different from what they are now. So long as general conclusions are not rigidly drawn from this Report, it can do nothing but good.

SIMLA :

October, 1933.

W. ROBERTS.

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## INTRODUCTION.

The keeping of regular accounts for determining the cost of production plays an important role in the success of a business, but, unfortunately, agriculture is perhaps the only business in India that is being conducted at present without any systematic records. A detailed study of costs and returns, therefore, seems to offer great scope in improving the financial aspect of farming.

This is a comparatively new line of work and has come into prominence only recently. During the last two years it has gained special importance, particularly in the Punjab, where there has been a good deal of controversy about the price of wheat and the profits derived from its cultivation. The lack of definite and accurate information regarding the cost of producing farm crops is a great handicap in the satisfactory settlement of such disputed points. It is believed that this study will serve as a useful guide in such controversies.

Another advantage of such a study is its use for improving general management. There are always some farmers who are able to produce under the same agricultural conditions, various agricultural products at a much lower cost than other agriculturists. The backward farmer can, therefore, derive much benefit by definitely locating the points where he may improve his methods of management. For instance the average annual rent paid to the landlord by tenant C. in this report was only Rs. 23/10/1 per acre while tenant B. paid Rs. 34/3/9—(vide Statement on page 6). This benefit from the study will be possible, however, only if it is extended over larger areas in various places. The object of this note is mainly to show the method of work.

I desire to acknowledge my indebtedness to Sardars Arjan Singh and Jaswant Singh, for tabulating the data collected. I am also grateful to Mr. H. R. Stewart, I.A.S., Director of Agriculture, Punjab, and his predecessor Mr. D. Milne, for kindly reading through the manuscript and making very useful suggestions.

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## GENERAL AGRICULTURAL CONDITIONS OF THE FARM.

The keeping of regular records of labour, returns and expenses to find out the cost of producing crops, was started on a large farm about three miles from Lyallpur in the year, 1927. This farm is owned by Government and is cultivated by tenants on the *half-batai* system under the direct supervision of a Manager assisted by 4 *mugaddams*. The soil is fairly good and the whole of it is canal-irrigated. The duty\* of water is about 350 acres per cusec. All the seeds, implements and methods of cultivation recommended by the Agricultural Department are used and this accounts for the comparatively higher yields of crops obtained by the tenants than usual. The entire estate is divided into large blocks of 27·8 acres each, each of which is locally known as a 'square.' Though several crops are grown by each cultivator, wheat, cotton and *toria* are the most important, as will be clear from the following average cropping scheme per square for the period of five years, 1927-28 to 1931-32.

### *Average Cropping per Square.*

Crop.	Area.			Percentage.
	A.	K.	M.	
Wheat .. .. .	13	2	5	45·1
Gram .. .. .	1	5	15	5·8
Cotton .. .. .	5	7	6	20·1
Fodders .. .. .	4	1	3	14·1
<i>Toria</i> .. .. .	3	0	0	10·2
Sugarcane .. .. .	0	3	16	1·6
<i>Berseem</i> .. .. .	0	3	10	1·5
Maize .. .. .	0	2	14	1·1
Miscellaneous .. .. .	0	1	3	0·5
<i>Total</i> .. .. .	29	3	12	100·0

This shows that wheat forms 45·1 per cent., cotton 20·1 per cent. and *toria* 10·2 per cent. of all the crops grown. Fodders are the only other important crops, being 14·1 per cent. of the total. About 1½ acres were double-cropped and the intensity of cropping, thus works out at 105·9 per cent.

\* More commonly 'duty' is defined as the number of acres irrigated by a discharge of one cusec (a flow of one cubic foot of water per second) of water measured at the head of the village water-course and flowing for the number of days the canal runs in a year.

The following table, and Graph A., show the total annual rainfall as recorded at Risalewala during the period, 1927-28 to 1931-32, and its monthly distribution.

*Monthly Rainfall, in Inches at Risalewala, June 1927 to May 1932.*

Month.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.
June ..	Not available.	1.76	0.55	0.96	0.90
July ..	1.62	3.30	3.67	3.84	7.86
August ..	0.53	2.21	6.07	0.72	4.19
September ..	0.60	4.50	..	0.03	2.00
October ..	..	..	..	..	0.40
November ..	..	2.13	..	..	..
December ..	0.04	0.05	0.79	..	..
January ..	0.61	0.35	1.57	0.20	0.23
February ..	..	0.19	..	0.34	0.13
March ..	0.30	..	0.08	1.11	0.94
April ..	0.76	..	0.28	0.50	..
May ..	..	0.17	0.92	0.38	1.10
<i>Total</i> ..	<i>4.46</i>	<i>14.66</i>	<i>13.93</i>	<i>8.08</i>	<i>17.75</i>

It will be seen that most of the rain fell in the four months June to September. The precipitation in 1928-29 and 1929-30 is considered about normal, but 1930-31 was dry, and in 1927-28 the rainfall was exceptionally low; in 1931-32 monsoons were more active than in the other years.

The average actual yields per acre of different crops on the farm in the years, 1927-28 to 1931-32 are set out below:—

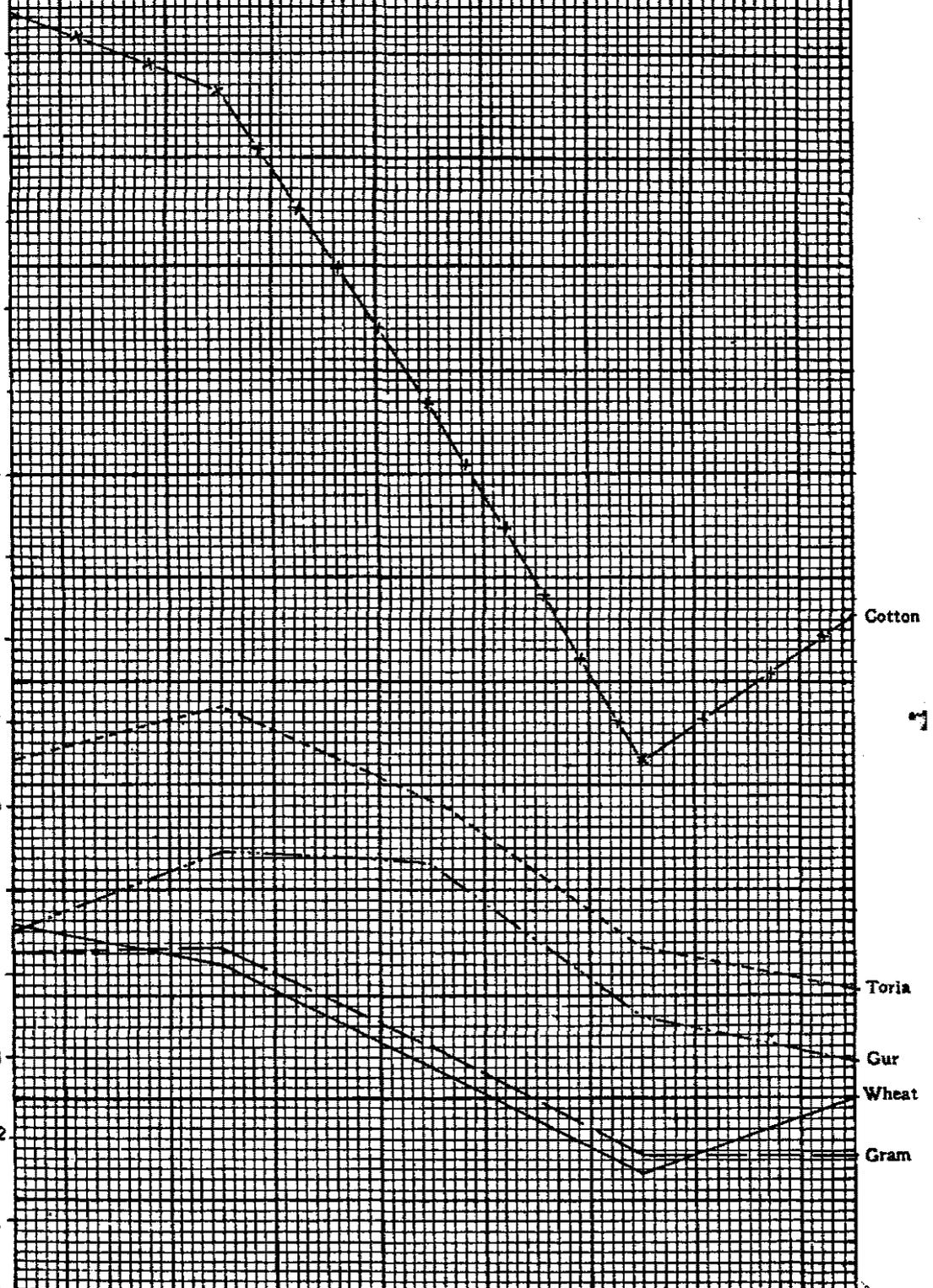
*Average actual Yields per Acre.*

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
	M. S. C.*	M. S. C.				
Cotton ..	9 35 6	5 9 0	10 13 0	9 7 3	5 23 8	7 37 15
Wheat ..	13 32 2	22 22 1	21 39 1	20 17 12	17 2 13	19 3 8
Torin ..	5 28 0	5 4 8	8 35 10	7 3 7	8 24 2	7 6 2
Gram ..	9 7 14	14 1 4	15 28 7	7 27 14	9 36 9	10 38 7
Maine ..	16 18 13	24 28 0	..	12 13 1	..	15 7 13
Sugarcane ( <i>gur</i> ) ..	41 25 0	65 5 5	50 24 2	52 23 11	50 32 3	50 10 1

\* M.=maunds; S.=seers; C.=chhataks.

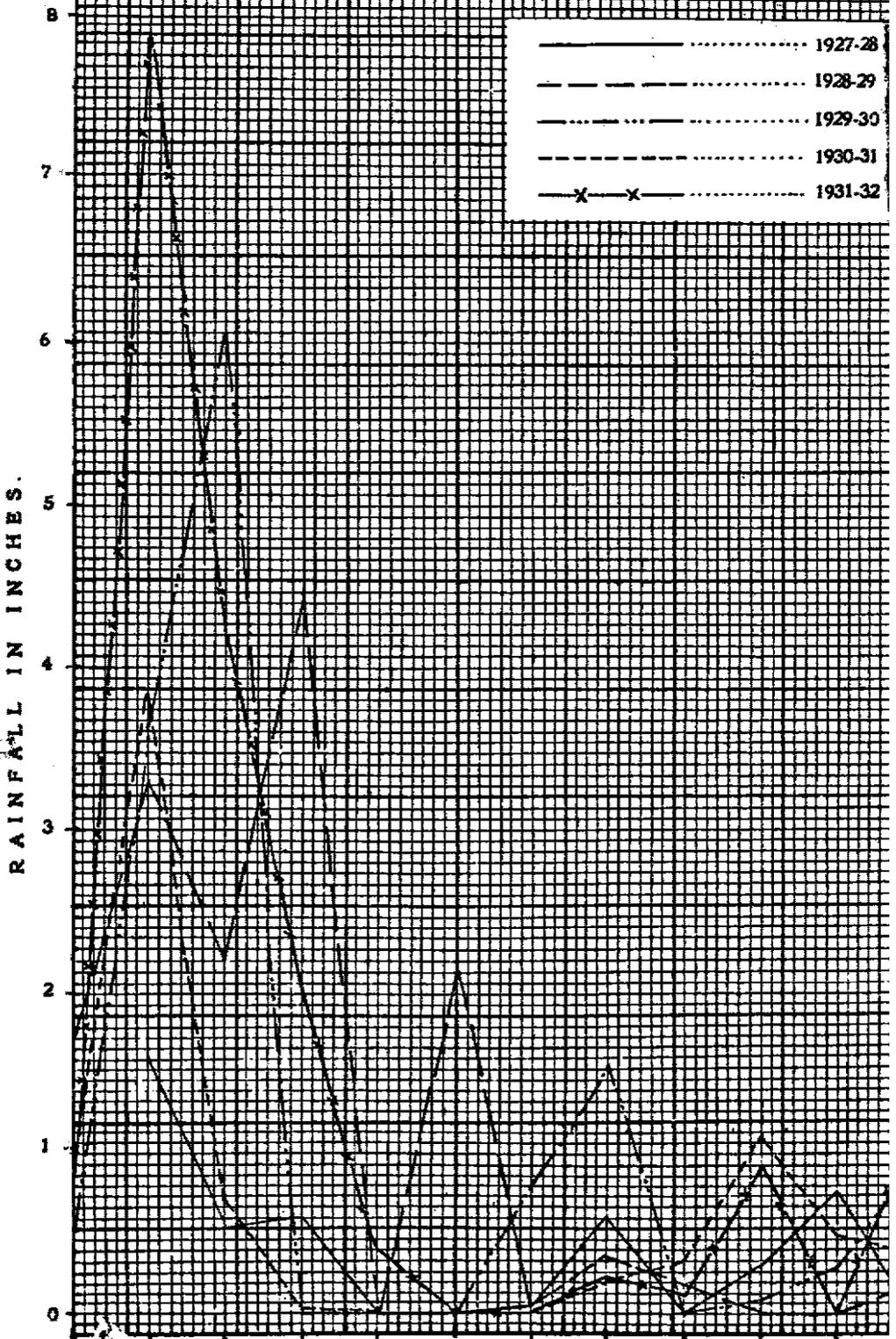
# GRAPH B.

SHOWING THE PRICES OF IMPORTANT CROPS DURING THE YEARS,  
1927-28 TO 1931-32.



# GRAPH A.

SHOWING MONTHLY RAINFALL AT RISALEWALA FOR THE LAST FIVE YEAR



The foregoing figures for the five-years period, for which this investigation was conducted, may be taken as a fair average of agricultural conditions in the tract under study as regards outturn of various crops. The reasons for the low yields of important crops during this period are given below :—

*Cotton.*—This was quite good for three years, but gave a poor outturn for the other two years. A severe attack of bollworm was mainly responsible for low yields in the years, 1928-29 and 1931-32.

*Wheat.*—This was also good for three years but gave a lower outturn for two years. In the year 1927-28, the sowing was delayed in some places owing to the closure of the canal at sowing time. Again on the 3rd and 4th March, 1928, there were severe dust-storms which seriously interfered with growth about the flowering period. This was followed by a long spell of heat much above the normal with the result that the ripening period was considerably curtailed and the grain did not fill up well, a large percentage of it, particularly when sown late, being badly shrivelled. All these conditions combined to reduce considerably the yield of wheat. In the year 1931-32, the crop was damaged by a hailstorm ; dry and hot winds at the ripening time were also responsible to some extent for the low yields.

*Toria.*—This was also good for three years but poor in the other two. In the year 1928-29, rain at the flowering time in November destroyed a large number of flowers ; the weather was very cold at the ripening time and adversely affected the proper maturing of seed. The year 1927-28 was a little better than 1928-29, but was below normal owing to a poor monsoon.

*Sugarcane.*—This was an average crop for three years, exceptionally good in the year 1928-29 owing to well distributed rainfall, and poor in the year 1927-28, when the crop was somewhat stunted right up to the harvesting season on account of the partial failure of monsoon rain. A certain amount of damage, caused by cane-borer, was also responsible for the poor outturn.

The period under study may also be taken as an average for the prices of various crops. The prices were high during the first 2½ years and low in the latter half. The decline in prices began in the summer of 1930 and continued for the year 1930-31. In the year 1931-32 there was a slight recovery in the case of wheat and cotton, but even then the prices remained much below normal. The prices of various crops are given in the following statement and are also indicated in Graph B. for easy reference.

## Average Annual Prices.

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
	Rs. a. p.					
Cotton ..	15 9 6	14 8 3	10 13 7	6 9 6	8 4 11	11 4 6
Wheat ..	4 9 0	4 2 0	2 14 0	2 9 0	2 8 0	3 1 2
„ <i>dhua</i> ..	0 12 0	0 9 0	0 6 0	0 3 0	0 5 6	0 7 0
Toria ..	6 9 0	7 3 6	6 0 0	4 4 6	3 12 9	5 4 3
Gram ..	4 4 0	4 4 6	3 2 0	1 13 3	1 13 0	3 1 10
Maize ..	3 6 0	4 12 0	..	1 4 0	..	2 11 3
Gur ..	4 8 0	5 7 6	5 4 9	3 8 2	2 15 0	4 1 11

As mentioned above, owing to the world-wide agricultural depression the downward movement of prices began in the *rabi* season of 1930, and during the year 1930-31 the prices touched a very low level. In these extraordinary circumstances the Punjab Government decided, as a special case, to grant a remission of 25 per cent. in land revenue and water-rates for areas under rice and cotton during the *kharif* season of 1930-31, in those tracts where the combined demand for land revenue and water-rates per acre exceeded Rs. 7/- for cotton and Rs. 8/8/0 for rice. Lyallpur was one of the fifteen districts thus affected. In the *rabi* season of 1931, the Government again gave careful consideration to the economic conditions prevailing in the province and a remission of five annas in the rupee of land revenue and three annas in the rupee of water-rates, for the wheat crop only was granted. In 1931-32, the Government again gave some remission in land revenue and water-rates. The rate of remission in the latter varied for different canals and in land revenue it varied in different assessment circles. In case of the Lower Chenab Canal, which irrigates the farm under study, the remission in water-rate was Rs. 2/- per acre for *desi* cotton and Rs. 1/8/0 for American cotton. The remission in land revenue for the Lyallpur Assessment Circle was three annas in the rupee for the *kharif* crops. Remission was again given for the *rabi* crops at the rate of three annas in the rupee of land revenue and one rupee per acre in the water-rates for wheat crop only.

## METHOD OF WORK.

Seven tenants, representative of the 40 tenants cultivating the farm, were selected for the purpose of study. After the first two years the number was reduced to six, because tenant G. migrated to another place and the area cultivated by him was given to tenant D. Thus the total area remained the same throughout, viz., 153 acres, 5 kanals and 17 marlas.

A trained investigator visited each farmer every day and secured the necessary information about the various items of cost. It was thus possible to keep an exact day to day record of all the operations done for various crops by these tenants throughout this period. It was also possible to apportion accurately each and every separate item of cost on various crops and its accuracy could be again checked by comparing it with the total costs under each item.

In order to calculate the cost of producing crops, it is essential to determine the value of all the items. Some of the factors such as water-rate, seed, etc., are quite simple and present no difficulty, but in others, such as manure, estimates have to be made as to the percentage of total cost that should be charged against a particular crop in the rotation. It may be useful, therefore, to explain here the methods that have been adopted in working out the costs of various items that enter into the cost of production of crops.

*Factors of Cost.*—The various items that enter into the cost of production have been grouped as under :—

1. Use of land and land revenue.
2. Manual labour.
3. Bullock labour.
4. Water-rate.
5. Seed.
6. Manure.
7. Implements.
8. Miscellaneous, such as harvesting, winnowing, picking of cotton, *kamins*, etc.

1. (a) *Use of Land.*—This is an important item but opinions differ as to its inclusion in the cost of producing crops. Those who are against it, hold that in most cases no price has actually been paid for the land and nothing should therefore be charged for its use. For instance in the older districts of the Punjab the land has been mostly inherited by the present owners for generations without paying anything for it. Even in Canal Colonies where land has been brought under cultivation only recently, it has been granted by the Government at a nominal price. Others, however, are of opinion that a good deal of land has been sold by auction at its market price and thus much capital has been invested in its purchase; it will, therefore, be only fair to charge interest on the price of the land. This view is further supported by the fact that even in the Punjab—the so-called land of peasant proprietors—about 60 per cent. of the land is cultivated by tenants who pay rent, either in kind or cash, to their landlords for the use of the land.

For the purpose of this note it was felt that this item should not be included in the general statements. For the information of those, however, who would prefer its inclusion, the actual value of rents received from the land per acre is given in the statement below :—

*Actual Value of Rents per Acre in Risalewala.*

Tenants.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
	Rs. a. p.					
A. ..	30 14 8	43 13 0	33 13 0	18 5 2	15 14 11	28 12 3
B. ..	45 9 6	43 12 2	44 3 9	19 0 3	18 9 3	34 3 9
C. ..	32 4 11	29 11 2	28 11 8	14 7 9	12 15 0	23 10 1
D. ..	40 4 8	42 2 10	38 5 3	19 3 3	22 1 2	34 1 8
E. ..	31 12 11	32 7 7	39 12 0	24 9 10	14 12 8	26 11 1
F. ..	35 8 10	36 11 9	32 10 2	14 3 4	13 9 9	26 8 9
G. ..	50 0 4	49 5 7	..	..	..	49 10 11
<i>Average</i> ..	36 7 0	38 13 5	36 7 4	16 10 6	16 5 4	29 1 2

NOTE.—The average figure of the five years against D. stands for both the tenants D. and G. as the area held by the latter in the first two years was handed over to tenant D.

It will be seen that the average rent per acre has decreased considerably in the last two years. As mentioned elsewhere, this is due to the very low prices of various agricultural products in these years.

*Method of Calculating the actual Value of Rents received from, the Land.*

As mentioned earlier, the farm under consideration was cultivated by tenants on the *half-batai* system. The details of this system vary a little from place to place according to the local conditions, and in this particular case, the tenants bear the cost of manual labour, upkeep of bullocks, seeds, *kamins*, local implements, and water-rates, while the landlord meets the cost of management and improved implements. The expenses of hired labour for harvesting wheat, picking cotton and winnowing grain crops, are borne equally, and the produce is divided half and half between the two parties.

According to the local conditions the land revenue and the water-rate are shared equally by the landlord and the tenants. As land revenue per acre is nearly equal to the water-rate per acre on the average cropping, the water-rate is in some cases paid by the tenant and the landlord pays the whole land revenue. In this particular case, however, as the land belongs to the Government, no land revenue is actually paid by the landlord, and tenants pay the water-rates. Under the conditions described above, the actual value of rents received from the land would be equal to the net income received by the landlord. If it were a private estate, the landlord would have paid land revenue out of his share of income.

1. (b). *Land Revenue*.—This term, used above in connection with the actual value of rent, requires a little explanation. It is a charge on the land paid by the owner to the Government out of the rents received from the cultivators. Usually it is mixed up with other charges paid for the benefit of the *zemindars*. For instance, a local rate of  $12\frac{1}{2}$  per cent. on the original demand of land revenue is collected by the District Board for education, hospitals, etc. In addition to this, five per cent. on the original demand is paid as *lambardari* fee for collecting the land revenue. These two demands have nothing to do with the Government and are utilised solely in the interest of the cultivators. Strictly speaking, therefore, land revenue and local rates are not items of cost to be included in the cost of cultivation of crops as they are to be paid out of the rent received by the landlord for the ownership of the land. It may be mentioned, however, that the Government demand for land revenue on this land, if it were a private estate, would have been Rs. 6/- per acre and the land-owner would have paid in addition Rs. 0/12/0 as local rates and Rs. 0/4/9 as *lambardari* fee, i.e., Rs. 7/0/9 per acre in all.

2. *Manual Labour*.—It is rather difficult to work out the cost of manual labour, because most of the land in the Punjab is cultivated either by tenants, or by peasant proprietors who are themselves the workers. It is very seldom that hired labour is employed for cultivation purposes as is common in many Western countries. As farm accounts have now been kept on this farm for several years,\* it is possible to get some idea about the return the tenants actually get for their own labour. The actual daily earnings of the tenants on this farm for the five-years period under study are given in the following statement.

---

\*See "Farm Accounts in the Punjab 1931-32" series of publications of the Board of Economic Inquiry, Punjab.

*Average Daily Earnings of Tenants in Risalewala.*

Year.	Average return per man per day for the whole year.		
	Rs.	a.	p.
1927-28	0	6	8
1928-29	0	8	10
1929-30	0	5	9
1930-31	0	0	9
1931-32	0	3	0
<i>Average</i>	<u>0</u>	<u>5</u>	<u>0</u>

It will thus be observed that one adult worker on this farm for the last five years got on an average five annas per day all the year round. This figure has been used in this note as the average wage for the manual labour; it varies from year to year according to the variation in the return the tenants get for their labour. For the sake of uniformity, however, it has been considered advisable to use the same figure throughout.

3. *Bullock Labour.*—This includes interest and depreciation on the value of bullocks, feed, and any other miscellaneous charges, such as shoeing, etc. An exact record was kept of the amount of *bhusa*, green fodder, and concentrates fed to the bullocks and each of these feeding stuffs has been valued at the market rate. Bullocks are valued at the beginning of the year and on that value interest at 8 per cent. and depreciation at 12 per cent. are charged. An accurate account of the employment of bullocks throughout the year was maintained and the total cost of their upkeep divided by the total number of days worked during the year, gives the cost per working day. This multiplied by the number of working days spent on the cultivation of a crop was debited to that crop as the bullock cost.

4. *Water-rate.*—This is a charge for the use of canal-water varying according to the crop grown. It has been fixed by the canal authorities for the Lower Chenab Canal irrigating this farm as follows:—

Crop.	<i>Water-rates charged on the Farm.</i>		
	Rs.	a.	p.
Cotton	6	4	0
Wheat	5	4	0
Toria	4	4	0
Gram	3	4	0
Fodders	1	8	0*
Maize	4	12	0
Sugarcane	12	0	0

\*Rs. 2/- in 1927-28.

As has already been mentioned, a part of water-rate was remitted in some years owing to the general agricultural depression. For the sake of uniformity, however, full water-rate has been charged against the crops in working out the cost of cultivation.

5. *Seed*.—The improved seeds recommended by the Agricultural Department are used for sowing and their actual cost has been charged against each crop grown.

6. *Manure*.—Farmyard manure has been valued at Rs. 2/- per cart-load; this does not include the cost of carting and applying the manure to the land as these are generally done by the farmer himself and the labour involved has been included in the manual and bullock labour spent on each crop. The crop to which this manure is applied receives the most benefit and naturally, must be charged with the largest percentage of its cost. Other crops following in rotation derive less and less advantage until the value is exhausted. For this purpose therefore, it is assumed (on the basis of work done in England\*) that the effect of farmyard manure lasts for three successive crops and the cost of manure debited to each crop is distributed as follows:—\*\*

First crop 50 per cent. of the value of manure.

* Second	„	30	„	„	„
Third	„	20	„	„	„

Ammonium Sulphate was the only artificial manure applied to some crops and it is assumed that all is used up in the first crop; its whole cost has, therefore, been charged to the crop to which it was applied.

7. *Implements*.—In calculating these charges, implements have been divided into two classes:—

- (a). Special, such as reapers and cane-crushers.
- (b). General, e.g., ploughs, 'cultivators', etc.

Special implements have been charged against the crop for which they are used; for instance, interest, depreciation, and repairs of reapers have been charged against wheat and that of the cane-crushing mill (with other accessories) against sugarcane, according to the area dealt with by the implements each year. The cost of general implements has been distributed over different crops according to the number of bullock-days spent on the cultivation of each crop.

\* "Cost Accounting applied to Agriculture," by J. S. King.

\*\*Mr. Milne thinks that the effect of farmyard manure will not last so long in the Punjab as it would in Great Britain, because decomposition of organic matter is more rapid here owing to higher temperature. This seems to be quite probable but in the absence of any experimental records regarding this point it is considered advisable to stick to the conclusions arrived at in England.

The charges for replacement and spares are included in the total expenditure on implements before distributing them over various crops. The repairs of local implements are done by the village carpenter and blacksmith whose charges appear under a separate head.

8. *Miscellaneous.*—(a) *Kamins.*—These are the carpenter and the blacksmith who repair agricultural implements of the *zemindar* throughout the year and are paid in kind for their labour. Their combined charges per plough in different years were as follows :—

*Carpenter and Blacksmith's Charges.*

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.
	<i>Seers.</i>	<i>Seers.</i>	<i>Seers.</i>	<i>Seers.</i>	<i>Seers.</i>
Cotton	8	8	5	5	5
Toria	8	8	..	..	..
Gur	8	8	4	8	8
Maize	60	60	60	60	60
Wheat	140	140	90	100	100
„ <i>bhusa</i>	160	160	80	80	80

Though they are paid different grains in varying amounts, this does not mean that they are paid according to the labour done by them for that particular crop. It is, therefore, considered advisable to distribute all the charges of these menials equally on the total area cultivated and this method has been followed in this study.

(b). *Harvesting.*—As the area of some crops, such as wheat, is more than can be harvested by the cultivator himself, and harvesting cannot be delayed owing to the risk of shedding grain, it is customary to employ casual labour, paid either in kind or in cash ; the actual cost of such labour has been debited to the crop harvested. Similarly, picking charges for cotton are debited to that crop.

(c). *Winnowing.*—This is usually done by casual labour and paid in kind. It is charged to the crop winnowed and the following are the costs for some important crops :—

<i>Crop.</i>	<i>Seers per maund.</i>
Wheat	1½ to 2
Toria	1
Gram	1
Barley	1

In case of wheat when the charges are 2 seers per maund, wheat *bhusa* is also stacked by the labourers. For winnowing alone the rate is 1 to 1½ seers per maund of grain winnowed.

(d). *Jhoka*, the man who feeds the furnace when boiling sugarcane juice, is paid  $1\frac{1}{2}$  seers of *gur* for each maund of *gur* produced, and this has been debited to sugarcane.

The foregoing are the total expenses incurred in the growing of various crops. In agriculture, unfortunately, we do not get all the return as one product, but often two products simultaneously by the same processes, such as wheat grain and *bhusa*, maize and maize stalks, gram and gram *bhusa*, etc. Several methods have been adopted by various people in different countries for apportioning the total cost of production between the two products and these are given below:—

(i). In Great Britain, the Agricultural Economics Committee of the Ministry of Agriculture drew up certain rules for the guidance of Agricultural Accountants and they recommended that the cost of the straw should be taken as one-seventh of the total cost of production of the wheat crop.\* This method cannot be applied in the Punjab; straw in England is used generally as a bedding for animals, while here wheat *bhusa* is an important roughage for feeding cattle.

(ii). Another method is to divide the total cost according to the food value of the two products. According to the Starch Equivalent Method of Kellner, the feeding values of wheat *bhusa* and grain are about 23 and 86, respectively. As the outturn of *bhusa* is about 1.7 times that of grain the feeding values of the two products per acre will be in the ratio of 39 : 86. This method also may not be correct as wheat grain is not commonly used for feeding animals.

(iii). The cost should be shared by the two products according to their market value. This appears to be quite reasonable because the two products are produced simultaneously by the same capital and labour.

(iv). The value of *bhusa* at the market rate may be deducted from the total cost and the remaining cost then debited to grain. This method is also sound because *bhusa* has a market for its sale, though a limited one. It has been adopted in this note because the landlord actually sells out his half share of *bhusa* at the market rate. The *bhusa* fed to the bullocks used for cultivation, has been valued at the market rate when working out the cost of their upkeep and so the cost of cultivation figures will not be affected.

For the information of the reader, however, it has been thought advisable also to apportion the cost in the case of wheat according to the market value of the two products. This has been done in Statement I., and for the sake of easy comparison, Statement II., which gives the cost according to the method followed in this note, is also given.

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\* "Cost Accounting applied to Agriculture" by J. S. King, page 175.

STATEMENT I.

*Cost of Production of Wheat, when the Total Cost is apportioned between Grain and Bhusa according to their Market Values.*

Year.	OUTTURN PER ACRE.		VALUE.		Total.	Total cost of production per acre.	PROPORTIONAL COST OF PRODUCTION.		COST PER MAUND.	
	Grain.	Bhusa.	Grain.	Bhusa.			Grain.	Bhusa.	Grain.	Bhusa.
	M. S. C.	M. S. C.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1927-28	13 32 2	24 31 7	62 15 7	18 9 5	81 9 0	41 8 0	32 0 8	9 7 4	2 5 2	0 6 1
1928-29	22 22 1	40 10 10	93 0 6	22 10 5	115 10 11	41 10 1	33 7 8	8 2 5	1 7 9	0 3 3
1929-30	21 39 1	36 10 8	63 2 10	13 9 7	76 12 5	39 3 8	32 4 6	6 15 2	1 7 6	0 3 1
1930-31	20 17 12	30 26 10	31 15 3	5 12 0	37 11 3	34 1 3	28 14 0	5 3 3	1 6 7	0 2 9
1931-32	17 2 14	30 31 4	42 10 11	10 9 3	53 4 1	31 12 9	25 7 8	6 5 1	1 7 11	0 3 4
<i>Average</i>	19 3 8	32 17 5	58 10 5	14 4 0	72 14 5	37 10 8	30 4 10	7 5 10	1 9 2	0 3 8

## STATEMENT II.

*Cost of Production of Wheat, when the Value of Bhusa at the Market Rate has been deducted from the Total Cost.*

Year.	OUTPUT PER ACRE.		MARKET RATE PER MAUND.		COST OF CULTIVATION PER ACRE.			Cost per maund of grain.
	Grain.	Bhusa.	Grain.	Bhusa.	Total.	Value of bhusa at market rate.	Balance for total amount of grain.	
	M. S. C.	M. S. C.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1927-28 .. ..	13 32 2	24 31 7	4 9 0	0 12 0	41 8 0	18 9 5	22 14 7	1 10 7
1928-29 .. ..	22 22 1	40 10 10	4 2 0	0 9 0	41 10 1	22 10 5	18 15 8	0 13 6
1929-30 .. ..	21 39 1	36 10 8	2 14 0	0 6 0	39 3 8	13 9 7	25 10 1	1 2 8
1930-31 .. ..	20 17 12	30 26 10	1 9 0	0 3 0	34 1 3	5 12 0	28 5 3	1 6 2
1931-32 .. ..	17 2 14	30 31 4	2 8 0	0 5 6	31 12 9	10 9 3	21 3 6	1 3 11
<i>Average</i> .. ..	19 3 8	32 17 6	3 1 2	0 7 0.3	37 10 8	14 4 0	23 6 8	1 3 8

### STATEMENT III.

*Average Gross Income, Cost and Profit per Acre of Important Crops for the Five Years, 1927-28 to 1931-32.*

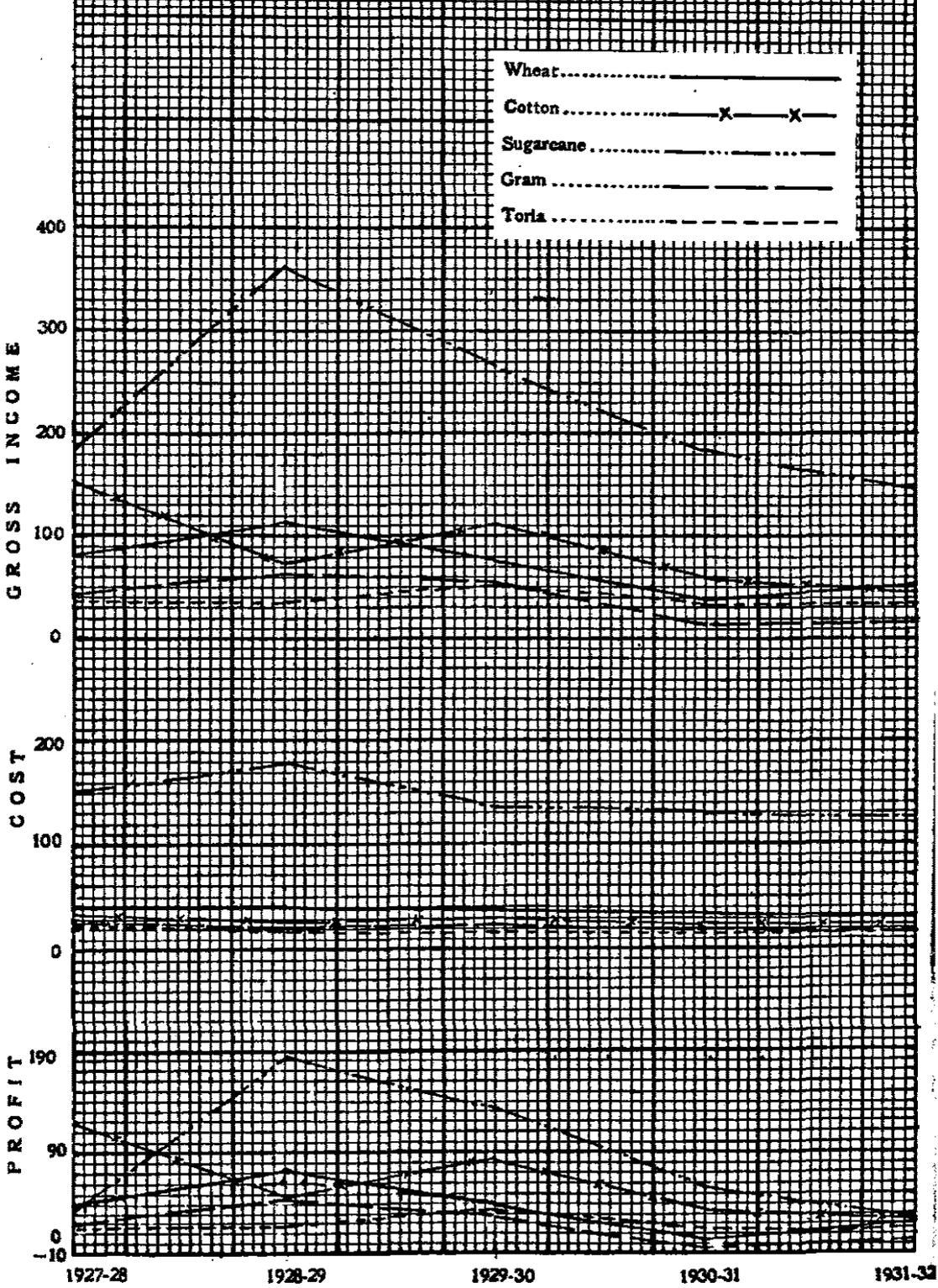
Year.	COTTON.			WHEAT.		
	Gross income.	Cost.	Profit.	Gross income.	Cost.	Profit.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1927-28 ..	154 2 3	35 7 2	118 11 1	81 9 10	41 8 0	40 1 0
1928-29 ..	75 13 6	28 11 9	47 1 9	115 10 11	41 10 1	74 0 10
1929-30 ..	112 0 9	30 2 8	81 14 1	76 12 5	39 3 8	37 8 9
1930-31 ..	60 8 10	28 15 4	33 9 6	37 11 3	34 1 3	3 10 0
1931-32 ..	46 6 9	24 7 9	21 15 0	53 4 1	31 12 9	21 7 4

Year.	TOBACCO.			SUGARCANE.			GRAM.		
	Gross income.	Cost.	Profit.	Gross income.	Cost.	Profit.	Gross income.	Cost.	Profit.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1927-28 ..	37 6 7	22 6 1	15 0 6	187 5 0	151 3 5	36 1 7	42 8 8	23 15 6	18 9 2
1928-29 ..	36 14 0	18 14 4	18 0 2	364 8 4	179 8 4	185 0 0	63 9 3	20 12 11	42 12 4
1929-30 ..	50 12 0	18 9 0	32 3 0	268 10 7	136 9 3	132 1 4	50 15 10	23 10 1	27 5 9
1930-31 ..	30 5 5	15 14 7	14 6 10	184 14 11	129 2 6	55 12 5	14 12 5	18 14 3	-4 1 10
1931-32 ..	32 10 7	15 8 5	17 2 2	149 8 10	125 7 8	23 12 2	19 3 2	15 10 8	3 8 6

# GRAPH C.

SHOWING THE AVERAGE GROSS INCOME, COST AND PROFIT PER ACRE OF IMPORTANT CROPS FOR THE LAST FIVE YEARS.



In the case of *toria*, the secondary product is of very little market value so it has been ignored and the main product bears the total cost. Similarly cotton sticks have practically no market value and therefore have not been considered. The tops of sugarcane have some feeding value but they have been left out because stripping is usually done by labourers in exchange for these tops and therefore neither the value of tops nor the labour of stripping has been included. Similarly *megasse* has some value, but as it is used to boil the sugarcane juice, it has been taken neither in income nor in expenditure.

In the case of fodders there are several crops grown and it would be too much to work out the cost of each crop separately; it is sufficient to divide them into *kharif* and *rabi* fodders and work out their cost of cultivation per *kanal*, as it is difficult to find the actual weight of these crops.

### COST OF PRODUCING CROPS.

The cost of production as worked out according to the method given above is given for each crop separately in statements on pages 33 to 41. ~~That~~ there are considerable variations in the cost of production of crops from tenant to tenant, and also, this difference is mostly owing to the variations in the yield of crops; the cost of cultivation remains more or less the same.

As there is no appreciable difference in the quality of land and the water supply of the various tenants, it may be assumed that the individuality of the tenant is responsible for the difference in yields. Owing to wide fluctuations in these, and also in the prices of crops from year to year, there are great variations in the gross income derived from different crops, but costs of cultivation do not vary much. The result is that there are great variations in the profit obtained from various crops. This is shown in the Statement III. and illustrated in Graph C.

### CARTING AND MARKETING OF CROPS.

With the methods detailed above the cost of production of crops at the farm (or in the village) has been worked out. In order to find the profit or loss on each crop, these costs must be compared with the prices of each prevalent in the nearest market. A farmer has, however, to incur some expenses in transporting and marketing before he can get the market price, and it is, therefore, necessary to determine these costs.

In the case under investigation the village is three miles from the nearest market and the hauling charges for the year 1930-31 were as follows :—

<i>Crop.</i>	<i>Per maund.</i>
Cotton ..	1½ annas
<i>Gur</i> or <i>shakkar</i> ..	9 pies
Wheat, gram or maize ..	7 „
<i>Toria</i> ..	8 „
<i>Bhusa</i> ..	1 anna.

The expenses of marketing are given in detail for various crops in Statements V. and VI. Some of these expenses are paid in cash and are deducted from the total value of the produce sold; the others are paid in kind. The cash payment is a certain percentage of the gross value and thus the cost per maund depends upon the price at which the produce is sold in the market. Statement VII. shows the prices of different crops for the last five years along with the averages for the same period. With average prices the marketing expenses per maund would be as follows :—

*Marketing Expenses per Maund.*

Crop.	Average price.		Marketing expenses per maund.	
	Rs.	a. p.	Rs.	a. p.
Cotton .. ..	11	4 6	0	6 1
Wheat .. ..	3	1 2	0	1 3
<i>Toria</i> .. ..	5	4 3	0	2 1
Gram .. ..	3	1 10	0	1 3
Maize .. ..	2	11 3	0	1 2
<i>Gur</i> .. ..	4	1 11	0	1 7

### Cost of Producing Cotton.

The average cost of producing cotton for the five years, 1927-28 to 1931-32, is given in the following statement. The average yield was 7 maunds, 37 seers and 15 *chhataks* per acre :—

#### Average Cost Per Acre of Producing Cotton.

	Amount.	Percentage.
	Rs. a. p.	
Manual labour .. ..	3 15 8	13.6
Bullock „ .. ..	7 6 4	25.4
Water-rates .. ..	6 4 0	21.4
Seed .. ..	0 14 9	3.2
Manure .. ..	2 5 9	8.1
Implements .. ..	1 0 10	3.6
<i>Kamins</i> .. ..	0 10 11	2.3
Picking .. ..	6 8 5	22.4
<i>Total</i> .. ..	29 2 8	100.0

This gives a cost of Rs. 29/2/8 for growing an acre of cotton, and with an average yield of 7 maunds, 37 seers and 15 *chhataks*, the cost of production of this crop on the farm is Rs. 3/10/9 per maund. The carting charges to the market being Rs. 0/1/6 per maund and marketing expenses according to Statement V. Rs. 0/6/1 per maund, the total comes to Rs. 4/2/4 per maund in the market. As the average price per maund is Rs. 11/4/6, one maund of cotton gave a profit of Rs. 7/2/2 which is equivalent to Rs. 56/12/9 per acre. In the year 1930-31, as the price of cotton was only Rs. 6/9/6 per maund, the profit per acre was only Rs. 33/9/6.

To grow an acre of cotton required 12.7 days of manual labour and 4.3 days of bullock labour made up as follows (a day being considered equivalent to 8 hours work).

#### Manual and Bullock Labour.

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing ..	3.6	3.1
Carting manure ..	0.4	0.2
Hoeing and harrowing ..	1.8	1.0
Watering ..	5.6	..
Harvesting, etc. ..	1.3	..
<i>Total</i> ..	12.7	4.3

### Cost of Producing Wheat.

The average cost of producing wheat during these five years is shown in the following statement. The average annual outturn of grain for this period was 19 maunds, 3 seers and 8 *chhataks*.

#### Average Cost per Acre of Producing Wheat.

	Amount.	Percentage.
	Rs. a. p.	
Mannal labour .. ..	5 4 0	13·9
Bullock „ .. ..	15 0 1	39·8
Water-rates .. ..	5 4 0	13·9
Seed .. ..	2 5 3	6·2
Manure .. ..	0 13 8	2·3
Implements .. ..	4 2 5	11·0
<i>Kamins</i> .. ..	0 10 8	1·8
Harvesting .. ..	1 15 3	5·2
Winnowing .. ..	2 3 4	5·9
<b>Total</b> .. ..	<b>37 10 8</b>	<b>100·0</b>

While the average cost has been Rs. 37/10/8 per acre, the cost per maund comes to Rs. 1/3/8. The average costs per acre for each year were :—

	Rs. a. p.
1927-28 .. ..	41 8 0
1928-29 .. ..	41 10 1
1929-30 .. ..	39 3 8
1930-31 .. ..	34 1 3
1931-32 .. ..	31 12 9

The lower cost in the last two years was due to low market prices and to the lower cost of bullock labour, seed, harvesting, winnowing and *kamins*. Of the total cost, Rs. 14/4/0 has been deducted as the value of *bhusa* and the rest divided by the total yield of grain to give the cost per maund; this comes to Rs. 1/3/8 per maund on the farm for an average yield of 19 maunds, 3 seers and 8 *chhataks*. The carting charges to the market are 7·0 pies per maund while the marketing expenses as given in Statement No. VI. are Rs. 0/1/3 per maund. Deducting Rs. 1/5/6, (the total cost of production and marketing), from Rs. 3/1/2 (the price of wheat), a profit of Rs. 1/11/8 per maund is shown, giving a profit of Rs. 33/0/1 per acre.

To grow an acre of wheat required 20·0 days of manual labour and 8·9 days of a pair of bullocks. The details for these labour totals are given below :—

*Manual and Bullock Labour.*

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing ..	5·9	5·8
Carting manure ..	0·1	..
Hoing and harrowing ..	0·4	0·1
Watering ..	3·4	..
Harvesting, etc. ..	10·2	3·0
<i>Total</i> ..	<i>20·0</i>	<i>8·9</i>

If the sum of all the items of expenditure, except manual labour, were subtracted from the total value of crops, the figure obtained may be said to be the return for the manual labour engaged in the production of this crop. It is this figure which is important for the cultivators, for they themselves are the workers on the farm.

*Cost of Producing Toria.*

The average cost of producing *toria* during the five years, 1927-28 to 1931-32, is given below. While the yields have varied considerably from year to year and from tenant to tenant, the average for this period has been 7 maunds, 6 seers and 2 *chhataks*.

*Average Cost Per Acre of Producing Toria.*

	Amount.	Percentage.
	Rs. a. p.	
Manual labour ..	3 7 2	19·1
Bullock ..	7 3 7	40·1
Water-rates ..	4 4 0	23·6
Seed ..	0 5 11	2·1
Manure ..	0 1 7	0·5
Implements ..	1 0 9	5·8
<i>Kamins</i> ..	0 10 3	3·6
Winnowing, harvesting, etc. ..	0 15 0	5·2
<i>Total</i> ..	<i>18 0 3</i>	<i>100·0</i>

Dividing the average cost by the average yield, the cost of producing one maund comes to Rs. 2/8/3 and the corresponding figures for different years are :—

		Rs.	a.	p.
1927-28	..	3	14	0
1928-29	..	3	11	2
1929-30	..	2	1	5
1930-31	..	2	3	11
1931-32	..	1	12	10

In the first two years, the figures were higher than those of the last three years and the reasons are not far to seek. A study of Appendix III. shows that this difference for *toria* has been mainly created by the poor average yields in these years while the total cost per acre has not varied much.

The price at which *toria* was sold in the market has varied in different years but the average works out at Rs. 5/4/3 per maund. The carting and marketing charges were Rs. 0/0/8 and Rs. 0/2/1, respectively ; when these are added to the cost of production per maund and then subtracted from the market price, they show a profit of Rs. 2/9/3 per maund. Multiplying this figure by the average yield gives Rs. 18/7/1, which represents the profit per acre.

The labour requirements of *toria* have been 11·6 days of one man and 4·3 days of a pair of bullocks per acre. The following figures show the extent to which each of the operations has contributed to the total :—

*Manual and Bullock Labour.*

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing ..	3·4	3·3
Carting manure .. .. .	..	..
Hoeing and harrowing ..	0·1	0·1
Watering .. .. .	2·8	..
Harvesting, etc. .. .. .	5·3	0·9
<i>Total</i> ..	<i>11·6</i>	<i>4·3</i>

*Cost of Producing Gur from Sugarcane.*

The average cost of producing sugarcane during the five years, 1927-28 to 1931-32, is given below. The average yield of *gur* was 50 maunds, 10 seers and 1 *chhatak* per acre.

*Cost Per Acre of Producing Gur from Sugarcane.*

	Amount.	Percentage.
	Rs. a. p.	
Manual labour .. ..	33 6 5	24·0
Bullock „ .. ..	43 2 10	31·1
Water-rates .. ..	12 0 0	8·6
Seed .. ..	15 8 6	11·2
Manure .. ..	14 15 7	10·8
Implements .. ..	11 7 10	8·3
<i>Kamins</i> .. ..	0 9 2	0·4
Furnace feeder .. ..	7 11 7	5·6
<i>Total</i> .. ..	<i>138 13 11</i>	<i>100·0</i>

This statement shows that it cost Rs. 138/13/11 to grow an acre of sugarcane and make *gur* from it, *i.e.*, Rs. 2/10/9 per maund of *gur* produced. The figures for each year were :—

	Rs. a. p.
1927-28 .. ..	3 10 1
1928-29 .. ..	2 10 9
1929-30 .. ..	2 11 0
1930-31 .. ..	2 6 0
1931-32 .. ..	2 7 6

During these years the average market price realized for *gur* was Rs. 4/1/11 per maund, while the cost of production at the farm was Rs. 2/10/9 per maund. The hauling and marketing charges being Rs. 0/0/9 and Rs. 0/1/7 per maund respectively, the total cost of production and marketing was Rs. 2/13/1 per maund, which leaves a profit of Rs. 1/4/10 per maund or Rs. 65/6/11 per acre. This shows that when the price of *gur* is below Rs. 2/13/0 per maund, the farmer suffers a loss instead of making a profit.

To grow an acre of sugarcane 106·9 days of manual labour and 29·9 days of bullock labour were required on an average. These totals were made up of the following operations :—

*Manual and Bullock Labour.*

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing .. ..	12·1	6·3
Carting manure .. ..	2·4	1·1
Hoeing and harrowing .. ..	18·1	0·9
Watering .. ..	10·8	..
Harvesting, crushing, <i>gur</i> -making, etc. .. ..	63·5	21·6
<i>Total</i> .. ..	<i>106·9</i>	<i>29·9</i>

### Cost of Producing Gram.

The average cost of producing gram is given below. The average yield during the five years was 10 maunds, 38 seers and 7 *chhataks*.

#### Average Cost Per Acre of Producing Gram.

	Amount.	Percentage.
	Rs. a. p.	
Manual labour .. ..	3 8 2	17.3
Bullock .. ..	7 12 5	38.2
Water-rates .. ..	3 4 0	16.0
Seed .. ..	1 1 11	5.5
Manure .. ..	2 0 11	10.1
Implements .. ..	1 1 11	5.5
<i>Kamins</i> .. ..	0 10 4	3.2
Winnowing .. ..	0 13 8	4.2
<i>Total</i> .. ..	20 5 4	100.0

Thus it costs Rs. 20/5/4 to grow an acre of gram, and Rs. 1/10/8 to produce one maund. The average price secured in the market was Rs. 3/1/10 per maund and carting and marketing charges were Rs. 0/0/7 and Rs. 0/1/3 per maund, respectively. After deducting production and marketing costs from the market price, a profit of Rs. 1/5/4 per maund or Rs. 14/9/10 per acre was left.

11.8 days of one man and 4.6 days of a pair of bullocks were required to grow an acre of gram. The details are:—

#### Manual and Bullock Labour.

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing .. ..	4.0	3.6
Carting manure .. ..	0.4	0.2
Hoeing and harrowing .. ..	1.0	..
Watering .. ..	1.9	..
Harvesting, threshing, etc. ..	4.5	0.8
<i>Total</i> .. ..	11.8	4.6

### Cost of Producing Maize.

This crop forms only 1·1 per cent. of the cropping scheme and its average cost of production is set out in the following table. The average yield during this period was 15 maunds, 7 seers and 13 *chhataks* per acre :—

#### Average Cost Per Acre of Producing Maize.

	Amount.	Percentage.
	Rs. a. p.	
Manual labour .. ..	7 10 7	19·9
Bullock „ .. ..	10 11 10	27·9
Water-rates .. ..	4 12 0	12·3
Seed .. ..	1 1 7	2·8
Manure .. ..	10 6 3	27·0
Implements .. ..	1 10 2	4·2
<i>Kamins</i> .. ..	0 9 11	1·7
Winnowing .. ..	1 10 0	4·2
<i>Total</i> .. ..	38 8 4	100·0

The statement shows that it costs Rs. 38/8/4 to grow an acre of maize or Rs. 2/2/5 per maund of grain. On referring to the statements for maize in Appendix VI. it will be found that there have been considerable variations in yield ; in 1928-29 the outturn was a little more than double of what it was in 1930-31. The average price for maize works out to Rs. 2/11/3 per maund and with carting and marketing charges of Rs. 0/1/9 per maund, the total cost of production and marketing comes to Rs. 2/4/2. This shows that the cultivators secured only Rs. 0/7/1 per maund or Rs. 6/11/7 per acre, on an average by growing this crop. The cultivators actually suffered a loss in 1930-31, when the price was only Rs. 1/4/0 per maund.

The labour requirements of this crop are given below :—

#### Manual and Bullock Labour.

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivating and sowing .. ..	6·1	5·5
Carting manure .. ..	1·8	0·8
Hoeing and harrowing .. ..	3·1	0·1
Watering .. ..	4·7	..
Harvesting, etc. .. ..	8·8	..
<i>Total</i> .. ..	24·5	6·4

*Cost of Producing Berseem for Seed.*

This crop has only recently been introduced into the Punjab by the Agricultural Department. On this farm it was first grown in 1928-29 and the average cost per acre for four years was :—

*Average Cost Per Acre of Producing Berseem.*

	Amount.	Percentage.
	Rs. a. p.	
Manual labour .. ..	15 14 5	29·7
Bullock „ .. ..	18 10 2	34·9
Water-rates .. ..	1 8 0	2·8
Seed .. ..	14 1 8	26·4
Implements .. ..	2 11 7	5·1
<i>Kamins</i> .. ..	0 9 4	1·1
<i>Total</i> .. ..	<i>53 7 2</i>	<i>100·0</i>

This shows that it costs Rs. 53/7/2 to grow an acre of *berseem* ; after deducting Rs. 14/12/1, the value of green fodder sold, Rs. 38/11/1 was left as the net cost of producing seed. The average yield was 2 maunds, 15 seers and 7 *chhataks* per acre and thus the cost of production of seed was Rs. 16/3/7 per maund, or Rs. 0/6/6 per seer.

The amount of labour expended on the cultivation of this crop was :—

*Manual and Bullock Labour.*

	Manual labour.	Bullock labour.
	Days.	Days.
Cultivation and sowing .. ..	5·2	5·2
Carting manure .. ..	..	..
Hoeing and harrowing .. ..	8·6	0·1
Watering .. ..	10·5	..
Harvesting, etc. .. ..	26·6	6·5
<i>Total</i> .. ..	<i>50·9</i>	<i>11·8</i>

*Cost of Producing Fodders.*

The items of the cost of producing *khari* and *rabi* fodders are practically identical ; hence they are taken together. The following statement gives the average cost of production per

acre during the five years under review :—

*Average Cost Per Acre of Producing Fodders.*

	KHARIF FODDERS.		RABI FODDERS.	
	Amount.	Percentage	Amount.	Percentage
	Rs. a. p.		Rs. a. p.	
Manual labour .. ..	2 12 8	12·7	2 8 2	14·9
Bullock „ .. ..	6 8 7	29·6	4 3 7	24·9
Water-rates .. ..	1 11 10	7·9	1 12 0	10·3
Seed .. ..	2 8 6	11·5	2 6 5	14·2
Manure .. ..	6 13 7	31·0	4 12 1	28·1
Implements .. ..	0 14 10	4·2	0 9 7	3·6
<i>Kamins</i> .. ..	0 10 10	3·1	0 10 10	4·0
<i>Total</i> .. ..	22 0 10	100·0	16 14 8	100·0

Thus it costs Rs. 22/0/10 to grow an acre of *kharif* fodders and Rs. 16/14/8 to grow one acre of *rabi* fodders. These fodders are utilized on the farm for feeding the cattle of tenants, who pay the landlord in cash for his share of fodders according to the rate prevalent in the locality. The average rate per acre for the five years was Rs. 51/6/1 for *kharif* season fodders and Rs. 63/7/3 for *rabi* season fodders. This leaves a profit of Rs. 29/5/3, and Rs. 46/8/7 per acre, respectively.

The manual and bullock labour spent on the cultivation of these crops are given below :—

*Manual and Bullock Labour.*

	KHARIF FODDERS.		RABI FODDERS.	
	Manual labour.	Bullock labour.	Manual labour.	Bullock labour.
	Days.	Days.	Days.	Days.
Cultivation and sowing ..	3·1	3·0	2·2	2·0
Carting manure ..	1·4	0·7	0·8	0·4
Hoeing and harrowing ..	0·2	..	0·4	..
Watering ..	4·2	..	4·6	..
Harvesting, etc. ..	..	..	..	..
<i>Total</i> .. ..	8·9	3·7	8·0	2·4

In the above table no labour for harvesting fodder is shown as the figures of cost have been found out only for producing these fodders. When a fodder crop is sold, it is generally sold at *kanal* rates and the buyers are responsible for the expenses of harvesting.

So far the cost of cultivation of various crops per acre on an average for five years has been given. Sugarcane and cotton have shown high profits; wheat, *toria* and gram come next, while maize leaves very little. This does not, however, give a very clear idea of the financial position of the cultivator, because the area under various crops is not the same and also because a small part of the area has given two crops per year. For this purpose, therefore, the Statement No. III.-A. which gives the costs and returns on a complete holding, is presented on the next page.

The statement shows that the gross income from one square (27·8 acres) is Rs. 2,061/9/10, which when divided equally between landlord and cultivator, gives Rs. 1,030/12/11 to each. The total cost of cultivation comes to Rs. 946/0/8, out of which Rs. 113/12/9 is paid by the landlord for his share of cost and Rs. 832/3/11 by the tenants. Thus the tenants get a return of Rs. 198/9/0, in addition to their own wages of five annas per working day. The landlord gets Rs. 917/0/2, out of which he has to pay Rs. 166/12/10 as land-revenue to the Government, Rs. 29/1/8 as local rates to the District Board and Rs. 155/1/3 as the cost of management.

**STATEMENT III.-A.**  
*Average Income and Expenditure Per Square (27·8 Acres) of Land for Six Tenants during the Five Years, 1927-28 to 1931-32.*

Crop.	Acres.	INCOME.				COST OF CULTIVATION.		Surplus or deficit (col. 6 less col. 8).
		Yield per acre.	Total outturn.	Rate per maund.	Value.	Per acre.	Total.	
1	2	3	4	5	6	7	8	9
Wheat .. ..	A. K. M. 13 2 5	M. S. C. 19 3 8	M. S. C. 253 20 4	Rs. a. p. 3 1 2·0	Rs. a. p. 779 0 1	} 37 10 8	500 4 2	467 15 9
„ bhusa .. ..	..	32 17 5	430 29 15	0 7 0·35	189 3 10			
Cotton .. ..	5 7 6	7 37 15	46 39 14	11 4 6·4	530 4 6	29 2 8	172 7 2	357 13 4
Fodders .. ..	4 1 3	..	..	7 2 2·5 per kanal	236 10 0	19 12 7	81 15 10	154 10 2
Toria .. ..	3 0 0	7 6 2	21 18 6	5 4 2·9	112 15 9	18 0 3	54 0 9	58 15 0
Gram .. ..	1 5 15	10 38 7	18 33 9	3 1 10·2	58 11 1	} 20 5 4	34 15 2	27 5 4
„ bhusa .. ..	..	10 38 7	18 33 9	0 3 0·6	3 9 5			
Sugarcane (gur) .. ..	0 3 16	50 10 1	23 34 12	4 1 10·9	98 5 2	} 138 13 11	65 15 5	34 8 10
„ (juice) .. ..	..	..	..	..	2 3 1			
Berseem (seed) .. ..	0 3 10	2 15 7	1 1 12	27 3 6·4	28 6 7	} 53 7 2	23 6 2	11 7 8
„ (fodder) .. ..	..	..	..	..	6 7 3			
Maize .. ..	0 2 14	15 7 13	5 5 2	2 11 2·6	13 13 7	} 38 8 4	13 0 0	2 13 1
„ (stalks) .. ..	..	..	..	..	1 15 6			
<i>Total</i> .. ..	29 2 9	..	..	..	2,061 9 10	..	946 0 8	1,115 9 2
<i>Per acre held</i> .. ..	..	..	..	..	74 2 6	..	34 0 6	40 2 0

## SUMMARY.

*Object.*—The study of the cost of producing crops has come into prominence only recently; farming is the only important business in the Punjab which seems to be usually conducted without any systematic records. A thorough study of all costs and returns offers a hope of improving its financial aspect.

*General.*—The keeping of regular data for finding the costs of producing farm crops has been started at Risalewala, a Government Farm, three miles from Lyallpur. The land is cultivated by tenants, and wheat, cotton, and *toria* are the important crops grown here.

*Period of Study.*—The data given in this study were collected in a period of five years, from 1927-28 to 1931-32.

*Method.*—The following items of cost have been considered in determining the cost of production :—

Manual labour.	Manure.
Bullock „	Implements.
Water-rates.	Miscellaneous.
Seed.	

The charge for the use of land is not included in the general statement, as the land is mostly owned by peasant proprietors, who were granted this land at a nominal cost. The interest on the value of land is not included because land fetches a high price in the Punjab owing to "land hunger." Rent has been calculated for each tenant, however, and is given in a separate statement; this may be included if, and when needed.

*Cost of producing crops.*—The average costs of growing an acre of various crops, along with the cost of production of one maund of grain, and the average market price, are shown below :—

Crop.	Cost per acre.			Cost per maund.			Average sale price in market.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Cotton .. ..	29	2	8	3	10	9	11	4	6
Wheat .. ..	37	10	8	1	3	8	3	1	2
<i>Toria</i> .. ..	18	0	3	2	8	3	5	4	3
Sugarcane ( <i>gur</i> ) .. ..	138	13	11	2	10	9	4	1	11
Gram .. ..	20	5	4	1	10	8	3	1	10
Maize .. ..	38	8	4	2	2	5	2	11	3
<i>Berseem</i> seed .. ..	53	7	2	16	3	7	27	3	6

Transport and marketing expenses, as given in Statement Nos. IV., V. and VI. should be added to the cost per maund to find the total cost of production and marketing; the profit or loss can then be determined by subtracting this cost from the sale price. The figures in the third column for the cost of production of various crops per maund show the limits below which it would not pay to grow them.

*Labour requirements of Crops.*—The average amount of labour expended on the cultivation of different crops per acre is given in the following table; the figures for different years are given in Statement VIII. :—

Crop.	Manual labour.	Bullock labour.
	Days.	Days.
Cotton .. ..	12·7	4·3
Wheat .. ..	20·0	8·9
Toria .. ..	11·6	4·3
Sugarcane .. ..	106·9	29·9
Gram .. ..	11·8	4·6
Maize .. ..	24·5	6·4
Berseem .. ..	50·9	11·8
Kharif fodders .. ..	8·9	3·7
Rabi .. ..	8·0	2·4

#### STATEMENT IV.

*Carting Charges of various Crops from Risalewala to Lyallpur Market.*

		<i>Per maund.</i>	
Cotton	.. ..	1½	annas
Wheat	.. ..	7	pies
Gram	.. ..	7	..
Toria	.. ..	8	..
Maize	.. ..	7	..
Gur	.. ..	9	..
Bhusa	.. ..	1	anna.

## STATEMENT V.

*Marketing Expenses of Cotton in Lyallpur Market.*

		<i>Per Rs. 100 of the sale price.</i>	
		Rs.	a. p.
Commission	.. ..	0	12 6
Weighing charges	.. ..	0	4 6
<i>Palledari</i>	.. ..	0	4 6
Brokerage	.. ..	0	4 0
<i>Dharmarth</i>	.. ..	0	1 3
<i>Gaushala</i>	.. ..	0	0 3
<i>Karta</i>	.. ..	1	4 0
Miscellaneous, <i>langri</i> , water carrier, etc.	.. ..	0	2 0
<b>Total</b>	.. ..	3	1 0
		or	
		5.68 pies per rupee.	

In addition to the above, labour is paid in the ginning factory at the rate of 3 pies per maund and 2 annas per cart, along with 1 seer of cotton as a sample, and  $1\frac{1}{2}$  seers per cart-load as *changar* charges. This means 4.2 pies cash and  $1\frac{1}{2}$  *chhataks* of cotton per maund.

		Rs.	a. p.
Average price of cotton	.. ..	11	4 6 per maund.
∴ Marketing charges are	.. ..	0	6 1 „ „

## STATEMENT VI.

*Marketing Expenses of Farm Products other than Cotton in Lyallpur Market.*

		<i>Per Rs. 100 of sale price.</i>	
		Rs.	a. p.
Commission	.. ..	0	12 6
Weighing charges	.. ..	0	3 9
<i>Palledari</i>	.. ..	0	3 9
<i>Chungi</i>	.. ..	0	1 3
Brokerage	.. ..	0	1 3
<i>Shagirdi</i>	.. ..	0	1 3
<i>Dharmarth</i>	.. ..	0	1 3
<i>Gaushala</i>	.. ..	0	0 3
<i>Changar, beriota, cook, water-carrier, sweeper, etc.</i>	.. ..	0	12 3
<b>Total</b>	.. ..	2	5 6
		or	
		4.5 pies per rupee.	

In addition to this, *rulai* is paid at 3 pies per bag. These charges per maund for the various crops along with their average market prices are given below :—

Crop.	Price per maund.		Marketing charges per maund.	
	Rs.	a. p.	Rs.	a. p.
Wheat	3	1 2	0	1 3
Gram	3	1 10	0	1 3
Toria	5	11 3	0	2 1
Maize	2	11 3	0	1 2

In the case of *gur*, brokerage is paid at the rate of Rs. 0/2/6 per cent. instead of Rs. 0/1/3 ; other items are about the same as for other crops. Thus the total charges for *gur* amount to Rs. 2/6/9 per Rs. 100 or 4.65 pies per rupee. With an average price of *gur* of Rs. 4/1/11 these expenses will be Rs. 0/1/7 per maund.

#### STATEMENT VII.

*Average Prices Per Maund of different Farm Products during the Five Years, 1927-28 to 1931-32, in Lyallpur Market.*

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
	Rs. a. p.					
Cotton	15 9 6	14 8 3	10 13 7	6 9 6	8 4 1	11 4 6
Wheat	4 9 0	4 2 0	2 14 0	1 9 0	2 8 0	3 1 2
„ <i>bhusa</i>	0 12 0	0 9 0	0 6 0	0 3 0	0 5 6	0 7 0
Toria	6 9 0	7 1 6	6 0 0	4 4 6	3 12 9	5 4 3
Gram	4 4 0	4 4 6	3 2 0	1 13 3	1 13 0	3 1 10
Maize	3 6 0	4 12 0	..	1 4 0	..	2 11 3
<i>Gur</i>	4 8 0	5 7 6	5 4 9	3 8 2	2 15 0	4 1 11
<i>Berseem</i> seed	..	50 0 0	30 0 0	17 8 0	15 0 0	27 3 6
* <i>Kharif</i> fodders	8 0 1	6 6 10	6 11 7	6 1 11	4 6 5	6 6 9
* <i>Rabi</i> „	8 1 3	8 2 10	8 4 8	8 1 9	6 11 3	7 14 11

\*Rates shown against fodders are for a *kanal*, i.e., one-eighth of an acre, and not per maund as in other cases.

## STATEMENT VIII.

*Manual Labour per Acre in Days, 1927-28 to 1931-32.*

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
Cotton ..	10.75	12.96	12.15	14.22	13.63	12.7
Wheat ..	18.53	22.47	20.74	19.63	10.10	20.0
Toria ..	11.56	11.34	11.62	10.99	12.50	11.6
Gram ..	11.98	10.62	13.10	10.23	13.32	11.8
Kharif fodders ..	7.95	7.23	9.48	8.14	11.77	8.9
Rabi ..	6.87	6.59	7.83	9.06	10.76	8.0
Maize ..	14.43	28.04	..	29.91	..	24.5
Sugarcane ..	101.10	153.63	99.59	96.48	100.53	106.9
Berseem ..	..	44.89	57.92	48.94	51.96	50.9

*Bullock Labour per Acre in Days.*

Crop.	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.	Average.
Cotton ..	3.84	4.39	4.04	4.70	4.66	4.3
Wheat ..	7.10	8.68	9.08	9.57	10.23	8.9
Toria ..	4.51	4.16	4.42	3.86	4.69	4.3
Gram ..	4.97	3.63	5.05	4.21	5.23	4.6
Kharif fodders ..	3.90	3.05	3.79	3.21	4.64	3.7
Rabi ..	1.78	2.43	2.21	3.19	2.66	2.4
Maize ..	3.09	7.79	..	7.61	..	6.4
Sugarcane ..	23.95	44.14	26.69	26.51	31.23	29.9
Berseem ..	..	10.91	11.91	13.95	10.19	11.8

*Summary of Cost of Production of Cotton for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for five years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour .. ..	109 15 10	145 15 8	118 10 7	136 5 3	139 6 5	660 5 9	3 15 8	13.6
Bullock .. ..	318 0 8	287 15 6	224 1 8	214 15 9	168 8 11	1,208 10 6	7 6 4	25.4
Water-rates* .. ..	204 9 3	225 4 6	195 5 9	191 11 0	204 7 7	1,021 6 1	6 4 0	21.4
Seed .. ..	22 2 5	26 8 0	54 13 5	27 0 3	20 8 6	151 0 7	0 14 9	3.2
Manure .. ..	83 2 6	73 13 9	43 12 10	72 9 7	111 13 8	386 4 4	2 5 9	8.1
Implements .. ..	36 13 0	39 2 5	28 14 9	34 1 6	33 6 9	172 6 5	1 0 10	3.6
Kamins .. ..	34 0 0	38 14 2	16 13 3	9 2 8	12 9 6	111 7 7	0 10 11	2.3
Pickings .. ..	356 7 7	198 1 8	260 7 4	140 14 8	110 8 11	1,066 8 2	6 8 5	22.4
<i>Total</i> .. ..	<i>1,160 3 3</i>	<i>1,035 11 8</i>	<i>942 15 7</i>	<i>826 12 8</i>	<i>801 6 3</i>	<i>4,767 1 5</i>	<i>29 2 8</i>	<i>100.0</i>
Gross income .. ..	5,045 3 10	2,734 1 1	3,502 2 5	1,857 4 5	1,519 7 4	14,658 3 1	89 11 0	..
Balance .. ..	3,885 0 7	1,893 5 5	2,559 2 10	1,030 7 9	718 1 1	9,891 1 8	60 8 4	..
Cost per acre .. ..	35 7 2	28 11 9	30 2 8	26 15 4	24 7 9	..	29 2 8	..
"    " maund .. ..	3 9 4	5 8 0	2 14 9	2 15 0	4 6 1	8 10 9	..	..
						(average)		
Per { Gross income .. ..	154 2 3	75 13 6	112 0 9	60 8 10	46 6 9	..	89 11 0	..
{ Balance .. ..	118 11 1	47 1 9	81 14 1	33 9 6	21 15 0	..	60 8 4	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.		
Area .. ..	32 5 17	36 0 7	31 2 1	30 5 7	32 5 17	163 3 9	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield .. ..	323 21 11	188 14 2	322 29 10	281 22 13	182 35 7	1,299 3 11	7 37 15	..
Yield per acre .. ..	9 35 6	5 9 0	10 13 0	9 7 3	5 23 8	..	7 37 15	..

\* See notes under the statements of different years.

*Summary of Cost of Production of Wheat for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for five years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour .. .. .	350 8 1	374 1 10	391 6 11	404 10 11	407 11 6	1,928 7 3	5 4 0	13.9
Bullock .. .. .	1,362 12 4	1,119 8 9	1,170 3 3	1,044 0 5	813 14 4	5,510 7 1	15 0 1	39.8
Water-rates* .. .. .	404 4 0	373 2 3	384 2 9	379 2 10	386 15 10	1,927 11 8	5 4 0	13.9
Seed .. .. .	233 5 0	195 3 0	194 7 3	123 13 3	108 6 0	855 2 6	2 5 3	6.2
Manure .. .. .	70 8 0	45 2 10	58 9 7	48 2 1	90 9 0	312 15 6	0 13 8	2.3
Implements .. .. .	397 1 9	260 5 8	307 0 2	289 6 4	269 8 10	1,522 6 9	4 2 5	11.0
Kamins .. .. .	79 8 9	76 13 6	39 6 1	21 7 7	28 0 1	245 4 0	0 10 8	1.8
Harvesting .. .. .	120 1 8	258 13 3	141 12 0	67 7 0	130 0 0	718 1 11	1 15 3	5.2
Winnowing .. .. .	177 10 9	255 13 0	183 10 1	84 2 9	108 12 9	810 1 4	2 3 4	5.9
<b>Total</b> .. .. .	<b>3,195 12 4</b>	<b>2,959 0 1</b>	<b>2,870 10 1</b>	<b>2,462 5 2</b>	<b>2,343 14 4</b>	<b>13,831 16 0</b>	<b>37 10 8</b>	<b>100.0</b>
Value of <i>bhusa</i> .. .. .	1,431 0 9	1,610 3 1	995 0 10	415 8 4	779 15 3	5,232 2 9	14 4 0	..
Cost of grain .. .. .	1,764 5 7	1,348 13 0	1,875 9 3	2,046 12 10	1,563 15 1	8,599 7 9	23 6 8	..
Gross income .. .. .	8,280 11 6	8,221 14 9	5,618 4 7	2,723 15 8	3,925 11 3	26,770 9 9	72 14 5	..
Balance .. .. .	3,084 15 2	5,262 14 8	2,747 10 6	281 10 6	1,581 12 11	12,938 16 9	35 3 9	..
Per acre {								
Total cost .. .. .	41 8 0	41 10 1	39 3 8	34 1 3	31 12 9	..	37 10 8	..
Value of <i>bhusa</i> .. .. .	18 9 5	22 10 5	13 9 7	5 12 0	10 9 3	..	14 4 0	..
Cost of grain .. .. .	22 14 7	18 15 8	25 10 1	28 5 3	21 3 6	..	23 6 8	..
Cost per maund of grain .. .. .	1 10 7	0 13 6	1 2 8	1 6 2	1 3 11	1 3 8	..	..
Per acre {						(average)		
Gross income .. .. .	81 9 0	115 10 11	76 12 5	37 11 3	53 4 1	..	72 14 5	..
Balance .. .. .	40 1 0	74 0 10	37 3 9	3 10 0	21 7 4	..	35 3 9	..
Area .. .. .	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	..	..
	77 0 0	71 0 12	73 1 9	72 2 0	73 5 14	367 1 14	..	..
Total yield {	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
Grain .. .. .	1,062 34 4	1,602 38 12	1,608 3 4	1,477 16 6	1,258 12 0	7,009 19 10	19 3 8	..
<i>Bhusa</i> .. .. .	1,908 22 8	2,862 18 8	2,653 19 0	2,216 4 9	2,268 38 0	11,309 22 9	32 17 5	..
Grain .. .. .	13 32 2	22 22 1	21 39 1	20 17 12	17 2 13	..	19 3 8	..
<i>Bhusa</i> .. .. .	24 31 7	40 10 10	36 10 8	30 26 10	30 31 2	..	32 17 5	..

\* See notes under the statements of different years.

*Summary of Cost of Production of Toria for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for 5 years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	48 2 10	50 11 1	51 0 2	59 7 0	76 14 6	286 3 7	3 7 2	19.1
Bullock ..	158 11 9	123 3 9	118 2 8	102 13 6	96 10 11	599 10 7	7 3 7	40.1
Water-rates ..	61 3 1	69 0 8	65 5 0	73 8 2	83 10 4	362 11 3	4 4 0	23.6
Seed ..	7 0 6	7 6 0	6 15 9	4 15 1	4 5 9	30 11 1	0 5 11	2.1
Manure ..	..	7 0 0	..	1 3 2	..	8 3 2	0 1 7	0.5
Implements ..	18 12 0	16 15 0	15 0 9	15 12 0	20 6 4	86 14 1	1 0 9	5.8
Kamins ..	14 12 5	17 7 5	8 4 0	5 1 7	7 8 3	53 1 8	0 10 3	3.6
Winnowing ..	13 9 2	15 2 2	20 8 0	12 6 3	16 0 8	77 10 3	0 15 0	5.2
<b>Total</b> ..	<b>322 3 9</b>	<b>306 14 1</b>	<b>285 4 4</b>	<b>275 2 9</b>	<b>305 8 9</b>	<b>1,495 1 8</b>	<b>18 0 3</b>	<b>100.0</b>
Gross income ..	538 10 5	599 6 11	819 15 0	524 10 1	642 13 4	3,125 7 9	37 0 7	..
Balance ..	216 6 8	292 8 10	534 10 8	249 7 4	337 4 7	1,630 6 1	19 10 4	..
Cost per acre ..	22 6 1	18 14 4	18 9 0	15 14 7	15 8 5	..	18 0 3	..
„ „ maund ..	3 14 10	3 11 2	2 1 5	2 3 11	1 12 10	2 8 3	..	..
Per acre { Gross income ..	37 6 7	36 14 6	50 12 0	30 5 5	32 10 7	(average)	37 10 7	..
„ { Balance ..	15 0 6	18 0 2	32 3 0	14 6 10	17 2 2	..	19 10 4	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.		
Area ..	14 3 4	16 1 19	15 2 19	17 2 7	19 5 9	82 7 18	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	82 3 4	83 1 8	136 26 5	122 21 14	169 12 14	593 25 13	7 6 2	..
Yield per acre ..	5 28 0	5 4 8	8 35 10	7 3 7	8 24 2	..	7 6 2	..

*Summary of Cost of Production of Sugarcane for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for five years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.			
Manual labour .. ..	71 3 0	68 1 9	72 4 9	127 12 3	99 11 0	439 0 9	33 6 5	24.0
Bullock .. ..	118 2 9	94 14 5	99 14 9	172 4 1	82 4 4	567 8 4	43 2 10	31.1
Water-rates .. ..	27 0 0	17 0 5	27 14 0	50 13 7	34 15 2	157 11 2	12 0 0	8.6
Seed .. ..	47 5 10	14 0 8	24 13 2	88 12 0	29 2 11	204 2 5	15 8 6	11.2
Manure .. ..	34 13 5	17 3 4	40 5 6	34 8 0	69 14 10	196 13 1	14 15 7	10.8
Implements .. ..	23 8 1	22 7 5	27 6 3	45 0 10	32 9 9	151 0 4	11 7 10	8.3
Kamins .. ..	2 5 11	1 9 3	1 3 6	1 4 1	1 1 8	7 8 5	0 9 2	0.4
Jhoka .. ..	16 3 11	19 6 1	23 5 5	26 13 10	15 11 7	101 8 10	7 11 7	5.6
<i>Total</i> .. ..	<i>340 10 11</i>	<i>254 11 2</i>	<i>317 3 4</i>	<i>547 4 8</i>	<i>365 7 3</i>	<i>1,825 5 4</i>	<i>138 13 11</i>	<i>100.0</i>
Value of juice .. ..	.. ..	4 1 0	1 7 0	55 3 0	.. ..	60 11 0	4 9 10	..
Cost of gur .. ..	340 10 11	250 10 2	315 12 4	492 1 8	365 7 3	1,764 10 4	134 4 1	..
Gross income .. ..	422 0 9	517 2 8	623 15 6	783 10 7	434 10 7	2,781 3 1	211 9 9	..
Balance .. ..	81 5 10	262 7 6	308 12 2	236 5 11	69 3 4	956 2 9	72 17 10	..
Cost per acre .. ..	151 3 5	179 8 4	136 9 3	129 2 6	125 7 8	.. ..	138 13 11	..
.. .. maund .. ..	2 10 1	2 10 9	2 11 0	2 6 0	2 7 6	2 10 9	..	..
						(average)		
Per (Gross income .. ..	187 5 0	364 8 4	268 10 7	184 14 11	149 3 10	.. ..	211 9 9	..
acre (Balance .. ..	36 1 7	186 0 0	132 1 4	55 12 5	23 12 2	.. ..	72 11 10	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.		
Area .. ..	2 2 0.5	1 3 7	2 2 11.6	4 1 18	2 7 6	13 1 3.1	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield (gur) .. ..	93 31 8	93 33 0	117 21 2	207 16 6	147 38 2	660 20 12	50 10 1	..
Yield per acre (gur) .. ..	41 25 0	66 5 5	50 24 2	52 23 11	50 32 3	.. ..	50 10 1	..

*Summary of Cost of Production of Gram for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for 5 years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour .. ..	32 1 5	26 8 4	29 12 4	36 13 3	41 13 8	167 1 0	3 8 2	17.27
Bullock .. ..	113 4 4	58 12 3	69 10 9	75 0 7	53 1 8	369 13 7	7 12 5	38.23
Water-rates .. ..	29 15 1	29 2 8	25 4 8	37 7 6	32 10 11	154 8 10	3 4 0	16.00
Seed .. ..	9 12 8	16 9 0	12 6 0	10 1 2	4 9 5	63 6 3	1 1 11	6.52
Manure .. ..	4 12 10	24 15 11	24 5 2	37 12 2	5 13 7	97 11 8	2 0 11	10.10
Implements .. ..	13 14 1	7 12 9	8 12 6	11 8 2	11 3 9	53 3 3	1 1 11	5.50
Kamins .. ..	9 8 8	9 11 5	4 3 1	3 6 7	3 13 1	30 10 10	0 10 4	3.17
Winnowing .. ..	7 7 9	13 7 1	9 8 10	5 13 0	4 6 6	40 11 2	0 13 8	4.21
<i>Total cost</i> .. ..	<i>220 12 10</i>	<i>186 15 5</i>	<i>183 15 4</i>	<i>217 14 5</i>	<i>157 8 7</i>	<i>967 2 7</i>	<i>20 5 4</i>	<i>100.0</i>
Value of <i>bhusa</i> .. ..	31 12 4	31 8 6	15 4 3	8 5 2	12 7 5	99 5 8	2 1 5	..
Cost of grain .. ..	189 0 6	155 6 11	168 11 1	209 9 3	145 1 2	867 12 11	18 3 10	..
Gross income .. ..	391 14 1	571 6 2	398 13 4	170 8 1	193 0 7	1,723 10 3	36 3 7	..
Balance .. ..	171 1 3	384 6 9	212 14 0	-(47 6 4)	35 8 0	756 7 8	15 14 5	..
Cost per acre .. ..	23 15 6	20 12 11	23 10 1	18 14 3	15 10 8	..	20 5 2	..
Value of <i>bhusa</i> per acre .. ..	3 7 2	3 8 2	1 15 5	0 11 7	1 3 10	..	2 1 5	..
Cost per maund of grain .. ..	2 3 8	1 3 9	1 6 2	2 5 10	1 7 3	1 10 8 (average)	..	..
Per acre { Gross income .. ..	42 8 8	63 9 3	50 15 10	14 12 5	19 3 2	..	36 3 7	..
{ Balance .. ..	18 9 2	42 12 4	27 5 9	-(4 1 10)	3 8 6	..	15 14 5	..
Area .. ..	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. M. K.	..	..
	9 1 14	8 7 18	7 6 5	11 4 4	10 0 9	47 4 10	..	..
Total yield { Grain .. ..	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
{ <i>Bhusa</i> .. ..	84 29 4	126 4 0	122 4 0	88 28 8	99 28 0	521 13 12	10 38 7	..
{ Grain .. ..	84 29 4	126 4 0	122 4 0	88 28 8	99 28 0	521 13 12	10 38 7	..
{ <i>Bhusa</i> .. ..	9 7 14	14 1 4	15 28 7	7 27 14	9 36 9	..	10 38 7	..
Yield per acre { <i>Bhusa</i> .. ..	9 7 14	14 1 4	15 28 7	7 27 14	9 36 9	..	10 38 7	..

Summary of Cost of Production of Maize for the Three Years, 1927-28, 1928-29 and 1930-31.

Items.	YEARS.			Total.	Average per acre for three years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1930-31.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour .. ..	14 4 2	9 13 9	48 0 4	72 2 3	7 10 7	19.9
Bullock .. ..	29 14 5	13 13 7	57 7 3	101 3 3	10 11 10	27.9
Water-rates .. ..	15 0 5	5 5 6	24 6 5	44 12 4	4 12 0	12.3
Seed .. ..	5 4 0	2 9 7	2 7 7	10 5 2	1 1 7	2.8
Manure .. ..	10 0 0	24 0 0	63 13 4	97 13 4	10 6 3	27.0
Implements .. ..	3 11 8	2 6 11	9 3 5	15 6 0	1 10 2	4.2
Kamins .. ..	3 2 9	1 2 10	1 8 2	5 13 9	0 9 11	1.7
Harvesting .. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
Winnowing .. ..	8 11 8	6 9 6	.. ..	15 6 2	1 10 0	4.2
<b>Total cost .. ..</b>	<b>90 1 1</b>	<b>65 13 8</b>	<b>206 14 6</b>	<b>362 13 3</b>	<b>38 8 4</b>	<b>100.0</b>
Value of fodder .. ..	25 4 9	9 0 0	20 8 5	54 13 2	5 13 2	..
Cost of grain .. ..	64 12 4	56 13 8	186 6 1	308 0 1	32 11 2	..
Gross income .. ..	201 1 8	140 15 11	99 5 5	441 7 0	46 13 11	..
Balance .. ..	111 0 7	75 2 3	-(107 9 1)	78 9 9	3 5 7	..
Total cost per acre .. ..	28 7 8	58 8 8	40 5 2	..	38 8 4	..
Value of fodder per acre .. ..	8 0 0	8 0 0	4 0 0	..	5 13 2	..
Cost of grain per acre .. ..	20 7 8	50 8 8	36 5 2	..	32 11 2	..
Cost per maund of grain .. ..	1 3 11	2 0 9	2 15 1	2 2 5 (average)	..	..
Gross income .. ..	63 9 5	125 5 3	19 5 9	..	46 13 11	..
Balance .. ..	35 1 9	66 12 7	-(20 15 5)	..	8 5 7	..
Area .. ..	A. K. M. 3 1 6	A. K. M. 1 1 0	A. K. M. 5 1 1	A. K. M. 9 3 7	..	..
Total yield .. ..	Mds. Srs. Ch. 52 3 8	Mds. Srs. Ch. 27 31 8	Mds. Srs. Ch. 63 10 0	Mds. Srs. Ch. 143 5 0	Mds. Srs. Ch. 15 7 13	..
Yield per acre .. ..	16 18 13	24 28 0	12 13 1	..	15 7 13	..

Summary of Cost of Production of Berseem Seed for the Four Years, 1928-29 to 1931-32.

	YEARS.				Total.	Average per acre for four years.	Percentage of each item to total cost.
	1928-29.	1929-30.	1930-31.	1931-32.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour .. ..	44 0 4	56 5 2	46 7 4	44 10 2	191 7 0	15 14 6	29.7
Bullock .. ..	62 14 5	64 13 7	66 10 4	29 15 0	224 5 4	18 10 2	34.9
Water-rates .. ..	4 11 4	4 10 0	4 8 11	4 2 0	18 1 0	1 8 0	2.8
Seed .. ..	74 0 0	60 0 0	27 0 0	8 12 0	169 12 0	14 1 8	26.4
Manure .. ..							
Implements .. ..	8 2 9	8 1 0	10 8 7	6 0 7	32 12 11	2 11 7	5.1
Kamins .. ..	3 6 3	1 11 1	0 14 5	1 0 9	7 0 6	0 9 4	1.1
<i>Total</i> .. ..	<i>197 3 1</i>	<i>195 9 7</i>	<i>156 1 7</i>	<i>94 8 8</i>	<i>643 6 9</i>	<i>53 7 2</i>	<i>100.0</i>
Value of fodder .. ..	17 0 6	85 4 9	16 12 0	58 8 9	177 10 0	14 12 1	..
Cost of seed .. ..	180 2 7	110 4 10	139 5 7	35 15 9	465 12 9	38 11 1	..
Gross income .. ..	323 4 6	315 9 2	184 0 9	136 2 9	959 1 2	79 10 9	..
Balance .. ..	126 1 5	119 15 7	27 15 2	41 10 3	315 10 5	26 3 7	..
Per { Total cost .. ..	62 13 7	62 13 6	51 6 3	34 6 0	..	53 7 2	..
acre { Value of fodder .. ..	5 6 10	27 6 6	5 8 3	21 4 8	..	14 12 1	..
{ Cost of seed .. ..	57 6 9	35 7 0	45 14 0	13 1 4	..	38 11 1	..
Cost per maund of seed .. ..	32 3 1	14 7 9	14 5 1	16 15 3	16 3 7 (average)	..	..
Per { Gross income .. ..	103 0 8	101 6 3	60 9 6	49 8 3	..	79 10 9	..
acre { Balance .. ..	40 3 1	38 8 9	9 3 3	15 2 3	..	26 3 7	..
Area .. ..	A. K. M. 3 1 2	A. K. M. 3 0 18	A. K. M. 3 0 6	A. K. M. 2 6 0	A. K. M. 12 0 6	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield (seed) .. ..	6 5 0	7 27 1	9 29 4	5 7 0	28 26 6	9 15 7	..
Yield per acre (seed) .. ..	1 38 1	2 18 10	3 4 13	1 35 4	..	2 15 7	..

Summary of Cost of Production of Kharif Fodders for the Five Years, 1927-28 to 1931-32.

	YEARS.					Total.	Average per acre for five years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
Manual labour .. ..	Rs. a. p. 32 0 10	Rs. a. p. 26 11 2	Rs. a. p. 34 7 0	Rs. a. p. 29 5 7	Rs. a. p. 45 5 9	Rs. a. p. 167 14 4	Rs. a. p. 2 12 8	12.7
Bullock „ .. ..	127 7 10	65 0 7	77 7 7	60 10 7	62 14 4	393 8 11	6 8 7	29.6
Water-rates .. ..	26 8 8	17 11 8	18 15 1	23 1 3	18 7 9	104 12 5	1 11 10	7.0
Seed .. ..	40 1 3	36 2 4	40 8 6	14 10 0	21 0 8	152 6 9	2 8 6	11.5
Manure .. ..	87 12 10	56 1 7	71 8 11	80 10 2	116 5 2	412 6 8	6 13 7	31.0
Implements .. ..	14 15 11	8 10 10	10 3 2	8 15 11	13 1 1	65 14 11	0 14 10	4.2
Kamins .. ..	13 6 9	12 14 6	6 4 3	3 7 1	4 11 5	40 12 0	0 10 10	3.1
<i>Total cost</i> .. ..	<i>342 6 1</i>	<i>223 4 8</i>	<i>259 6 6</i>	<i>220 12 7</i>	<i>281 14 2</i>	<i>1,327 12 0</i>	<i>22 0 10</i>	<i>100.0</i>
Gross income .. ..	861 12 6	607 8 0	625 0 9	565 2 5	434 1 6	3,093 9 2	51 6 1	..
Balance .. ..	519 6 5	384 3 4	365 10 3	344 5 10	152 3 4	1,765 13 2	29 5 3	..
Cost per acre .. ..	26 8 4	18 14 3	22 5 4	19 2 0	22 13 11	..	22 0 10	..
Per { Gross income .. ..	68 8 11	51 6 5	58 13 0	48 16 4	35 3 6	..	51 6 1	..
acre { Balance .. ..	42 0 7	32 8 2	31 7 8	29 13 4	12 5 7	..	29 5 3	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area .. ..	12 7 5	11 6 11	11 4 19	11 4 7	12 2 12	60 1 14	..	..

*Summary of Cost of Production of Rabi Fodders for the Five Years, 1927-28 to 1931-32.*

	YEARS.					Total.	Average per acre for five years.	Percentage of each item to total cost.
	1927-28.	1928-29.	1929-30.	1930-31.	1931-32.			
Manual labour .. ..	Rs. a. p. 27 13 10.	Rs. a. p. 23 3 2	Rs. a. p. 26 12 9	Rs. a. p. 30 0 7	Rs. a. p. 28 9 8	Rs. a. p. 136 8 0	Rs. a. p. 2 8 2	14.9
Bullock ,, .. ..	56 3 2	50 10 6	43 9 11	51 15 7	27 0 5	229 7 7	4 3 7	24.9
Water-rates .. ..	25 13 5	16 14 3	16 6 11	23 2 9	12 12 0	95 1 4	1 12 0	10.3
Seed .. ..	33 7 9	46 3 11	22 9 5	14 14 8	13 4 10	130 8 7	2 6 5	14.2
Manure .. ..	21 6 5	67 12 9	59 7 7	73 6 5.	36 7 2	258 8 4	4 12 1	28.1
Implements .. ..	6 6 6	6 4 7	5 5 5	8 13 1	5 10 5	32 8 0	0 9 7	3.6
Kamins .. ..	13 7 0	12 3 5	5 14 2	2 2 4	3 3 4	36 14 3	0 10 10	4.0
<i>Total cost</i> .. ..	<i>184 10 1</i>	<i>223 4 7</i>	<i>180 2 2</i>	<i>204 7 5</i>	<i>126 15 10</i>	<i>919 8 1</i>	<i>16 14 8</i>	<i>100.0</i>
Gross income .. ..	839 4 6	740 10 8	726 9 6	686 11 7	455 10 6	3,448 14 9	68 7 3	..
Balance .. ..	654 10 5	517 0 1	546 7 4	482 4 2	328 10 8	2,529 6 8	46 8 7	..
Cost per acre .. ..	14 3 5	19 11 5	16 7 1	19 5 0	14 15 0	..	16 14 8	..
Per acre { Gross income .. ..	64 9 11	65 6 5	66 5 0	64 13 9	53 9 8	..	63 7 3	..
Per acre { Balance .. ..	50 6 6	45 11 0	49 18 11	45 8 9	38 10 8	..	46 8 7	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.		
Area .. ..	12 7 18	11 2 12	10 7 13	10 4 14	8 4 0	54 2 17	..	..

## COTTON.

APPENDIX  
COST OF PRODUCING COTTON  
1927-28.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	19 5 11	21 1 0	18 1 10	9 7 6
Bullock ,, ..	34 2 5	66 1 3	48 3 11	34 13 5
Water-rates ..	30 4 5	36 15 3	32 14 3	19 11 8
Seed ..	2 11 11	4 1 0	3 8 11	2 2 2
Manure ..	6 0 0	19 8 0	16 3 2	7 12 10
Implements ..	4 4 3	9 0 5	6 2 10	2 2 1
<i>Kamins</i> ..	4 13 7	6 1 8	6 6 2	3 1 9
Pickings ..	66 4 3	67 4 5	57 7 2	29 13 11
<i>Total</i> ..	167 14 9	230 1 0	189 0 3	109 1 4
Gross income ..	966 13 0	973 10 6	788 12 10	404 6 8
Balance ..	798 14 3	743 9 6	599 12 7	295 5 4
Cost per acre ..	34 10 8	38 14 7	35 14 8	34 9 0
,, ,, maund ..	2 11 4	3 10 11	3 11 9	4 3 4
Per acre {				
Gross income ..	199 9 7	164 10 10	149 14 3	128 2 1
Balance ..	164 14 11	125 12 3	113 15 7	93 9 1
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	4 6 15	5 7 6	5 2 2	3 1 5
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	62 0 0	62 17 9	50 23 6	25 37 6
Yield per acre ..	12 32 0	10 22 7	9 24 8	8 8 11

I.

DURING THE YEARS, 1927-28 TO 1931-32.  
1927-28.

COTTON.

			Total.	Average per acre.	Percentage of each item to total cost.
E.	F.	G.			
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
12 12 8	20 4 5	8 14 6	109 15 10	3 5 9	9.5
50 2 5	56 15 11	22 9 4	313 0 8	9 9 0	27.0
37 15 6	31 5 11	15 6 3	204 9 3	6 4 0	17.6
4 1 0	3 8 11	2 0 6	22 2 5	0 10 10	1.9
21 4 2	8 3 2	4 3 2	83 2 6	2 8 8	7.2
5 12 3	7 5 7	2 1 7	36 13 0	1 2 0	3.2
6 2 6	4 14 0	2 8 4	34 0 0	1 0 8	2.9
53 10 0	38 14 2	43 1 8	356 7 7	10 14 3	30.7
191 12 6	171 8 1	100 13 4	1,160 3 3	35 7 2	100.0
783 6 8	522 14 1	605 4 1	5,045 3 10	154 2 3	..
591 10 2	351 6 0	504 6 9	3,885 0 7	118 11 1	..
31 9 1	34 2 9	40 15 3	..	35 7 2	..
3 13 1	5 1 10	2 9 7	3 9 4 (average)	..	..
128 15 4	104 3 0	245 12 7	..	154 2 3	..
97 6 3	70 0 3	204 13 4	..	118 11 1	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
6 0 12	5 0 3	2 3 14	32 5 17	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
50 9 9	33 21 4	38 32 9	323 21 11	9 35 6	..
8 10 13	6 27 3	15 30 8	..	9 35 6	..

## APPENDIX

COTTON.

1928-29.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	26 8 1	25 12 9	23 6 7	11 4 0	
Bullock ..	43 2 0	48 10 7	35 7 2	16 1 4	
Water-rates ..	34 1 8	40 11 11	30 8 9	20 6 3	
Seed ..	3 12 0	4 8 0	3 12 0	2 8 0	
Manure ..	13 6 5	22 7 5	10 0 0	8 6 5	
Implements ..	8 13 4	7 8 8	4 2 1	0 13 5	
<i>Kamins</i> ..	6 2 3	6 10 6	5 13 5	3 8 0	
Pickings ..	28 3 3	54 8 5	14 12 7	24 15 5	
<i>Total</i> ..	<i>164 1 0</i>	<i>210 14 3</i>	<i>127 14 7</i>	<i>87 14 10</i>	
Gross income ..	369 4 3	801 15 10	206 0 10	335 5 0	
Balance ..	205 3 3	591 1 7	78 2 3	247 6 2	
Cost per acre ..	30 1 1	32 5 7	26 2 9	26 15 2	
"    "    maund ..	6 7 2	3 13 1	9 0 2	3 12 11	
Per acre {	Gross income..	67 10 10	123 0 5	42 2 7	102 12 5
	Balance ..	37 9 9	90 10 10	15 15 10	75 13 3
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Aren ..	5 3 13	6 4 3	4 7 2	3 2 2	
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	25 17 9	55 10 0	14 7 13	23 4 0	
Yield per acre ..	4 26 8	8 19 0	2 36 3	7 3 2	

I.—(continued).

1928-29.

COTTON.

			Total.	Average per acre.	Percentage of each item to total cost.
E.	F.	G.			
Rs. a. p.					
17 1 9	28 7 10	13 6 8	145 15 8	4 0 10	14.1
44 6 7	48 2 11	52 0 11	287 15 6	7 15 10	27.8
42 0 6	36 15 11	20 7 6	225 4 6	6 4 0	21.8
5 0 0	4 8 0	2 8 0	26 8 0	0 11 9	2.6
5 3 2	10 12 9	3 9 7	73 13 9	2 0 9	7.1
5 12 10	9 12 11	2 3 2	39 2 5	1 1 5	3.8
6 12 1	6 6 3	3 9 8	38 14 2	1 1 3	3.7
22 2 3	34 5 5	19 2 4	198 1 8	5 7 11	19.1
148 7 2	179 8 0	116 15 10	1,035 11 8	28 11 9	100.0
302 15 2	457 8 3	260 15 9	2,734 1 1	75 13 6	..
154 8 0	278 0 3	143 15 11	1,698 5 5	47 1 9	..
22 11 4	30 5 3	35 11 6	..	28 11 9	..
7 1 10	5 11 1	6 8 1	5 8 0	..	..
46 5 5	77 4 9	79 11 0	(average)	15 13 6	..
23 10 1	46 15 6	43 15 6	..	47 1 9	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
6 5 16	5 7 7	3 2 4	36 0 7	..	..
Mds. Srs. Ch.					
20 34 13	31 20 12	17 39 3	188 14 2	5 9 0	..
3 13 11	5 13 0	5 19 10	..	5 9 0	..

## APPENDIX

COTTON.

1929-30.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	20 11 7	17 5 0	20 15 0	18 5 4	
Bullock „ ..	28 12 11	30 11 0	44 12 10	36 1 3	
Water-rates ..	29 6 0	34 10 5	31 14 8	32 2 5	
Seed ..	8 11 0	10 11 7	8 12 5	6 8 0	
Manure ..	6 0 0	12 6 5	9 9 7	2 6 5	
Implements ..	4 1 0	3 6 1	4 0 0	2 4 5	
<i>Kamins</i> ..	2 8 1	2 14 7	2 15 5	2 12 9	
Pickings ..	32 13 2	50 5 7	42 6 1	45 12 5	
<i>Total</i> ..	<i>132 15 9</i>	<i>162 6 8</i>	<i>165 6 0</i>	<i>145 5 0</i>	
Gross income ..	447 6 5	733 12 1	495 6 6	636 7 6	
Balance ..	314 6 8	571 5 5	330 0 6	490 2 6	
Cost per acre ..	28 4 9	29 4 9	32 6 2	28 7 1	
„ „ maund ..	3 7 8	2 9 2	2 15 4	2 10 0	
Per acre {	Gross income..	95 3 1	132 5 10	97 0 3	123 11 9
	Balance ..	66 14 4	103 1 1	64 10 2	95 4 8
Area ..	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
	4 5 12	5 4 7	5 0 17	5 1 3	
Total yield ..	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
	38 9 7	63 4 12	55 36 5	55 30 0	
Yield per acre ..	8 5 7	11 15 7	10 37 15	10 33 9	

I.—(continued).

1929-30.

COTTON.

		Total.	Average per acre.	Percentage of each item to total cost.
E.	F.			
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
22 11 11	18 9 9	118 10 7	3 12 9	12.6
46 10 7	37 1 1	224 1 8	7 2 9	23.8
37 14 3	29 6 0	195 5 9	6 4 0	20.7
10 6 5	9 12 0	54 13 5	1 12 1	5.8
12 12 10	0 9 7	43 12 10	1 6 5	4.6
7 14 1	7 5 2	28 14 9	0 14 11	3.1
3 2 0	2 8 5	16 13 3	0 8 7	1.8
49 4 9	39 13 4	260 7 4	8 5 4	27.6
<b>190 12 10</b>	<b>145 1 4</b>	<b>942 15 7</b>	<b>30 2 10</b>	<b>100.0</b>
690 3 2	498 14 9	3,502 2 5	112 0 9	..
499 6 4	353 13 5	2,559 2 10	81 14 1	..
31 7 7	30 13 11	..	30 2 10	..
3 3 5	2 14 1	2 14 9 (average)	..	..
113 13 7	106 2 6	..	112 0 9	..
82 6 0	75 4 7	..	81 14 1	..
A. K. M.	A. K. M.	A. K. M.		
6 0 10	4 5 12	31 2 1	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
59 14 14	50 14 4	322 29 10	10 13 0	..
9 31 12	10 28 9	..	10 13 0	..

## COTTON.

	TENANTS.												
	A.			B.			C.			D.			
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	
Manual labour ..	27	2	4	21	7	7	19	6	6	22	15	6	
Bullock „ ..	38	12	8	31	15	5	32	13	10	34	2	11	
Water-rates ..	31	6	6	34	1	8	29	11	0	32	7	5	
Seed ..	2	15	3	5	2	3	2	13	6	6	2	0	
Manure ..	28	4	10	9	11	0	10	0	0	8	12	10	
Implements ..	4	15	5	4	2	1	4	3	1	8	3	9	
Kamins ..	1	7	0	1	9	7	1	10	11	1	8	7	
Pickings ..	27	15	2	24	3	8	22	4	2	22	9	2	
<i>Total</i> ..	<i>162</i>	<i>15</i>	<i>2</i>	<i>132</i>	<i>5</i>	<i>3</i>	<i>122</i>	<i>15</i>	<i>0</i>	<i>136</i>	<i>14</i>	<i>2</i>	
Gross income ..	344	12	0	345	12	8	267	9	3	324	13	5	
Balance ..	181	12	10	213	7	5	144	10	3	187	15	3	
Cost per acre ..	32	6	10	24	4	0	25	14	1	26	5	8	
„ „ maund ..	2	11	9	2	14	6	2	10	7	3	3	2	
Per acre {	Gross income	68	9	9	63	6	0	56	5	4	62	8	8
	Balance ..	36	2	11	39	2	0	30	7	3	36	3	0
	A. K. M.			A. K. M.			A. K. M.			A. K. M.			
Area ..	5	0	4	5	3	13	4	6	0	5	1	11	
	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.	
Total yield ..	59	19	15	45	20	7	46	7	3	42	32	0	
Yield per acre ..	11	33	9	8	22	13	9	28	14	8	9	10	

Note.—25 per cent. of land revenue and water-rates was remitted.

I.—(Continued.)

1930-31.

COTTON.

E.		F.		Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
22 2 8	23 2 8	136 5 3	4 7 2	16.5		
42 12 8	34 6 3	214 15 9	7 0 2	26.0		
32 9 11	31 6 6	191 11 0	6 4 0	23.2		
6 2 0	3 13 3	27 0 3	0 14 1	3.3		
12 12 11	3 0 0	72 9 7	2 5 11	8.8		
6 1 9	6 7 5	34 1 6	1 1 9	4.1		
1 8 5	1 6 2	9 2 8	0 4 9	1.1		
19 15 6	23 15 0	140 14 8	4 9 6	17.0		
<b>144 1 10</b>	<b>127 9 3</b>	<b>826 12 8</b>	<b>26 15 4</b>	<b>100.0</b>		
282 9 3	291 11 10	1,857 4 5.	60 8 10	..		
138 7 5	164 2 7	1,030 7 9	33 9 6	..		
27 9 10	25 6 3	..	26 15 4	..		
3 13 11	2 8 7	2 15 0 (average)	..	..		
54 2 4	57 1 0	..	60 8 10	..		
26 8 6	32 10 9	..	33 9 6	..		
A. K. M.	A. K. M.	A. K. M.				
5 1 15	5 0 4	30 5 7	..	..		
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.			
37 9 4	50 14 0	281 22 13	9 7 3	..		
7 5 5	10 0 5	..	9 7 3	..		

## COTTON.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	25 8 1	23 2 8	16 10 3	25 9 8
Bullock „ ..	19 11 0	17 13 10	11 14 11	44 5 8
Water-rates ..	30 10 0	36 14 0	28 12 0	37 0 6
Seed ..	3 0 0	4 8 0	3 3 0	2 13 0
Manure ..	31 4 8	19 9 4	9 7 2	37 9 2
Implements ..	3 11 6	4 15 11	3 12 3	7 2 0
<i>Kamins</i> ..	1 10 6	2 3 5	2 2 1	2 4 1
Pickings, ..	15 11 6	27 10 2	12 1 3	18 13 0
<i>Total</i> ..	<i>131 3 3</i>	<i>136 13 4</i>	<i>87 14 11</i>	<i>175 9 1</i>
Gross income ..	210 8 9	394 7 4	170 3 0	254 2 9
Balance ..	79 5 6	257 10 0	82 4 1	78 9 8
Cost per acre ..	26 12 5	23 3 1	19 1 10	29 10 1
„ „ maund ..	4 12 4	3 2 1	3 15 4	5 8 0
Per acre. { Gross income ..	26 12 5	66 13 8	36 15 11	42 14 4
{ Balance ..	16 3 1	46 10 7	17 14 1	13 4 3
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	4 7 4	5 7 4	4 4 16	5 7 8
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	27 20 0	43 29 11	22 9 2	31 36 7
Yield per acre ..	5 24 8	7 16 9	4 33 5	5 15 7

*Note.*—Remission of land revenue was given at Rs. 2/- per acre in

I.—(Concluded).  
1931-32.

## COTTON.

E.		F.		Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
27 15 1	20 8 8	139 6 5	4 4 2	17.4		
41 7 9	33 3 9	168 8 11	5 2 5	21.0		
38 0 5	33 2 8	204 7 7	6 4 0	25.5		
4 3 6	2 13 0	20 8 6	0 10 0	2.5		
8 1 7	5 13 9	111 13 8	3 6 8	14.0		
5 15 7	7 13 6	33 6 9	1 0 4	4.2		
2 5 7	1 15 10	12 9 6	0 6 2	1.6		
24 8 4	11 12 8	110 8 11	3 6 0	13.8		
<b>152 9 10</b>	<b>117 3 10</b>	<b>801 6 3</b>	<b>24 7 9</b>	<b>100.0</b>		
331 5 9	158 11 9	1,519 7 4	46 6 9	..		
178 11 11	41 7 11	718 1 1	21 15 0	..		
25 0 4	22 1 6	..	24 7 9	..		
4 2 5	5 10 6	6 6 6 (average)	..	..		
54 5 2	29 14 8	..	46 6 9	..		
29 4 10	7 13 2	..	21 15 0	..		
A. K. M.	A. K. M.	A. K. M.	-			
6 0 16	5 2 9	32 5 17	..	..		
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.			
36 30 15	20 29 4	182 35 7	5 23 8	..		
6 1 2	3 36 4	..	5 23 8	..		

case of desi cotton and Rs. 1/8/0 in that of American Cotton.

APPENDIX  
COST OF PRODUCING WHEAT  
1927-28.

## WHEAT.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	57 3 4	59 15 1	48 5 5	30 7 1
Bullock ..	197 9 0	249 2 3	203 2 0	139 10 10
Water-rates ..	67 10 0	68 10 4	56 5 11	32 2 0
Seed ..	40 3 6	40 1 6	41 4 3	17 0 6
Manure ..	32 6 0	1 8 0	6 9 0	10 0 0
Implements ..	87 6 5	62 11 6	77 15 8	8 8 6
<i>Kamins</i> ..	12 14 4	13 7 10	13 0 8	6 0 4
Harvesting ..	..	40 10 5	..	27 11 5
Winnowing ..	26 9 2	40 5 8	15 7 4	15 10 6
<i>Total</i> ..	<i>521 13 9</i>	<i>576 8 7</i>	<i>462 2 3</i>	<i>287 3 2</i>
Value of <i>bhusa</i> ..	210 12 0	328 0 6	121 8 0	130 1 3
Cost of grain ..	311 1 9	248 8 1	340 10 3	157 1 11
Gross income ..	923 6 7	1,436 12 0	534 1 6	572 0 8
Balance ..	<i>401 8 10</i>	<i>860 3 5</i>	<i>71 15 3</i>	<i>284 13 6</i>
Cost per acre ..	40 8 2	44 1 6	43 0 8	46 15 0
"    " maund of grain ..	1 15 10	1 0 4	3 12 3	1 9 11
Per acre {				
Gross income ..	71 10 11	109 14 2	49 11 10	93 7 10
Balance ..	<i>31 2 9</i>	<i>65 12 8</i>	<i>6 11 2</i>	<i>46 8 10</i>
Area ..	A. K. M. 12 7 1	A. K. M. 13 0 12	A. K. M. 10 5 18	A. K. M. 6 0 19
Total yield. {	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Grain ..	156 8 0	243 0 4	90 17 4	96 34 12
<i>Bhusa</i> ..	281 0 0	437 15 0	162 0 0	173 17 8
Yield per acre {				
Grain ..	12 5 1	18 23 7	18 16 14	15 33 4
<i>Bhusa</i> ..	21 32 9	33 18 1	15 3 8	28 13 13

(Continued.)

## II.

DURING THE YEARS, 1927-28 TO 1931-32.

WHEAT.

1927-28.

E.			F.			G.			Total.	Average per acre.	Percentage of each item to total cost.				
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	
45	7	6	70	5	8	38	12	0	350	8	7	4	8	10	11.0
255	14	7	213	12	1	103	9	7	1,362	12	4	17	11	2	42.6
69	12	2	75	10	8	34	0	11	404	4	0	5	4	0	12.6
37	12	0	39	4	0	17	11	3	233	5	0	3	0	6	7.3
14	1	0	6	0	0	..	..	..	70	8	0	0	14	8	2.2
76	5	10	74	7	8	9	10	2	397	1	9	5	2	6	12.4
13	7	6	13	15	11	6	10	2	79	8	9	1	0	6	2.5
24	0	4	3	11	2	24	0	4	120	1	8	1	8	11	3.8
29	15	1	35	14	6	13	12	6	177	10	9	2	4	11	5.6
566	12	0	533	1	8	248	2	11	3,195	12	4	41	8	0	100.0
240	15	9	285	13	6	114	3	9	1,431	6	9	18	9	5	..
325	12	3	247	4	2	133	15	2	1,764	5	7	22	14	7	..
1,057	12	7	1,255	5	8	501	4	6	6,280	11	6	81	9	0	..
491	0	7	722	4	0	253	1	7	3,084	15	2	40	1	0	..
42	10	5	41	14	4	38	4	1	..	..	..	41	8	0	..
1	13	1	1	2	7	1	9	3	1	10	7	..	..	..	..
79	9	8	98	10	5	77	4	4	..	..	..	81	9	0	..
36	15	3	56	12	1	39	0	3	..	..	..	40	1	0	..
A. K. M.			A. K. M.			A. K. M.			A. K. M.			..	..	..	..
13	2	6	14	3	6	6	3	18	77	0	0	..	..	..	..
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			
179	1	0	212	19	12	84	33	4	1,062	34	4	13	32	2	..
321	12	8	381	5	0	152	12	8	1,908	22	8	24	31	7	..
13	18	15	14	29	12	13	3	1	..	..	..	13	32	2	..
24	7	4	26	17	12	23	19	2	..	..	..	24	31	7	..

(Continued.)

WHEAT.

1928-29.

	TENANTS.											
	A.			B.			C.			D.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Manual labour ..	60	4	10	71	15	1	57	7	1	23	6	6
Bullock ..	185	8	2	231	14	7	154	2	4	66	4	7
Water-rates ..	62	15	6	65	14	2	53	3	0	29	11	2
Seed ..	34	4	0	34	4	0	26	13	0	14	13	0
Manure ..	..			12	6	0	20	12	10	2	6	5
Implements ..	89	10	7	35	15	2	17	15	6	3	7	3
Kamins ..	13	8	0	12	13	1	12	1	7	6	1	1
Harvesting ..	23	1	0	69	3	0	51	4	3	30	12	0
Winnowing ..	43	4	9	49	0	6	31	4	9	21	8	0
<i>Total</i> ..	<i>512</i>	<i>8</i>	<i>10</i>	<i>583</i>	<i>5</i>	<i>7</i>	<i>425</i>	<i>0</i>	<i>4</i>	<i>198</i>	<i>6</i>	<i>0</i>
Value of <i>bhusa</i> ..	267	8	10	316	2	5	200	5	11	136	12	10
Cost of grain ..	245	0	0	267	3	2	224	10	5	61	9	2
Gross income ..	1,439	5	0	1,265	15	4	1,075	14	5	735	12	10
Balance ..	926	12	2	682	9	9	650	14	1	537	6	10
Cost per acre ..	42	11	9	46	7	8	41	15	3	35	1	2
"  "  maund of grain ..	0	13	10	1	2	7	1	0	11	0	6	9
Per acre {												
Gross income ..	120	0	1	100	14	11	106	3	2	130	1	5
Balance ..	77	4	4	56	6	3	64	3	11	95	0	3
Area ..	A. K. M.			A. K. M.			A. K. M.			A. K. M.		
11	7	19	12	4	8	10	1	1	5	5	5	
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			
Total yield {												
Grain ..	284	2	8	230	10	4	212	10	0	145	8	8
<i>Bhusa</i> ..	475	26	0	561	38	0	356	8	8	243	8	0
Yield per acre {												
Grain ..	23	27	6	18	13	4	20	28	0	25	26	15
<i>Bhusa</i> ..	39	26	5	44	31	1	35	6	6	42	39	14

## II.—(Continued).

1928-29.

## WHEAT.

E.			F.			G.			Total.	Average per acre.	Percentage of each item to total cost.				
Rs. a. p.			Rs. a. p.			Rs. a. p.			Rs. a. p.	Rs. a. p.					
56	8	5	69	13	4	34	10	7	374	1	10	5	4	3	12.7
187	1	5	138	3	3	156	6	5	1,119	8	9	15	12	0	37.8
66	11	4	63	14	8	30	12	5	373	2	3	5	4	0	12.6
34	4	0	34	4	0	16	9	0	195	3	0	2	12	0	6.6
..			3	9	7	6	0	0	45	2	10	0	10	2	1.5
59	1	6	47	9	11	6	9	9	260	5	8	3	10	8	8.8
12	12	2	13	2	4	6	7	3	76	13	6	1	1	2	2.6
38	7	0	30	12	0	15	6	0	258	13	3	3	10	3	8.8
44	10	0	42	7	3	23	9	9	255	13	0	3	9	7	8.6
499	7	10	443	12	4	296	7	2	2,959	0	1	41	10	1	100.0
279	2	3	263	14	10	146	4	0	1,610	3	1	22	10	5	..
220	5	7	179	13	6	150	3	2	1,348	13	0	18	15	8	..
1,499	15	9	1,416	11	9	788	3	8	8,221	14	9	115	10	11	..
1,000	7	11	972	15	5	491	12	6	5,262	14	8	74	0	10	..
39	5	0	36	7	2	50	9	1	..			41	10	1	..
0	11	11	0	10	4	0	15	5	0	13	6	..			..
118	0	10	116	5	10	134	7	3	(average)			115	10	11	..
78	11	10	79	14	8	83	14	2	..			74	0	10	..
A. K. M.			A. K. M.			A. K. M.			A. K. M.			..			..
12	5	13	12	1	8	5	6	18	71	0	12	..			..
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			..
295	38	8	279	18	12	155	25	4	1,602	13	12	22	22	1	..
496	10	0	469	8	0	260	0	0	2,862	18	8	40	10	10	..
23	11	11	22	38	3	26	21	14	..			22	22	1	..
39	2	4	38	21	8	44	14	0	..			40	10	10	..

WHEAT.

1929-30.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	69 10 7	78 13 5	62 5 4	64 5 5
Bullock ..	179 1 3	215 3 11	191 11 4	213 13 8
Water-rates ..	63 12 1	65 14 9	53 14 7	65 11 7
Seed ..	32 14 5	33 12 0	27 0 0	32 10 0
Manure ..	23 0 0	1 12 10	15 3 2	5 3 2
Implements ..	62 0 7	23 11 5	49 5 11	34 2 8
<i>Kamins</i> ..	6 8 5	6 9 5	5 15 6	6 12 10
Harvesting ..	18 9 0	33 12 0	13 8 0	32 1 0
Winnowing ..	31 11 6	35 0 0	26 5 3	29 0 8
<i>Total</i> ..	487 3 10	494 9 9	445 5 1	483 13 0
Value of <i>bhusa</i> ..	170 12 5	190 10 0	124 12 2	160 0 6
Cost of grain ..	316 7 5	303 15 9	320 8 11	323 12 6
Gross income ..	964 6 9	1,076 1 5	704 13 3	903 8 8
Balance ..	477 2 11	581 7 8	259 8 2	419 11 8
Cost per acre ..	40 1 11	39 6 3	43 5 10	38 10 5
"    " maund of grain ..	1 2 4	0 15 4	1 9 5	1 4 0
Per acre {				
Gross income ..	79 6 8	85 11 2	68 10 2	72 2 10
Balance ..	39 4 9	46 4 11	25 4 4	33 8 5
Area ..	A. K. M.	A. K. M.	A. K. M.	A. K. M.
	12 1 3	12 4 9	10 2 3	12 4 3
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield {				
Grain ..	276 2 0	307 39 8	201 30 8	258 24 8
<i>Bhusa</i> ..	455 16 0	508 13 0	332 28 0	426 30 0
Yield per acre {				
Grain ..	22 29 4	24 21 2	19 25 15	20 26 5
<i>Bhusa</i> ..	37 20 0	40 19 6	32 16 0	34 3 9

II.—(Continued).

1929-30.

WHEAT.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
59 4 6	56 15 8	391 6 11	5 5 7	13.6
197 4 1	173 1 0	1,170 3 3	15 15 10	40.8
67 15 10	66 13 11	384 2 9	5 4 0	13.4
34 14 0	33 4 10	194 7 3	2 10 6	6.8
2 0 0	11 6 5	58 9 7	0 12 10	2.0
68 12 2	68 15 5	307 0 2	4 3 2	10.7
6 10 9	6 13 2	39 6 1	0 8 7	1.4
25 5 0	18 9 0	141 12 0	1 15 0	4.9
29 7 3	32 1 5	183 10 1	2 8 2	6.4
491 9 7	468 0 10	2,370 10 1	39 3 8	100.0
176 3 8	172 10 1	995 0 10	13 9 7	..
315 5 11	295 6 9	1,875 9 3	25 10 1	..
995 3 11	974 2 7	5,618 4 7	76 12 5	..
503 10 4	506 1 9	2,747 10 6	37 8 9	..
37 15 5	36 11 11	..	39 3 8	..
1 1 9	1 0 11	1 2 8 (average)	..	..
76 13 8	76 7 8	..	76 12 5	..
38 14 3	39 11 9	..	37 8 9	..
A. K. M.	A. K. M.	A. K. M.	..	..
12 7 12	12 5 18	73 1 8	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
284 35 0	278 31 12	1,608 3 4	21 39 1	..
469 38 0	460 14 0	2,653 19 0	36 10 8	..
21 39 15	21 35 8	..	21 39 1	..
36 11 9	36 5 10	..	36 10 8	..

APPENDIX  
1930-31.

## WHEAT.

	TENANTS.								
	A.		B.		C.		D.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Manual labour ..	70	15	10	80	3	10	54	14	10
Bullock „ ..	160	14	9	179	9	7	198	1	1
Water-rates ..	62	11	8	65	12	2	53	4	7
Seed ..	20	3	0	23	7	0	17	9	3
Manure ..	16	12	9	15	0	0	5	11	9
Implements ..	48	14	8	33	3	4	53	6	10
<i>Kamins</i> ..	3	6	9	3	10	9	3	9	6
Harvesting ..	9	10	2	14	0	2	1	12	0
Winnowing ..	14	4	5	15	2	4	11	14	0
<i>Total</i> ..	407	14	0	430	1	2	400	3	10
Value of <i>bhusa</i> ..	70	3	4	75	0	8	57	4	7
Cost of grain ..	337	10	8	355	0	6	342	15	3
Gross income ..	460	4	4	491	15	3	375	8	9
Balance ..	52	6	4	61	14	1	-(24	11	1)
Cost per acre ..	34	2	1	34	4	3	39	6	11
„ „ maund of grain ..	1	5	8	1	5	3	1	10	11
Per acre { Gross income ..	38	8	6	39	3	2	37	0	0
{ Balance ..	4	6	2	4	14	11	-(2	7	11)
	A. K. M.			A. K. M.			A. K. M.		
Area ..	11	7	12	12	4	8	10	1	4
	Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.		
Total yield { Grain ..	249	25	8	266	32	14	203	27	8
{ <i>Bhusa</i> ..	374	18	4	400	9	5	305	21	4
Yield per acre { Grain ..	20	35	10	21	10	7	20	2	11
{ <i>Bhusa</i> ..	31	13	7	31	35	10	30	4	0

NOTE.—Water-rates remitted at the rate of 3 annas in the rupee.

II—(Continued).  
1930-31.

## WHEAT.

E.			F.			Total.	Average per acre.	Percentage of each item to total cost.		
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.		
61	3	1	60	5	6	404	10	11	16.4	
194	1	3	158	4	0	1,044	0	5	42.4	
67	12	8	66	5	0	379	2	10	15.4	
23	7	0	23	7	0	123	13	3	5.0	
6	9	7	4	0	0	48	2	1	2.0	
51	6	9	65	8	9	239	6	4	11.8	
3	11	9	3	7	9	21	7	7	0.9	
14	14	3	3	8	1	67	7	0	2.7	
13	2	8	13	9	6	34	2	9	3.4	
436	5	0	398	7	7	2,462	5	2	100.0	
65	12	4	66	1	8	415	8	4	..	
370	8	8	332	5	11	2,046	12	10	..	
431	2	4	433	5	7	2,373	15	8	..	
-(5	2	8)	34	14	0	261	10	6	..	
33	12	8	31	8	9	..	31	1	3	..
1	9	4	1	6	8	1	6	2	..	
33	6	3	34	4	11	(average)	..	..	..	
-(0	6	5)	2	12	2	..	3	10	0	..
A. K. M.			A. K. M.			A. K. M.			..	
12	7	6	12	5	1	72	2	0	..	
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			..	
233	33	8	235	1	8	1,477	16	6	..	
350	30	4	352	22	4	2,216	4	9	..	
18	4	6	18	24	5	..	20	17	12	..
27	6	9	27	36	7	..	30	26	10	..

**APPENDIX**  
**1931-32.**
**WHEAT.**

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	76 3 9	73 15 6	54 12 0	72 7 5
Bullock ..	134 12 0	89 7 6	62 4 3	194 11 8
Water-rates ..	66 4 0	66 0 3	52 4 10	70 2 5
Seed ..	17 9 0	19 8 0	16 5 0	17 15 0
Manure ..	47 15 8	8 8 10	6 4 10	1 12 10
Implements ..	45 13 8	59 6 11	19 10 5	44 2 7
<i>Kamins</i> ..	4 4 4	4 11 5	4 9 11	4 12 2
Harvesting ..	22 8 0	12 8 0	18 12 0	30 0 0
Winnowing ..	17 5 0	19 7 0	9 5 0	24 8 0
<i>Total</i> ..	<i>432 11 5</i>	<i>353 9 5</i>	<i>244 4 3</i>	<i>460 8 1</i>
Value of <i>bhusa</i> ..	119 1 9	131 4 5	98 7 6	168 8 5
Cost of grain ..	313 9 8	222 5 0	145 12 9	291 15 8
Gross income ..	600 5 3	661 4 11	493 13 0	848 7 5
Balance ..	<i>167 9 10</i>	<i>307 11 6</i>	<i>249 8 9</i>	<i>387 15 4</i>
Cost per acre ..	34 4 8	28 1 11	24 8 4	34 7 5
"    " maund of grain ..	1 10 1	1 0 9	0 15 3	1 1 2
Per acre { Gross income ..	47 9 2	52 9 5	49 9 1	63 7 11
{ Balance ..	<i>13 4 6</i>	<i>24 7 6</i>	<i>25 0 9</i>	<i>29 0 6</i>
Area ..	A. K. M. 12 4 19	A. K. M. 12 4 12	A. K. M. 9 7 14	A. K. M. 13 2 18
Total yield { Grain ..	Mds. Srs. Ch. 192 19 8	Mds. Srs. Ch. 212 0 8	Mds. Srs. Ch. 158 5 8	Mds. Srs. Ch. 271 39 0
{ <i>Bhusa</i> ..	346 20 0	381 36 0	286 18 0	490 10 0
Yield per acre { Grain ..	15 10 3	16 34 6	15 34 15	20 14 2
{ <i>Bhusa</i> ..	27 18 7	30 14 14	28 30 3	36 27 10

NOTE.—Water-rates remitted at the rate of one rupee per acre.

II.—(Concluded.)

1931-32.

WHEAT.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 65 8 9	Rs. a. p. 64 12 1	Rs. a. p. 407 11 6	Rs. a. p. 5 8 6	17.4
158 7 0	174 3 11	813 14 4	11 0 8	34.7
66 5 7	65 14 9	386 15 10	5 4 0	16.5
18 12 0	18 5 0	108 6 0	1 7 6	4.6
12 13 2	13 1 8	90 9 0	1 3 8	3.9
43 2 9	57 4 6	269 8 10	3 10 6	11.5
4 14 11	4 11 4	28 0 1	0 6 1	1.2
20 0 0	26 4 0	130 0 0	1 12 3	5.6
19 11 0	18 8 9	108 12 9	1 7 7	4.6
409 11 2	443 2 0	2,343 14 4	31 12 9	100.0
134 8 5	128 0 9	779 15 3	10 9 3	..
275 2 9	315 1 3	1,563 15 1	21 3 6	..
677 4 2	644 8 6	3,925 11 3	53 4 1	..
267 9 0	201 6 6	1,581 12 11	21 7 4	..
32 6 8	35 4 8	..	31 12 9	..
1 4 3	1 8 5	1 3 11 (average)	..	..
53 9 5	51 5 4	..	53 4 1	..
21 2 9	16 0 8	..	21 7 4	..
A. K. M. 12 5 2	A. K. M. 12 4 9	A. K. M. 73 5 14	..	..
Mds. Srs. Ch. 217 3 12	Mds. Srs. Ch. 206 23 12	Mds. Srs. Ch. 1,258 12 0	Mds. Srs. Ch. 17 2 13	..
391 14 0	372 20 0	2,268 38 0	30 31 2	..
17 7 2	16 18 2	..	17 2 13	..
30 38 14	29 26 11	..	30 31 2	..

## APPENDIX

## COST OF PRODUCING TORIA-

TORIA.

1927-28.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	10 4 10	9 8 6	5 9 0	2 9 11
Bullock ,, ..	32 6 11	23 15 0	17 15 1	15 5 8
Water-rates ..	13 6 2	8 12 2	7 3 7	4 11 8
Seed ..	1 2 0	1 6 6	0 12 0	0 9 0
Manure ..	..	..	..	..
Implements ..	4 0 10	3 4 4	2 4 9	0 15 0
<i>Kamins</i> ..	3 2 6	2 2 0	2 1 1	1 1 6
Winnowing ..	2 0 8	3 5 9	1 7 0	0 14 6
<i>Total</i> ..	<i>66 7 11</i>	<i>52 6 3</i>	<i>37 4 6</i>	<i>26 3 3</i>
Gross income ..	81 4 8	134 7 2	57 11 3	35 12 3
Balance ..	14 12 9	82 0 11	20 6 9	9 9 0
Cost per acre ..	21 1 9	25 6 5	21 14 11	23 8 10
„ „ maund ..	5 5 11	2 8 11	4 3 10	4 12 11
Gross income ..	25 12 11	65 9 0	33 15 1	32 2 4
Balance ..	4 11 2	39 12 7	12 0 2	8 9 6
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	3 1 4	2 0 10	1 5 12	1 0 18
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	12 15 8	20 19 8	8 31 12	5 18 0
Yield per acre ..	3 37 5	9 37 5	5 6 15	4 35 15

(Continued.)

## III.

DURING THE YEARS, 1927-28 to 1931-32,

1927-28.

TORIA.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 5 12 10	Rs. a. p. 11 4 2	Rs. a. p. 3 1 7	Rs. a. p. 48 2 10	Rs. a. p. 3 5 6	14.9
26 0 1	33 5 3	9 11 9	158 11 9	11 0 5	49.3
8 4 7	14 2 1	4 10 10	61 3 1	4 4 0	19.0
1 2 0	1 11 0	0 6 0	7 0 6	0 7 10	2.2
..	..	..	..	..	..
2 15 10	4 4 9	0 14 6	18 12 0	1 4 10	5.8
1 15 8	3 3 8	1 2 0	14 12 5	1 0 5	4.6
1 2 5	3 9 9	1 1 1	13 9 2	0 15 1	4.2
47 5 5	71 8 8	20 15 9	322 3 9	22 6 1	100.0
44 10 0	142 3 10	42 9 3	538 10 5	37 6 7	..
—(2 11 5)	70 11 2	21 9 6	216 6 8	15 0 6	..
24 4 5	21 8 3	19 1 3	..	22 6 1	..
6 15 5	3 4 10	3 3 9	3 14 10 (average)	..	..
22 14 2	42 12 5	38 11 4	..	37 6 7	..
—(1 6 3)	21 4 2	19 10 1	..	15 0 6	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
1 7 12	3 2 12	1 0 16	14 3 4	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
6 32 0	21 27 0	6 19 8	82 3 4	5 28 0	..
3 19 8	62 0 12	5 35 15	..	5 28 0	..

(Continued.)

## APPENDIX

TORIA.

1928-29.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	7 8 6	13 12 0	6 14 3	2 15 4	
Bullock ..	10 12 2	38 13 9	20 12 8	5 2 11	
Water-rates ..	10 12 7	13 13 5	8 6 9	4 11 8	
Seed ..	1 4 0	1 8 3	1 0 0	0 9 6	
Manure ..	6 0 0	..	..	..	
Implements ..	2 3 3	6 0 5	2 6 10	0 4 4	
Kamins ..	2 13 8	3 5 2	2 5 10	1 3 1	
Winnowing ..	1 11 8	4 1 6	1 10 11	1 0 9	
<i>Total</i> ..	<i>43 1 10</i>	<i>81 6 6</i>	<i>43 9 3</i>	<i>15 15 7</i>	
Gross income ..	68 2 0	162 11 1	66 15 3	40 11 2	
Balance ..	25 0 2	81 4 7	23 6 0	24 11 7	
Cost per acre ..	16 15 10	25 0 0	21 15 11	14 5 9	
.. .. maund ..	4 9 1	3 9 10	4 11 2	2 13 4	
Per acre. {	Gross income ..	26 13 6	49 13 9	33 12 8	36 9 4
	Balance ..	9 13 8	24 13 9	11 12 9	22 3 7
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 4 6	3 2 1	1 7 17	1 0 18	
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	9 17 8	22 21 8	9 11 0	5 25 8	
Yield per acre ..	3 28 12	6 36 14	4 27 4	5 2 11	

## III.—(Continued).

1928-29.

TORIA.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
7 11 7	8 6 5	3 7 0	50 11 1	3 1 11	16.5
21 2 9	13 2 11	13 4 7	123 3 9	7 9 5	40.2
13 4 6	13 4 1	4 11 8	69 0 8	4 4 0	22.5
1 2 6	1 6 3	0 7 6	7 6 0	0 7 3	2.4
..	1 0 0	..	7 0 0	0 6 11	2.3
2 12 3	2 10 11	0 9 0	16 15 0	1 0 8	5.5
3 2 2	3 5 11	1 3 7	17 7 5	1 1 3	5.7
2 11 7	2 9 5	1 4 4	15 2 2	0 14 11	4.9
<b>51 15 4</b>	<b>45 13 11</b>	<b>24 15 8</b>	<b>306 14 1</b>	<b>18 14 4</b>	<b>100.0</b>
107 14 9	102 13 11	50 2 9	599 6 11	36 14 6	..
55 15 5	57 0 0	25 3 1	292 8 10	18 0 2	..
16 10 0	14 11 4	22 7 3	..	18 14 4	..
3 7 7	3 3 6	3 9 6	3 11 2 (average)	..	..
34 8 6	32 15 9	45 1 7	..	36 14 6	..
17 14 6	18 4 5	22 10 4	..	18 0 2	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.	..	..
3 1 0	3 0 19	1 0 18	16 1 19	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
14 38 0	14 10 0	6 38 0	83 1 8	5 4 8	..
4 31 6	4 22 12	6 9 14	..	5 4 8	..

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	9 8 10	11 2 9	5 4 9	8 8 11	
Bullock ..	19 12 7	24 9 4	13 1 10	22 11 8	
Water-rates ..	12 6 1	13 13 10	7 4 5	9 14 11	
Seed ..	1 11 0	1 5 0	0 13 6	0 13 6	
Manure ..	..	..	..	..	
Implements ..	2 12 8	2 11 4	1 2 9	1 6 11	
<i>Kamins</i> ..	1 8 9	1 11 9	0 15 11	1 4 4	
Winnowing ..	3 1 10	5 6 10	1 11 7	3 0 7	
<i>Total</i> ..	<i>50 13 9</i>	<i>60 12 10</i>	<i>30 6 9</i>	<i>47 12 10</i>	
Gross income ..	124 11 0	217 6 0	68 9 8	121 8 7	
Balance ..	73 13 3	156 9 2	38 2 11	73 11 9	
Cost per acre ..	17 7 5	18 10 2	17 12 3	20 7 3	
"    " maund ..	2 7 2	1 10 10	2 10 7	2 5 9	
Per acre. {	Gross income	42 13 0	66 10 0	40 1 0	51 15 11
	Balance ..	25 5 7	47 15 10	22 4 9	31 8 8
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 7 6	3 2 2	1 5 14	2 2 14	
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	20 31 4	36 9 3	11 17 6	20 10 4	
Yield per acre ..	7 5 7	11 4 3	6 27 1	8 26 10	

## III.—(Continued).

1929-30.

TORIA.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	- Rs. a. p.	
7 6 11	9 0 0	51 0 2	3 5 1	17.9
19 4 3	18 11 0	118 2 8	7 11 0	41.4
11 11 0	10 2 9	65 5 0	4 4 0	22.9
1 2 0	1 2 9	6 15 9	0 7 4	2.4
.. ..	.. ..	.. ..	.. ..	..
3 4 1	3 11 0	15 0 9	0 15 8	5.3
1 6 8	1 4 7	8 4 0	0 8 7	2.9
3 12 0	3 7 2	20 8 0	1 5 4	7.2
<b>47 14 11</b>	<b>47 7 3</b>	<b>285 4 4</b>	<b>18 9 0</b>	<b>100.0</b>
149 9 4	138 2 5	819 15 0	50 12 0	..
101 10 5	90 11 2	534 10 8	32 3 0	..
17 6 11	19 13 2	..	18 9 0	..
1 14 9	2 1 0	2 1 5 (average)	..	..
56 6 4	57 11 5	..	50 12 0	..
36 15 5	37 14 3	..	32 3 0	..
A. K. M.	A. K. M.	A. K. M.		
2 6 0	2 3 3	15 2 19	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
24 37 4	23 1 0	136 26 5	8 35 10	..
9 2 10	9 24 12	..	8 35 10	..

## APPENDIX

TORIA.

1930-31.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	12 5 1	11 2 1	5 14 9	9 6 4
Bullock ..	18 10 10	19 13 10	15 8 11	10 6 10
Water-rates ..	12 12 5	13 12 2	7 2 6	14 5 1
Seed ..	1 0 2	0 12 7	0 7 2	1 0 2
Manure ..	..	..	..	..
Implements ..	2 6 3	2 9 1	1 15 10	2 8 2
<i>Kamins</i> ..	0 13 9	0 15 2	0 9 6	0 15 11
Winnowing ..	1 5 7	3 5 5	1 1 11	2 6 0
<i>Total</i> ..	<i>49 6 1</i>	<i>52 6 4</i>	<i>32 12 7</i>	<i>41 0 6</i>
Gross income ..	79 0 7	135 1 6	44 10 11	95 7 11
Balance ..	29 10 6	82 11 2	11 14 4	54 7 5
Cost per acre ..	16 6 10	16 2 11	19 8 0	12 2 11
„ „ maund ..	2 10 10	1 10 7	3 2 3	1 13 5
Per acre. { Gross income	26 4 8	41 11 8	26 9 3	28 5 7
{ Balance ..	9 13 10	25 8 9	7 1 3	16 2 8
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	3 0 1	3 1 18	1 5 9	3 2 19
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	18 18 8	31 22 4	10 17 8	22 12 4
Yield per acre ..	6 5 10	9 29 10	6 8 5	6 24 14

III.—(Continued).

1930-31.

TORIA.

E.			F.			Total.			Average per acre.			Percentage of each item to total cost.
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	
9	11	4	10	15	5	59	7	0	3	7	0	21.6
20	2	1	18	3	0	102	13	6	5	15	2	37.4
11	11	0	13	13	0	73	8	2	4	4	0	26.7
0	10	10	1	0	2	4	15	1	0	4	7	1.8
1	3	2	..	..	..	1	3	2	0	1	1	0.4
2	14	0	3	6	8	15	12	0	0	14	7	5.7
0	12	11	0	14	4	5	1	7	0	4	8	1.9
2	2	5	2	0	11	12	6	3	0	11	6	4.5
49	3	9	50	5	6	275	2	9	15	14	7	100.0
86	7	11	83	13	3	524	10	1	30	5	5	..
37	4	2	33	7	9	249	7	4	14	6	10	..
17	14	5	15	7	10	..	..	..	15	14	7	..
2	7	0	2	9	2	2	3	11 (average)	..	..	..	..
31	7	10	25	12	8	..	..	..	30	5	5	..
13	8	10	10	4	10	..	..	..	14	6	10	..
A. K. M.			A. K. M.			A. K. M.						
2	6	0	3	2	0	17	2	7	..	..	..	..
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			
20	8	2	19	23	4	122	21	4	7	3	7	..
7	13	14	6	1	0	..	..	..	7	3	7	..

## APPENDIX

TORIA.

1931-32.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	12 5 0	14 4 8	12 7 10	14 15 5	
Bullock „ ..	13 4 10	15 2 8	9 7 6	26 14 4	
Water-rates ..	13 8 9	13 13 0	14 13 7	13 5 4	
Seed ..	0 9 0	0 12 2	0 13 9	0 11 4	
Manure ..	..	..	..	..	
Implements ..	2 8 0	4 3 10	2 15 10	4 5 1	
<i>Kamins</i> ..	1 1 3	1 3 6	1 8 1	1 3 1	
Winnowing ..	2 8 8	3 5 9	2 1 10	3 12 4	
<i>Total</i> ..	<i>45 13 6</i>	<i>52 13 7</i>	<i>44 4 5</i>	<i>65 2 11</i>	
Gross income ..	102 3 3	134 5 7	84 11 1	151 1 5	
Balance ..	56 5 9	81 8 0	40 6 8	85 14 6	
Cost per acre ..	14 6 1	16 4 2	12 10 9	20 12 5	
„ „ maund ..	1 11 3	1 7 11	1 15 9	1 10 2	
Per acre {	Gross income..	32 1 0	41 5 5	24 3 10	48 2 6
	Balance ..	17 10 11	25 1 3	11 9 1	27 6 1
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	3 1 10	3 2 0	3 3 19	3 1 2	
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	26 36 12	35 15 6	22 12 4	39 31 12	
Yield per acre ..	8 17 3	10 35 8	6 15 6	12 - 27 5	

## III.—(Concluded).

1931-32.

TORIA.

			Average per acre.	Percentage of each item to total cost.
E.	F.	Total.		
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
12 6 5	10 7 2	76 14 6	3 14 7	25.2
12 10 6	19 3 1	96 10 11	4 14 7	31.6
14 4 8	13 13 0	83 10 4	4 4 0	27.4
0 12 2	0 11 4	4 5 9	0 3 6	1.4
..	..	..	..	..
1 13 2	4 8 5	20 6 4	1 0 7	6.7
1 4 10	1 3 6	7 8 3	0 6 1	2.4
2 3 4	2 0 9	16 0 8	0 13 1	5.3
<b>45 7 1</b>	<b>51 15 3</b>	<b>305 8 9</b>	<b>15 8 5</b>	<b>100.0</b>
88 11 8	81 12 4	642 13 4	32 10 7	..
43 4 7	29 13 1	337 4 7	17 2 2	..
13 8 2	15 15 9	..	15 8 5	..
1 15 1	2 6 7	1 12 10 (average)	..	..
26 6 2	25 2 7	..	32 10 7	..
12 14 0	9 2 10	..	17 2 2	..
A. K. M.	A. K. M.	A. K. M.		
3 2 18	3 2 0	19 5 9	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
23 15 4	21 21 8	169 12 4	8 24 2	..
6 38 2	6 25 1	..	8 24 2	..

## APPENDIX IV.

COST OF PRODUCING SUGARCANE DURING THE YEARS, 1927-28 TO 1931-32.

SUGARCANE

1927-28.

	TENANTS.					Average per acre.	Percentage of each item to total cost.
	A.	C.	F.	G.	Total.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manuallabour	33 4 1	16 6 4	6 8 11	14 15 8	71 3 0	31 9 6	20.9
Bullock .. ..	47 4 1	35 7 5	9 15 9	25 7 6	118 2 9	52 7 1	34.7
Water-rates ..	13 0 10	6 0 0	2 7 7	5 7 7	27 0 0	12 0 0	7.0
Seed .. ..	24 0 0	9 0 0	5 5 10	9 0 0	47 5 10	21 0 4	13.9
Manure .. ..	17 13 0	7 9 10	3 0 0	6 6 7	34 13 5	15 7 5	10.2
Implements ..	9 10 10	6 7 8	1 10 1	5 11 6	23 8 1	10 6 11	6.9
Kamins .. ..	1 1 5	0 9 9	0 3 3	0 7 6	2 5 11	1 0 10	0.7
Jhoka .. ..	6 14 2	4 3 6	1 0 7	4 1 8	16 3 11	7 3 4	4.8
<i>Total</i> .. ..	<i>153 0 5</i>	<i>85 12 6</i>	<i>30 4 0</i>	<i>71 10 0</i>	<i>340 10 11</i>	<i>151 3 5</i>	<i>100.0</i>
Value of juice .. ..	..	..	..	..	..	..	..
Cost of gur ..	153 0 5	85 12 6	30 4 0	71 10 0	340 10 11	151 3 5	..
Gross income	173 0 5	111 13 8	27 15 9	109 2 13	422 0 9	187 5 0	..
Balance .. ..	20 0 0	26 1 2	-(2 4 3)	37 8 11	81 5 10	36 1 7	..
Cost per acre	140 11 5	171 0 0	144 7 8	156 15 9	..	151 3 5	..
„ „ maund	3 15 8	3 7 3	4 13 10	2 15 3	3 10 1 (average)	..	..
Gross income	159 1 8	223 11 4	133 10 6	230 4 10	..	187 5 0	..
Balance .. ..	18 6 3	52 2 4	-(10 13 2)	82 5 1	..	36 1 7	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.		
Area .. ..	1 0 14	0 4 0	0 1 13.5	0 3 13	2 2 0.5	..	..
	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	
Total yield (gur) .. ..	38 18 0	24 34 4	6 8 12	24 10 8	93 31 8	41 25 0	..
Yield per acre (gur) .. ..	35 14 4	49 28 8	29 28 1	53 7 2	..	41 25 0	..

(Continued.)

## APPENDIX IV.—(Continued).

1928-29.

SUGARCANE

	TENANTS.			Average per acre.	Percentage of each item to total cost.
	A.	F.	Total.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	44 10 9	23 7 0	68 1 9	48 0 2	26.7
Bullock ..	65 10 4	29 4 1	94 14 5	66 14 3	37.3
Water-rates ..	12 2 5	4 14 0	17 0 5	12 0 0	6.7
Seed ..	10 14 0	3 2 0	14 0 0	9 14 3	5.5
Manure ..	14 0 0	3 3 4	17 3 4	12 2 1	6.8
Implements ..	17 1 4	5 6 1	22 7 5	15 13 3	8.8
Kansius ..	1 2 3	0 7 0	1 9 3	1 1 10	0.6
Jhoka ..	14 9 4	4 12 9	19 6 1	13 10 6	7.6
<i>Total</i> ..	<i>180 2 5</i>	<i>72 8 9</i>	<i>254 11 2</i>	<i>179 8 4</i>	<i>100.0</i>
Value of juice ..	..	4 1 0	4 1 0	2 13 9	..
Cost of gur ..	180 2 5	70 7 9	250 10 2	176 10 7	..
Gross income ..	386 2 7	131 0 1	517 2 8	364 8 4	..
Balance ..	206 0 2	56 7 4	262 7 6	185 0 0	..
Cost per acre ..	177 14 10	183 8 0	..	179 8 4	..
.. .. maund ..	2 8 10	3 0 7	2 10 9 (average)	..	..
Per acre. {					
Gross income	381 6 4	322 7 7	..	364 8 4	..
Balance	203 7 5	133 15 7	..	185 0 0	..
	A. K. M.	A. K. M.	A. K. M.		
Area ..	1 0 2	0 3 5	1 3 7	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield (gur) ..	70 24 8	23 8 8	93 33 0	66 5 5	..
Yield per acre (gur) ..	69 29 10	57 5 9	..	66 5 5	..

## APPENDIX IV.—(Continued).

SUGARCANE.

1929-30.

	TENANTS.					Average per acre.	Percentage of each item to total cost.
	A.	B.	E.	F.	Total.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour	34 11 5	2 4 7	22 10 6	12 10 2	72 4 9	31 2 1	22.8
Bullock ..	44 7 8	3 0 1	35 10 5	16 12 7	99 14 9	43 0 5	31.5
Water-rates ..	12 7 2	1 1 7	7 15 2	6 6 1	27 14 0	12 0 0	8.8
Seed ..	..	2 4 6	15 12 0	6 12 8	24 13 2	10 11 0	7.8
Manure ..	20 6 5	1 3 2	11 0 0	7 11 11	40 5 6	17 5 11	12.7
Implements ..	12 7 4	0 10 10	9 3 7	5 0 6	27 6 3	11 12 8	8.6
Kamins ..	0 8 9	0 0 9	0 5 5	0 4 7	1 3 6	0 8 5	0.4
Jhoku ..	11 7 6	0 8 6	7 5 4	4 0 1	23 5 5	10 0 8	7.4
<i>Total</i> ..	<i>136 8 3</i>	<i>11 2 0</i>	<i>109 14 5</i>	<i>59 10 8</i>	<i>317 3 4</i>	<i>136 9 3</i>	<i>100.0</i>
Value of juice ..	..	..	1 7 0	..	1 7 0	0 9 11	..
Cost of gur ..	136 8 3	11 2 0	108 7 5	50 10 8	315 12 4	135 15 4	..
Gross income	306 9 8	14 6 11	196 3 2	106 11 9	623 15 6	268 10 7	..
Balance ..	170 1 6	3 4 11	88 4 9	47 1 1	306 12 2	132 1 4	..
Cost per acre	131 9 4	121 14 8	165 14 2	112 5 0	..	136 9 8	..
.. .. maund	2 5 9	4 1 4	2 15 2	2 15 5	2 11 0	..	..
Per acre. {	295 8 5	158 2 7	296 2 4	200 14 7	..	268 10 7	..
Gross income	..	..	..	..	..	..	..
Balance	163 15 7	36 3 11	130 4 2	88 9 7	..	132 1 4	..
Area ..	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	..	..
	1 0 6	0 0 14.6	0 5 6	0 4 5	2 2 11.6	..	..
	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	MdsSrs.Ch.	..
Total yield (gur)	57 35 6	2 20 0	36 30 12	20 0 0	117 21 2	50 24 2	..
Yield per acre (gur)	58 32 12	20 34 8	55 20 0	37 37 2	..	50 24 2	..

APPENDIX IV.—(Continued).

1930-31.

SUGARCANE.

	TENANTS.						Average per acre.	Percentage of each item to total cost.
	A.	B.	C.	E.	F.	Total.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		
Manual labour	33 14 6	28 12 0	16 7 1	35 2 9	13 7 11	127 12 3	30 2 5	23.4
Bullock ..	41 1 9	36 3 1	31 1 1	49 11 10	14 2 4	172 4 1	40 10 5	31.5
Water-rates	12 0 0	12 15 7	6 12 0	13 2 0	6 0 0	50 13 7	12 0 0	9.3
Seed	21 4 0	22 8 0	11 4 0	20 4 0	13 8 0	88 12 0	20 15 1	16.2
Manure	15 4 10	5 6 5	4 9 7	6 0 0	3 3 2	34 8 0	8 2 3	6.3
Implements	10 10 7	10 1 3	6 12 6	13 1 10	4 6 8	45 0 10	10 10 1	8.2
Kamins	0 4 7	0 5 1	0 3 2	0 5 1	0 2 2	1 4 1	0 4 9	0.2
Jhoka ..	6 11 6	6 12 2	3 9 5	7 9 1	2 3 8	26 13 10	6 5 6	4.9
<i>Total</i>	<i>141 3 9</i>	<i>122 15 7</i>	<i>80 10 10</i>	<i>145 4 7</i>	<i>57 1 11</i>	<i>547 4 8</i>	<i>129 2 6</i>	<i>100.0</i>
Value of juice ..	..	10 8 0	..	3 3 0	41 8 0	55 3 0	13 0 5	..
Cost of gur ..	141 3 9	112 7 7	80 10 10	142 1 7	15 9 11	492 1 8	116 2 1	..
Gross income	181 6 11	195 8 11	96 5 3	208 11 1	101 10 5	783 10 7	184 14 11	..
Balance ..	40 3 2	72 9 4	15 10 5	62 6 6	44 8 6	236 5 11	55 12 5	..
Cost per acre ..	14 13 9	113 11 9	143 6 10	132 13 4	114 3 10	..	129 2 6	..
.. .. maund ..	2 11 9	2 2 2	2 15 1	2 6 10	0 14 7	2 6 0	..	..
						(average)		
Per acre {Gross income	181 6 11	180 13 10	171 4 0	190 12 11	203 4 0	..	184 14 11	..
.. {Balance	40 3 2	67 2 1	27 13 2	57 15 7	89 1 0	..	55 12 5	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.	..	..
Area ..	1 0 0	1 0 13	0 4 10	1 0 15	0 4 0	4 1 18	..	..
	M. S. C.	M. S. C.	M. S. C.	M. S. C.	M. S. C.	M. S. C.	M. S. C.	..
Total yield (gur)	51 26 6	52 27 8	27 17 0	58 20 8	17 5 0	207 16 6	52 23 11	..
Yield per acre (gur)	51 26 6	54 1 9	48 30 3	53 19 14	54 32 0	..	52 23 11	..

## SUGARCANE.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	20 7 2	25 10 4	21 12 11	3 15 2
Bullock „ ..	13 9 0	16 13 6	15 9 7	7 13 10
Water-rates ..	12 0 0	7 8 0	5 11 2	1 0 10
Seed ..	..	9 12 0	7 2 0	1 10 2
Manure ..	24 1 3	15 13 11	13 0 7	1 12 4
Implements ..	6 11 6	9 12 2	6 4 3	0 14 9
<i>Kamins</i> ..	0 5 5	0 3 9	0 3 7	0 0 6
<i>Jhoka</i> ..	3 6 0	4 8 8	3 1 4	0 6 5
<i>Total</i> ..	80 8 4	90 2 4	72 13 5	17 10 0
Value of juice ..	..	..	..	..
Cost of <i>gur</i> ..	80 8 4	90 2 4	72 13 5	17 10 0
Gross income ..	93 13 1	121 3 11	94 4 5	9 15 10
Balance ..	13 4 9	31 1 7	21 7 0	(7 10 2)
Cost per acre ..	80 8 4	144 3 9	153 5 6	201 6 10
„ „ maund ..	2 8 4	2 2 11	2 4 4	5 2 11
Gross income ..	93 13 1	193 15 10	198 7 7	114 2 8
Balance ..	13 4 9	49 12 1	45 2 1	(87 4 2)
Area ..	A. K. M. 1 0 0	A. K. M. 0 5 0	A. K. M. 0 3 16	A. K. M. 0 0 14
Total yield ..	Mds. Srs. Ch. 31 37 8	Mds. Srs. Ch. 41 11 0	Mds. Srs. Ch. 32 3 12	Mds. Srs. Ch. 3 16 0
Yield per acre ..	31 37 8	66 1 10	67 22 10	38 34 5

IV.—(Concluded).

1931-32.

SUGARCANE.

			Average per acre.	Percentage of each item to total cost.
E.	F.	Total.		
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
25 6 3	2 7 2	99 11 0	34 3 8	27.3
25 14 5	2 8 0	82 4 4	28 3 10	22.5
7 8 0	1 3 2	34 15 2	12 0 0	9.6
9 0 0	1 10 9	29 2 11	10 0 4	8.0
13 8 0	1 10 9	69 14 10	24 0 3	19.1
7 5 8	1 9 5	32 9 9	11 3 2	8.9
0 3 10	0 0 7	1 1 8	0 6 1	0.3
3 7 2	0 14 0	15 11 7	5 6 4	4.3
<b>92 5 4</b>	<b>11 15 10</b>	<b>365 7 3</b>	<b>125 7 8</b>	<b>100.0</b>
..	..	..	..	..
92 5 4	11 15 10	365 7 3	125 7 8	..
91 13 4	23 8 0	434 10 4	149 3 10	..
—(0 8 0)	11 8 2	69 3 4	23 12 2	..
147 11 9	119 14 4	..	125 7 8	..
2 15 3	1 8 0	2 7 6 (average)	..	..
146 14 11	235 0 0	..	149 3 10	..
—(0 12 10)	115 1 8	..	23 12 2	..
A. K. M.	A. K. M.	A. K. M.	..	..
0 5 0	0 0 16	2 7 6	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
31 10 8	8 0 0	147 38 12	50 32 3	..
50 0 13	80 0 0	..	50 32 3	..

APPENDIX  
COST OF PRODUCING GRAM DURING  
1927-28.

GRAM.

	TENANTS.											
	A.			B.			C.			D.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Manual labour ..	2	4	1	14	11	2	2	11	10	1	15	8
Bullock ..	7	12	3	51	15	10	12	4	5	7	10	10
Water-rates ..	3	9	10	8	6	7	3	4	0	2	5	8
Seed ..	1	2	3	2	0	5	1	5	7	0	14	0
Manure ..	..			..			..			..		
Implements ..	0	15	6	7	1	8	1	9	2	0	7	6
Kamins ..	1	1	10	2	10	8	1	3	5	0	11	5
Winnowing ..	0	2	7	2	15	7	0	4	8	0	12	2
<i>Total</i> ..	<i>17</i>	<i>0</i>	<i>4</i>	<i>89</i>	<i>13</i>	<i>11</i>	<i>22</i>	<i>11</i>	<i>1</i>	<i>14</i>	<i>13</i>	<i>3</i>
Value of <i>bhusa</i> ..	1	14	9	14	0	5	1	0	0	3	0	4
Cost of grain ..	15	1	7	75	13	6	21	11	1	11	12	11
Gross income ..	23	11	3	172	15	7	12	5	6	37	4	7
Balance ..	<i>6</i>	<i>10</i>	<i>11</i>	<i>83</i>	<i>1</i>	<i>8</i>	<i>(10</i>	<i>5</i>	<i>7)</i>	<i>22</i>	<i>7</i>	<i>4</i>
Cost per acre ..	15	4	10	34	11	9	22	11	1	20	7	3
"    " maund of grain.	2	15	2	2	0	5	8	1	6	1	7	5
Per acre. { Gross income ..	21	4	11	66	13	8	12	5	6	51	6	11
{ Balance ..	<i>6</i>	<i>0</i>	<i>1</i>	<i>32</i>	<i>1</i>	<i>11</i>	<i>-(10</i>	<i>5</i>	<i>7)</i>	<i>30</i>	<i>15</i>	<i>8</i>
	A. K. M.			A. K. M.			A. K. M.			A. K. M.		
Area ..	1	0	18	2	4	14	1	0	0	0	5	16
	Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.		
Total yield. { Grain ..	5	5	0	37	16	0	2	26	12	8	2	8
{ <i>Bhusa</i> ..	5	5	0	37	16	0	2	26	12	8	2	8
Yield per acre. { Grain ..	4	24	4	14	18	3	2	26	12	11	4	13
{ <i>Bhusa</i> ..	4	24	4	14	18	3	2	26	12	11	4	13

(Continued.)

V.

THE YEARS, 1927-28 TO 1931-32.

1927-28.

GRAM.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
5 5 5	2 6 1	2 11 2	32 1 5	3 7 9	14.5
22 7 11	4 3 4	6 13 9	113 4 4	12 4 9	51.3
6 15 2	1 13 3	3 8 7	29 15 1	3 4 0	13.6
1 11 0	0 11 0	2 0 5	9 12 8	1 1 0	4.4
..	..	4 12 10	4 12 10	0 8 4	2.2
2 9 5	0 8 8	0 10 2	13 14 7	1 8 1	6.3
2 2 8	0 8 10	1 1 10	9 8 8	1 0 7	4.3
1 1 0	1 0 2	1 3 7	7 7 9	0 13 0	3.4
<b>42 4 7</b>	<b>11 3 4</b>	<b>22 14 4</b>	<b>220 12 10</b>	<b>23 15 6</b>	<b>100.0</b>
3 12 0	3 10 2	4 6 8	31 12 4	3 7 2	..
38 8 7	7 9 2	18 7 8	189 0 6	20 8 4	..
46 4 0	44 12 11	54 8 3	391 14 1	42 8 8	..
3 15 5	33 9 7	31 9 11	171 1 3	18 9 2	..
19 12 7	19 14 10	21 0 10	..	23 15 6	..
1 13 8	0 12 6	1 10 5	2 3 8 (average)	..	..
21 10 2	79 10 6	50 2 1	..	42 8 8	..
1 13 7	59 11 8	29 1 3	..	18 9 2	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.	..	..
2 1 2	0 4 10	1 0 14	9 1 14	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
10 0 0	9 27 8	11 31 8	84 29 4	9 7 14	..
10 0 0	9 27 8	11 31 8	84 29 4	9 7 14	..
4 27 2	17 8 14	10 33 9	..	9 7 14	..
4 27 2	17 8 14	10 33 9	..	9 7 14	..

(Continued.)

## APPENDIX

GRAM.

1928-29.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	3 9 8	5 10 0	4 7 1	2 3 3
Bullock ..	7 2 9	9 7 11	13 2 7	5 3 8
Water-rates ..	3 4 0	5 3 10	5 4 2	3 0 9
Seed ..	2 0 0	2 8 0	3 4 0	1 14 0
Manure ..	9 3 2	0 9 7	..	2 6 5
Implements ..	1 7 6	1 7 7	1 8 7	0 4 5
<i>Kamins</i> ..	1 2 3	1 10 4	1 14 11	1 0 1
Winnowing ..	1 1 6	2 15 0	1 13 0	1 6 3
<i>Total</i> ..	<i>28 14 10</i>	<i>29 8 3</i>	<i>31 6 4</i>	<i>17 6 10</i>
Value of <i>bhusa</i> ..	2 9 1	6 13 9	4 5 0	3 2 8
Cost of grain ..	26 5 9	22 10 6	27 1 4	14 4 2
Gross income ..	46 7 8	124 5 3	78 2 9	57 6 6
Balance ..	<i>17 8 10</i>	<i>94 13 0</i>	<i>46 12 5</i>	<i>39 15 8</i>
Cost per acre ..	28 9 1	18 4 10	19 6 4	18 9 5
.. .. maund of grain	2 8 1	0 13 3	1 9 1	1 2 0
Per acre. { Gross income	45 14 5	77 1 8	48 4 8	61 3 9
{ Balance ..	<i>17 5 4</i>	<i>58 12 10</i>	<i>28 11 4</i>	<i>42 10 4</i>
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	1 0 2	1 4 18	1 4 19	0 7 10
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield. { Grain ..	10 10 4	27 17 8	17 10 4	12 26 12
{ <i>Bhusa</i> ..	10 10 4	27 17 8	17 10 4	12 26 12
Yield per acre. { Grain ..	10 5 3	17 0 10	10 26 7	13 20 9
{ <i>Bhusa</i> ..	10 5 3	17 0 10	10 26 7	13 20 9

V.—(Continued.)

1928-29.

GRAM.

E.			F.			G.			Total.	Average per acre.	Percentage of each item to total cost.				
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	
4	2	3	4	13	4	1	10	9	26	8	4	2	15	2	14.2
9	13	11	7	7	5	6	6	0	58	12	3	6	8	7	31.4
5	7	9	4	13	4	2	0	10	29	2	8	3	4	0	15.6
3	3	6	2	8	0	1	3	6	16	9	0	1	13	6	8.9
9	9	7	..			3	3	2	24	15	11	2	12	6	13.3
1	4	0	1	8	4	0	4	4	7	12	9	0	13	11	4.2
1	11	1	1	9	8	0	11	1	9	11	5	1	1	4	5.2
2	5	10	2	14	3	0	15	3	13	7	1	1	7	11	7.2
37	9	11	25	10	4	16	6	11	186	15	5	20	12	11	100.0
5	9	3	6	12	3	2	4	6	31	8	6	3	8	2	..
32	0	8	18	14	1	14	2	5	155	6	9	17	4	11	..
101	1	3	122	9	2	41	5	7	571	6	2	63	9	3	..
63	7	4	96	14	10	24	14	8	384	6	9	42	12	4	..
22	4	8	17	3	10	26	0	6	..			20	12	11	..
1	7	0	0	11	2	1	8	10	1	3	9	..			..
59	14	4	82	6	5	65	8	1	..			63	9	3	..
37	9	8	65	2	7	39	7	7	..			42	12	4	..
A. K. M.			A. K. M.			A. K. M.			A. K. M.			8	7	18	..
1	5	10	1	3	18	0	5	1	..			..			..
Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			Mds. Srs. Ch.			
22	12	4	27	2	0	9	5	0	126	4	0	14	1	4	..
22	12	4	27	2	0	9	5	0	126	4	0	14	1	4	..
13	8	12	18	7	6	14	18	3	..			14	1	4	..
13	8	12	18	7	6	14	18	3	..			14	1	4	..

## APPENDIX

GRAM.

1929-30.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	5 6 9	4 9 5	4 14 9	4 12 11
Bullock ..	10 2 2	10 9 10	12 5 6	12 3 4
Water-rates ..	4 14 8	3 12 9	4 10 9	3 4 8
Seed ..	1 14 0	2 0 0	3 0 0	1 4 0
Manure ..	12 9 7	2 6 5	..	5 6 5
Implements ..	1 6 10	1 2 8	1 1 7	0 12 4
<i>Kamins</i> ..	0 12 11	0 9 9	0 13 5	0 8 10
Winnowing ..	1 5 11	2 5 6	1 11 4	1 6 10
<i>Total</i> ..	<i>38 8 10</i>	<i>27 8 4</i>	<i>28 9 4</i>	<i>29 11 4</i>
Value of <i>bhusa</i> ..	2 2 9	3 12 0	2 11 9	2 4 6
Cost of grain ..	36 6 1	23 8 4	25 13 7	27 6 10
Gross income ..	56 7 6	97 8 0	71 0 11	59 5 0
Balance ..	17 14 8	69 15 8	42 7 7	29 9 8
Cost per acre ..	25 7 10	23 8 9	19 14 2	29 5 6
"    " maund of grain.	2 1 6	0 12 8	1 2 11	1 7 2
Per acre { Gross income	37 5 4	83 6 9	49 6 11	58 9 4
{ Balance ..	11 13 6	59 14 0	29 8 9	29 3 10
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	1 4 2	1 1 7	1 3 10	1 0 2
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield. { Grain ..	17 15 0	30 0 0	21 34 8	18 10 0
{ <i>Bhusa</i> ..	17 15 0	30 0 0	21 34 8	18 10 0
Yield per acre. { Grain ..	11 19 8	25 26 11	15 8 5	18 1 0
{ <i>Bhusa</i> ..	11 19 8	25 26 11	15 8 5	18 1 0

V.—(Continued).

1929-30.

GRAM.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 6 8 10	Rs. a. p. 3 7 8	Rs. a. p. 29 12 4	Rs. a. p. 3 13 2	16.2
17 4 0	7 1 11	69 10 9	8 15 3	37.9
5 9 1	3 0 9	25 4 8	3 4 0	13.7
3 4 0	1 0 0	12 6 0	1 9 5	6.7
3 14 9	..	24 5 2	3 2 0	13.2
2 14 7	1 6 6	8 12 6	1 2 1	4.8
0 14 2	0 8 0	4 3 1	0 8 7	2.3
1 6 0	1 5 3	9 8 10	1 3 7	5.2
<b>41 11 5</b>	<b>17 14 1</b>	<b>183 15 4</b>	<b>23 10 1</b>	<b>100.0</b>
2 3 3	2 2 0	15 4 3	1 15 5	..
39 8 2	15 12 1	168 11 1	21 10 8	..
57 3 11	55 4 0	396 13 4	50 15 10	..
15 8 6	37 5 11	212 14 0	27 5 9	..
24 5 9	19 1 2	..	23 10 1	..
2 3 11	0 14 10	1 6 2 (average)	..	..
33 6 10	58 14 11	..	50 15 10	..
9 1 1	39 13 9	..	27 5 9	..
A. K. M. 1 5 14	A. K. M. 0 7 10	A. K. M. 7 6 5	..	..
Mds. Srs. Ch. 17 24 8	Mds. Srs. Ch. 17 0 0	Mds. Srs. Ch. 122 4 0	Mds. Srs. Ch. 15 28 7	..
17 24 8	17 0 0	122 4 0	15 28 7	..
10 11 6	18 5 5	..	15 28 7	..
10 11 6	18 5 5	..	15 28 7	..

## APPENDIX

1930-31.

GRAM.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	7 6 7	3 11 0	4 13 6	4 9 4
Bullock „ ..	14 15 7	8 1 2	15 5 0	7 1 8
Water-rates ..	5 12 4	4 8 6	5 1 11	5 2 11
Seed ..	1 9 2	1 3 5	1 9 2	1 6 1
Manure ..	5 11 2	5 6 5	7 13 10	9 9 7
Implements ..	1 14 8	1 0 8	1 15 3	1 11 4
<i>Kamins</i> ..	0 8 2	0 6 6	0 8 11	0 7 7
Winnowing ..	1 10 3	1 1 1	0 14 2	0 6 10
<i>Total</i> ..	<i>39 7 11</i>	<i>25 6 9</i>	<i>38 1 9</i>	<i>30 7 4</i>
Value of <i>bhusa</i> ..	2 5 8	1 8 8	1 4 0	0 9 8
Cost of grain ..	37 2 3	23 14 1	36 13 9	29 13 8
Gross income ..	48 4 7	31 8 7	25 10 1	12 5 3
Balance ..	8 12 8	6 1 10	(12 7 8)	(18 2 1)
Cost per acre ..	22 4 0	18 3 10	24 3 2	19 1 9
„ „ maund of grain.	1 7 11	1 7 3	2 12 3	4 10 6
Gross income ..	27 3 3	22 10 0	16 4 5	7 11 9
Balance ..	4 15 3	4 6 2	(7 14 9)	(11 6 0)
Area ..	A. K. M. 1 6 4	A. K. M. 1 3 3	A. K. M. 1 4 12	A. K. M. 1 4 15
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield. { Grain ..	25 5 0	16 16 4	13 13 8	6 16 8
{ <i>Bhusa</i> ..	25 5 0	16 16 4	13 13 8	6 16 8
Yield per acre. { Grain ..	14 4 3	11 30 13	8 18 11	4 0 5
{ <i>Bhusa</i> ..	14 4 3	11 30 13	8 18 11	4 0 5

V.—(Continued).

1930-31.

GRAM.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 7 5 1	Rs. a. p. 8 15 9	Rs. a. p. 36 13 3	Rs. a. p. 3 3 1	16.9
14 12 3	14 12 11	75 0 7	6 8 10	34.7
8 6 11	8 6 11	37 7 6	3 4 0	17.2
1 15 6	2 5 10	10 1 2	0 14 0	4.6
6 0 0	3 3 2	37 12 2	3 4 4	17.4
2 1 9	2 12 6	11 8 2	0 15 1	5.0
0 12 0	0 11 5	3 6 7	0 4 9	1.5
0 11 10	1 0 10	5 13 0	0 8 2	2.7
<b>42 1 4</b>	<b>42 5 4</b>	<b>217 14 5</b>	<b>18 14 3</b>	<b>100.0</b>
1 0 11	1 8 3	8 5 2	0 11 7	..
41 0 5	40 13 1	209 9 3	18 2 8	..
21 10 11	31 0 8	170 8 1	14 12 5	..
—(20 6 5)	—(14 4 3)	—(47 6 4)	—(4 1 10)	..
16 3 7	16 5 2	..	18 14 3	..
3 10 2	2 8 5	2 5 10 (average)	..	..
8 5 9	11 15 6	..	14 12 5	..
—(7 13 10)	—(4 5 3)	..	—(4 1 10)	..
A. K. M.	A. K. M.	A. K. M.	..	..
2 4 15	2 4 15	11 4 4	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
11 11 4	16 6 0	88 28 8	7 27 14	..
11 11 4	16 6 0	88 28 8	7 27 14	..
4 14 0	6 9 1	..	7 27 14	..
4 14 0	6 9 1	..	7 27 14	..

## APPENDIX

GRAM.

1931-32.

	TENANTS.		
	A.	B.	C.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	10 14 10	7 3 11	5 11 2
Bullock ..	10 8 0	5 11 0	5 4 3
Water-rates ..	8 0 0	5 1 7	4 4 11
Seed ..	0 12 3	0 10 10	0 11 7
Manure ..	5 13 7	..	..
Implements ..	1 15 8	1 9 5	1 10 7
<i>Kamins</i> ..	0 13 4	0 9 5	0 9 10
Winnowing ..	1 8 8	0 13 5	0 7 0
<i>Total</i> ..	40 6 4	21 11 7	18 11 4
Value of <i>bhusa</i> ..	4 4 5	2 5 2	1 5 6
Cost of grain ..	36 1 11	19 6 5	17 5 10
Gross income ..	66 4 2	35 13 9	20 13 8
Balance ..	25 13 10	14 2 2	2 2 4
Cost per acre ..	16 6 6	13 13 7	14 1 10
.. .. maund of grain ..	1 0 4	1 0 9	1 9 10
Per acre. { Gross income ..	26 14 7	22 13 7	15 11 9
{ Balance ..	10 8 1	9 0 0	1 9 11
Area ..	A. K. M. 2 3 14	A. K. M. 1 4 11	A. K. M. 1 2 12
Total yield. { Grain ..	Mds. Srs. Ch. 34 8 0	Mds. Srs. Ch. 18 23 0	Mds. Srs. Ch. 10 30 8
{ <i>Bhusa</i> ..	34 8 0	18 23 0	10 30 8
Yield per acre. { Grain ..	13 35 9	11 33 10	8 4 14
{ <i>Bhusa</i> ..	13 35 9	11 33 10	8 4 14

V.—(Concluded).

1931-32.

GRAM.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
8 8 2	9 7 7	41 13 8	4 2 7	26.6
15 15 0	15 11 5	53 1 8	5 4 6	33.7
6 14 6	8 5 11	32 10 11	3 4 0	20.8
1 1 0	1 5 9	4 9 5	0 7 4	2.9
..	..	5 13 7	0 9 4	3.7
2 4 9	3 11 4	11 3 9	1 1 10	7.1
0 13 1	0 15 5	3 13 1	0 6 1	2.4
0 3 8	1 5 9	4 6 6	0 7 0	2.8
35 12 2	40 15 2	157 8 7	15 10 8	100.0
0 10 7	3 13 9	12 7 5	1 3 10	..
35 1 7	37 1 5	145 1 2	14 6 10	..
10 3 11	59 13 1	193 0 7	19 3 2	..
—(25 8 3)	18 13 11	35 8 0	3 8 6	..
16 13 4	15 14 5	..	15 10 8	..
6 10 3	1 3 3	1 7 3	..	..
4 13 3	23 3 8	(average)	19 3 2	..
—(12 0 1)	7 5 3	..	3 8 6	..
A. K. M.	A. K. M.	A. K. M.	..	..
2 1 0	2 4 12	10 0 9	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
5 11 8	30 35 0	99 28 0	9 36 9	..
5 11 8	30 35 0	99 28 0	9 36 9	..
2 19 8	11 39 10	..	9 36 9	..
2 19 8	11 39 10	..	9 36 9	..

## APPENDIX VI.

COST OF PRODUCING MAIZE DURING THE YEARS, 1937-28, 1928-29 AND 1930-31.  
MAIZE. 1927-28

Items.	TENANTS.					Average per acre.	Percentage of each item to total cost.	
	A.	B.	E.	F.	Total.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		
Manual labour	4 14 9	3 6 5	2 1 0	3 14 0	14 4 2	4 8 2	15.8	
Bullock ..	12 2 3	3 15 7	7 11 9	6 0 10	29 14 5	9 7 4	33.2	
Water-rates ..	4 15 10	3 2 10	3 2 4	3 11 5	15 0 5	4 12 0	16.7	
Seed ..	2 0 0	1 4 0	1 0 0	1 0 0	5 4 0	1 10 6	5.8	
Manure ..	..	..	4 0 0	0 0 0	10 0 0	3 2 7	11.1	
Implements ..	1 8 3	0 8 8	0 14 3	0 12 6	3 11 8	1 2 10	4.2	
Kamins ..	1 0 10	0 11 0	0 10 9	0 12 2	3 2 9	1 0 1	3.5	
Harvesting ..	..	..	..	..	..	..	..	
Winnowing ..	2 10 6	2 7 10	0 12 10	2 12 6	8 11 8	2 12 2	9.7	
<b>Total cost ..</b>	<b>29 4 5</b>	<b>15 8 4</b>	<b>20 4 11</b>	<b>24 15 5</b>	<b>90 1 1</b>	<b>28 7 8</b>	<b>100.0</b>	
Value of fodder	8 6 4	5 5 7	5 4 10	6 4 0	25 4 9	8 0 0	..	
Cost of grain..	20 14 1	10 2 9	15 0 1	18 11 5	64 12 4	20 7 8	..	
Gross income	61 10 10	55 1 5	22 2 4	62 3 1	901 1 8	63 9 5	..	
Balance ..	32 6 5	39 9 1	1 13 5	37 3 8	111 0 7	35 1 9	..	
Cost per acre	28 1 8	23 3 4	30 10 5	31 15 3	..	28 7 8	..	
.. .. maund of grain ..	1 5 2	0 11 1	3 0 1	1 2 1	1 3 11 (average)	..	..	
Per acre.	Gross income.	59 3 5	82 6 0	33 6 10	79 0 8	..	63 9 5	..
	Balance	31 1 9	59 2 8	2 12 5	47 10 5	..	35 1 9	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	A. K. M.			
Area ..	1 0 8	0 5 7	0 5 6	0 6 5	3 1 6	..	..	
	Mds.Srs.Ch	Mds.Srs.Ch	Mds.Srs.Ch	Mds.Srs.Ch	Mds.Srs.Ch	Mds.Srs.Ch		
Total yield ..	15 31 8	14 29 8	4 39 8	16 23 0	52 3 8	16 18 13		
Yield per acre	15 1 7	22 1 8	7 21 2	21 8 10	..	16 18 13	..	

(Continued.)

## APPENDIX VI.—(Continued).

1928-29.

MAIZE.

	TENANTS.			Average per acre.	Percentage of each item to total cost.
	A.	B.	Total.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Mannual labour ..	5 11 0	4 2 0	9 13 9	8 12 3	15.0
Bullock ..	7 14 5	5 15 2	13 13 7	12 4 11	21.0
Water-rates ..	3 0 5	2 5 1	5 5 6	4 12 0	8.1
Seed ..	1 8 3	1 1 4	2 9 7	2 5 0	3.9
Manure ..	14 0 0	10 0 0	24 0 0	21 5 4	36.5
Implements ..	1 3 7	1 3 4	2 6 11	2 2 7	3.7
Kamiae ..	0 10 5	0 8 5	1 2 10	1 0 9	1.8
Harvesting ..	..	..	..	..	..
Winnowing ..	3 8 0	3 1 6	6 9 6	5 13 10	10.0
<i>Total cost</i> ..	<i>37 8 1</i>	<i>28 5 7</i>	<i>65 13 8</i>	<i>58 8 8</i>	<i>100.0</i>
Value of fodder ..	5 1 7	3 14 5	9 0 0	8 0 0	..
Cost of grain ..	32 6 6	24 7 2	56 13 8	50 8 8	..
Gross income ..	75 1 8	65 14 3	140 15 11	125 5 3	..
Balance ..	37 9 7	37 8 8	75 2 3	66 12 7	..
Cost per acre ..	58 13 4	58 2 5	..	58 8 8	..
.. .. maund of grain	2 3 2	1 14 0	2 0 9 (average)	..	..
Per acre. {					
Gross income ..	117 13 0	135 2 7	..	125 5 3	..
Balance ..	58 15 8	77 0 2	..	66 12 7	..
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	0 5 2	0 3 18	1 1 0	..	..
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Md. Srs. Ch.	
Total yield ..	14 29 8	13 2 0	27 31 8	24 28 0	..
Yield per acre ..	23 4 11	26 30 12	..	24 28 0	..

## APPENDIX

1930-31.

## MAIZE.

Items.	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour	10 9 7	8 2 3	4 7 10	9 14 5
Bullock „	13 2 1	8 13 2	6 11 7	9 0 7
Water-rates	4 4 9	4 11 1	2 5 1	4 9 2
Seed	0 7 8	0 7 8	0 3 10	0 7 8
Manure	19 3 9	12 0 0	6 0 0	3 9 7
Implements	1 10 11	1 2 3	0 13 9	2 2 10
Kamins	0 4 2	0 4 8	0 2 9	0 4 7
Harvesting	..	..	..	..
Winnowing	..	..	..	..
<i>Total cost</i>	<i>49 10 11</i>	<i>35 9 1</i>	<i>20 12 10</i>	<i>30 0 10</i>
Value of fodder	3 9 7	3 15 3	1 15 3	3 13 7
Cost of grain	46 1 4	31 9 10	18 13 7	26 3 3
Gross income	16 1 7	18 15 3	9 7 3	23 13 7
Balance	—(33 9 4)	—(16 9 10)	—(11 5 7)	—(6 3 3)
Cost per acre	55 3 3	36 0 4	42 10 9	31 3 7
„ „ maund of grain	4 9 9	2 10 2	3 2 3	1 10 3
Per acre. { Gross income	17 14 2	19 3 1	19 6 3	6 7 1
Per acre. { Balance	—(37 5 1)	—(16 13 3)	—(23 4 6)	—(24 12 6)
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area	0 7 4	0 7 18	0 3 18	0 7 14
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield	10 0 0	12 0 0	6 0 0	16 0 0
Yield per acre	11 1 6	12 6 1	12 12 5	16 24 15

VI.—(Concluded).

1930-31.

MAIZE.

E.	F.	Total.	Average per acre.		Percentage of each item to total cost.
			Rs.	a. p.	
Rs. a. p. 6 15 8	Rs. a. p. 7 14 7	Rs. a. p. 48 0 4	Rs.	a. p. 9 5 9	23.1
7 15 7	11 12 3	57 7 3	11	3 2	27.8
3 10 5	4 13 11	24 6 5	4	12 1	11.8
0 5 1	0 7 8	2 7 7	0	7 9	1.2
6 0 0	17 0 0	63 13 4	12	7 0	30.9
1 2 3	2 3 5	9 3 5	1	12 9	4.5
0 3 6	0 4 6	1 8 2	0	4 8	0.7
..	..	..	..	..	..
..	..	..	..	..	..
26 4 6	44 8 4	206 14 6	40	5 2	100.0
3 1 2	4 1 7	20 8 5	4	0 0	..
23 3 4	40 6 9	186 6 1	36	5 2	..
14 6 2	16 9 7	99 5 5	19	5 9	..
—(11 14 4)	—(27 14 9)	—(107 9 1)	—(20	15 5)	..
34 3 0	43 7 0	..	40	5 2	..
2 8 2	4 0 8	2 15 1 (average)	..	..	..
18 11 5	16 3 1	..	19	5 9	..
—(15 7 7)	—(27 3 11)	..	—(20	15 5)	..
A. K. M.	A. K. M.	A. K. M.	..	..	..
0 6 3	1 0 4	5 1 1	..	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..	..
9 10 0	10 0 0	63 10 0	12	13 1	..
12 1 4	9 30 4	..	12	13 1	..

## APPENDIX

## COST OF PRODUCING BERSEEM SEED

BERSEEM.

1928-29.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	6 2 3	8 3 0	8 3 6	4 7 1
Bullock „ ..	5 3 8	9 15 5	9 6 11	5 4 9
Water-rates ..	0 12 0	0 12 0	0 12 7	0 6 11
Seed ..	12 5 4	12 5 4	12 5 4	6 2 8
Manure ..	..	..	..	..
Implements ..	1 1 2	1 8 8	1 1 7	0 4 5
Kamins ..	0 9 0	0 8 2	0 10 0	0 4 11
<i>Total</i> ..	<i>26 1 5</i>	<i>33 4 7</i>	<i>32 7 11</i>	<i>16 14 9</i>
Value of fodder ..	6 3 6	..	2 10 0	..
Cost of seed ..	19 13 11	33 4 7	29 13 11	16 14 9
Gross income ..	73 11 6	45 0 0	58 14 0	15 0 0
Balance ..	<i>47 10 1</i>	<i>11 11 5</i>	<i>26 6 1</i>	<i>-(1 14 9)</i>
Cost per acre ..	52 2 10	66 9 2	61 14 4	58 13 9
„ „ maund of seed	14 11 5	36 15 8	26 8 10	56 7 4
Per acre. { Gross income ..	147 7 0	90 0 0	112 2 4	42 2 10
{ Balance ..	<i>95 4 2</i>	<i>23 6 10</i>	<i>50 4 0</i>	<i>-(6 10 11)</i>
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	0 4 0	0 4 0	0 4 4	0 2 6
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	1 14 0	0 36 0	1 5 0	0 12 0
Yield per acre ..	2 28 0	1 32 0	2 5 11	1 1 12

(Continued.)

## VII

DURING THE YEARS, 1928-29 TO 1931-32.

1928-29.

BERSEEM.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 5 10 8	Rs. a. p. 8 6 1	Rs. a. p. 2 15 9	Rs. a. p. 44 0 4	Rs. a. p. 14 0 6	22.3
16 8 5	8 4 4	8 2 11	62 14 5	20 0 9	31.9
0 12 0	0 13 1	0 6 9	4 11 4	1 8 0	2.4
12 5 4	12 5 4	6 2 8	74 0 0	23 9 4	37.5
..	..	..	..	..	..
2 2 6	1 10 11	0 5 6	8 2 9	2 9 8	4.2
0 8 0	0 9 3	0 4 11	3 6 3	1 1 4	1.7
<b>37 14 11</b>	<b>32 1 0</b>	<b>18 6 6</b>	<b>197 3 1</b>	<b>62 13 7</b>	<b>100.0</b>
4 10 0	3 9 0	..	17 0 6	5 6 10	..
33 4 11	28 8 0	18 6 6	180 2 7	57 6 9	..
53 6 0	47 5 0	30 0 0	323 4 6	103 0 8	..
15 7 1	15 4 0	11 9 6	126 1 5	40 3 1	..
75 13 10	58 15 5	65 6 10	..	62 13 7	..
34 2 7	32 9 2	30 10 8	32 3 1 (average)	..	..
106 12 0	87 0 2	106 10 8	..	103 0 8	..
30 14 2	28 0 9	41 3 10	..	40 3 1	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
0 4 0	0 4 7	0 2 5	3 1 2	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.		
0 39 0	0 35 0	0 24 0	6 5 0	1 38 1	..
1 38 0	1 24 6	2 5 5	..	1 38 1	..

(Continued.)

## BERSEEM

1929-30

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	10 2 6	6 15 3	11 10 3	11 4 8	
Bullock „ ..	9 9 9	14 5 7	11 0 7	10 13 9	
Water-rates ..	0 12 9	0 12 0	0 12 11	0 12 0	
Seed ..	10 0 0	10 0 0	10 0 0	10 0 0	
Manure ..	..	..	..	..	
Implements ..	1 5 7	1 9 4	0 15 9	0 11 0	
Kamins ..	0 4 7	0 4 2	0 5 2	0 4 4	
<i>Total</i> ..	<i>32 3 2</i>	<i>33 14 4</i>	<i>34 12 8</i>	<i>33 13 9</i>	
Value of fodder ..	18 3 0	8 11 0	17 4 6	20 4 0	
Cost of seed ..	14 0 2	25 3 4	17 8 2	13 9 9	
Gross income ..	38 7 5	66 1 0	30 6 6	48 12 0	
Balance ..	6 4 3	32 2 8	-(4 6 2)	14 14 3	
Cost per acre ..	60 9 9	67 12 8	64 11 8	67 11 6	
„ „ maund of seed	20 11 4	35 10 11	40 0 5	14 5 0	
Per acre. {	Gross income	72 6 5	132 2 0	56 9 1	97 8 0
	Balance ..	11 12 8	64 5 4	-(8 2 7)	29 12 6
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	0 4 5	0 4 0	0 4 6	0 4 0	
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
Total yield ..	0 27 1	0 38 0	0 17 8	0 38 0	
Yield per acre ..	1 10 6	1 36 0	0 32 9	1 36 0	

VII.—(Continued).

1929-30.

BERSEEM

			Average per acre.	Percentage of each item to total cost.
E.	F.	Total.		
Rs. s. p.	Rs. s. p.	Rs. s. p.	Rs. s. p.	
8 3 9	8 0 9	56 5 2	18 1 6	28.8
9 12 0	9 3 11	64 13 7	20 13 4	33.1
0 12 0	0 13 1	4 10 9	1 8 0	2.4
10 0 0	10 0 0	60 0 0	19 4 5	30.7
..	..	..	..	..
1 10 5	1 12 11	8 1 0	2 9 6	4.1
0 4 2	0 4 8	1 11 1	0 8 9	0.9
<b>30 10 4</b>	<b>30 3 4</b>	<b>195 9 7</b>	<b>62 13 6</b>	<b>100.0</b>
10 12 0	10 2 3	85 4 9	27 6 6	..
19 14 4	20 1 1	110 4 10	35 7 0	..
104 8 0	27 6 3	315 9 2	101 6 3	..
73 13 8	-(2 13 1)	119 15 7	38 8 9	..
61 4 8	55 8 11	..	62 13 6	..
6 9 0	34 14 5	14 7 9 (average)	..	..
209 0 0	50 6 0	..	101 6 3	..
147 11 4	-(5 2 11)	..	38 8 9	..
A. K. M.	A. K. M.	A. K. M.		
0 4 0	0 4 7	3 0 18	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
3 5 0	0 23 0	7 27 1	2 18 10	..
6 10 0	1 2 5	..	2 18 10	..

## APPENDIX

BERSEEM

1930-31.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	7 1 2	7 7 1	8 0 6	7 9 2
Bullock „ ..	4 0 1	7 5 9	18 8 11	6 12 4
Water-rates ..	0 13 2	0 12 0	0 12 9	0 11 7
Seed ..	4 8 0	4 8 0	4 8 0	4 8 0
Manure ..	..	..	..	..
Implements ..	0 8 2	0 15 3	2 5 10	1 10 1
Kamins ..	0 2 6	0 2 4	0 3 0	0 2 3
<b>Total</b> ..	<b>17 1 1</b>	<b>21 2 5</b>	<b>34 7 0</b>	<b>21 5 5</b>
Value of fodder ..	5 0 0	1 15 0	3 0 0	3 4 0
Cost of seed ..	12 1 1	19 3 5	31 7 0	18 1 5
Gross income ..	28 4 9	56 10 0	26 4 0	24 6 6
Balance ..	11 3 8	35 7 7	—(8 3 0)	2 11 1
Cost per acre ..	31 0 8	42 4 10	64 13 0	44 5 5
„ „ maund of seed	9 1 1	6 2 4	22 15 3	15 3 9
Per acre. { Gross income ..	51 7 2	113 4 0	49 6 7	49 14 11
{ Balance ..	20 6 6	70 15 2	—(15 6 5)	5 9 6
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	0 4 8	0 4 0	0 4 5	0 3 17
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	1 13 4	3 5 0	1 20 0	1 7 8
Yield per acre ..	3 0 14	8 10 0	2 32 15	2 18 11

VII.—(Continued).

1930-31.

BERSEEM.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 7 6 9	Rs. a. p. 8 14 8	Rs. a. p. 46 7 4	Rs. a. p. 15 4 8	29.7
13 7 2	16 8 1	66 10 4	21 15 1	42.7
0 12 0	0 11 5	4 8 11	1 8 0	2.9
4 8 0	4 8 0	27 0 0	8 14 3	17.3
..	..	..	..	..
1 14 9	3 2 6	10 8 7	3 7 6	6.8
0 2 4	0 2 0	0 14 5	0 4 9	0.6
28 3 0	33 14 8	156 1 7	51 6 3	100.0
1 5 0	2 4 0	16 12 0	5 8 3	..
26 14 0	31 10 8	139 5 7	45 14 0	..
22 5 0	26 8 6	184 0 9	60 9 6	..
—(5 14 0)	—(7 6 2)	27 15 2	9 3 3	..
56 6 0	71 6 5	..	51 6 3	..
22 6 4	22 13 2	14 5 1 (average)	..	..
44 10 0	55 13 8	..	60 9 6	..
—(11 12 0)	—(15 8 9)	..	9 3 3	..
A. K. M.	A. K. M.	A. K. M.		
0 4 0	0 3 16	3 0 6	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	
1 8 0	1 15 8	9 29 4	3 4 13	..
2 16 0	2 36 13	..	3 4 13	..

## BERSEEM.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	7 0 6	6 12 1	4 2 1	7 14 11
Bullock ..	3 13 7	4 2 6	2 6 5	7 13 10
Water-rates ..	0 12 0	0 12 0	0 6 0	0 12 0
Seed ..	1 9 0	1 9 0	0 12 6	1 9 0
Manure ..	..	..	..	..
Impliments ..	0 11 8	1 2 7	0 12 1	1 4 3
<i>Kamans</i> ..	0 2 9	0 3 0	0 1 10	0 3 1
<i>Total</i> ..	14 1 6	14 9 2	8 8 11	19 9 1
Value of fodder ..	13 15 0	13 13 6	1 0 0	9 3 6
Cost of seed ..	0 2 6	1 11 8	7 8 11	10 5 7
Gross income ..	22 9 0	34 0 6	12 1 0	20 7 6
Balance ..	8 7 6	19 7 4	3 8 1	0 14 5
Cost per acre ..	28 3 0	29 2 4	34 3 8	39 2 2
.. .. maund of seed.	0 4 4	1 3 7	10 3 11	13 12 9
Gross income ..	45 2 0	68 1 0	48 4 0	40 15 0
Balance ..	16 15 0	39 0 8	14 0 4	1 12 10
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	0 4 0	0 4 0	0 2 0	0 4 0
	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.
Total yield ..	0 23 0	1 16 8	0 29 8	0 30 0
Yield per acre ..	1 6 0	2 33 0	2 38 0	1 20 0

VII.—(Concluded).

1931-32.

BERSEEM.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p. 10 3 1	Rs. a. p. 8 9 6	Rs. a. p. 44 10 2	Rs. a. p. 16 3 8	47.2
6 12 9	4 13 11	29 15 0	10 14 2	31.7
0 12 0	0 12 0	4 2 0	1 8 0	4.4
1 9 0	1 11 6	8 12 0	3 2 11	9.2
..	..	..	..	..
0 15 8	1 2 4	6 0 7	2 3 2	6.4
0 3 1	0 3 0	1 0 9	0 6 1	1.1
20 7 7	17 4 3	94 8 6	34 6 0	100.0
15 0 9	6 8 0	58 8 9	21 4 8	..
5 6 10	10 12 3	35 15 9	13 1 4	..
24 6 9	22 10 0	136 2 9	49 8 3	..
3 15 2	5 5 9	41 10 3	15 2 3	..
40 15 2	34 8 6	..	34 6 1	..
8 10 11	10 0 3	6 15 3 (average)	..	..
48 13 6	45 4 0	..	49 8 3	..
7 14 4	10 11 6	..	15 2 3	..
A. K. M.	A. K. M.	A. K. M.	..	..
0 4 0	0 4 0	2 6 0	..	..
Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	Mds. Srs. Ch.	..
0 25 0	1 3 0	5 7 0	1 35 4	..
1 10 0	2 6 0	..	1 35 4	..

## APPENDIX

## COST OF PRODUCING KHARIF FODDERS

## KHARIF FODDERS.

1927-28.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	6 7 3	7 13 4	3 8 7	2 7 2	
Bullock ..	20 8 9	31 5 3	12 0 4	14 1 3	
Water-rates ..	5 8 0	3 6 0	4 6 2	3 14 11	
Seed ..	12 3 3	6 0 0	4 0 0	4 8 0	
Manure ..	11 0 0	36 0 0	14 0 0	6 0 0	
Implements ..	2 9 1	4 4 6	1 8 8	0 13 9	
Kamins ..	2 12 1	2 0 7	2 10 8	1 4 8	
<i>Total cost</i> ..	<i>61 0 5</i>	<i>90 13 8</i>	<i>42 2 5</i>	<i>33 1 9</i>	
Gross income ..	168 15 6	124 7 6	159 11 6	88 4 0	
Balance ..	107 15 1	33 9 10	117 9 1	55 2 3	
Cost per acre ...	22 3 1	46 0 1	19 0 11	25 3 8	
Per acre {	Gross income ..	61 7 1	63 0 5	72 3 5	67 3 9
	Balance ..	39 4 0	17 0 4	53 2 6	42 0 1
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 6 0	1 7 16	2 1 11	1 2 10	

(Continued.)

## VIII.

DURING THE YEARS, 1927-28 TO 1931-32.

1927-28.

## KHARIF FODDERS.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.					
5 2 8	4 3 3	2 6 7	32 0 10	2 7 9	9.4
30 3 9	13 4 7	5 15 11	127 7 10	9 14 0.	37.1
3 12 0	3 8 0	2 1 7	26 8 8	2 0 10	7.7
6 0 0	4 6 0	3 0 0	40 1 3	3 1 8	11.8
9 0 0	7 0 0	4 12 10	87 12 10	6 12 10	25.7
3 7 7	1 11 5	0 8 11	14 15 11	1 2 7	4.4
1 14 5	1 11 2	1 1 2	13 6 9	1 0 8	3.9
59 8 5	35 12 5	19 15 0	342 6 1	26 8 4	100.0
149 13 0	101 12 0	68 13 0	361 12 6	68 8 11	..
90 4 7	65 15 7	48 14 0	519 6 5	42 0 7	..
31 12 0	20 7 1	19 2 3	..	26 8 4	..
79 14 5	58 2 3	66 1 0	..	68 8 11	..
48 2 5	37 11 2	46 14 9	..	42 0 7	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
1 7 0	1 6 0	1 0 8	12 7 5	..	..

-(Continued.)

## KHARIF FODDERS.

1928-29.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	3 3 9	2 7 0	6 5 0	2 14 5	
Bullock ..	6 8 4	5 12 4	14 14 0	5 4 10	
Water-rates ..	2 8 8	2 14 8	3 14 10	1 11 11	
Seed ..	4 8 0	6 5 0	7 13 4	3 6 9	
Manure ..	7 3 2	4 14 5	8 0 0	8 0 0	
Implements ..	1 5 4	0 14 4	1 11 9	0 4 5	
Kamins ..	1 14 6	1 15 9	3 2 1	1 3 11	
<i>Total cost</i> ..	27 3 9	25 3 6	45 13 0	22 14 3	
Gross income ..	96 1 6	84 13 9	105 5 9	64 11 0	
Balance ..	68 13 9	59 10 3	59 8 9	41 12 9	
Cost per acre ..	16 1 3	12 15 7	17 7 11	19 11 1	
Per acre.	Gross income..	56 11 9	43 10 6	40 3 9	55 10 5
	Balance ..	40 10 6	30 10 11	22 11 10	35 15 4
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	1 5 11	1 7 11	2 4 19	1 1 6	

VIII—(Continued).

1928-29.

## KHARIF FODDERS.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.					
4 8 9	5 8 6	1 11 9	26 11 2	2 4 2	11.8
17 2 5	9 9 6	5 13 2	65 0 7	5 8 1	29.2
2 9 3	2 9 5	1 6 11	17 11 8	1 8 0	8.0
6 5 4	4 4 3	3 7 8	36 2 4	3 0 11	16.2
16 0 0	12 0 0	..	56 1 7	4 11 11	25.1
2 3 10	1 15 3	0 3 11	8 10 10	0 11 9	3.9
1 11 7	1 13 10	1 0 10	12 14 6	1 1 6	5.8
50 9 2	37 12 9	13 12 3	223 4 8	18 14 4	100.0
102 8 9	92 12 0	61 3 3	607 8 0	51 6 5	..
51 15 7	54 15 3	47 7 0	384 3 4	32 8 1	..
29 6 11	21 14 7	14 6 7	..	18 14 4	..
59 10 8	53 12 5	64 0 3	..	51 6 5	..
30 3 9	31 13 10	49 9 8	..	32 8 1	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
1 5 15	1 5 16	0 7 13	11 6 11	..	..

## APPENDIX

1929-30.

## KHARIF FODDERS.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	7 1 9	3 8 11	6 9 8	5 6 11	
Bullock „ ..	15 5 4	7 4 0	12 10 6	12 6 4	
Water-rates ..	4 14 0	2 9 3	3 0 5	3 10 11	
Seed ..	9 11 8	5 2 1	8 2 5	8 1 2	
Manure ..	21 0 0	6 0 0	5 9 7	12 3 2	
Implements ..	2 2 7	0 12 9	1 2 1	0 12 4	
<i>Kamins</i> ..	1 3 1	0 14 2	1 2 10	1 5 4	
<i>Total cost</i> ..	<i>61 6 5</i>	<i>26 3 2</i>	<i>38 5 6</i>	<i>43 11 2</i>	
Gross income ..	125 5 9	86 8 0	121 0 3	144 5 6	
Balance ..	63 15 4	60 4 10	82 10 9	100 10 4	
Cost per acre ..	27 7 1	15 3 11	18 15 11	17 12 8.	
Per acre	Gross income..	52 13 5	50 5 3	59 15 2	58 12 3
	Balance ..	25 6 4	35 1 4	40 15 3	40 15 7
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 1 18	1 5 15	2 0 3	2 3 13	

## VIII.—(Continued).

1929-30.

## KHARIF FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
7 3 0	4 8 9	34 7 0	2 15 5	13.2
20 10 2	9 6 3	77 7 7	6 10 8	29.9
1 15 4	2 13 2	18 15 1	1 10 3	7.4
3 12 6	5 10 8	40 8 6	3 7 10	15.6
17 15 4	8 12 10	71 8 11	6 2 7	27.6
3 7 9	1 13 8	10 3 2	0 14 0	3.9
0 10 9	1 0 1	6 4 3	0 8 7	2.4
<b>55 10 10</b>	<b>34 1 5</b>	<b>259 6 6</b>	<b>22 5 4</b>	<b>100.0</b>
67 1 0	80 12 3	625 0 9	53 13 0	..
11 6 2	46 10 10	365 10 3	31 7 8	..
42 9 0	18 2 0	..	22 5 4	..
51 4 6	42 14 11	..	53 13 0	..
8 11 6	24 12 11	..	31 7 8	..
A. K. M.	A. K. M.	A. K. M.		
1 2 9	1 7 1	11 4 19	..	..

## KHARIF FODDERS.

1930-31.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	6 13 3	3 6 1	4 15 6	7 11 0	
Bullock ..	13 15 0	5 3 4	17 7 3	10 4 10	
Water-rates ..	4 14 8	3 4 0	3 10 7	4 3 7	
Seed ..	3 3 4	2 1 6	2 5 1	2 6 9	
Manure ..	11 3 9	11 0 0	12 9 7	26 0 0	
Implements ..	1 12 7	0 10 9	1 11 5	2 7 8	
<i>Kamins</i> ..	0 11 3	0 7 7	0 10 5	0 10 0	
<i>Total cost</i> ..	<i>42 9 10</i>	<i>26 1 3</i>	<i>43 5 10</i>	<i>53 11 10</i>	
Gross income ..	133 13 0	79 4 11	84 12 2	93 7 3	
Balance ..	91 3 2	53 3 8	41 6 4	39 11 5	
Cost per acre ..	17 4 11	16 0 9	23 10 11	25 7 0	
Per acre.	(Gross income..	54 5 6	48 12 10	46 4 7	44 3 9
	(Balance ..	37 0 7	32 12 1	22 9 8	18 12 9
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 3 14	1 5 0	1 6 13	2 0 18	

## VIII.—(Continued).

1930-31.

## KHARIF FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
2 6 7	4 1 2	29 5 7	2 8 8	13.3
5 6 9	8 5 5	60 10 7	5 4 1	27.5
2 14 0	4 2 5	23 1 3	2 0 0	10.5
2 1 7	2 7 9	14 10 0	1 4 3	6.6
10 0 0	9 12 10	80 10 2	6 15 9	36.5
0 12 5	1 9 1	8 15 11	0 12 6	4.1
0 8 8	0 9 2	3 7 1	0 4 9	1.5
<b>24 0 0</b>	<b>30 15 10</b>	<b>220 12 7</b>	<b>19 2 0</b>	<b>100.0</b>
75 14 6	97 14 7	565 2 5	48 15 4	..
51 14 6	66 14 9	344 5 10	29 13 4	..
16 9 2	14 15 0	..	19 2 0	..
52 10 11	47 3 0	..	48 15 4	..
36 1 9	32 4 0	..	29 13 4	..
<b>A. K. M.</b>	<b>A. K. M.</b>	<b>A. K. M.</b>		
1 3 10	2 0 12	11 4 7	...	..

## KHARIF FODDERS.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	11 5 8	5 12 4	6 7 10	9 12 8	
Bullock „ ..	9 3 0	6 2 0	5 11 8	17 9 10	
Water-rates ..	3 13 6	3 4 10	2 8 9	3 8 10	
Seed ..	5 4 5	3 9 2	2 10 3	4 13 2	
Manure ..	17 12 5	18 7 2	13 8 0	28 5 7	
Implements ..	1 11 9	1 11 4	1 13 0	2 13 3	
<i>Kamins</i> ..	0 13 11	0 13 3	0 12 7	0 14 5	
<i>Total cost</i> ..	<i>50 0 8</i>	<i>39 12 1</i>	<i>33 8 1</i>	<i>67 13 9</i>	
Gross income ..	95 13 3	66 4 9	62 12 3	87 7 6	
Balance ..	45 12 7	26 8 8	29 4 2	19 9 9	
Cost per acre ..	19 8 5	18 1 2	19 11 4	28 10 5	
Per acre	{ Gross income ..	37 6 4	30 2 2	36 14 9	36 14 10
	{ Balance ..	17 13 11	12 1 0	17 3 5	8 4 5
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	2 4 10	2 1 12	1 5 12	2 2 19	

VIII.—(Concluded).

1931-32.

KHARIF FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. s. p.	Rs. s. p.	Rs. s. p.	Rs. s. p.	
4 5 10	7 9 5	45 5 9	3 10 11	16.1
7 15 6	16 4 4	62 14 4	5 1 8	22.3
2 4 4	2 15 6	18 7 9	1 8 0	6.6
2 10 8	2 1 0	21 0 8	1 11 4	7.5
16 14 0	21 6 0	116 5 2	9 6 11	41.2
1 2 4	3 13 5	13 1 1	1 1 0	4.6
0 9 4	0 11 11	4 11 5	0 6 1	1.7
<b>35 14 0</b>	<b>54 13 7</b>	<b>281 14 2</b>	<b>22 13 11</b>	<b>100.0</b>
47 13 0	73 14 9	434 1 6	35 3 6	..
11 15 0	19 1 2	152 3 4	12 5 7	..
23 11 6	27 10 11	..	22 13 11	..
31 9 9	37 5 0	..	35 3 6	..
7 14 3	9 10 1	..	12 5 7	..
<b>A. K. M.</b>	<b>A. K. M.</b>	<b>A. K. M.</b>		
1 4 2	1 7 17	12 2 12	..	..

## APPENDIX

## COST OF PRODUCING RABI FODDERS

RABI FODDERS.

1927-28.

	TENANTS.			
	A.	B.	C.	D.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Manual labour ..	6 6 3	3 1 7	3 1 6	3 5 5
Bullock ..	11 4 8	7 11 3	5 7 9	7 7 3
Water-rates ..	4 14 7	3 1 2	3 13 7	2 7 10
Seed ..	5 8 6	4 0 0	4 0 0	4 12 0
Manure ..	6 6 5	..	..	4 0 0
Implements ..	1 6 7	1 0 10	0 11 3	0 7 3
Kamins ..	2 7 4	1 9 4	2 6 9	1 3 7
<i>Total</i> ..	<i>38 6 4</i>	<i>20 8 2</i>	<i>19 8 10</i>	<i>23 11 4</i>
Gross income ..	161 13 6	102 5 6	138 12 9	82 8 0
Balance ..	123 7 2	81 13 4	119 3 11	58 12 8
Cost per acre ..	15 10 1	13 5 6	9 12 11	19 1 1
Per acre { Gross income	65 14 4	66 9 2	69 10 0	66 5 7
{ Balance ..	50 4 3	53 3 8	59 13 1	47 4 6
	A. K. M.	A. K. M.	A. K. M.	A. K. M.
Area ..	2 3 13	1 4 6	1 7 19	1 1 19

(Continued.)

## IX.

DURING THE YEARS, 1927-28 TO 1931-32.

1927-28.

RABI FODDERS.

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.					
3 9 4	5 12 4	2 9 5	27 13 10	2 2 4	15.1
8 2 5	9 11 6	6 6 4	56 3 2	4 5 3	30.4
4 10 10	4 8 7	2 4 10	25 13 5	1 15 10	14.0
5 8 0	6 11 3	3 0 0	33 7 9	2 9 3	18.1
..	11 0 0	..	21 6 5	1 10 4	11.6
0 15 0	1 4 1	0 9 6	6 6 6	0 7 11	3.5
2 5 11	2 3 3	1 2 10	13 7 0	1 0 6	7.3
25 3 6	41 3 0	16 0 11	184 10 1	14 3 5	100.0
127 10 6	150 8 9	75 9 6	839 4 6	64 9 11	..
102 7 0	109 5 9	59 8 7	654 10 5	50 6 6	..
10 12 8	18 2 6	13 15 5	..	14 3 5	..
54 9 10	66 5 9	65 11 10	..	64 9 11	..
43 13 2	48 3 3	51 12 5	..	50 6 6	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
2 2 14	2 2 3	1 1 4	12 7 18	..	..

(Continued.)

## APPENDIX

## RABI FODDERS.

1928-29.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	4 7 5	3 4 6	2 9 11	2 2 7	
Bullock „ ..	7 1 3	3 15 8	4 9 7	6 2 4	
Water-rates ..	2 10 7	2 6 10	2 11 4	1 9 10	
Seed ..	6 10 10	7 15 3	8 1 4	4 11 0	
Manure ..	11 9 7	5 3 2	8 6 5	12 6 5	
Implements ..	1 7 2	0 9 10	0 8 7	0 5 1	
Kamins ..	2 0 0	1 10 5	2 2 6	1 2 5	
<i>Total</i> ..	<i>35 14 10</i>	<i>25 1 8</i>	<i>29 1 8</i>	<i>28 7 8</i>	
Gross income ..	129 5 3	115 2 9	120 2 0	72-14 6	
Balance ..	93 6 5	90 1 1	91 0 4	44 6 10	
Cost per acre ..	19 8 11	15 8 2	16 1 9	26 7 11	
Per acre {	Gross income ..	70 6 3	71 2 6	66 8 1	67 13 3
	Balance ..	50 13 4	55 10 4	50 6 4	41 5 4
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	1 6 14	1 4 19	1 6 9	1 0 12	

IX.—(Continued).

1928-29.

## RABI FODDERS

E.	F.	G.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
3 6 0	4 8 8	2 12 1	23 3 2	2 0 9	10.4
7 13 9	9 1 5	11 14 6	50 10 6	4 7 7	22.7
3 0 0	2 12 8	1 11 0	16 14 3	1 7 9	7.5
7 9 0	8 8 0	4 12 6	46 3 11	4 1 4	20.7
10 9 7	10 0 0	9 9 7	67 12 9	5 15 9	30.4
1 0 5	1 13 5	0 8 1	6 4 7	0 8 11	2.8
2 0 2	2 0 2	1 3 9	12 3 5	1 1 4	5.5
<b>35 6 11</b>	<b>36 12 4</b>	<b>32 7 6</b>	<b>223 4 7</b>	<b>19 11 5</b>	<b>100.0</b>
127 5 6	111 12 9	63 15 11	740 10 8	65 6 5	..
91 14 7	75 0 5	31 8 5	517 6 1	45 11 0	..
17 11 6	19 11 11	28 13 9	..	19 11 5	..
63 10 9	60 0 6	56 14 2	..	65 6 5	..
45 15 3	40 4 7	28 0 5	..	45 11 0	..
A. K. M.	A. K. M.	A. K. M.	A. K. M.		
2 0 0	1 6 18	1 1 0	11 2 12	..	..

## APPENDIX

## RABI FODDERS.

1930-31.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	4 9 0	3 9 4	5 0 9	5 12 11	
Bullock „ ..	4 1 4	7 6 3	4 11 10	12 8 1	
Water-rates ..	2 12 8	2 15 1	2 6 8	3 2 7	
Seed ..	3 5 7	4 1 0	3 8 0	4 13 6	
Manure	4 3 2	11 6 5	8 0 0	8 3 2	
Implements ..	0 9 2	0 13 0	0 6 9	0 12 7	
<i>Kamins</i> ..	0 15 10	1 0 5	0 15 0	1 2 4	
<i>Total</i> ..	20 8 9	31 3 6	25 1 0	36 7 2	
Gross income ..	125 11 3	124 11 3	120 1 9	135 5 0	
Balance ..	105 2 6	93 7 9	95 0 9	98 13 10	
Cost per acre ..	11 0 7	15 14 6	15 7 10	17 4 10	
Per acre {	Gross income ..	67 8 0	63 8 9	71 3 4	64 3 11
	Balance ..	56 7 5	47 7 3	58 11 6	46 15 1
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	1 6 18	1 7 14	1 4 18	2 0 17	

IX.—(Continued).

1929-30.

## RABI FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
3 8 0	4 4 9	26 12 9	2 7 2	14.9
6 13 2	8 1 3	43 9 11	3 15 8	24.2
2 13 0	2 4 11	16 6 11	1 8 0	9.1
3 8 6	3 4 10	22 9 5	2 1 0	12.5
9 4 6	18 6 4	59 7 7	5 6 10	33.0
1 2 5	1 9 6	5 5 5	0 7 10	3.0
0 15 5	0 13 2	5 14 2	0 8 7	3.3
28 1 0	38 12 9	180 2 2	16 7. 1	100.0
129 9 0	91 3 3	726 9 6	66 5 0	..
101 8 0	52 6 6	546 7 4	49 13 11	..
14 15 6	25 3 9	..	16 7 1	..
69 1 8	59 5 2	..	66 5 0	..
54 2 2	34 1 5	..	49 13 11	..
A. K. M.	A. K. M.	A. K. M.		
1 7 0	1 4 6	10 7 13	..	..

## RABI FODDERS.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	5 0 9	3 14 8	5 0 8	10 10 3	
Bullock „ ..	6 4 11	4 3 3	12 7 6	14 4 10	
Water-rates ..	5 2 2	3 12 0	3 0 7	4 4 7	
Seed ..	3 4 10	2 1 1	2 1 6	2 8 0	
Manure ..	5 3 2	13 6 5	8 12 10	18 12 10	
Implements ..	0 12 11	0 9 6	1 9 5	3 7 1	
<i>Kamins</i> ..	0 7 2	0 8 9	0 8 7	0 10 2	
<i>Total</i> ..	<i>26 3 11</i>	<i>28 7 8</i>	<i>33 9 1</i>	<i>54 9 9</i>	
Gross income ..	117 7 7	115 9 7	92 8 0	137 8 0	
Balance ..	91 3 8	87 1 11	58 14 11	82 14 3	
Cost per acre ..	16 11 8	15 3 1	22 1 8	25 7 7	
Per acre.	{ Gross income ..	74 14 2	61 10 6	60 14 6	64 2 3
	{ Balance ..	58 2 6	46 7 5	38 12 10	38 10 8
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	1 4 11	1 7 0	1 4 3	2 1 3	

IX.—(Continued).

1930-31.

RABI FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
2 5 3	3 1 0	30 0 7	2 13 5	14.7
4 1 0	9 10 1	51 15 7	4 14 7	25.4
3 3 0	3 12 5	23 2 9	2 3 0	11.3
2 8 11	2 6 4	14 14 8	1 6 6	7.3
5 9 7	21 9 7	73 6 5	6 14 11	35.9
0 9 3	1 12 11	8 13 1	0 13 4	4.3
0 7 4	0 8 4	2 2 4	0 3 3	1.1
18 12 4	42 12 8	204 7 5	19 5 0	100.0
111 12 0	111 14 5	686 11 7	64 13 9	..
92 15 8	69 1 9	482 4 2	45 8 9	..
11 12 5	22 10 9	..	19 5 0	..
70 1 11	59 4 7	..	64 13 9	..
58 5 6	36 9 10	..	45 8 9	..
A. K. M.	A. K. M.	A. K. M.		
1 4 15	1 7 2	10 4 14	..	..

## RABI FODDERS.

1931-32.

	TENANTS.				
	A.	B.	C.	D.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Manual labour ..	2 3 5	7 0 2	3 12 4	7 2 9	
Bullock „ ..	2 14 11	10 6 11	2 11 2	4 11 7	
Water-rates ..	1 4 1	2 11 10	2 8 8	2 9 8	
Seed ..	1 6 5	2 13 0	3 4 9	2 1 7	
Manure ..	4 8 0	11 0 5	5 6 5	2 11 2	
Implements ..	0 6 9	2 7 5	0 12 1	0 14 4	
<i>Kamins</i> ..	0 5 2	0 10 11	0 10 2	0 9 5	
<i>Total</i> ..	<i>13 0 9</i>	<i>37 2 8</i>	<i>19 1 7</i>	<i>20 12 6</i>	
Gross income ..	42 12 0	98 14 4	79 6 6	96 4 9	
Balance ..	29 11 3	61 11 8	60 4 11	75 8 3	
Cost per acre ..	15 9 4	20 5 10	11 4 5	11 15 5	
Per acre. {	Gross income	51 0 10	54 3 1	46 14 1	55 6 9
	Balance ..	35 7 6	33 13 3	35 9 8	43 7 4
	A. K. M.	A. K. M.	A. K. M.	A. K. M.	
Area ..	0 6 14	1 6 12	1 5 11	1 5 18	

IX.—(Concluded).

1931-32.

## RABI FODDERS.

E.	F.	Total.	Average per acre.	Percentage of each item to total cost.
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
5 12 4	2 10 8	28 9 8	3 5 10	22.5
5 8 1	0 11 9	27 0 5	3 2 11	21.3
2 4 7	1 5 2	12 12 0	1 8 0	10.0
1 12 1	1 15 0	13 4 10	1 9 0	10.5
12 13 2	..	36 7 2	4 4 7	28.7
0 14 2	0 3 8	5 10 5	0 10 8	4.5
0 9 3	0 6 5	3 3 4	0 6 0	2.5
29 9 8	7 4 8	126 15 10	14 15 0	100.0
90-12 1	47 8 10	455 10 6	53 9 8	..
61 2 5	40 4 2	328 10 8	38 10 8	..
19 6 7	8 4 5	..	14 15 0	..
59 8 3	53 15 5	..	53 9 8	..
40 1 8	45 11 0	..	38 10 8	..
A. K. M.	A. K. M.	A. K. M.		
1 4 4	0 7 1	8 4 0	..	..

## GLOSSARY OF TERMS.

- ANNA .. One-sixteenth of a rupee.
- BATAI .. A system of farming, where the rent is a certain proportion of the produce ; *cf.*, *metayer* system.
- BERSEEM .. Egyptian clover, a fodder crop (*Trifolium alexandrinum*).
- BHUSA .. Straw crushed and broken into short lengths by trampling with bullocks during the process of threshing.
- BOLLWORM .. The larva of a notuid moth (*Heliothis armigera*) which attacks the bolls (unripe pods) of the cotton plant, often doing great damage. It also feeds on the ears of corn and on tomatoes, beans, etc.
- BORIOTA .. The man who holds the bags at the time of filling them with grain in the market.
- CANE BORER .. A worm (*Oberca bimaculata*) which bores into the pith and destroys the sugarcane.
- CHANGAR .. The man who cleans the floor and assists at the time of heaping and weighing the grain in the market after it has been taken out of cart ; he also gives the heap a finishing touch after sweeping away the dirt and dust.
- CHHATAK .. An Indian weight equal to 2·057 ozs. ; one-sixteenth of a seer.
- CHUNGI .. Charges for sewing the bags after filling.
- CUSEC .. Flow of one cubic foot of water per second.
- DHARMARTH .. Charges for charitable purposes.
- DESI .. Indigenous.
- DISTRICT BOARD .. A council, chiefly of persons elected on a land revenue paying franchise, which discharges the functions of rural administration in a District : roughly equivalent to a rural district council.
- GAUSHALA .. Charges for the maintenance of institutions where aged and disabled cows and bullocks are kept by Hindus.
- GUR .. Raw unrefined cane-sugar in lumps.
- JHOKA .. The man who feeds the furnace when making gur.
- KAMIN .. Menial ; landless field labourer ; a village servant.
- KANAL .. Measure of area ; one-eighth of an acre in Canal Colonies and some other districts ; one-tenth of an acre in some of the older districts of the Punjab.

KARTA	.. Charge made in cotton marketing as surety against short weights and loss through evaporation.
KHARIF	.. Autumn harvest ; monsoon or summer crops.
LAMBARDARI	.. Headman's cess.
LANGRI	.. Cook employed by the commission agents to prepare food for the sellers.
MAUND	.. Indian weight, equal to 82-2/7 lbs.
MARLA	.. Measure of area; one-twentieth of a kanal.
MEGASSE	.. Refuse of sugarcane after the juice has been extracted.
MUQADDAM	.. Farm overseer.
PIE	.. One-twelfth of an anna.
PALLEDARI	.. Charges for the palladar who cleans the commission agent's shop and acts as watchman over the grain.
RABI	.. Spring harvest or winter crops.
RULAI	.. Charges for the man who fills the balance pan at the time of weighing after shaking out the dust.
RUPEE	.. Indian standard coin, now stabilised about 1s. 6d.
SHAGIBDI	.. Charges for the commission agent's apprentice.
SEER	.. One-fortieth of a maund ; 32.9 ozs.
SHAKKAR	.. Roughly ground, raw, canesugar.
SQUARE	.. A division of land, in certain Canal Colonies, size 1,100 feet by 1,000 feet equivalent to 25 killas or 27.8 acres.
TORIA	.. Indian rape ; an oil seed ( <i>Brassica napus</i> ; var. <i>dichotoma</i> ).
ZEMINDAR	.. Landowner, farmer.



# The Board of Economic Inquiry, Punjab.

PUBLICATION No. 34.

(GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.)

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## ECONOMICS OF GUT MAKING

IN THE  
PUNJAB.

INQUIRY

CONDUCTED BY

FARZAND ALI SHAH, B.A.

UNDER THE SUPERVISION OF

R. A. FOSTER, M.A.

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[The Board does not hold itself responsible for any opinions expressed or  
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## PREFACE.

This is one of the industrial inquiries initiated by the Board of Economic Inquiry, Punjab. It originated in a thesis on the 'Economic Conditions of Gut-makers in and around Sialkot' by Mr. Ram Kumar Luthra, presented as part of his examination for the M. A. Degree in Economics of the Panjab University. The Board employed him temporarily for a few months to revise and improve his thesis but, later, it was decided to resurvey the whole field and the present report embodies the results of the inquiry conducted by S. Farzand Ali Shah, B.A., one of the investigators of the Board under the supervision of Mr. R. A. Foster, Vice-Principal, Christian Training Institute, Sialkot. Sialkot City and some twenty suburban villages were surveyed during the summer of 1932, and the report deals with the industrial, technical and commercial sides of the industry. Some notes are added on the general, social and economic conditions of the workers.

Sialkot has acquired an international reputation for the manufacture of gut and sports goods, especially the *patha* (animal tendon) gut. The city proper contains 17 gut factories employing 154 workmen, and 110 families carry on the industry in the twenty suburban villages. On the whole over 1,200 people are directly connected with gut manufacture, of whom about 40 per cent. are actual workers and the remainder are their dependents. The approximate annual output was estimated at about five lakhs of rupees of which some fifty per cent. was exported and the remainder used locally.

At present the industry is carried on mostly under primitive conditions and there is a large scope for its further development. The workers are mostly illiterate and have scanty earnings; the average monthly incomes of the *patha* gut workers, and 54 per cent. of the *rouda* gut workers vary between Rs. 23/- and Rs. 27/-, and Rs. 16/- and Rs. 50/-, respectively. They are much in debt: the average debts per family of *patha* and *rouda* gut workers who

are in debt are Rs. 414/- and 391/-, respectively. Their chief financier is the middleman of the industry who has direct dealings with the traders abroad.

Thanks are due to Mr. R. A. Foster, M.A., the Member-in-charge, for his valuable assistance during the inquiry as well as to R. B. Lala Ram Lal, M.B.E., Director of Industries, Punjab, and the staff of the Department for much help given and to Mr. C. C. T. Brereton, M.B.E., Divisional Superintendent, Lahore Division, North Western Railway, for permission to print the figures regarding the raw material sent to Sialkot railway station.

*March 1934.*

J. W. T.

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## CHAPTER I. INTRODUCTORY.

*Introduction.*—The present report embodies the results of an inquiry, mainly economic, into the gut-making industry in the Punjab. The inquiry centred at Sialkot City and the neighbouring villages within a radius of about 14 miles. It was carried out during the months of April and May, 1932; the employers and the employees in the city as well as in the villages, were visited and their conditions and relationships studied. The inquiry happened to be carried out during some of the hot months of the year, which is the slack season in the gut industry; then the village workers return to their subsidiary calling of agricultural field-labour and are busy harvesting the *rabi* (spring) crops. There is a diminished demand in the market at that time of the year, and the gut factories are not very active. Moreover, the year 1932 was one of the poorest years for gut prices, owing to the big slump in the world markets. In spite of the abnormal conditions prevailing during the period of investigation, an attempt has been made to give an idea of the usual conditions of the industry, with occasional references to its position before 1930, the year when the slump began.

*Definition and Meaning of Terms.*—The “Encyclopædia Britannica” has the following definition: “Catgut, the name applied to a cord of great toughness and tenacity, is prepared from the intestines of sheep, or occasionally from those of the horse, mule and ass. Those of the cat are not employed, and therefore it is supposed that the word is properly *kitgut*, *kit* meaning “fiddle” and that the present form has arisen through confusion with *kit-cat*.”\*

Gut has several meanings: it is used for—(a). raw gut or the wet salted intestines of animals which are turned into manufactured gut; (b). framed, or dried, intestines for making manufactured gut; (c). casings, or viscera of cattle, sheep and goats used for sausages, and (d). string gut used for tennis and badminton racquets, musical instruments, the bows of cotton-cleaners and wood and ivory turners, for suturing wounds in surgery and for hanging the weights of clocks. In this report it is used in a restricted sense and denotes only sports gut used for stringing tennis and badminton racquets. In the Punjab the guts of bullocks and buffaloes are usually

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\*Fourteenth Edition, Volume 5, page 31.

thrown away, the edible portions being occasionally sold for food. Those of sheep and goats are used for all the purposes named above and some are exported to Europe.

*Varieties of Sports Gut.*—There are two varieties of sports gut made in Sialkot. One from the intestines of sheep and goats known as *rouda* gut; the other, from the membrane between the flesh and skin of old cattle and known as *patha* gut. *Rouda* has more tensile strength, resiliency and durability than *patha* and fetches a higher price; but the latter is much in demand abroad because of its comparative cheapness.

*Scarcity of Literature on the Gut Industry.*—Gut plays an important part in the sports world and a considerable demand for it exists in many countries. As a subsidiary to the sports industry, gut-making ranks among the minor industries of the world, but it has received little attention from industrial research scholars. Apparently little or no literature exists in any language on the subject. There are a few short articles in—(a). Spon's "Workshop Receipts," second edition, revised, 1906, page 24; (b). Latiff's "The Industrial Punjab," page 125; (c). "Encyclopædia Britannica," Fourteenth Edition, Volume 5, page 31; (d). "Universal Encyclopædia," page 1777; and (e). "Handbook of Commercial Information for India," page 328.

*Object of the Inquiry.*—The object of the inquiry was to prepare a brochure containing as much as possible of the available information on the gut-making industry in the Punjab so that any business man interested might easily find useful information. An attempt has also been made to give a bird's-eye view of the economic conditions of the workers.

*Scope and Method of Inquiry.*—For a very long time everywhere in the Punjab the intestines of sheep and goats have been turned into strings to meet the local demand of the cotton cleaners. *Raigers* engage in this industry in Hissar, Karnal and Gurgaon Districts and *Penjas* (cotton-cleaners) and *Mirasis* in the Ambala District. The workers are much scattered and with no organisation, and Sialkot is the only centre where the athletic goods gut industry is carried on in a more or less organised manner and on a large scale. Christians of the *Chuhra* class and Muslims work in it. After a study of the local conditions a questionnaire was prepared in three parts. The first part deals with all classes of workers, factory, independent, and those under merchant middlemen; the second with employers and the third contains questions on the technical side of the industry. A copy is given in Appendix C. to the report.

## CHAPTER II. HISTORY OF THE INDUSTRY.

*Origin.*—Gut-making probably dates from a very early time when man lived largely by hunting and when gut served to string the hunter's bow. Later, the demand for gut increased as it was adapted to string the bows of cotton-cleaners and ivory and wood turners; it was used in musical instruments and winnowing fans (*chhaj*). For all these purposes it is still used.

*Rouda Gut.*—*Rouda* and *patha* guts are both used for stringing tennis and badminton racquets. In the former the intestines of cattle are not used. In olden days it was probably *rouda* gut which was used to serve the needs of the various craftsmen. Until the 'eighties of the last century it was not an important industry in the Punjab; a few of the animals dying a natural death and those slaughtered for meat furnished all the gut that was needed. It cost only a little labour to take the viscera out of the carcass. Strings of a very simple and coarse kind were manufactured; the work did not require costly tools, nor chemicals, nor any particular skill; the intestines were simply washed in water, drawn out into a string and then put in the open to dry.

*Castes engaged in the Industry.*—*Telis* (oil-pressers) and *Kashmiris*, who were cotton-cleaners, used to make *rouda* gut for their own needs. Gradually people of other castes, such as the *Chuhras* and *Chamars*, who were engaged in the removal of the dead bodies of animals, also took up the work. *Chuhra* Christians around Sialkot make the *patha* gut, and *Teli* and *Kashmiri* Mohammedans most of the *rouda* gut.

*Status of the Gut Workers in the Past.*—Formerly the gut-maker worked together with his family and was seldom in need of outside help. He owned his tools, few as they were, and marketed whatever he produced, but there was no widespread demand for the product. The job was dirty and the higher castes would not enter it, owing partly to the filthy nature of the work, and partly to their own customs and religious restrictions.

*Advent of the Sports Gut (Patha).*—The 'eighties of the nineteenth century saw a great transformation in this industry owing to the increasing popularity of tennis and badminton; these created a demand for sports gut.

For Sialkot, the year 1887 is notable for the commencement of the *patha* (unbleached) gut industry which gradually gave employment to hundreds of labourers. In that year a carpenter (A.) of Sialkot, began to make tennis racquets, being encouraged by a Christian missionary of Sialkot Cantonment who was very fond of tennis and who imported tennis racquets and gut from England. The missionary used to keep in stock some spare gut and racquets for his own use and occasionally supplied his friends; whenever his racquets needed repair, he did the job himself. In view of the ever increasing demand for tennis racquets, the cost, and the time spent in importing them from foreign countries, he taught this art to A. To make the gut used in stringing tennis racquets, A. sought the help of a local *Kashmiri*, B., (still alive), employed in ginning cotton. The latter was quite familiar with work in coarse gut, having learnt it at Rawalpindi from one of his relatives. At first these two worked on their own account without employing any labour. Cheapness and simplicity in the process of manufacture, and subsequently the increasing demand from foreign countries, were the chief factors which led to the introduction of the *patha* gut earlier than *rouda* in the sports industry in Sialkot.

*A. and his Apprentices.*—The end of the 'eighties saw two men, (one of whom is now the owner of a large sports factory at Sialkot), working first as apprentices with A. and then on their own account. A. soon became a master-workman employing several labourers and apprentices.

*The Chuhras learn the Gut Industry.*—A Mohammedan carpenter of the village of Bhindar, about five miles north-west of Sialkot, learned to make tennis racquets in the town and returned to his village to work for himself. He also persuaded one C. (still alive), a *Chuhra*, who had had some experience in this trade, to learn gut-making from B. He saw that the industry was profitable, and took it up, but B. was careful not to divulge the processes of manufacture. C. in order to win his confidence began to collect *pathas* of dead animals from the villages around Bhindar and sell them to B. very cheaply, and after six months or so he succeeded in learning how to make gut. The process is very simple, requiring very little initial capital, and C. started work in his own home. He taught some of his own family, then relatives, and once a start had been made, it was not long before the work was taken up in the neighbouring villages.

*Improvement in the Patha Gut.*—The *patha* gut industry was carried on by ignorant people, who could effect little improvement in the whiteness,

transparency and resiliency of the gut. About the year 1919, a Sayad of Sialkot, D., began to take great interest in the industry. He went as far as Phaphoond, in the United Provinces, in search of good *patha*, spent some money on bleaching experiments, and succeeded in improving on local methods. E., the son of B., worked along the same lines. In the year 1925, D. went to England for seven months to learn Western methods of bleaching. On his return to Sialkot he developed the industry on factory lines and met with great success. His bleaching formula could not long remain a secret ; one of his employees soon started work independently in his own village. The *patha* gut industry still suffers from low quality and over-production, owing to the ignorance and lack of organisation among the makers. One man who received a loan from the Industries Department tried to improve the quality but did not succeed ; he was handicapped by a serious illness and shortage of funds and also perhaps by a lack of technical knowledge.

*Advent of the Rouda Tennis Gut.*—During the 'nineties of last century a man (X.) who had started his own sports factory met his demand for *rouda* tennis gut from a *Kashmiri* (F.) of Wazirabad. Later, he employed two local *Kashmiris*, G. and H., to make black gut in his factory ; they were already making cotton-cleaners' gut, and learnt from F. how to do this. Afterwards, they were joined by a *mistri*, I., who is still considered to be an expert in making *rouda* gut. With the increase in the demand for gut the number of workers increased and the *mistri* introduced several kinds of coloured gut, e.g., red, green, orange and rainbow.

*Emergence of the Merchant Middleman.*—The year 1888 saw the advent of the merchant middleman in the gut industry ; a Brahman broke all the restrictions of religious tradition, and started work as a sports goods dealer. At first he bought goods from the artisans and sold them in the market ; he paid in cash, after delivery of the goods, never in advance. Gradually the prices of raw material began to rise. From one pice for the amount of *patha* taken out from one animal in the early 'eighties of last century, the price rose to one anna in the next ten years. This rise in the cost of *patha*, and the emergence of keen competition among the dealers, paved the way for another step in the transformation of the dealer into the merchant middleman paying advances to the workers and binding them to a certain extent to sell their goods only to him.

*Effect of the Great War on the Industry.*—The boom years of the War (1914-18) gave a great stimulus to the *rouda* gut industry. Workers were brought from Agra and Lucknow, and large new factories were established ;

some enterprising men from the United Provinces came with workers and money and settled in Sialkot.

By 1920 Germany began to recover her position in the industrial world and turned again to Russia, the source of her supplies of raw gut prior to the war; but Russia at that time was not in a position to export much of anything and so Sialkot became one of the chief sources of Germany's supply of sports gut—raw and manufactured.\* By 1928, Russia had recaptured her lost market in gut and succeeded in ousting much of the Indian product from the German and other continental markets. Indian gut is inferior to Russian and Central Asian gut, and since that year the exports of Punjab gut have steadily fallen.

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\* *Vide* Appendix A., page 69.

### CHAPTER III. LOCALIZATION OF THE INDUSTRY.

*Gut Manufacturing Countries.*—The gut-making industry is to be found in many countries. Italy supplies very good raw gut and enjoys a high reputation in the European markets for its gut for musical instruments. The other important gut manufacturing countries are England, U. S. A., Germany, Belgium, Japan, France, Ireland, Australia, Jugo-slavia and India.\* All these countries, including India, engage in the manufacture of both sports and sausage gut. Some firms in England and America have earned a great reputation for the strength, resiliency, finish and durability of their gut; but in India good raw intestines are mostly exported to foreign countries for packing sausages, while defective, or waste, is used for manufacturing gut. Besides the manufacture of intestinal gut, which is practised everywhere, Japan and Germany produce vegetable fibre gut, France animal fibre gut, and India (Punjab) animal tendon (*patha*) gut. Recently a new variety, known as silk gut, has been manufactured from silk in England and the U. S. A. This is made of twisted yarn and has not as great tensile strength, resiliency or durability as intestinal or fibre gut; when once moistened it becomes unfit for use and therefore is not in great demand.

*Centres of the Gut Industry in India.*—There seems to be no dearth of gut dealers in the big towns of India; but the important manufacturing centres are Sialkot, Lahore, Bareilly, Hyderabad (Sind) and Delhi. Sialkot is the most important centre of the sports and gut industries; the other towns produce smaller quantities and market much of their produce there.

*Localization of the Gut Industry in Sialkot.*—During the last few years the Punjab has attained much importance in the manufacture of sports goods. The proximity of raw material has helped in this localization; mulberry grown in the Changa Manga Forest in the Lahore District, for hockey sticks, badminton and cheap tennis racquets; Kashmir willow, found in Jammu and Kashmir State, for cricket bats; leather from Wazirabad for footballs and cricket balls. The early start was largely due to the presence of a good artisan tradition among the local carpenters, and the initiative of two enterprising men who started the factory industry.

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\* *Vide* Kelly's Directory.

The growth of the gut industry followed the development of the sports industry. The following two tables classify the workers on *patha* gut in the surrounding villages and the present position of the industry at Sialkot City.

TABLE I.

*Patha Gut Workers in Twenty Villages within a Radius of Fourteen Miles of Sialkot.*

Class of workers.	Families.	Workers.	Dependents.	Total.	Percentage of total.
Independent .. .. .	47	125	118	243	37.7
Under merchant middlemen .. .. .	63	215	186	401	62.3
<i>Total</i> .. .. .	<i>110</i>	<i>340</i>	<i>304</i>	<i>644</i>	<i>100.0</i>
<i>Percentage of Total</i> .. .. .	..	<i>52.8</i>	<i>47.2</i>	<i>100.0</i>	..

TABLE II.

*Scope and Position of the Gut Industry in Sialkot City.*

Varieties of Gut.	FACTORY.				INDEPENDENT.				TOTAL.			
	Number of factories.	Workers.	Dependents.	Total.	Number of families.	Workers.	Dependents.	Total.	Workers.	Dependents.	Total.	Percentage of total.
Ronda ..	12	102	352	454	2	7	4	11	109	356	465	76.5
Patha ..	5	52*	70	122	3	12	9	21	64	79	143	23.5
<i>Total</i> ..	<i>17</i>	<i>154</i>	<i>422</i>	<i>576</i>	<i>5</i>	<i>19</i>	<i>13</i>	<i>32</i>	<i>173</i>	<i>435</i>	<i>608</i>	<i>100.0</i>
<i>Percentage..</i>	..	<i>26.7</i>	<i>73.3</i>	<i>100.0</i>	..	<i>60.5</i>	<i>39.4</i>	<i>100.0</i>	<i>28.5</i>	<i>71.5</i>	<i>100.0</i>	..

\* Number of families engaged is 25. \*

From these tables it will be seen that there are 1,252 persons in all within this area partly or wholly dependent upon this industry. Sialkot has attracted capital and labour from distant places. Of the 17 factories, one is owned by a Mohammedan from Lahore and three are owned by people from Delhi and the United Provinces, who brought with them labourers, generally *Tehi* (oil-presser) by caste, who formerly made rough gut for the cotton-cleaners.

## CHAPTER IV.

### ROUDA GUT INDUSTRY.

*Organisation.*—*Rouda* is the local technical term for the viscera, or intestines, of sheep and goats, which are made into strings of up to 125 lbs. tensile strength, for stringing tennis and badminton racquets. The viscera of cows and buffaloes are made into casings for sausages and exported to foreign countries. The *rouda* gut industry is found in many countries, especially in Europe, where the intestines not only of sheep and goats, but of every species of animal are utilised. The largest viscera are used mostly for sausages, but in France a very strong cord is made from the intestines of horses, donkeys and mules and used for light machinery in place of leather belting.\*

The process followed is almost as simple as in India, but far greater care is devoted to hygienic details and the manipulation of the raw material. The intestines are first cleaned and then scraped with a small plate of copper which has a smooth semi-circular hole; this removes the external membranes, which are used for the cords of battledores and racquets, and for sewing together the ends of intestines. The scraped gut itself is either spun to the required thickness on an ordinary spinning wheel, or dried for export by stretching over frames in an artificially heated chamber. Few chemicals are used. For ordinary gut, all that is needed is a solution of two ounces of crude carbonate of potash in a gallon of water; for violin-strings, four ounces each of caustic potash and carbonate of potash are dissolved in three to four gallons of water. Common salt and bleaching powder are used to prevent the intestines from putrefying.†

The *rouda* gut industry at Sialkot is confined within the municipal limits; no one was found engaged in this work in the neighbouring villages. The industry is carried on in twelve concerns and by two independent family groups, employing 109 workers (90 adult males and 19 boys). Seven factories employ 86 workers (71 adults and 15 boys), who work on sound lines under trained foremen; the remaining five concerns are small workshops although they have been called "factories" in this report. They

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\**Vide*. 'Industrial Punjab,' by Latifi, page 125.

†For further information on catgut generally, see Spon's 'Workshop Receipts,' Vol. I. article on 'Catgut.'

employ only 16 workers (14 adults and 2 boys) and are not so well organised, for the owners supply capital, engage labour, market the product, superintend the labourers and take part in the work themselves; their product is sold locally to the sports dealers. The workers have often to work under insanitary conditions with very little or no shelter during the daytime. Security of service is a rarity and payments are seldom accurate; this tends towards misappropriation of the material and frequent disappearance of the workers. Of the seven larger factories, one is the premier sports works in Sialkot, (and one of the largest in the East), which besides meeting a wide Indian demand carries on a large export business. The product of the other six is marketed largely in India. The two family groups employ only 7 workers (5 adults and 2 boys); one of them works in his own house with his sons and relatives and the other, along with a brother, has occupied a corner of one of the gut factories and pays Rs. 4/- a month rent; both sell their product in the local market.

*Sites and Ownership of the Factories.*—The site for an industry is usually governed by such considerations, as the nature of the industry, nearness of the market, transport facilities and availability of the raw material. The manufacture of *rouda* gut is, however, attended with foul odours, which are obnoxious to the entire neighbourhood and also the water used in the process which carries away the organic waste affords such a choice breeding ground for germs and mosquitoes that all the factories, except one, are situated on the outskirts of the city. The other considerations are not overlooked; e.g., nearly all the firms have offices near the post office, which is the centre of the sports market, and is also quite near the railway station. Of the twelve factories, the land and buildings in two cases are the property of the owners of the factory, and the remaining ten are taken on a rent of from Rs. 2/8/- to Rs. 50/- per month.

*Beginnings of the Rouda Factories.*—These factories sprang up when *rouda* gut began to be used for sports goods; the first was started in 1888 and the second in 1906 when its owner, a *Sheikh*, came from the United Provinces. Two were started in 1925, three in 1926, one in 1930, and two each in 1931 and 1932. These figures, however refer only to the factories which were working at the time of the inquiry and not to all which have tried to make *rouda* gut. During the last forty years many such factories have been started and failed, owing to lack of proper finance, inefficiency, dishonesty, cut-throat competition or lack of technical knowledge.

*Sources of the Capital Invested.*—The methods of manufacture are very simple. No power machinery is used. Land, factory building and miscellaneous articles, such as basins made of clay, or of iron plastered with white clay, wooden planks, iron pegs and wood for *addas*,\* etc., make up the necessary items of initial expenditure. Of the two factory owners who have their own buildings, one spent over Rs. 17,000/- on the purchase of land, erection of buildings and electric installation including two electric heaters costing Rs. 850/-; the other owns the biggest sports factory, housed in a building which is estimated to be worth a lakh. The gut industry is, however, confined to only a portion of this building estimated to be worth from Rs. 15,000/- to Rs. 20,000/-. The expenditure on the necessary utensils depends on the volume of business; inquiries showed that the different manufacturers had spent between Rs. 50/- and Rs. 900/-. All the money needed for the initial expenses was provided by the organisers themselves.

*Rouda Factory Owners and Managers.*—Ten of the twelve *rouda* gut factories are owned or managed by Mohammedans; one by a Christian and the other by a Sikh. It appears that the Sikh owns only the building, which is given free of rent to one of the Mohammedans who owns all the accessories. This man has a contract with the Sikh proprietor to supply the latter with the required amount of gut for trade purposes and for his own use; the Sikh pays when the goods are sold abroad. Of these Mohammedans one *Teli* and two *Sheikhs* (butchers) come from the United Provinces and Delhi, one *Rajput* from Lahore District, and one *Sayad*, one *Rajput* and four *Kashmiris* belong to Sialkot. The Christian owner belongs to a village a mile out of Sialkot.

*Workers in these Factories.*—Table III. shows that this industry is carried on largely by Mohammedans (82 per cent.) of both high and low castes. The *Telis*, (who are gut-makers by trade), and cotton-cleaners, number 35 per cent.; almost all are from the United Provinces and Delhi. The next highest in number, 13·7 per cent., is the water-carrier caste: of these 11·7 per cent. belong to Sialkot District and 2 per cent. to Delhi and the United Provinces. The butchers contribute 9·8 per cent., of whom

\**Adda*.—This is an apparatus consisting of two pairs of wooden posts fixed in the ground about 39 feet apart, i.e., the length of one set. The two posts of one pair are fixed about three feet apart and joined by a round horizontal iron cross bar one inch thick and three feet above the ground. The other two posts are fixed one behind the other forming a line at right angles to the cross bar. These posts are also three feet apart and are joined by a flat piece of wood or iron three feet from the ground, perforated along its length and in which are inserted either iron hooks or pegs to which the strands are attached and stretched. The stress upon the *rouda* string is regulated by the hooks and pegs. It is a primitive but effective arrangement.

half belong to Delhi and the United Provinces and the others to Jaipur State. The non-Mohammedans number 17·6 per cent.; (Christians number 14·7 per cent. and *Raigers* 2·9 per cent.). The Christians belong to Sialkot District and the *Raigers* to Jaipur State.

TABLE III.

*Castes of Workers in the Rouda Gut Factories at Sialkot.*

Caste and Religion.	BELONGING TO.				Total.	Percentage of total.
	Sialkot District.	Other Districts of the Punjab.	Delhi and U. P.	Jaipur State.		
<b>MOHAMMEDANS.</b>						
Kashmiri .. ..	5	..	..	..	5	4·9
Sayad .. ..	2	..	..	..	2	2·0
Qureshi .. ..	2	..	..	..	2	2·0
Rajput .. ..	1	..	..	..	1	1·0
Water-carrier .. ..	12	..	2	..	14	13·7
Sheikh (Teli) .. ..	..	1*	35	..	36	35·3
Sheikh (Butcher) .. ..	..	..	5	5	10	9·8
Jat .. ..	7	..	..	..	7	6·8
Arain .. ..	4	..	..	..	4	3·9
Awam .. ..	..	..	1	..	1	1·0
Musalli .. ..	1	1†	..	..	2	2·0
<b>NON-MOHAMMEDANS.</b>						
Raiger .. ..	..	..	..	3	3	2·9
Christian .. ..	15	..	..	..	15	14·7
<i>Total</i> .. ..	49	2	43	8	102	100·0
<i>Percentage of Total</i> .. ..	48·0	2·0	42·2	7·8	100·0	..

\* Belongs to Gurgaon District.

† Belongs to Gujrat District.

Half of the workers come from the Punjab. The importation of labour from other provinces is due to the fact that the capitalists of those places brought their own people; there is no dearth of suitable local labour, but the outside capitalists prefer their own men. Local labour is not accustomed to the routine of factory-life and is less submissive to orders. The down-country people take more easily to factory discipline and are consequently more efficient workers. The industry is of such a nature that its success depends to a great extent upon the honesty and

efficiency of the workers ; there are several examples of a factory having incurred heavy losses on account of the dishonesty of workers who spoiled raw material and stole gut.

This industry employs 83·3 per cent. adult males and 16·7 per cent. boys below 15 years of age. The boys and adult recruits are given only the simplest work such as washing and desalting the raw gut and joining the ends of the *rouda* strands. No female labour is employed as there is an ample supply of cheap male labour and there are no separate arrangements in the factories for the employment of women alongside men. Local custom, due to religious belief, considers such practices as degrading to the women ; the work could not be done by women alone, as men are required for the sand-papering and bleaching processes, which take strength and special skill.

*Training and Apprenticeship.*—The *rouda* gut industry is not the monopoly of any class or community ; but most recruits have relatives working in the factories. A father or elder brother knowing the foreman or the owner often gets in a son or brother as an apprentice. Boys of from 8 to 12 years of age have to undergo training for one to three years, without remuneration. Then, if the boy is intelligent and promising, he is generally given Rs. 5/- per month ; if not then from Re. 1/- to Rs. 3/-. For adults the time for training is shorter and a small food allowance is made.

*Division of Labour.*—As a rule, all the *rouda* gut factories have some division of labour. The preliminary work of desalting and cleaning the *rouda* and joining the ends of the strands, is done by beginners ; more experienced hands do the scraping with the *sippi* (clam-shell) and the *panja* (a hand instrument made by binding from three to five flat iron pieces with blunt edges incapable of cutting, one over the other). Strong and trained hands do the sand-papering and brick-rubbing as well as the difficult part of bleaching and dyeing of the raw gut ; the *mistri* or foreman, besides giving the finishing touches, superintends all the labour and prepares the bleaching solutions.

*Working Hours and Remuneration.*—During the summer the factories open at about 7 a.m. and close between 5 and 6 p.m. The workers have a recess for an hour about noon and leave the factories at 4 p.m. at the earliest, none stays after 6 p.m. During winter, factories open about 8 a.m. and close at 5 p.m. One day in the week is a holiday ; the Moham-medans take Friday and the Christians Sunday. Religious festivals such as 'Id, Moharram, and Christmas, are also holidays for which the workers receive full wages. They are not entitled to any other leave, but may

remain absent on any day with or without notice: for such leave they get no wages. Monthly wages are fixed according to the ability of the worker and the need of the employer. It is a common practice in Sialkot for a worker receiving perhaps Rs. 15/- to desert his employer suddenly and take service in another factory at an increased wage. The average worker rarely stays long with one employer and in order to hold certain operatives the employer may give them cash advances. Youths between 8 and 15 years of age and adult recruits are given from Re. 1/- to Rs. 5/- per month; semi-trained persons from Rs. 6/- to Rs. 12/-; trained hands from Rs. 15/- to Rs. 40/- and the pay of *mistri* is from Rs. 40/- upwards; the highest paid *mistri* at present gets Rs. 110/-. Wages are paid usually at the end of the month, but sometimes an advance is given to an able worker who has gained his employer's confidence. The average working period is from nine to ten months in a year. The following statement gives the number of workers according to monthly wages:—

TABLE IV.

*Number of Workers according to Wage Grades in Rouda Gut Factories.*

Amount of salary.	Number.	Per cent.
Nil	4	3.9
Rs. 1/- to Rs. 5/-	8	7.8
Rs. 6/- " 10/-	15	14.7
" 11/- " 15/-	15	14.7
" 16/- " 25/-	29	28.5
" 26/- " 50/-	27	26.5
" 51/- " 100/-	3	2.9
Above Rs. 100/-	1	1.0
<i>Total</i>	<i>102</i>	<i>100.0</i>

There is only one *mistri* receiving a salary above Rs. 100/-; below him are three *mistris* of separate factories drawing Rs. 75/-, Rs. 60/- and Rs. 55/- per month, respectively; all four are *Sheikhs (Telis)* and belong to the United Provinces and Delhi. Most of the workers get a wage between Rs. 16/- and Rs. 50/- per mensem.

*Lodging, Education and Medical Supervision.*—The local workers reside in and around the city, within a radius of from one to two miles of the factories; for them this is the best arrangement available. The majority of the workers from other places live in Sialkot Cantonment and

only a very small number in the city ; the employers do not provide them with quarters, but if there happen to be spare rooms in the factory building, these are used for lodging the workers ; no rent is charged but the workers are expected to guard the employer's property, thus saving him the expense of keeping a watchman.

There are no arrangements for the education of the workers' children and workers get no medical help from employers ; when one falls ill he may secure an advance out of his salary from a sympathetic employer in order to tide him over the resulting period of financial difficulty.

*Sources of Raw Materials—Rouda and Chemicals.*—The municipal slaughter houses furnish most of the *rouda* gut. The approximate number of sheep and goats slaughtered in Sialkot City and Cantonment in 1931 was about 25,000 and 3,337, respectively, but the industry does not depend entirely for its raw gut on these local sources, which are inadequate for its needs. The outside supply is well organised ; there are brokers (*ahrtias*) who import *rouda* from the larger towns of the Punjab, (*e.g.*, Lahore and Amritsar), the United Provinces, (*e.g.*, Cawnpore and Agra), and from Delhi, Ahmedabad, etc., and keep large stocks for the requirements of the local manufacturers. The intestine dealers enter into annual contracts with the butchers, and their agents are to be found in all the areas mentioned. The contract rate is fixed and payments to the butchers are generally made in advance. Employees of these dealers collect the viscera in tins when the animals are slaughtered, take the day's collection home and wash it well with water. All fat is removed, the intestines gently scraped with a clam shell and all the contents worked out. Then they are well washed again, sorted and blown full of air to see if they have any holes. The intestines of a sheep or goat generally measure from 60 to 70 feet in length. If no hole is found in the first twenty-five feet, and the diameter of the tube is at least 18 millimetres, it is passed as first class ; this portion is then cut off, well salted and marked for export, probably to be used for packing sausages. The remainder, which measures from 35 to 45 feet is rejected if it is not of the standard quality and incapable of yielding a single piece 25 feet long. Several such pieces are wound into skeins, each measuring from 70 to 75 feet, and sold locally, or sent to the Sialkot *ahrtias*, to be sold to the manufacturers of tennis and badminton gut. The price of raw gut depends mainly upon its quality ; in July 1932, 100 skeins of average quality sold at from Rs. 6/- to Rs. 8/-.

In order to ensure a supply of cheap raw gut of good quality enterprising manufacturers sometimes make direct annual contracts with

the butchers and thus avoid the dealers' and *ahrtias'* profits. For instance the owner of one of the largest factories has a contract with the slaughter-house at Peshawar for the supply of raw gut; another owner obtains his supplies direct from a Lahore slaughter-house. In some cases gut is exported, framed and dried and not salted at all, but salted stuff is preferred and brings better prices, as it is easier to soak and bring back to its original plastic condition.

The supply of chemicals for the cleaning and bleaching is well-organised. Some of the leading chemists in Sialkot keep large stocks of fresh materials for sale to the gut manufacturers, but the big factories import direct from Lahore or Bombay, and thus save the middleman's profits.

*Import of Raw Gut.*—The annual supply of raw material from the two local slaughter-houses is about 36 maunds of salted gut, but this amount is insignificant compared with the annual consumption by the industry. The following statement shows the amount of salted and dried gut imported into Sialkot in 1931. The figures are taken from the record kept at the Sialkot Railway Station and show that 864 maunds of raw gut, [789 maunds (91·3 per cent.) was salted and 75 maunds (8·7 per cent.) dried] was imported. The average number of salted *rouda* skeins per maund is estimated at about 800, and dried or framed *roudas* at about 4,000 a maund.

TABLE V.

*Imports of Raw Gut in Maunds at Sialkot Railway Station in 1931.*

Month.	Salted.	Dried.	Total.	Percentage of total.
January .. ..	94	8	102	11·8
February .. ..	49	18	67	7·8
March .. ..	48	5	53	6·1
April .. ..	49	4	53	6·1
May .. ..	36	5	41	4·8
June .. ..	44	4	48	5·6
July .. ..	56	5	61	7·1
August .. ..	30	10	40	4·6
September .. ..	61	4	65	7·5
October .. ..	95	9	104	12·0
November .. ..	115	3	118	13·7
December .. ..	112	..	112	12·9
<i>Total</i> .. ..	<i>789</i>	<i>75</i>	<i>864</i>	<i>100·0</i>
<i>Percentage</i> .. ..	<i>91·3</i>	<i>8·7</i>	<i>100·0</i>	<i>..</i>

According to these figures the number of *rouda* skeins annually imported is 931,200; adding the supply from the two local slaughter-houses the figures rise to nearly a million. The imports in winter are larger than in the summer months; the four months, January, October, November and December in 1931 accounting for 50·4 per cent. of the total.

*Intestines of Sheep and Goats of Various Localities Compared.*—The intestines of sheep are white and those of goats of a light red colour. The former are preferred for the manufacture of sports gut as they are easy to bleach, requiring only a small quantity of chemicals. The sheep and goats of the hills yield stronger gut than those of the plains as the former are generally healthier and stronger animals. They are given salt once a week which helps the digestion and keeps the intestines clear saving them from a disease known as *karera*\*, which is commonly found in the animals of the plains. These yield gut of a low tensile strength, while those of Ladakh and Kashmir yield the toughest and best material. The leaner the sheep the stronger the gut, hence it is not surprising that the none too well fed flocks of Italy supply three-fourths of Europe's demand. The Indian animal excels even the Italian in leanness, and should, if healthy, yield the best gut in the world.

The tube in the intestines of hill sheep and goats is larger in diameter and is thus in greater demand abroad than the product of the plains. Intestines with a tube of more than 18 millimetres diameter, free from holes, are considered fit for sausage casings; the remainder, as already mentioned

TABLE VI.

*Diameter of the Blown Intestines of Sheep and Goats from Various Tracts.*

Tract.	Diameter of the ends when expanded in millimeters.		Quality.
	Minimum.	Maximum.	
Ladakh and Yarkand .. .. .	24	35	I.
Kashmir .. .. .	24	35	I.
Quetta, Peshawar, etc. .. .. .	20	26	II.
Punjab .. .. .	not given	18	III.

\**Karera* is a disease found among the animals in which grains are formed in the membrane of the intestines, owing probably to '*Oesophagetoma lobiumbiana*,' a parasite commonly found in sheep. When scraped by *sippi* or *pasja*, holes are made in the intestines thus weakening their strength and making them quite unfit for sausage casings.

are used for making sports gut. The minimum and the maximum diameters\* of the intestines of sheep and goats of different localities are given in Table VI.

*Methods of Manufacture.*—Intestines of sheep and goats are first cleaned; then the first class pieces are selected for export and the remainder either sent to the gut-making establishments or dry-salted to preserve them. If the guts have been dry-salted, they are first soaked in water to remove the salt and this process generally takes from two to three hours as several changes of water are necessary. After the removal of salt, the gut returns to its original state, soft and pliable. Whether fresh or desalted, the subsequent processes of cleaning, (*i.e.*, removing all fatty matter and blood vessels), bleaching, dyeing, twisting and sand-papering are the same.

In Sialkot, the processes differ according to the skill of the worker; the knowledge of a particular process is considered highly valuable and is kept as far as possible a trade secret. The investigator noted several cases where a single prescription for bleaching was sold for as much as Rs. 100/-. Tennis gut of various colours (white, red, green, orange, rainbow and black) is being manufactured and different methods of preparation are used. The black gut—the particular speciality of Sialkot—requires comparatively little bleaching; only *ak-ka-doodh*, *i.e.*, the product of the Indian milk-weed, is used in its preparation and the string when dry is rubbed with a piece of burnt brick before sand-papering.

The length of gut required to string a tennis racquet is one set, *i.e.*, 39 feet and a set of average size (16 gauge) can be prepared out of six or seven skeins† of gut, *i.e.*, the intestines of six or seven sheep, provided the whole of each intestine is used for making the gut.

#### PROCESS OF MANUFACTURING ROUDA GUT.

(a). *Desalting Rouda.*—Twenty-five skeins of salted raw gut are placed one by one, in an earthen jar, (or preferably in an iron basin plastered with white clay), filled with cold water. They remain immersed for a couple of hours but are turned over frequently to expose fresh surfaces to the water. Then another basin is placed alongside (to the right) and the skeins, which are small, are picked up separately and held round the fingers of the left hand shaped like a cup. One end of the skein is found and the *rouda* is unwound by a circular motion of the left hand, the strand passing through the fingers and the thumb of the right hand and falling

\*See also Appendix A., page 71.

†The average length of one skein, consisting of several pieces of gut is about 70 feet. Four sets of tennis gut can be prepared out of 25 skeins of raw gut.



ILLUSTRATION I.  
Cleaning and Washing *Roula*.  
The foreman (*mistef*) is seen with his *hugga* on the left.



ILLUSTRATION II.  
Joining ends of *Rouda* pieces.

into the second basin. The end of the strand is placed over the rim to prevent it getting lost. When all the skeins are unwound, these ends are taken together and tied into a loose knot after which they are again dipped into fresh water and thoroughly washed. These processes take approximately four hours.

(b). *Cleaning with Chemicals.*—The strands are then well-soaked in a solution of an ounce of sodium peroxide in a gallon of cold water. This loosens all the fatty and extraneous matter but during the process the strands must be handled very carefully; inexperienced workers spoil much material as they find it difficult to disentangle the strands. The soaking must not last more than from six to eight hours otherwise much of the gut is either dissolved, or its strength reduced. The strands are then washed for about half an hour, with frequent changes of water, in order to remove all chemicals and waste.

(c). *Bleaching.*—When the membrane of the *rouda* is quite clean, in order to make the gut semi-transparent and give it a better appearance, it is bleached by soaking from eight to twelve hours (generally over-night), in a dilute solution of potassium cyanide ( $\frac{1}{2}$  oz.) and sodium peroxide ( $\frac{1}{4}$  oz.) dissolved in a gallon of water. The next day the strands are taken out of the solution and after a thorough washing in water are rubbed with a clam-shell to reduce their thickness and to separate any extraneous matter. Three basins are then placed in a row, (if enough basins are not available, a wooden plank can serve the purpose) and all the strands are placed in the basin on the right hand side. The knotted ends are held in the left hand and the strands are passed between the second finger of the right hand and the *sippi* held by the thumb; a slight pressure is exercised to squeeze out the water. The refuse and the water fall into the middle basin and the cleaned strands are put in the third. This is repeated three or four times and finally the *sippi* is applied with no water; this process takes about an hour.

(d). *Joining the Ends of the Strands.*—The knotted end of the *rouda* strands is now opened and the white ones sorted out for the preparation of white gut. The material now being soft and greasy requires careful handling. One piece is taken and wound twice or thrice round the forefinger of the left hand, leaving about six inches of one end sticking out. This is flattened and near the end two or more slits are made with the nails of the forefinger and thumb of the right hand. The end of another strand is then taken and pointed by cutting one side with the nails. This pointed end is then threaded through the slits of the first strand around which

it is twisted once or twice and then knotted to it. In this way all the pieces are joined to form a single strand. Care must be taken lest the joints become thicker than the strand itself as a thick joint requires much sand-papering. When all the pieces have been joined, lengths of 39 feet each are cut, and the number which are to go in the thickness required, are taken together and knotted at one end. This process takes about an hour and a half.

The material is now ready for the preparation of black gut which is non-transparent and does not require further bleaching. A dye bath, in which a small quantity of acid magnesia is added to fix the colour, is given and the string is spun, and stretched on the *adda*. When dry it is scraped first with a piece of burnt brick and then sand-papered to make the string smooth and reduce it to the required thickness.

(e). *Bleaching Bath*.—Guts which are to be prepared of other colours than black are given another bleaching bath by immersing the strands in a solution containing half an ounce each of potassium cyanide and potassium carbonate dissolved in a gallon of water. The material is turned over frequently to expose fresh surfaces to the bleaching agent and then left to soak overnight. In the morning it is taken out and thoroughly washed with frequent fresh supplies of cold water. Then it is soaked again for from four to six hours in a solution of one ounce of hydrogen peroxide and a quarter ounce of sulphuric acid in a gallon of water and washed thoroughly and scraped with a *sippi*.

(f). *Dyeing*.—The *rouda* is now put in a bath of warm (preferably) water which usually contains about 30 times the weight of *rouda*; the amount of dye required is dissolved separately in a small quantity of water, filtered and added to the bath. The dyeing takes about twenty minutes.

(g). *Spinning and Stretching*.—A firm knot is made at the end of the strands which are twisted about a hundred times, then stretched on the *adda* and kept under tension, until dry, in the shade. (Black gut does not need shade). After an hour the hooked end is taken off, given some forty or fifty additional twists and then stretched so as to fasten to the next hook thus reducing its diameter and increasing its length.

(h) *Sand-papering and Varnishing*.—When the string is dry it is sand-papered to make it smooth and reduce it to the right thickness; the time and labour required for this depends upon the roughness and thickness of the string. Then the string is varnished to impart a better finish. Finally its tensile strength is tested by a machine, then wound into coils and bound at one or two places with silk tape or thread.

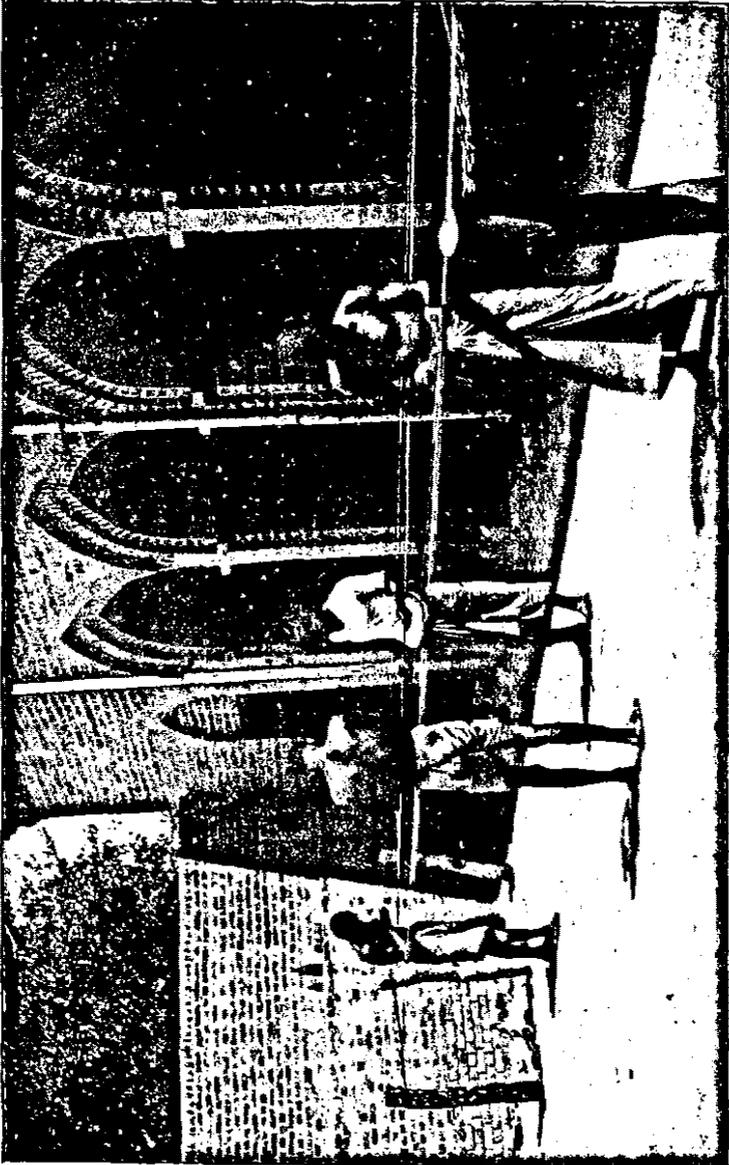


ILLUSTRATION III.  
Grinding Strings of Roudq Gub.

The following table gives the approximate cost of manufacturing four sets of tennis gut ; the cost per set decreases in proportion to the increase in the number prepared. The sale price of four sets of tennis gut in July, 1932, varied from Rs. 5/- to Rs. 8/-.

TABLE VII.

*Cost of Manufacturing Four Sets of Tennis Gut*

	Quantity.	Cost.		
		Rs.	a.	p.
Raw gut .. .. .	25 skeins	2	0	0
Sodium Peroxide .. .. .	1½ ounces	0	3	0
Potassium Cyanide .. .. .	1 ..	0	3	0
Potassium Carbonate .. .. .	½ ..	0	2	0
Hydrogen Peroxide .. .. .	1 ..	0	4	0
Sulphuric Acid .. .. .	¼ ..	0	2	0
Dye, varnish, sand-paper, tapes and labour .. .. .	..	1	8	0
<i>Total</i> .. .. .	..	4	6	0

The time required for the preparation of tennis gut takes from three to four days. (It is said to take from seven to eight days in other countries). The following statement shows the approximate time required for the preparation of four sets ; within limits, the greater the number of sets, the less the time required for the preparation of each set.

TABLE VIII.

*Time required for Making Four Sets of Tennis Gut.*

Nature of Work.	TIME.			
	From		To	
	Hrs.	Mts.	Hrs.	Mts.
Desalting and cleaning the <i>rouda</i> .. .. .	3	50	3	50
Cleaning with chemicals .. .. .	6	0	8	0
Washing .. .. .	0	20	0	30
Bleaching .. .. .	8	0	12	0
Washing .. .. .	1	0	1	0
Joining the ends .. .. .	1	30	1	30
Measuring and binding the strands .. .. .	0	30	0	30
Bleaching .. .. .	6	0	12	0
Washing .. .. .	0	30	0	30
Bleaching .. .. .	4	0	6	0
Washing .. .. .	1	0	1	30
Dyeing .. .. .	0	20	0	20
Spinning and twisting .. .. .	0	5	0	5
Drying .. .. .	3	0	6	0
Sand-paparing .. .. .	0	15	0	30
Varnishing .. .. .	0	6	0	6
<i>Total</i> .. .. .	36	26	54	21

*Notes.*—The average output per labourer per working day is from six to eight sets.

*Implements.*—The process of manufacture at Sialkot is generally very crude; the implements used are few and simple and there are few, if any, labour saving appliances. In other countries much manual labour is replaced by machinery, such as the splitting and cleaning of the *rouda*, twisting and sand-papering the string, etc. The following is a list of implements and other utensils used for the work.

TABLE IX.

*Implements and Requisites employed in Gut-making in Sialkot.*

Implement.	Minimum number required.	App oximate cost of each.	Length of time in use.	Use to which it is put.
		Rs. a. p.		
<i>Bippi</i> ..	1	0 0 3	1 to 2 months.	Scraping and cleaning.
<i>Panja</i> ..	1	0 4 0	2 „ 4 years	Do.
Wooden plank ..	1	2 0 0	2 years	Sitting and placing the <i>rouda</i> white scraping.
Basins ..	3	1 0 0	2 to 3 years.	Cleaning, bleaching and dyeing.
<i>Adla</i> ..	1	5 0 0	3 „ 6 „	Stretching and drying.
Spinning wheel ..	1	7 0 0	„ „	Spinning and twisting.
Pair of scissors ..	1	0 8 0	5 years	Cutting.
Knife ..	1	0 4 0	„	Do.
<i>Total</i> ..	..	16 0 3	..	..

*Note.*—The last four items may be used by a number of workers as their use is only occasional.

*Badminton Gut.*—Badminton gut is made in the same way except that it is thinner and of less tensile strength.

## CHAPTER V. PATHA GUT INDUSTRY.

*Patha* or animal tendon gut, the second variety, is made from the membrane between the flesh and skin of cattle, and in India it is manufactured only in and around Sialkot. It is very cheap and for this reason in greater demand than *rouda* gut in foreign countries.

*Organisation.*—So far it has been a cottage industry, but it is now gradually developing on factory lines. The workers formerly purchased their own *patha*, made it into gut and sold it to manufacturers of tennis and badminton racquets; but, with the increased trade, cottage workers could not cope with the demand; some manufacturers of sports gear, finding this line lucrative, took it up in 1921; they either advanced money to the workers, or bought the *patha* for them, and contracted to take all the finished product at specified rates, according to quality. This system lasted for a number of years but was not satisfactory either to the workers or the employers. The workers skimmed the *patha* in making a coil and thus reduced its standard length, while the contractors tried to prove that the quality of the coil was inferior to that originally agreed upon. The worker had in most cases to yield and this made him the more anxious to skimp the coils hoping that all would not be measured. The result was that, as foreign buyers began to complain about the poor quality and skimping and hesitated to place fresh orders, the more progressive sports manufacturers began to employ gut-workers on their own premises on the piece-work system. This has led to an improvement in the quality of the gut and is generally more satisfactory to all parties.

At the time of the inquiry the industry employed 138 families with 787 members (404 workers and 383 dependents) in Sialkot City and in the 20 villages surveyed. 50 of these families, with 264 members (137 workers and 127 dependents) can be classed as independent workers. Of these 50 families, 3 with 21 members (12 workers and 9 dependents) reside in the city and the remaining 47 families live in villages. These workers have not received any advance from the gut dealers and are not bound to sell their goods to them. Of the remaining 88 families, 63 with 401 members (215 workers and 186 dependents) rely on merchant contractors to supply them with raw material and other requisites, and also occasionally to give small advances. The people work in their own houses

but are bound to sell the finished product as agreed. The contractor prices the gut coils according to their quality and, after deducting the cost of the raw material etc. advanced, pays the balance. This adjustment of accounts generally takes place each month when the whole of the raw *patha* given to the worker has been turned into the finished product. Only 25 families with 122 members (52 workers and 70 dependents) can be classed as factory workers. They work under five employers and are given free living and working quarters; they receive all the necessary materials for making gut and are required to sign agreements for a period of from one to three years, binding themselves not to work for any one else during this period; they also receive advances from their employers. The main difference between this class of workers and those under the merchant middlemen is that the former have to leave home for town-life and work under the direct supervision of the employer; whereas the latter work in their own homes and are at liberty to increase their incomes by other work. The following statement classifies the *patha* gut workers in and around Sialkot.

TABLE X.

*Classification of People engaged in the Manufacture of Patha Gut.*

Workers.	No. of families employed.	Per cent. of total No. of families.	Working members.	Dependents.	Total.	Per cent. of total numbers.
Independent ..	50	36.2	137	127	264	33.5
Under Merchant middlemen ..	63	45.7	215	186	401	51.0
Factory ..	25	18.1	52	70	122	15.5
<i>Total</i> ..	<i>138</i>	<i>100.0</i>	<i>404</i>	<i>383</i>	<i>787</i>	<i>100.0</i>
<i>Percentage</i> ..	..	..	<i>51.3</i>	<i>48.7</i>	<i>100.0</i>	..

It will be seen from the above statement that, in this branch of the industry the number of workers is greater than the number of dependents. This is because it is mainly a cottage industry and affords employment to men, women and children, thus increasing the relative number of workers. Many of the independent workers are often driven by necessity to take a little advance and thus for a time are bound to sell their goods to particular middlemen; thus there is always a tendency for this class of workers to lose their independence. A fresh recruit to this industry, not related to any of the old workers, starting as an independent worker receives no advance from a middleman, either cash or raw material, so he is driven

to borrow from a money-lender. Later he does make acquaintances in the central market, and gain the trust and confidence of some dealer. Occasional losses and the pressure of the money-lender often drive him to the middleman to swell the ranks of the non-independent workers.

*Working Hours.*—All independent workers, as well as those under middlemen and factory employees are, strictly speaking, domestic workers; they work at their own time and in their own way. One may go on working until midnight, while another may waste his time; but in spite of great differences in individual cases, there is considerable uniformity when all the workers are taken together.

In the summer season the men begin work about 7 a.m. and continue until 1 p.m. The early hours are devoted to pounding the *patha* and the later hours to grinding the strings. After two or three hours' rest in the afternoon a couple of hours are spent preparing the string for grinding next morning. In winter, work begins at 6 a.m. and stops at 11 a.m. After an interval of from three to four hours, work is resumed about 4 p.m. and goes on until 11 p.m. with about two hours for supper and rest. Thus the maximum working hours during summer and winter are 8 and 10 hours, respectively. The lower limit both in summer and winter is governed more or less by individual inclination, by the pressure, or the nature of the work. For example, a badminton or trebling\* gut worker seldom works at night, as a kerosene oil lamp does not give enough light to carry on the fine work required.

The nature of woman's work necessitates different working hours. She gets up early in the morning to wash the *patha* (soaked overnight in order to get rid of the chemicals) or to draw out the gut into strings. After this she cleans the house, prepares the meals, feeds the milch cattle and does other household duties.

The working hours for children are very irregular. Early morning and night work is seldom done by them; and boys below 12, or girls below 10, are seldom employed. The older children draw out the string or help to twist it; adolescent boys thresh the *patha* and grind the string. Watching the cows or gathering cow-dung is done by younger children when they are not playing about the village.

*Castes engaged.*—The *patha* gut industry is carried on exclusively by Christians of the sweeper class because of the objectionable nature of the work which makes it very repugnant to most people. An attempt was made

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\*A fine gut, thinner than badminton gut, used for binding the shoulders of tennis racquets.

recently to train some *Meghs* and *Chamars* for the work but this proved a failure. Originally the industry was started by a Muslim *Kashmiri* (*vide* Chapter II.) but later the Christians took it up. The practice of holding the *patha* pieces in the teeth at the time of making them into long strands is not only dangerous as the *patha* of animals dying of disease are also used, but also disgusting to most people.\*

*Patha Gut Industry as a Main and as a Subsidiary Occupation.*—The total number of families engaged in making *patha* gut in the villages under investigation was 110, with 644 members (340 workers and 304 dependents). Of these, 39 families (35·5 per cent.) with 213 members (108 workers and 105 dependents) depend solely on this work for their livelihood. 17 families (15·4 per cent.) with 99 members (43 workers and 56 dependents) have it as their main occupation and *sepi* and agricultural labour as subsidiary occupations. 54 families (49·1 per cent.) consisting of 332 members (189 workers and 143 dependents) depend largely upon *sepi* and agricultural labour and carry on *patha* making as a subsidiary industry. The slack season is during the hot months of April, May, June and July and this is the time for harvesting the *rabi* (spring) and sowing the *kharif* (autumn) crops. The *patha* gut worker in the village is relatively in a strong economic position as during the quiet season of the gut industry he can fall back on agriculture and make as good a living as in the gut industry. As soon as the latter revives he takes it up again as his main occupation.

*Raw Material.*—The sources for the supply of raw *patha* are found all over the country, but principally in municipal slaughter-houses. It is first dried in the sun and then sent, as opportunity offers, to Sialkot. Young, fat and strong animals yield greasy *pathas* and the gut made from them frays much more easily than that from lean and ill-fed animals which give less greasy *pathas*, better suited to the preparation of first class gut. The *pathas* of old bullocks and male buffaloes provide very strong gut.

Marketing is well organised as there are several hide and skin merchants and brokers who import *patha* from different parts of the Punjab and the United Provinces, especially from Kalanaur (Gurdaspur District), Hapur and Phaphoond (in United Provinces). The principal dealers keep large stocks in order to meet the requirements of the local manufacturers. At the time of the inquiry the price of a *patha* varied from 3 to 14 annas

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\*Muslims are permitted to eat the meat of certain animals only, and when they have been slaughtered in a certain manner.

and the Industrial Surveyor, Sialkot, estimated that *pathas* worth about Ra. two lakhs are sold annually.\*

Figures of *patha* imported into Sialkot by rail are the only ones available and are given below ; they relate to the year 1931 and are taken from the Railway Station records.

TABLE XI.

*Amount of Patha Imported by Rail into Sialkot in 1931.*

Month.	Amount in maunds.	Per cent. of total.
January .. .. .	42	25·8
February .. .. .	32	19·6
March .. .. .	20	12·3
April .. .. .	13	8·0
May .. .. .	7	4·3
June .. .. .	7	4·3
July .. .. .	10	6·1
August .. .. .	8	4·9
September .. .. .	5	3·1
October .. .. .	10	6·1
November .. .. .	6	3·7
December .. .. .	3	1·8
<i>Total</i> .. .. .	<i>163</i>	<i>100·0</i>

*Postal Freight.*—Much gut is sent by post, and unfortunately no record is kept by the postal authorities of gut sent by mail, but it is a fairly general practice for small orders.

#### PROCESS OF MANUFACTURE.

*Introductory.*—The process of manufacture is comparatively simple as it consists of pounding the *patha*, cleaning, bleaching, dyeing, stringing, twisting and grinding the string. The methods followed in the villages are all the same and the common bleaching materials known to them are *rangkat* and *walayati soda* corresponding to sodium hydrosulphite and bleaching powder. About three or four *pathas*, or one seer of animal tendon, are required to make a coil of 100 yards of tennis gut, from which eight tennis racquets can be strung. The cost of such a coil varies between Rs. 2/8/0 and Rs. 3/4/0.

\* *Vide Appendix A., page 68.*

(a). *Pounding of Patha.*—Four *pathas*, preferably dry and of medium size, are taken and the thicker ends bound together with a small strand torn from one of them. They are then subjected to a thorough pounding on a stone fixed in the ground; the surface exposed to the wooden hammer is constantly changed. This process is continued until all the dry flesh is separated and the strands become very thin; the less grease in the *pathas* the less time taken. The strands are then picked up one at a time and cut into thinner strands (using the nails of the thumb and forefinger) and finally bound into a small bundle.

(b). *Cleaning.*—The *patha* is now soaked in about a gallon of water\* in an earthen jar, or preferably, in an iron basin plastered with white clay, in which  $2\frac{1}{2}$  ounces of sodium hydrosulphite has been dissolved. It stands overnight and is then washed thoroughly; for this, frequent changes of water are used.

(c). *Bleaching.*—The *patha* is now ready for bleaching. Hydrogen peroxide is considered the best agent but is rarely used as it is costly. Bleaching powder is most commonly used, about  $1\frac{1}{2}$  ounces being dissolved in a gallon of water, and the clean *patha* is kept in this solution for from six to twelve hours. The gut is thus made pliable and white, and then it is thoroughly washed in cold water in order to remove the bleaching agents and all fatty matter. An alternative method is to dip the material in a strong solution of potassium chlorate and then in a 1/1000 solution of sulphuric acid; this is repeated twice or thrice until the material, when placed in hydrogen peroxide, does not decompose.

(d). *Dyeing.*—The material is now ready for dyeing by immersion in a bath in which a very small quantity of the dye is dissolved in sufficient cold water to cover the material; the process takes only about five minutes.

(e). *Drawing the String.*—An inverted earthen pitcher is placed on a piece of cloth. Then two pieces of *patha* are taken and placed as one string on the pitcher, but with their ends slightly overlapping; the overlapping portions are rolled vigorously on the pitcher with the palm of one hand in order to join the two strands, and other strands are added in the same way until the *patha* is formed into a long thread. During this process, the free hand holds some extra *patha* from which the worker tears out small pieces with his teeth to roll them into the thinner sections of the strand in order to keep a uniform thickness. This process lasts from two to three hours for a length of 200 yards.

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\*Hot water is not used, as experiments showed that animal tendon cannot stand it.

(f). *Spinning*.—Two strings of 100 yards each are taken and knotted together at one end and the two are spun into a string on an ordinary spinning wheel. Then the string is stretched on the *adda* in the open air.

(g). *Grinding*.—When dried, the string is first ground with a *pachhi* (i.e., a sugarcane stalk, pressed and dried) to make it less coarse, and then it is given more twists and sand-papered to reduce its thickness; finally it is varnished. After a few minutes the string is dry when it is taken off the *adda* and rolled into a coil and tied at two or three places with a coloured silken thread. The gut is now ready for sale.

*Badminton Gut*.—The process for making badminton gut is the same except that it is thinner and requires fewer *pathas*; from one to two for a coil of 100 yards. It is therefore cheaper in price.

*Implements*.—The implements required are shown in the following table; they are few and simple and are made locally.

TABLE XII.

*Implements used in the Manufacture of Patha Gut.*

Name of Implement.	Number	Cost.	Approximate length of service.	Use to which it is put.
Wooden hammer .. ..	1	Rs. a. p. 0 4 0	1 year	} Pounding the <i>patha</i> .
Stone .. ..	1	0 4 0	2 years	
Basin .. ..	1	3 0 0	2 "	Cleaning and bleaching. Drawing the string. Stretching the string. Spinning and twisting.
Earthen pitcher .. ..	1	0 2 0	1 to 3 months.	
<i>Adda</i> .. ..	1	5 0 0	2 to 3 years.	
Spinning wheel .. ..	1	7 0 0	3 to 5 "	
<i>Total</i> .. ..	6	15 10 0	..	..

An increase in the amount of *patha* used, only means that more basins and pitchers are required.

*Time of Operation*.—Usually the preparation of *patha* gut takes three days, but a worker is not kept busy continuously; he has time to do other work, or to take up different stages with other gut. The average outturn per worker is one coil per day.

TABLE XIII.

*Time required in the Manufacture of a Coil of Patha Gut.*

<i>Nature of work.</i>			<i>Time.</i>
Pounding	..	..	1 to 2 hours.
Cleaning	..	..	8 to 10 ,,
Bleaching	..	..	6 to 12 ,,
Dyeing	..	..	5 minutes.
Stringing	..	..	2 to 3 hours.
Spinning	..	..	2 minutes.
Grinding	..	..	1 hour.
<i>Total</i>	<i>From</i>		<i>18 hours 7 minutes</i>
			<i>to</i>
			<i>27 hours 7 minutes.</i>

*Note.*—Within limits, with an increase in the number of coils required, the time taken in preparing one coil decreases.

*Cost of a Coil.*—A coil of tennis *patha* gut costs between Rs. 2/8/0 and Rs. 3/4/0, but with an increase in the number of coils prepared, the average cost per coil decreases to some extent.

TABLE XIV.

*Cost of a Coil of Tennis Patha Gut.*

<i>Item of expenditure.</i>	<i>Quantity.</i>	<i>Price.</i>
<i>Pathas</i> .. .. .	4 pieces	Rs. 1/8/0 to Rs. 1/12/0
Sodium hydrosulphite .. .. .	2½ ounces	Rs. 0/3/0
Bleaching powder .. .. .	1½ ,,	„ 0/3/0
Dye, varnish, <i>pachhi</i> and sand-paper .. .. .	..	„ 0/2/0
Labour .. .. .	..	Rs. 0/8/0 to Re. 1/0/0
<i>Total</i> .. .. .	..	Rs. 2/8/0 to 3/4/0

## CHAPTER VI. MARKETING OF GUT.

*Rouda Gut.*—The risks of buying and selling are taken by the employers, and the workers in the factories are concerned only with the factory conditions and monthly wages. Of the employers in the twelve *rouda* gut factories, there is only one who owns a sports factory in which most of the produce of his gut factory is consumed, the remainder being exported. Nearly three-fourths of the outturn of the other six big factories is marketed locally and one-fourth sent abroad. The produce of the remaining five concerns, which are small, is all used in the Punjab.

*Patha Gut.*—The production and marketing of *patha* gut varies with the type of worker, whether factory, contract or independent. The method of producing and marketing in all cases is different from that of *rouda* gut. In factory work the raw material is bought by the employer and is distributed among the workers; *e.g.*, each one is given 100 pieces of *patha* and the other requisites: 4 lbs. of sodium hydrosulphite, 2 lbs. of bleaching powder, a bottle of hydrogen peroxide, 6 sheets of sand-paper and 4 ounces of dyes. He is then required to return a particular number of coils—28 coils of tennis gut generally—of a certain quality. The employer guards himself against bad workmanship, or dishonesty, by grading the finished coils and paying accordingly. The amount received for one coil of tennis gut varies from six to sixteen annas according to the finish, smoothness and tensile strength of the coil. It is the same with badminton gut, except that the remuneration is from four to twelve annas per coil. The owners of three out of the five *patha* gut workshops have their own sports factories, which use about half of the production and the rest is sent abroad. About 67 per cent. of the produce of the other two factories is sold locally and the rest exported.

Those working under middlemen, or contractors, face the same conditions as the factory workers. The finished product is brought weekly to the buyer, the coils are sorted and the inferior ones set aside. For standard coils the gross cost (wages and cost of raw material) varies from Rs. 1/8/0 to 3/12/0 per coil for tennis gut, and Rs. 0/8/0 to

Re. 1/- for badminton gut, respectively. The rejected coils are for the most part confiscated by the employer; the worker in some cases can take them and sell them in the open market but the cost of the raw material is debited to him at the market prices when bought. Further, he may offend his employer by taking the coils to another shop. This treatment of rejected coils is characteristic of the middleman system and is one means of exploiting the worker. In times of depression, like the one when the inquiry was being conducted, the selection becomes more exacting and the workers suffer the double loss of slack times and more rejections.

The independent worker is not bound to sell his goods at a disadvantage; but dire need may compel him to do so. Market conditions do not favour the independent worker in buying raw material; as he has little cash and almost no credit, the seller of raw materials insists on surety before he gives credit.

In selling his product the worker is equally at a disadvantage. He often wastes a whole day in finding a suitable customer and higgling over the price. The dealer who takes the coils from the worker and puts them in his stock is in a more advantageous position because the worker, unless he has had previous experience, is frequently deceived by the dealer's bargaining and promise of "Come to me in the evening and I'll pay to your entire satisfaction." The poor man goes away thinking he has done a good day's work. Evening brings him back from his aimless rambles in the city and to his great disgust he finds the dealer entirely changed. The morning smile has given place to the evening scowl. The worker is disgusted at being offered perhaps half the agreed price. Higgling begins afresh. When the worker demands his goods back the dealer may say that they are already sold and this completes his discomfiture: if however, he persists the dealer may raise his offer a little. In the meantime a man comes along, who appears to be a broker but is almost always a regular agent of the dealer, and who intervenes and offers to settle the dispute. He fixes the price at a low figure, but higher than that of the dealer; the worker hails him as his friend and does not grudge him a small commission. The poor man is a victim of his ignorance and poverty on the one hand and of the dealer on the other. When a worker has regular dealings in the market, he often leaves his coils with the dealer and is paid in small instalments over a period of from one to three months; but a time comes when the workman demands money for trade purposes or for a marriage and then he may be

induced by the dealer (when the market is active) into becoming a regular worker for him.

*Itinerant Dealers.*—There is another class of dealers—sub-agents or itinerant dealers—who buy gut in the villages and sell it at a profit in Sialkot. This saves the gut-maker the trouble of going to Sialkot to find a suitable customer but it often means loss and trouble as the itinerant dealer generally makes a part payment and the realization of the balance may be more tedious than dealing with a shopkeeper in the city market.

*Credit System.*—Gut business at Sialkot is mostly run on a credit system, the time extending from three to four months. Before the present depression the period was shorter everywhere, i.e., 15 to 30 days. But owing to the increasing intensity of the trade slump and cut-throat competition among sports manufacturers, the firms with greater financial resources began to allow credit of from three to four months or even more; the effect of this new long term credit was only slowly realised. The smaller capitalists and gut manufacturers and dealers could not afford long term credit to the customers and consequently had to abandon the market.

*Effect of Bogus Firms.*—Long term credit has also served to increase the number of bogus or 'mushroom' gut merchants and speculators, who are a menace to the future of the industry. Take as an example the case of a clerk in some gut firm who becomes acquainted with both local and outside gut dealers and understands their needs. He leaves his old firm, opens his own shop, spends a small amount on printing sale lists, envelopes and cards, and advertises extensively both locally and abroad inviting orders for gut. He gets his material on credit and in order to push his sales he offers goods at cheaper rates than the older firms. If the goods are refused and returned, he is ruined at the very beginning if he has no capital to withstand losses; but if the goods are accepted, he makes a small part payment to the supplying firms and gets another bigger consignment of goods on credit and sends them on to his clients. In this way, he endeavours to reap an easy and quick fortune but later he may suddenly disappear from the market leaving his creditors unpaid. It is possible under the existing lax conditions that he may again appear and export gut obtained from his former creditors under a fictitious name. In this way the business of established concerns is undermined and much ill-feeling is aroused.

*Difficulties facing Beginners.*—The raw materials of *rouda* and *patha* are given on credit only to reliable firms, but not to newcomers from outside the local market who are unknown to the dealers. The custom of

purchasing raw material for the workers, paying their wages monthly and often in advance, makes it difficult for energetic or enterprising small capitalists to enter the field and a beginner should have resources to cover all his expenses for the first six months. Sporadic efforts have been made by some manufacturers to unite in curtailing the credit periods, but keen competition, lack of confidence amongst the manufacturers, the shrewd and often underhand methods, of some gut dealers have led to failure.

*Annual Output and Prospects of the Export Trade.*—The output of both kinds of gut varies each year according to the demand at home and abroad. According to the Industrial Surveyor, Sialkot, the sales abroad sometimes are 75 per cent. of the total output.\*

TABLE XV.

*Approximate Annual Output of Gut at Sialkot.**Roudas—*

Number of <i>roudas</i> consumed .. .. .	7,83,000
Number of sets prepared in terms of tennis gut @ 16 sets per 100 <i>roudas</i> .. .. .	1,25,280
Value @ Rs. 2/- per set .. .. .	Rs. 2,50,560

*Patha—*

Number of <i>pathas</i> consumed .. .. .	2,56,512
Number of coils in terms of tennis gut @ 28 coils per 100 <i>pathas</i> .. .. .	71,824
Value @ Rs. 3/- per coil .. .. .	Rs. 2,15,472

<i>Total value</i> .. .. .	<u>Rs. 4,66,032</u>
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This shows a sale value of about four and a half lakhs of rupees per annum for the total output of both kinds of gut, which is exported largely to Great Britain and the British Colonies. It is very cheap and can be used for low and medium priced racquets. The leading dealers at Sialkot appoint their own agencies abroad.

One of the difficulties in the way of the export trade is the heavy duty imposed by many Governments. Australia has imposed an import duty of 30 per cent. on British sports gut and 35 per cent. on Indian gut.† Similarly America has imposed a 40 per cent. duty on Indian gut. The high tariffs against the finished product have encouraged gut dealers to send abroad raw *patha* and intestines, which escape the high duty; in particular

\*Vide Appendix A., page 68.

†Vide Appendix A., page 70.

a considerable amount is going to Germany. On account of the depression, the larger firms of exporters, in order to push their sales have allowed from three to four months' credit to foreign customers; other firms cannot finance trade on this basis and for the time being there has been a serious fall in all exports.

Some exporting firms have suffered heavy losses as a consequence of this credit system as some of their foreign customers have not paid for goods purchased. When one firm refuses to send more goods on credit, they try to buy from another firm in the same market; if the second firm refuses to supply they pass on to a third. The addresses of foreign customers are jealously preserved as trade secrets and this helps the foreign buyer who wishes to avoid payment. The exporters suffer these heavy losses partly because they lack organisation and do not co-operate.

An attempt was made to collect the gut export figures from important dealers, but they were unwilling to show their records. The export business is carried on largely through the Post Office, but the export figures could not be supplied as no special record of gut parcels is kept. The Director-General of Commercial Intelligence and Statistics, India, was asked for figures but could supply none.\* As gut is exported free of duty from India there is no possibility of getting the information from the Customs Department. In the present circumstances it is impossible to get correct export figures, but those available are given below.

*Total Output and Comparison of the Trade Figures for the Four Years 1927-30.*—According to the Industrial Surveyor, Sialkot, "The total output of *patha* gut is about 5 lakhs of rupees per annum, of which about 75 per cent. is exported. The chief buyers are Great Britain and the Colonies.

The year 1927 was a boom year in the history of the tennis gut trade of Sialkot, exports alone amounting to Rs. 4,50,000/-, which was much more than those of any previous year. In 1928, there was not much demand in England, the chief buying country, on account of the bad summer there that year, and the export fell to about Rs. 2,50,000/-. In 1929 the export trade again rose to about Rs. 3,00,000/- as most of the goods stocked in England had been cleared out; this gave a fillip to the industry here. There was a steady demand in the beginning of the last year (1930), but later it began to decline considerably owing to the general depression in trade and to the civil disobedience movement. The higher tariffs in

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\*The Director-General's reply was:—

"I am not aware of any publication in which statistics of imports into, and exports of gut from, India are given. Gut is still exported free of duty from India."

Australia and the low exchange also greatly reduced the export to that country. The total amount of sports gut exported so far hardly amounts to Rs. 70,000/- this year. Large stocks are being accumulated and about half of the workers are not engaged at present. The output has been reduced by 50 per cent."

According to the Industrial Surveyor's estimates the export of gut for the year 1931-32 amounted to about Rs. 2,25,000/-. He was of opinion that the volume of business transacted was rather greater than in the previous year but the price realised was much less.

## CHAPTER VII.

### SEASONAL FLUCTUATIONS IN SUPPLY AND DEMAND.

*Effects of Climate on the Supply of Gut.*—Gut-making is an outdoor industry and in the summer it is too hot for work in the afternoon ; further the strong sun and rain damage the gut. A dust storm in May or June, when the string is out to dry, or a sudden downpour in July or August, may spoil the string. Thus, the climate also tends to make the gut trade dull from April to August.

*Effects of Climate on the Demand of Gut.*—The demand for gut is of two kinds ; primarily it is used for the string of tennis and badminton racquets both at home and abroad, and secondarily, for certain string musical instruments used chiefly in Europe and America. In European countries summer is the time for outdoor games such as tennis, but badminton is frequently an indoor winter game. The tennis season roughly extends from April to September, coinciding with the dull season for gut-making in the Punjab. As the demand for tennis racquets in Europe begins in April, the orders for Indian gut must be placed several months earlier.

The Indian demand for tennis and badminton racquets is during the winter (October to March) and Sialkot supplies the major part of this demand. Here the makers have everything (gut included) within easy reach ; within a week they can get all the necessary material. Thus the demand, both European and Indian, comes mostly from October to April.

*Subsidiary Employment for Workers.*—Almost all the village gut-makers find employment in reaping and threshing the wheat harvest in April and May. In the rainy season the sowing of rice provides employment for some people, while others work as coolies on buildings, roads, canals, etc. Domestic affairs tide others over the period of enforced idleness ; marriages may be arranged and occupy all the near relatives for more than a week ; visits to Sialkot from the villages may be made more frequently and more prolonged. A little work may be obtained from the middlemen or a cash advance for food ; much time is occupied at the door of the middleman in this manner. The rest of the time is spent in chatting over the *huqqa*, in gossip, in sleep and often in quarrels.

Can this enforced idleness be remedied? Could the production of gut be spread more equally over the different months of the year? These are some of the problems of the industry. The climatic conditions are the greatest handicap in this respect; the early summer with dust storms, mid-summer with excessive heat and the later months with frequent down-pours of rain and the moisture in the air practically prohibit work during this season of the year.

## CHAPTER VIII.

### SCOPE FOR FURTHER DEVELOPMENT OF THE GUT INDUSTRY.

*Prospects of Producing a Higher Grade of Gut.*—The Punjab sports gut industry might be improved by reducing the time between the collection of the viscera and packing for export. When the animal is disembowelled in the slaughter-house, the intestines are left uncleaned for hours on the ground, hence they collect dust and dirt and naturally deteriorate. Further they are generally preserved and shipped in old kerosene oil tins and the extreme heat weakens the tissue. It would be advantageous if the viscera were taken direct from the animal and put into tanks for immediate washing; also if proper packing containers were found to save the damage by heat during transit.

The methods of cleaning and bleaching also seem to need improvement. The chemicals used are costly and may weaken the raw gut; the workers do not understand the action of a single chemical in daily use, hence it is not surprising that the same man may make good gut one day and fail to make the same quality the next day. Orange oil, almond oil, face creams, etc. are also frequently applied out of sheer ignorance to the finished gut to give it a better appearance but, in the transport abroad, it gathers moisture and this affects the oil and this in turn affects the strength of the gut. Perhaps this is the reason why Indian gut, when strung into racquets, becomes stiff and has little resiliency. Not much improvement may be expected however, so long as the trade is in the hands of ignorant and unorganised people. Facilities for research work together with proper training on scientific lines would appear to be crying needs of the industry.

*Foreign Competition.*—There seems to be no dearth of raw gut in the world and, at present, production outruns demand. The implements used in making gut in Sialkot are simple and are made locally; the chemicals are imported mostly from Germany. There is a small import of gut used for stringing high class tennis and badminton racquets from England, Holland, America and Japan, but this is of little value compared with the exports as the gut imported is valued at Rs. 25,000/- annually by the Industrial Surveyor, Sialkot, whereas the value of exported gut

is about Rs. 4,00,000/-.\* All the gut required in Sialkot could be supplied by the Punjab if the methods of manufacture were improved; manual labour and raw materials are very cheap and it is doubted whether any country could produce a cheaper gut if there were improvements in the quality produced and better trade organization.

*Position of Punjab Gut in Foreign Countries.*—The *patha* gut industry is found only in the Punjab; such gut is not made elsewhere and, as has already been stated, it is in demand in foreign countries for stringing cheap racquets. *Rouda* gut is also exported, but to a less extent; the first class pieces of raw intestines are exported for packing sausages and the remainder used for making *rouda* gut. The industry lacks good bleaching processes, upon which a good deal of the tensile strength and resiliency of the gut depends. The Punjab gut does not seem to suit a moist climate and there is general complaint that it compares very unfavourably in tensile strength and resiliency with the British and Continental makes.

*Assistance from Industries Department.*—It has been seen that lack of capital, organization and expert knowledge, among other things, are the handicaps to the growth of this industry. Assistance by the Industries Department has so far been issued in the form of two loans amounting in all to Rs. 18,000/- (one for manufacturing *rouda* and the other for *patha* gut) under the Punjab Industrial Loans Act. In one case the money advanced had to be repaid as nothing substantial was done and in the other the operations stopped after a year or so and a demand has been made for the repayment of the loan. A few applications were made for help to the Industrial Officer, but as they did not fulfil the conditions laid down the loans were not given.

*Value of Co-operation.*—Some form of co-operation appears to be desirable in order to improve the industry; at present no specific co-operative society for the making or selling of gut exists. A few of the *patha* gut makers are members of other Co-operative Credit societies, of which there are four in Sialkot.

A couple of years ago an attempt was made by a professor of the local Mission College to form a union of Christian *patha* gut-makers, but it was not very successful. During the winter of 1929-30 the price of *pathu* gut was very low and some of the leading workers sought the guidance of the professor in drawing up a scheme for a strike to force up their remuneration.

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\* *Vide* Appendix A., page 66.

All the village workers joined, except those employed in one factory, and those of the village Bhindar and three or four neighbouring villages. This movement brought the men together and they held meetings to consider methods of improving their economic position. The middlemen and dealers opposed this attempt as they feared that they would lose the power to exploit the workers ; the strike soon collapsed, as such illiterate workers do not readily learn to co-operate. Representations were then made to the Co-operative Department to extend the benefits of co-operation to the trade and officers were to meet the people and got the necessary papers prepared for submission to the Registrar. Meanwhile the workers collected among themselves a sum of about Rs. 6,000/- and with this amount a Co-operative Purchase and Sales Shop was started in the city. A committee elected by the members managed the shop, made all the purchases, fixed the prices and took in the material ; but payment was not an easy task, as with a capital of only Rs. 6,000/- it was impossible to buy all that nearly 500 persons could produce. The market boycotted the sales from this shop ; the merchants would buy only from the un-organized villages where work went full speed ahead. The managing body tried to get the help of some of the bigger merchants but they refused to have anything to do with the Society and the smaller dealers who had already fleeced some of their members were not acceptable customers. Thus dissensions and suspicions arose and the whole movement broke up. Government machinery often moves slowly and the financial help promised by the Co-operative Department did not come in time to save the Society. Thus ended the one serious attempt at co-operation amongst the gut-makers.

## CHAPTER IX.

### GUT-MAKERS' FAMILIES.

*Definition of Family.*—A family in this chapter denotes a certain number of persons who reside in the same house and use the same hearth; e.g., a man with his wife and children, his father and mother, if residing with him at his expense, and younger brothers and sisters still unmarried and dependant upon him, all living together in the same house and using the same hearth.

#### *Size of Gut Worker's Family.*—

(a). *Rouda.*—The number of workers in *rouda* gut factories is 102 and as there are four pairs of brothers included, there are 98 families. There are also two family groups of independent workers having together seven working members. The total number of families engaged is thus 100 with 465 persons in all which gives 4·7 as the average number in a family.

(b). *Patha.*—There are 138 families of *Chuhras* (787 members), all Christians, engaged in this industry in and around Sialkot, and the average number per family is 5·7.

Thus in both the branches we get 238 families with 1,252 people, an average of 5·2 per family for all gut workers.

*Literacy Among Gut Workers.*—The workers in both branches of the industry are for the most part illiterate. In the *rouda* section 20 workers (1·59 %) can read and write vernacular (Urdu and Hindi); of these 15, (1·19 %) are Mohammedans, 4, (0·32 %) Christians and 1, (0·08 %) a *Raiger*. Among the Mohammedans four have read up to the third primary, eight up to the fifth primary; and three up to the sixth lower middle, class. Among the Christians one attended school up to the third primary, one to the fourth primary, one to the sixth lower middle, and one to the seventh upper middle, class. The *Raiger* can read and write Hindi. The *patha* branch of the industry has only two workers (0·16 %) both men, who can read and write Urdu.

Thus there are only twenty-two workers (1·75 %) who can read and write.

## CHAPTER X. EARNINGS OF GUT-MAKERS.

An attempt has been made to throw some light on the differences which exist between the *rouda* and the *patha* gut industries ; the earnings of workers in the two branches differ. The *rouda* gut workers are almost all working in factories with more or less regular working hours, enjoying holidays and receiving regular monthly payments ; no pay is received for days absent without leave. In every factory there is a head *mistri* or foreman who is paid a higher wage than the others. As has just been mentioned the twelve *rouda* gut factories employ 102 workers and out of these:—

4 ( 3·9 per cent.)		are apprentices not receiving any wages.
8 ( 7·8 „ )		receive Re. 1/- to Rs. 5/- per mensem.
15 (14·7 „ )		Rs. 6/- „ 10/- „
15 (14·7 „ )		11/- „ 15/- „
29 (28·5 „ )		16/- „ 25/- „
27 (26·5 „ )		26/- „ 50/- „
3 ( 2·9 „ )		51/- „ 100/- „
1 ( 1·0 „ )		110/- per mensem (he is a foreman).

These are the earnings of single persons, not families, and are the maximum incomes ; owing to lack of work, or (as is often the case) to family circumstances, or the personal whim of the worker, days of absence are frequent, ranging from 6 to 15 days a month. For instance, during the month of May 1932, one man was absent for 8 days ; three others were absent for 10 days ; two others were away for 21 and 14 days, respectively. One was absent for 23 days while another, a young apprentice, worked for 4 days only.\* Thus the actual wages of these workers are often much less than the monthly rates mentioned. How far these absences are due to causes beyond the control of worker or to wilful neglect, it is difficult to say.

The workers in the *patha* gut industry have already been classified under the three headings—factory, merchant middlemen and independent. Unlike the *rouda* gut industry, not only men and boys, but also women and girls are engaged as *patha* gut workers. The combined family efforts provide the total earnings and, whether working in a factory or for middlemen, the pay is according to output. The factory workers are under the

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\*Earnings of the factory workers have already been dealt with in Chapter IV., page 14.

supervision of the employers and the others work at home. Earnings vary considerably but, whatever is earned is net income as the material in both cases is supplied by the employer.

*Patha Gut-making as a Main or Subsidiary Occupation.*—In the patha gut industry many workers have a subsidiary means of income. Out of a total of 138 families, 64 (46·4 per cent.) with 333 members (workers 165, dependents 168) depend wholly upon their earnings in this industry; 20 families (14·5 per cent.) with 122 members (workers 50, dependents 72) have taken up the gut industry as their main occupation and agriculture, other labour, or petty cultivation as a subsidiary occupation. The remaining 54 families (39·1 per cent.) with 332 members (workers 189, dependents 143) have agricultural labour and cultivation as their main occupation and the gut industry as the subsidiary.

*Earnings of Patha-workers who depend entirely upon the Gut Industry.*—Table XVI. on page 45 gives, for each family, the total number of members, working members, number of *pathas* prepared monthly and the average monthly income. As a rule Sunday is observed as a holiday. The procuring of the raw material and the disposal of the finished product occupy from three to four days each month. The number of other working days is largely determined by personal circumstances such as sickness, social obligations, festivals, etc. and it varies from 15 to 25 per month. The following are the average figures:—

<i>Members of Family.</i>		<i>Average per family.</i>
Total	..	5·1
Working	..	2·6
Number of <i>pathas</i> prepared	..	173·3
Monthly income	..	Rs. 27·4

*Earnings of the Patha-workers who depend partly on the Gut Industry and partly on other means of Income.*—This group consists of 74 families. Twenty work in making gut as their main job and farm labour or cultivation on share system as a subsidiary occupation; for the other 54 the gut industry is subsidiary and agriculture the main occupation. The village workers are often *sepis*; the women sweep for the *zemindars* and the men assist in the fields in ploughing, sowing, weeding and harvesting. The *sepi* is paid in kind at the harvest and his earnings vary according to the outturn of the crops. In order to estimate these earnings in kind the equivalent cash value has been calculated according to current market rates. Some of the workers who own bullocks do a bit of cultivation on their own account, renting the land. The earnings from coolie labour

are also included, but the *chapatis* served to workers in the fields or given to the women folk for sweeping, are not included.

Table XVII. on pages 46-7 shows, for each family, the total number of people, the working members and the average monthly income from the gut industry and from other sources. The following are the average figures :—

<i>Members of family.</i>		<i>Average number in family.</i>	
Total	..	6.1	
Working	..	3.2	
Number of <i>pathas</i> prepared	..	96.1	
<i>Monthly income.—</i>			
Gut industry	..	Rs. 18.0	
Other sources	..	.. 4.9	

TABLE XVI.

*Output and Income of Families entirely dependent upon the Gut Industry.*

Serial num-ber.	Total family members.	Working members.	Number of <i>Pathas</i> prepared monthly.	Average monthly income.	Serial num-ber.	Total family members.	Working members.	Number of <i>Pathas</i> prepared monthly.	Average monthly income.
				Rs.					Rs.
1	5	3	60	38	35	6	4	40	7
2	4	2	200	34	36	7	4	100	20
3	4	3	160	14	37	8	2	100	18
4	5	3	150	17	38	8	4	100	18
5	3	2	150	15	39	4	2	50	16
6	4	2	150	18	40	7	3	150	30
7	7	5	310	46	41	9	6	200	42
8	5	2	150	25	42	5	3	360	48
9	5	3	300	28	43	6	4	200	20
10	6	3	250	31	44	5	2	150	20
11	3	1	60	6	45	6	4	400	60
12	4	2	250	31	46	5	3	300	55
13	4	2	300	38	47	5	2	250	43
14	5	3	250	30	48	4	2	200	40
15	5	2	150	25	49	7	3	250	45
16	8	2	100	16	50	3	1	50	15
17	3	2	100	16	51	4	2	100	30
18	3	2	100	17	52	6	4	175	50
19	3	2	150	20	53	3	2	90	20
20	7	5	200	25	54	3	1	50	16
21	9	5	400	50	55	5	3	150	40
22	7	3	300	40	56	5	3	200	20
23	4	2	200	25	57	5	4	250	60
24	5	2	250	62	58	4	2	150	30
25	5	2	300	25	59	3	2	100	25
26	8	3	200	17	60	1	1	40	10
27	8	2	300	20	61	1	1	45	12
28	6	2	150	14	62	8	1	100	17
29	4	2	200	20	63	7	1	100	16
30	6	3	300	42	64	4	2	200	40
31	6	2	150	14					
32	5	2	100	10					
33	7	4	100	16	Total ...	331	165	11,090	1,756
34	6	3	50	28	Average	5.1	2.6	173.3	27.4

TABLE XVII.

*Income of Families who depend partly upon the Gut Industry and partly upon Other Sources of Income.*

Serial number.	Number of family members.	Number of working members.	AVERAGE MONTHLY.				Percentage of income from gut.
			Preparation of pathas.	Income from gut.	Income from other sources.	Total income.	
				Rs.	Rs.	Rs.	
1	12	6	400	100.0	4.0	104.0	96.2
2	5	2	50	25.0	3.0	28.0	89.3
3	8	3	70	45.5	10.0	55.5	82.0
4	5	2	100	43.0	2.5	45.5	93.8
5	7	4	150	47.0	7.5	54.5	86.2
6	7	4	50	25.0	14.0	39.0	84.2
7	7	2	50	25.0	3.5	28.5	87.7
8	2	2	40	20.0	2.0	22.0	90.9
9	9	6	200	52.0	5.0	57.0	91.2
10	7	3	42	24.0	7.5	31.5	76.2
11	4	2	40	30.0	10.0	40.0	75.0
12	4	3	30	25.0	9.0	34.0	73.5
13	4	2	20	14.0	7.5	21.5	65.1
14	6	2	20	15.0	5.0	20.0	75.0
15	6	4	200	27.0	7.0	34.0	79.4
16	11	7	300	30.0	9.5	39.5	76.0
17	5	4	125	11.0	6.0	17.0	65.0
18	5	4	125	16.0	4.0	20.0	80.0
19	6	4	100	15.0	4.0	19.0	79.0
20	5	2	25	8.0	5.0	13.0	38.5
21	5	3	60	7.5	2.5	10.0	75.0
22	8	3	10	2.0	8.0	10.0	20.0
23	9	7	12	2.5	10.5	13.0	19.2
24	3	2	10	2.0	8.0	10.0	20.0
25	5	2	21	5.0	5.0	10.0	50.0
26	7	6	50	8.5	5.0	13.5	67.4
27	4	3	40	4.0	4.5	8.5	47.0
28	5	4	100	9.0	4.0	13.0	69.2
29	6	4	80	7.0	4.0	11.0	68.6
30	7	2	12	5.0	3.0	8.0	62.5
31	5	2	15	6.5	3.0	9.5	68.4
32	5	2	40	13.0	4.0	17.0	76.5
33	5	2	35	4.0	2.5	6.5	61.6
34	5	2	40	8.0	3.0	11.0	72.7
35	6	3	50	8.0	4.0	12.0	66.7
36	4	2	20	4.0	3.0	7.0	57.1
37	7	6	250	32.0	6.0	38.0	84.2
38	5	2	30	5.0	3.0	8.0	62.5
39	5	2	50	6.0	2.0	8.0	75.0
40	5	4	100	10.0	4.5	14.5	68.9

(Continued).

TABLE XVII.—*Concluded.*

Serial number.	Number of family members.	Number of working members.	AVERAGE MONTHLY.				Percentage of income from gut.
			Preparation of pathas.	Income from gut.	Income from other sources.	Total income.	
				Rs.	Rs.	Rs.	
41	6	4	200	28·0	5·0	33·0	84·8
42	6	3	50	8·0	4·5	12·5	64·0
43	5	5	100	10·0	4·0	14·0	71·4
44	6	3	100	10·0	3·0	13·0	76·9
45	8	5	225	25·0	7·0	32·0	78·1
46	6	3	300	30·0	5·0	35·0	85·7
47	9	4	200	33·0	4·0	37·0	89·2
48	10	4	70	35·0	6·0	41·0	85·3
49	5	2	100	13·0	7·5	20·5	63·4
50	6	2	250	31·0	2·0	33·0	93·9
51	6	3	400	50·0	2·5	52·5	95·2
52	6	2	60	12·0	5·0	17·0	71·1
53	8	2	120	19·0	3·0	22·0	86·3
54	9	6	250	22·0	4·0	26·0	84·6
55	5	3	100	8·0	3·0	11·0	72·7
56	10	5	200	18·0	2·0	20·0	90·0
57	5	2	125	11·0	5·0	16·0	68·7
58	9	4	75	7·0	4·0	11·0	63·6
59	4	4	125	16·0	2·0	18·0	88·9
60	8	6	200	33·0	7·5	40·5	81·6
61	7	7	100	16·5	4·0	20·5	80·5
62	9	5	100	10·0	4·0	14·0	71·4
63	3	2	12	2·0	8·0	10·0	20·0
64	3	3	12	2·0	6·0	8·0	25·0
65	5	2	60	13·0	4·5	17·5	74·3
66	5	2	50	11·0	4·0	15·0	73·3
67	5	2	20	4·5	3·0	7·5	60·0
68	7	3	20	5·0	3·0	8·0	62·5
69	12	2	160	20·0	10·0	30·0	66·7
70	7	3	200	30·0	4·0	34·0	88·2
71	4	2	125	20·0	4·0	24·0	83·3
72	2	1	50	8·0	1·0	9·0	88·8
73	6	1	90	12·0	2·0	14·0	85·7
74	5	1	100	14·5	2·0	16·5	87·9
<i>Total ..</i>	<i>453</i>	<i>239</i>	<i>7,111</i>	<i>1,334·0</i>	<i>361·0</i>	<i>1,695·0</i>	<i>78·6</i>
<i>Average ..</i>	<i>6·1</i>	<i>3·2</i>	<i>96·1</i>	<i>18·0</i>	<i>4·9</i>	<i>22·9</i>	<i>78·6</i>

## CHAPTER XI.

### FOOD CONSUMPTION, HOUSEHOLD EFFECTS AND HOUSING CONDITIONS.

#### (a). FOOD CONSUMPTION.

The food of the two sets of gut workers differs materially. The workers of *rouda* gut are mostly townsmen while the *patha* gut workers are villagers. Wheat is the staple diet of the former but in slack times or in times of scarcity, necessity may drive some to cheaper cereals such as maize, or inferior qualities of rice.

Rice comes next to wheat, but its use signifies either prosperity or extreme poverty, according to the way it is used. When a guest is present, or the occasion demands a sumptuous feast, rice is cooked with sugar and *ghi*. A well-to-do family may have this once or twice a week for the sake of variety, or for the sake of the sugar or *ghi* cooked in it. *Sawian* (vermicelli prepared from fine wheat flour) may serve the same purpose but, being more costly, is less used. A considerable use of rice, without sugar and *ghi*, denotes poverty. Cheap varieties of *tota* (broken rice), being a little cheaper than wheat flour, are consumed when a family cannot afford to buy wheat, and especially in winter when prices are high. In such cases it is generally taken in the form of *khichri* (rice and split pulse cooked with *ghi* and spices) or salted rice.

Maize of a quality cheaper than wheat or rice is used, but only by village families, seldom by town workers; its use also may be an index of prosperity or poverty. In the former case, women and children take roasted maize grain in the afternoons or at meals, two or three times a month in winter as a desirable change in diet, but constant use of it is a sure sign of poverty.

Lentils (*dal*) being less costly are taken more frequently than meat and vegetables by the villagers; the most popular variety is *chana ki dal*, prepared from gram. Town workers use meat and vegetables more than villagers. Another difference in the food of the town and village worker is that the former often takes tea, sweets and fruits, whereas the latter rarely tastes them.

*Ghi* is a necessity for the well-to-do family and a luxury for the poor one, but village families often keep cows and milch buffaloes to meet their own requirements of milk and *ghi*.

*Expenses on Food.*—The tables on pages 50-1 and 52-3 give the rates of food consumption by families of *rouda* and *patha* gut workers, respectively. 40 out of 100 families of the former, and 60 out of 138 of the latter were selected at random to work out the averages. The consumption of wheat per family has not been calculated from the daily consumption as the short period of the inquiry did not permit this. Each family was asked to furnish returns for its monthly consumption of wheat, maize, rice and *ghi*, and the consumption per meal of lentils, vegetables and meat, with the average number of times each was used in a week or a month.

*Prices of Food Stuffs.*—The returns furnished by the workers for wheat and maize were in *manis* per mensem—(a *mani* varying between six and eight maunds); for rice in seers per mensem; for lentils in *chhataks* per day, and the average number of times these are taken in a month; for meat in seers per meal. Milk, sugar, fruits, condiments, etc., are shown in the miscellaneous column as no uniformity exists in their consumption. The basis of converting into cash has been as follows:—

Wheat and maize flour Rs. 15/- to Rs. 20/- per *mani*; rice from 4 to 6 seers per rupee, *ghi* Rs. 1/3/0 per seer. Milk in the city sells at 2 to 3 annas a seer and in the village at half this price.

TABLE XVIII.

Average Monthly Food Expenses of 40 Families of Rouda Gut Workers.

Serial number.	Average monthly income.	Wheat flour.	Rice.	Lentils.	Meat.	Vegetables.	Ghi.	Miscellaneous.	Total.	Percentage of income.
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	
1	57 0	7 8	4 8	1 0	5 0	2 0	6 0	4 4	30 4	53.1
2	44 0	3 12	4 0	0 8	5 8	1 0	5 0	1 0	20 12	47.3
3	44 0	5 0	2 0	1 0	2 0	1 0	5 0	1 0	17 0	38.6
4	36 0	2 8	4 0	1 0	0 8	2 4	2 4	10 3	21 7	59.7
5	26 0	4 0	2 0	1 0	2 0	1 0	4 0	1 0	15 0	57.6
6	27 0	5 0	0 8	0 4	1 0	0 8	2 0	1 8	10 12	40.0
7	30 0	5 0	0 8	0 8	1 0	0 8	2 0	1 8	11 0	36.7
8	26 0	5 0	0 8	0 8	1 0	1 0	4 0	0 8	12 8	50.0
9	30 0	3 12	1 0	1 0	4 0	2 0	3 12	3 8	19 0	63.3
10	50 0	6 4	2 0	1 0	11 4	2 0	8 0	2 0	32 8	65.0
11	45 0	5 0	1 0	0 8	2 8	0 12	6 0	5 0	20 12	46.2
12	25 0	6 0	1 8	0 12	4 0	1 0	5 0	2 12	21 0	84.0
13	20 0	4 0	2 0	1 0	2 0	2 0	2 8	1 4	14 12	74.0
14	31 0	5 0	0 8	1 0	2 12	0 8	5 0	2 8	17 4	55.8
15	30 0	6 0	0 8	0 8	2 0	0 12	7 0	1 0	17 12	59.3
16	30 0	8 0	2 0	1 4	2 0	0 8	4 0	2 10	20 6	68.0
17	58 0	6 4	2 0	2 0	8 0	1 0	7 0	1 8	25 12	44.5
18	33 0	7 8	0 8	0 12	3 12	1 0	5 0	1 0	19 8	59.1
19	18 0	4 8	0 4	0 8	1 0	0 8	3 0	1 12	11 8	63.9
20	55 0	9 0	3 0	1 0	7 8	1 12	12 0	18 2	52 6	95.3

(Continued).

TABLE XVIII.—(Concluded).

21	..	..	75 0	7 8	3 0	2 0	7 8	1 14	10 0	11 0	42 14	57·2
22	..	..	50 0	7 8	4 0	2 0	3 12	1 0	6 4	5 4	29 12	59·6
23	..	..	35 0	6 0	1 0	0 8	2 0	1 0	4 0	0 8	15 0	42·8
24	..	..	32 0	6 0	0 8	1 0	4 0	0 12	4 0	0 8	16 12	52·5
25	..	..	35 0	4 0	1 0	0 8	2 0	0 8	4 0	2 8	14 8	41·4
26	..	..	110 0	18 12	8 0	1 0	7 8	2 0	1 0	1 0	39 4	35·7
27	..	..	30 0	4 0	1 0	0 8	1 8	0 8	5 0	1 8	14 0	46·7
28	..	..	22 0	3 0	0 8	1 0	0 8	1 0	5 0	0 8	11 8	52·3
29	..	..	8 0	3 0	..	0 8	0 4	..	1 0	0 4	5 0	62·5
30	..	..	67 0	6 0	1 0	0 8	3 0	1 4	7 0	4 0	22 12	34·0
31	..	..	30 0	5 0	1 8	1 0	0 8	0 12	2 0	0 8	11 4	37·7
32	..	..	75 0	5 0	3 0	2 0	5 0	2 0	10 0	13 0	40 0	53·3
33	..	..	35 0	5 0	0 8	1 0	2 0	0 8	3 0	1 8	13 8	38·6
34	..	..	35 0	6 0	0 8	1 0	2 0	0 8	2 8	0 8	13 0	37·1
35	..	..	20 0	4 0	..	0 8	1 0	0 8	2 8	2 8	11 0	55·0
36	..	..	30 0	4 0	2 0	0 8	2 0	1 0	3 0	3 8	16 0	53·3
37	..	..	22 0	4 0	1 0	0 8	2 0	0 8	3 0	0 8	11 8	52·3
38	..	..	20 0	4 0	0 8	1 4	2 0	0 8	2 8	0 8	11 4	56·5
39	..	..	25 0	5 0	1 0	1 0	4 0	0 8	2 8	5 12	19 12	79·2
40	..	..	100 0	9 0	4 0	2 0	5 0	2 0	10 0	5 8	37 8	37·5
<i>Total</i>	..	..	1,570 0	225 12	68 4	35 4	126 4	40 6	186 12	124 11	807 5	51·4
<i>Average</i>	..	..	39 4 -	5 10 8	1 11 3	0 14 1	3 2 6	1 0 2	4 10 9	3 1 11	20 2 11	51·4
<i>Percentage</i>	..	..	..	27·7	8·4	4·5	16·1	5·5	23·4	15·4	100·0	..

TABLE XIX.

Average Monthly Food Expenses of 60 Families of Patha Gut Workers.

Serial Number	Average monthly income.	Wheat & maize flour.	Rice.	Lentils.	Meat.	Vegetables.	Ghi.	Miscellaneous.	Total.	Percentage of income.
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	
1	100 0	12 8	2 0	2 4	1 0	0 8	6 3	3 4	27 11	27.7
2	55 9	5 10	..	0 8	..	..	5 0	0 8	11 10	20.9
3	38 0	10 0	0 5	1 0	0 4	..	6 0	0 4	17 13	46.8
4	43 0	7 8	6 0	1 0	3 0	1 0	5 0	1 8	25 0	58.1
5	54 8	5 0	1 0	0 8	2 0	1 0	5 0	0 8	15 0	27.5
6	28 8	2 8	1 0	0 8	1 0	0 8	3 0	0 8	9 0	31.6
7	21 2	1 8	0 8	0 4	1 0	..	1 4	0 8	5 0	23.7
8	28 8	5 0	1 8	0 12	0 10	..	1 2	0 10	9 10	33.7
9	34 8	12 8	1 0	0 8	0 12	..	5 0	0 8	20 4	68.8
10	21 8	12 8	..	0 8	0 10	..	5 0	0 4	18 14	87.9
11	22 0	7 8	1 0	1 4	0 8	..	3 0	0 8	13 12	62.7
12	39 8	10 0	2 0	1 0	0 8	..	4 0	1 0	18 8	49.4
13	17 0	5 10	..	1 0	0 8	..	2 8	0 8	10 2	59.4
14	20 0	5 0	..	0 8	..	..	3 8	0 4	9 4	46.5
15	20 0	2 8	0 8	0 8	0 2	0 2	2 0	0 8	6 4	31.5
16	14 0	3 2	0 4	0 8	..	0 2	2 8	0 8	7 0	50.0
17	17 8	5 0	..	0 8	..	0 4	2 0	0 8	8 4	47.4
18	15 0	3 0	1 0	0 8	..	0 4	2 0	0 4	7 0	46.7
19	14 0	2 12	0 8	0 8	..	0 4	2 8	0 4	6 12	48.6
20	10 0	5 0	..	0 8	0 4	..	..	0 8	6 4	63.0
21	8 9	5 0	0 4	0 8	0 2	..	..	0 4	6 2	71.9
22	5 0	5 0	..	0 8	..	..	0 8	0 2	6 2	102.0
23	14 0	5 4	..	0 8	..	..	2 0	0 4	8 0	57.1
24	10 8	4 8	..	0 8	..	..	1 4	0 2	6 6	60.9
25	10 14	7 8	..	1 0	..	..	2 4	0 4	11 0	100.9
26	6 0	5 0	..	0 4	0 2	..	2 0	0 4	7 10	126.7
27	32 8	6 4	1 0	0 8	1 4	..	5 0	1 0	15 0	46.2
28	31 0	3 12	..	1 0	0 8	0 4	3 0	1 4	9 12	31.6
29	38 0	3 2	0 4	0 8	0 12	0 4	3 0	1 8	9 6	24.7
30	13 0	4 6	..	1 0	0 8	..	2 0	0 4	8 2	62.3

(Continued).

TABLE XIX.—(Concluded).

31	..	..	30 0	3 12	..	1 0	0 12	0 8	2 8	0 4	8 12	29·3
32	..	..	13 12	7 8	1 0	0 12	0 8	..	2 0	1 0	12 12	92·8
33	..	..	14 0	5 0	1 0	..	0 8	..	3 0	0 8	10 0	71·4
34	..	..	26 0	4 8	0 12	1 0	0 8	0 12	3 0	0 8	10 14	43·4
35	..	..	31 4	8 12	1 0	2 0	..	..	4 0	1 4	17 0	54·3
36	..	..	35 0	10 0	1 0	2 0	0 8	..	5 0	1 0	19 8	55·7
37	..	..	33 0	12 8	..	2 0	..	..	1 4	0 8	16 4	49·4
38	..	..	16 0	6 4	..	1 0	1 0	..	2 4	0 4	10 12	67·5
39	..	..	16 0	3 2	0 4	0 12	1 0	..	2 4	0 8	7 14	49·4
40	..	..	17 0	2 8	0 8	0 8	1 0	..	2 8	0 4	7 4	42·9
41	..	..	40 0	10 0	0 12	1 4	1 0	..	5 0	1 0	19 0	47·5
42	..	..	20 0	5 0	2 0	0 8	2 0	1 8	6 4	4 0	21 4	101·5
43	..	..	20 8	3 4	0 4	1 0	0 8	..	2 0	0 8	7 8	36·6
44	..	..	33 0	4 8	0 8	1 0	0 8	..	4 0	0 8	11 0	33·3
45	..	..	25 0	7 8	1 0	1 4	0 8	0 4	3 8	0 8	14 8	58·0
46	..	..	50 0	10 0	1 0	2 0	1 0	1 0	5 0	3 0	23 0	46·0
47	..	..	40 0	5 10	0 8	1 0	1 0	0 8	3 0	0 8	12 2	30·8
48	..	..	25 0	3 2	..	0 12	0 8	0 2	2 8	0 8	7 8	30·0
49	..	..	52 0	7 8	1 0	1 0	0 8	..	4 8	1 0	15 8	29·8
50	..	..	62 0	4 0	0 4	0 8	0 4	0 4	2 4	0 8	8 0	12·9
51	..	..	15 0	4 11	1 0	0 8	0 8	..	0 8	0 12	7 15	52·7
52	..	..	22 0	8 2	0 8	0 8	0 8	..	1 0	0 4	10 14	49·5
53	..	..	17 0	8 12	0 4	0 7	1 0	..	3 0	1 0	14 7	85·3
54	..	..	39 0	13 12	..	2 0	1 0	2 0	7 0	1 0	26 12	68·7
55	..	..	20 8	13 2	..	2 0	2 0	1 0	2 4	1 0	21 6	104·4
56	..	..	16 0	10 0	..	1 0	1 0	..	2 8	0 8	15 0	93·8
57	..	..	14 0	12 8	..	1 8	2 0	1 0	2 6	1 0	20 6	145·7
58	..	..	14 8	9 11	1 0	1 0	0 8	..	2 0	0 8	14 11	101·3
59	..	..	48 0	4 0	2 0	1 0	0 8	1 0	5 0	1 0	14 8	30·2
60	..	..	20 0	3 2	..	0 8	0 4	0 4	1 0	0 8	5 10	28·0
<i>Total</i>	..	..	1,608 2	385 14	37 9	52 7	38 2	14 10	179 15	43 14	752 7	47·4
<i>Average</i>	..	..	26 12 10	6 7 0	0 10 0	0 14 3	10 2 0	0 3 10	3 0 0	0 11 8	12 8 7	46·8
<i>Percentage</i>	..	..	..	62·0	4·8	7·2	4·8	1·6	24·0	5·6	100·0	..

*Cost on Different Items.*—The following table gives a summary of the cost of the different items of food consumption. It shows that nearly half the income is spent on food.

TABLE XX.

*Cost of the Different Items of Food Consumption.*

Articles.	PER FAMILY.			
	Rouda.	Percentage of total.	Patha.	Percentage of total.
	Rs. a. p.		Rs. a. p.	
Wheat and maize flour	5 10 3*	27·7	6 7 0	52·0
Rice ..	1 11 3	8·4	0 10 0	4·8
Lentils ..	0 14 1	4·5	0 14 3	7·2
Meat ..	3 2 6	15·1	0 10 2	4·8
Vegetables ..	1 0 2	5·5	0 3 10	1·6
<i>Ghi</i> ..	4 10 9	23·4	3 0 0	24·0
Miscellaneous ..	3 1 11	15·4	0 11 8	5·6
<i>Average</i> ..	20 2 11	51·4†	12 8 7	46·8†

\* 2 maunds 10½ seers.

† Percentage on average income.

#### (6). CLOTHING.

The expenditure on clothing and bedding by these two classes of workers as shown in the next table reveals a great difference. The average monthly expenses of *rouda* gut worker's family is Rs. 5/8/9 and that of the *patha* gut worker's Rs. 2/15/9. A Turkish cap, silk shirt, coat, country trousers and a pair of Western shoes are included in the outfit of most *rouda* gut workers, while the villagers are content with an ordinary turban *khaddar* shirt, simple loin cloth and a pair of country-made shoes.

It might be wondered how a family of *patha* gut workers can get along on clothing worth less than Rs. 3/- per mensem but it must be remembered that the men and boys use only a coarse loin cloth (*chaddar*) throughout the day in summer. Boys until they are 12 or 13 years of age go without a turban and manage with a *langoti* (small loin cloth) in place of the *chaddar*. A long shirt reaching to the knees serves the double

TABLE XXI.

*Average Monthly Income and the Expenses on Clothing and Bedding of 40 Gut Workers.*

ROUDA GUT WORKERS.				PATHA GUT WORKERS.		
Serial Number.		Average monthly income.	Average monthly expenses.	Serial Number.	Average monthly income.	Average monthly expenses.
		Rs.	Rs.		Rs.	Rs.
1	..	57	4/-	1	100/-	7/-
2	..	44	6/-	2	38/-	1/4
3	..	44	5/-	3	35/8	5/-
4	..	36	3/-	4	54/8	3/-
5	..	26	2/8	5	29/-	1/8
6	..	27	3/-	6	22/-	5/-
7	..	30	5/-	7	35/-	8/-
8	..	25	4/-	8	15/-	2/-
9	..	30	8/-	9	14/-	1/-
10	..	50	10/-	10	10/-	1/-
11	..	45	7/-	11	7/-	1/-
12	..	30	6/-	12	6/-	1/-
13	..	30	7/-	13	38/-	4/-
14	..	55	10/-	14	16/-	3/-
15	..	75	7/-	15	16/-	2/-
16	..	50	10/-	16	20/-	5/-
17	..	110	5/-	17	21/-	2/8
18	..	30	4/-	18	33/-	3/-
19	..	22	2/8	19	16/-	2/-
20	..	40	2/-	20	23/-	2/8
<i>Average</i>		..	5/8/9	<i>Average</i>		2/15/9

purpose of shirt and loin cloth and is enough for a boy of ten or a girl of five. As he or she advances in years, a small *chaddar* for the former and pyjamas for the latter are added to their simple outfits but they still go bare-headed. Women's clothing is much more varied. Brides are clad as expensively as those of the middle classes and in some cases even more so.\* A wife or daughter of the town worker may go in for heeled shoes of the Western type, while her sister in the village goes bare-footed. Again in an attempt to imitate European fashions, expensive toilet articles are often bought but any estimate of this expenditure is impossible for most of this money is spent by the women without the knowledge of the men. Older women seem to take little heed for the

\*Their dresses, in the one or two cases actually observed, were made of silk and as expensive as that of Muslim or Hindu bride of a well-to-do family. As this expenditure can more appropriately be debited to marriage expenses, it has not been taken into account in the estimates made above.

quality or fineness of their clothes; like the men, all that is necessary is to conceal their nakedness and for this *khaddar* in winter and cheap mill cloth in summer are generally used.

*Bedding.*—This is not an important item in the household expenses; one may have good clothes in public even if one has not much in the way of bedding, the quantity or quality of which varies little with the income. A *khes* (thick cotton sheet), *razai* (heavy quilt) or a *tulsi* (light quilt) is used for years before being finally discarded. Most of the homes do not contain a separate bed for each member of the family; one or two children generally sleep with the mother, another may sleep with the father, while the remainder sleep as best they can. The overcrowding and unhygienic conditions generally tend to undermine both physical and moral health; the Punjab climate encourages out-door sleeping for from 6 to 8 months, during the major part of which not much bedding is required.

*House Rent.*—The majority of *patha* gut workers live in their own houses, but those who work in the factories get quarters free of rent from the employers. Only three families reside in the city and carry on the industry independently, or under middlemen. Of these one family gets a rent-free house from the middleman and the other two pay Rs. 2/- each per mensem as house rent. The workers in the *rouda* gut industry who belong to Sialkot have their own houses; of those from the U. P., Delhi and Rajputana, about half have built their own houses and the rest pay rents of from Rs. 1/8/0 to Rs. 7/- per mensem, the average being Rs. 3/10/8.

*Fuel and Light.*—As already stated 64·5 per cent. of the village workers depend partly upon the gut industry and partly upon other sources of income. Many of them keep milch cattle and use or sell the dung-cakes as fuel; the *sepis* (workers on agricultural contract) get also the dung of the *zemindars'* cattle once a week for fuel. Moreover the women and children gather dry twigs from the fields, and dry stalks of maize, *jowar*, etc., for the same purpose. As regards lighting, the general practice is to burn kerosene oil in small tin lamps or lanterns. In the summer no lights are used but in winter light is required for work on the *patha* gut. The average expenditure per mensem varies between Rs. 0/8/0 and Rs. 1/4/0 per family.

The families which depend entirely upon the gut industry (35·5 per cent.) have to purchase fuel but its cost does not exceed Rs. 1/8/0 per mensem per family. The average total amount spent both on fuel and light varies between Rs. 1/- and Rs. 1/8/0 in the summer and between Rs. 1/8/0 and Rs. 2/8/0 in the winter.

The *rouda* gut workers, most of whom reside in the city, spend from Re. 1/- to Rs. 7/6/0 per mensem on fuel and light with an average expenditure of Rs. 2/10/3 per family per mensem.

*Household Requisites, Utensils, etc.*—As a general rule, household requisites are not purchased every month. Kitchen utensils, for instance, are purchased only when the old ones are beyond repair and use. The average monthly expenditure of each class of workers is estimated to be about four annas per family.

*Miscellaneous Expenses.*—These vary for each class of worker. The *patha* gut workers spend on travelling, tobacco, religious subscriptions and social observances; on the average about Rs. 2/11/0 per mensem per family. The *rouda* gut workers, 50 per cent. of whom come from other provinces, generally go once or twice a year to see their relatives and also remit small amounts to them. Then there is the expense of tobacco and betel-nut, which are both much used, as well as small alms, educational and religious expenses, the charges of the barber, water-carrier and washerman, which are all higher than those paid by village workers. They also go to the local cinema about once a week. The average miscellaneous expenditure per family amounts to about Rs. 6/12/0 per mensem.

The following table gives the summary of the average monthly expenditure on the different items per family for the two classes of gut workers :—

TABLE XXII.

*Average Monthly Expenditure of a Family of Gut Workers.*

Item of expenditure.	Rouda.	Patha.
	Rs. a. p.	Rs. a. p.
Food .. .. .	20 2 11	12 8 7
Clothing and bedding .. .. .	5 8 9	2 15 9
House rent .. .. .	3 10 8	..
Fuel and lighting .. .. .	2 10 3	1 10 0
Household requisites .. .. .	0 4 0	0 4 0
Miscellaneous expenses .. .. .	6 12 0	2 11 0
<i>Total</i> .. .. .	<i>39 0 7</i>	<i>20 1 4</i>

## (c). HOUSING.

Houses in the villages are nearly all made of mud walls with rough wooden rafters upon which a layer of straw thatch supports a flat mud roof ; in the town, burnt brick walls replace the mud. In more than 90 per cent. of the houses there is only a single (often windowless) room to accommodate all the family. The *patha* gut factory workers have quarters at the employer's expense which are invariably single rooms in some big building on the outskirts of the city and all the family live in that one room. Workers in *rouda* gut, as already mentioned, live in their own or rented quarters, which are better than those of the *patha* gut workers ; some, however, live in neighbouring villages.

The independent workmen and the workers under middlemen all live in villages with the exception of three families who reside in the city. Their houses are generally on the outskirts, near the village pond, the *nain* fields\* and heaps of manure which grow day by day until used. It is not surprising then that all sorts of diseases prevail and, but for the saving grace of the open air and ample sunshine in which they have to work, the sickness and the death-rates would be very much higher. In all the twenty villages, except Bhindar and Buttaran, which have the largest number of workers in this class, the houses of these workers have only one room each. There is usually a small courtyard in front, enclosed by a mud wall, which often may be common for from two to five houses—a heritage of the joint family system. The yard is often used also for a cow and in the cold weather a corner in the living room has to be spared for the animal at night.

The houses of the townsmen consist of a single room and present a worse plight than those of the villagers. The smallness of the yard, the narrowness of the lanes, the dirty surroundings and slum conditions make the place most insanitary. The fire occupies a corner of the yard but in the rainy season, or in winter, it is moved into the room, one corner of which is taken up with the bedding and another with the utensils, all of which makes the room greatly congested. In the villages the *bharoli* (receptacle for grain) may occupy the fourth corner and whatever space is left has to be shared by people, cattle and poultry.

From April to the end of September the people sleep on the roof and thus the real crowding comes in winter and in the rainy season. All are then huddled together, with all possible openings and cracks tightly closed

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\*Land close to the village site which receives the nightsoil and rubbish of the village.

against the dreaded cold or rain and the atmosphere becomes foetid. The fire with its stifling smoke, though it may help to keep the room warm, is a great nuisance and often causes eye trouble.

*Difficulties in the way of Improvements.*—There are no encouraging signs of any steps being taken for the improvement of the workers' lot in the immediate future. In Sialkot with its rapidly increasing population the value of land is so high as to put it beyond the reach of even the highest paid gut workers. No property owner wants to build houses for them in the areas where they could reside as they would not pay much rent. Although tradition and custom are growing more lax in Sialkot, as shown by the fact that some families have been able to leave the *thatti*\* and settle in other sections of the city, in the village, life fettered by age-long traditions drags on it the same old way. A member of the *Chuhra* caste, however rich he be, can hardly persuade the proud *Jat* to allow him to build a house as commodious as his own. He cannot buy land as the owner refuses to sell it to one of such a low caste, and he has perforce to stay within the *thatti*. In fact the *Jat* is now jealous of the progress made by the gut worker who has managed to free himself to some extent from his old bondage. Some families in the village of Buttaran have already set an example and built houses with larger and better ventilated rooms.

No recurring expenditure on houses is incurred. The *patha* factory workers are given free lodgings of a kind; the others occupy their own houses with the exception of a few who are given lodgings by the *Jat* employers. Plastering the roof and walls (essential in the case of mud houses) and minor repairs are done by the women and older children in summer when they have less work to do than in winter.

*Water Supply.*—In all the gut factories, the arrangement for the water supply is good. Each factory has a well or a hand pump in the factory yard and there is also an adequate supply of water in the villages; 17 of which out of the 20, have separate caste wells and one has a hand pump. There are only two villages where the gut workers have no well of their own but depend either on the village tank or on wells belonging to the landlords.

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\* Slum quarters for sweepers and leather workers who are low castes.

## CHAPTER XII. INDEBTEDNESS.

The ordinary Christian agricultural labourer working for a *Jat* cultivator leads a simple life. He has few wants beyond the coarsest food and a bare minimum of clothing for himself and his family. His shelter is a mud hovel hardly good enough for animals, while food is supplied in kind by the farmer for whom he works and his clothes are made from home-spun yarn from cotton grown on the field he tills. For such bare necessities as these he slaves in the fields. In case of special need he may get a little by way of private charity or the womenfolk may earn a little by scavenging.

In such conditions, it is not surprising that he is only slightly indebted. In some of the villages near the area surveyed, the average debt per family hardly exceeds Rs. 60/-. A marriage or a funeral may lead him into debt but his lack of credit keeps it within small limits. Though the amount of debt may appear small, its burden is severe, as the man is seldom able to extricate himself from it. From such surroundings as these come our rural gut workers the extent and sources of whose indebtedness are shown in the table below. The position of the *rouda* gut worker is better than that of the *patha* as less than a third of the former are in debt as against nearly four-fifths of the latter. Employers are the largest lenders followed by the non-agriculturist professional money-lenders (*sahukars*).

**TABLE XXIII.**  
*Sources and Extent of Indebtedness of Gut Workers.*

Class of workers.	FAMILIES.			SOURCES.					
	Total.	In debt.	Percentage of total.	Employer.	<i>Ahita</i> .	<i>Sahukar</i> (Agr.).	<i>Sahukar</i> (Non-Agr.).	Co-operative Credit Society.	Number taking from more than one source.
<i>Rouda</i> gut ..	100	29	29.0	11	..	4	7	2	5
<i>Patha</i> gut ..	138	110	79.7	41	2	5	24	..	38
Total ..	238	139	58.4	52	2	9	31	2	43
Percentage ..	..	..	..	37.4	1.4	6.5	22.4	1.4	30.9

*Average Debt per Family.*—The total debt of the 29 families of *rouda* gut workers amounts to Rs. 11,351/-, an average of Rs. 391·4, or taking all the 100 families, an average of Rs. 113·5. Of the 138 *patha* gut families the 110 families in debt owe Rs. 45,480/-, i.e., an average of Rs. 329·9 for all families and of Rs. 413·5 for the families in debt.

The following statement shows the amounts taken from different sources. Employers advanced 46·6 per cent. while the *sahukars* provided 33·3 per cent.

TABLE XXIV.

*Amount of Loans taken from Different Sources.*

Sources.	ROUDA WORKERS.		PATHA WORKERS.		TOTAL.	
	Amount.	Percent- age.	Amount.	Percent- age.	Total.	Percent- age.
	Rs.		Rs.		Rs.	
Employers ..	1,105	9·7	25,383	55·8	26,488	46·6
<i>Ahrtias</i> ..	..	..	3,417	7·5	3,417	6·0
<i>Sahukars</i> (Agricultur- ists).	2,360	20·8	3,155	6·9	5,515	9·7
<i>Sahukars</i> (Non-agri- turiets).	7,196	63·4	11,728	25·8	18,924	33·3
Co-operative Societies	500	4·4	1,339	2·9	1,839	3·2
Relatives ..	180	1·7	458	1·1	648	1·2
<i>Total</i> ..	11,351	100·0	45,480	100·0	56,831	100·0

*Purpose of Loans.*—Table XXV. shows the purposes for which the loans were taken. In the case of the *rouda* gut workers, marriages accounted for a larger debt than business, while the position is reversed in the case of the *patha* gut workers. The business debt for the former class is mostly due to the losses suffered by these workers who formerly ran their own business and failed. The miscellaneous items in their case include funeral expenses (1·8 per cent.), buildings (1·8 per cent.), sickness (1·2 per cent.), litigation (0·9 per cent.) and trips home (0·7 per cent.). The business debt of *patha* gut workers is due to advances in cash from middlemen and the difference between the value of raw material advanced and the value of the finished product returned to the middleman. These workers often take raw materials from a particular middleman and return to him only a part of the finished product; the balance is sold for cash, often at cheaper rates to some other dealer, and the money thus obtained is spent extravagantly. The value of the finished gut returned to the middleman does

not cover the cost of the raw material and the cash occasionally advanced by the latter, hence the balance is debited to the worker's account and interest at the rate of 24 per cent. per annum charged. In this way the debt increases rapidly. When the market is brisk the gut dealers are anxious to secure the services of as many workers as possible and in order to bind a worker for a certain period they advance cash. The worker often makes the most of his opportunity while this state of things lasts. Having received an advance from one middleman he may go to another stating that he has received so much as advance but if the second man will give more he would prefer to work for him rather than for the first man. The second dealer often advances the sum demanded and the worker, instead of paying back the advance of the first dealer, squanders the entire amount. The miscellaneous expenses for *patha* gut workers include purchase of milch cattle (1·4 per cent.), sickness (0·7 per cent.), buildings (2·1 per cent.), payment of old debts (0·9 per cent.) and furnishing security (1·3 per cent.).

TABLE XXV.

*Purposes for which Loans were taken.*

Purposes.	ROUDA WORKERS.		PATHA WORKERS.		TOTAL.	
	Amount.	Percent- age.	Amount.	Percent- age.	Total.	Percent- age.
	Rs.		Rs.		Rs.	
Business ..	4,086	36·0	26,945	59·2	31,031	64·6
Marriages ..	4,870	42·9	13,502	29·7	18,372	32·3
Family maintenance ..	1,665	14·7	2,143	4·7	3,808	6·7
Others ..	730	6·4	2,890	6·4	3,620	6·4
<i>Total</i> ..	<i>11,351</i>	<i>100·0</i>	<i>45,480</i>	<i>100·0</i>	<i>56,831</i>	<i>100·0</i>

The rates of interest paid by the workers in each branch of the gut industry are given in the statement on the next page. The amounts given free of interest are the advances of salary made by the employer and middlemen, provided the men work honestly, or sell the finished product to them regularly, but when this is not done the lender charges 24 per cent. per annum on the debt. The Co-operative Credit Societies give loans at 12½ per cent. per annum while the rates of *sahukars* are 18½, or 24 or 37½ per cent., the most common being 24 per cent. as this rate covers 31·6 per cent. and 19·2 per cent., respectively, of the loans taken by the *rouda* and *patha* gut workers.

TABLE XXVI.

*Amount of Loans taken and Rate of Interest paid by Gut Workers.*

Rate of interest per cent. per annum.	ROUDA WORKERS.		PATHA WORKERS.		TOTAL.	
	Amount.	Percentage.	Amount.	Percentage.	Amount.	Percentage.
	Rs.		Rs.		Rs.	
NH ..	4,055	35.7	30,602	67.3	34,657	61.0
12½ ..	500	4.4	1,429	3.1	1,929	3.4
18½ ..	2,800	24.7	1,898	4.2	4,698	8.4
24 ..	3,586	31.6	8,733	19.2	12,319	21.6
37½ ..	410	3.6	2,820	6.2	3,230	5.6
<i>Total</i> ..	<i>11,351</i>	<i>100.0</i>	<i>45,480</i>	<i>100.0</i>	<i>56,831</i>	<i>100.0</i>

## APPENDIX A.

### NOTES BY INDUSTRIAL SURVEYORS.

In this appendix are given summaries of the Notes submitted to the Director of Industries, Punjab, by the Industrial Surveyors of his Department, on the gut trade in their respective areas.

#### SIALKOT CIRCLE.

Guts really are the intestines of animals and there is a large export of these to Europe and America in wet salted, and dried (framed), condition; they are mostly used for sausages. Tennis and badminton guts turned out at Sialkot, are manufactured, either from sheep and goat intestines (commonly called *rouda*) or from the sinews of animals (*patha* gut).

*Guts (Intestines).*—The viscera (entrails) of sheep and goats were little used in former days, except for making strings of bows, for carding cotton, machines of the wood and ivory turners, hunting bows and musical instruments. They were more often than not thrown away as waste, but with an increasing demand for sausages in European and American countries, their export developed into a regular trade.

The texture of the intestines of sheep and goats found in the Punjab plains is much thinner and weaker than that of animals found in the hills; they cannot stand much compression, nor the extension necessary when filling sausages; their cavities are also much smaller; hence they are in less demand than those from the hills. Persia, Afghanistan, Tibet, Ladakh and Baluchistan have a much better trade in this article than the Punjab.

An intestine of at least 18 mm. diameter and free from holes is considered fit for sausages; the rest go as "rejects" and are used for making tennis, badminton, musical and other kinds of manufactured gut.

*Sources of the Gut and Methods of Manufacture.*—The chief source of the intestines in the Punjab is the municipal slaughter houses. A statement showing the approximate number of sheep and goats slaughtered annually in the principal slaughter houses in the Sialkot Circle is given on the next page. The information was obtained from the Municipal Committees or from personal visits to the principal slaughter houses. Only at four places,

Sialkot, Rawalpindi, Sargodha and Multan, are the intestines looked after and at the other places they are generally thrown away as waste. At Sargodha annual contracts were made in 1931 with the dealers, who collected all the intestines daily and paid to the owners of the animals at agreed rates which in that year were from Rs. 6/- to Rs. 6/4/0 per 100 intestines. The employees of the dealer, who are stationed at each slaughter house, collect the viscera of the animal immediately they are taken out. The day's collection is then taken home and washed well with water; the fat is removed and the guts slowly scraped within two wooden pieces, or by a shell, and the contents worked out. They are then again well washed, sorted and blown with the mouth to find if there are any holes. An intestine is generally from 60 to 70 feet long and if no hole is found in a twenty-five feet piece and its diameter is at least 18 mm. it is passed as first quality, well-salted and marked for export. The others are sold locally, or sent to Sialkot for the manufacture of tennis and badminton gut.

In some cases the intestines are exported in a dried condition (framed) and not salted at all. The salted guts are preferred and command better rates than the dried, as it is easier to soak them and bring them back to their original condition.

*Approximate Number of Sheep and Goats Slaughtered Annually at Different Places in the Punjab where the Entrails are Available for Gut Trade.*

Place.	Number.	Place.	Number.
Sialkot City	.. 25,200	Multan Cant.	.. 4,200
„ Cant.	.. 3,737	Tolumba	.. 1,400
Rawalpindi City	.. 28,800	Shujabad	.. 3,400
„ Cant.	.. 10,800	Mian Channu	.. 2,336
Murree	.. 11,115	Jahanian	.. 360
Gujar Khan	.. 4,360	Chichawatni	.. 2,250
Jhelum City	.. 15,135	Alipur	.. 1,200
„ Cant.	.. 2,019	Khanewal	.. 800
Gujrat	.. 10,800	Jalalpur Piranwala	.. 1,000
Phalia	.. 1,440	Dera Ghazi Khan	.. 7,600
Shahpur	2,383	Dajal	.. 1,200
Sargodha	.. 7,200	Janpur	.. 2,629
Phulerwan	.. 1,992	Muzaffargarh	.. 4,500
Multan City	.. 52,000	Khargarh	.. 1,723

*Prospects of improving the Punjab Methods to produce a higher grade of Gut.*—It has been found that only about 30 per cent. of the intestines available in the slaughter houses are fit for export, the rest are rejects ; some defects are natural and cannot be helped, but others can be remedied.

At present an unnecessarily long time elapses between the collection of the viscera and their final preparation for export. They are generally collected in kerosene oil tins and during summer they become very hot and deteriorate in texture. If there were small masonry tanks of water ready for washing near at hand, much of the present waste and deterioration could be avoided. The trade is yet in its infancy in the Punjab and is often in the hands of uneducated, ignorant and unorganised people. Very few at present seem to understand the proper methods of sorting, salting and packing. There is no standardized system and much depends upon each individual's idea and whim ; improvement might be made if printed instructions were made available ; a village demonstrator should also prove helpful.

*The Export Trade in Intestines.*—There was only one man in the Circle in 1931, a sausage manufacturer, who himself prepared and exported gut ; the rest were either commission agents, brokers or tennis and badminton gut manufacturers. He was employing three or four workmen and exported about Rs. 10,000/- worth yearly. The price of prepared sausage gut of sheep and goats at Sialkot then was Rs. 30/- per 100 and fetched Rs. 70/- per 100 in Europe.

*The Import of Gut and Gut Articles.*—No gut was being imported into the circle in 1931 except for making tennis and badminton racquets and the value was insignificant when compared with the export, *i.e.*, about Rs. 25,000 as against Rs. 4,00,000/- leaving out the year 1930 which was an exception when only about Rs. 70,000/- worth were exported.

#### TENNIS AND BADMINTON GUT INDUSTRY AT SIALKOT.

*Varieties.*—There are two varieties of gut made for tennis and badminton racquets at Sialkot, one from the tendon (tissue) which forms a membrane between the flesh and skin of cattle and is locally known as *patha* ; the other from the intestines of sheep and goats and known as *rouda*. The second variety possesses greater tensile strength and durability than the former and fetches a much higher price. The former is in increasing demand in foreign countries, probably on account of its cheapness.

*Patha Gut.*—About three or four *pathas*, or one seer of animal tendon in weight, are required to make a coil of one hundred yards of tennis gut

and costs from Rs. 3/- to Rs. 9/- for such a coil. The *pathas* are first well pounded, broken into small strands and soaked in water, or in some cleaning chemicals ; some people give a bleaching bath later. When well cleansed and softened, the strands are made into strings of 100 yards each, then twisted and stretched on drying frames. When dried, they are scraped to the proper gauge and uniform thickness with ordinary sand-paper, rolled into coils, oiled and bound with a silken cord at three or four places and are then ready for sale. For the cheaper badminton racquets the process is the same except that the gut is thinner and takes a fewer *pathas*.

*Number of Workers engaged and their Financial Position.*—The workers are mostly sweepers, Christian converts, and there were about a thousand men, women and children, engaged in the manufacture of *patha* gut in 1930 ; each family works as a unit. The industry has been localised at Sialkot and all the *patha* gut is manufactured either in the town, or in about two dozen neighbouring villages. A family, consisting of a man, woman and two children can make from Rs. 50/- to Rs. 60/- per month, but, although these people make more money than the men making other sports gear at Sialkot, they are almost all in debt ; they are very spendthrift and pay heavy rates of interest on the loans borrowed. Most of them own houses in villages which they cannot sell as they have built them on lands of agriculturists.

*Organisation.*—The *patha* gut industry is mainly a cottage industry, but is gradually developing on factory lines. The workers at first purchased their own raw material, *patha*, locally, and after making it into gut sold it directly to the tennis and badminton racquets manufacturers. They could not cope with the increased demand and several men engaged in the manufacture of other sports gear, finding this line very lucrative, took up solely this trade as their sole occupation. They either advanced money or *patha* to the gut-makers, and bound them by a written contract to sell the finished product to themselves. This arrangement lasted for a number of years but proved detrimental to both parties. The workers tried to save as much *patha* as possible when making a coil, and the middleman argued that the quality of the coil when delivered was inferior to that agreed upon. The workers usually had to yield and in turn they tried to make some coils of less than 100 yards, and thus make up their losses. The result was that the foreign buyers began to complain about the lack of uniformity in quality and lengths. The more progressive sports manufacturers therefore, began to employ workers on their own premises on a piece-work

system. This improved matters considerably for the workers and also the quality of the gut, hence some of the middlemen are following suit.

*Raw Supply.*—The supply of the raw material is also well organised. There are several hide and skin merchants and brokers (*ahrtias*) who import *patha* from different parts of the Punjab and United Provinces, and keep large stocks to meet the requirements of the local manufacturers. Each *patha* cost from Rs. 0/3/0 to Rs. 0/14/0 in 1931, and the total sales are estimated at Rs. 2,00,000/- in a normal year. Some scarcity was felt on account of the low rates of hides in 1931; *patha* is a bye-product and nobody would slaughter cattle for that alone.

*The Patha Gut Trade from 1927-31.*—The total output of *patha* gut in these years was estimated at about five lakhs of rupees per annum, of which about 75 per cent. was exported, chiefly to Great Britain and the Colonies.

The year 1927 was a boom year in the tennis gut trade of Sialkot; the exports alone amounting to about four and a half lakhs. In 1928, there was not as much demand from England the chief buying country, perhaps on account of heavy rains there during that year, and the exports fell to about two and a half lakhs, but in the following year they rose again to about three lakhs. There was a steady demand in the beginning of 1930, but later it declined considerably, owing to the general depression in trade and the Indian civil disobedience movement; the new high tariffs of Australia and its low currency exchange also greatly reduced the export to that country. The total amount of this kind of gut exported so far this year (June, 1931) hardly amounted to Rs. 70,000/-; and large stocks had accumulated; the output had been reduced by 50 per cent. and about half the workers had left the industry temporarily.

*Rouda Gut.*—This kind of gut, as stated earlier, is made of inferior sheep or goat intestines and has greater tensile strength than the *patha* gut. It also costs more (from Rs. 5/- to Rs. 18/- per 100 yards) but is cheaper than the superior imported gut. It has, however, proved very useful for tropical climates.

The gut is made from either wet salted or dried intestines. The latter are preferred for making white gut, as the salt often gives iron stains; the salted type is chiefly used for manufacturing black tennis gut.

In 1931 there were about 50 workers engaged in its manufacture, almost all of whom were Mohammedans; formerly there were about 100, and their economic conditions are much better than those making *patha*

gut. There were also about half a dozen small factories and all were working on sound lines under trained foremen. The total output was estimated at about one lakh of rupees annually and about half the product was exported, mainly to the Straits Settlements.

*Process of Manufacture.*—The intestines are well cleaned, softened and drawn out in graded lengths and sewn together at the ends to form the required length. A bleaching bath is then given differing according to the requirements (and knowledge) of each manufacturer. (Some use hydrogen peroxide, some sodium hydrosulphite and sodium bisulphite, and others sulphur fumes in a specially constructed chamber.) After the bleaching bath, the intestines are well washed in clean water and dyed if required, spun and put on drying frames. When dried they are reduced to the proper gauge and to an even thickness with sand-paper. The tensile strength is then tested and the gut is wound into coils, oiled and bound with fancy silk tape. Badminton racquet gut is cheaper as it is thinner and of less tensile strength.

#### LAHORE CIRCLE.

About 1920, Germany began to import considerable quantities of intestines from India, since Russia, from where she used to get supplies prior to the War, could not now meet the demand owing to internal chaos. Two qualities of raw gut were exported to Germany from the Punjab market. The first varied from 18 mm. to 26 mm. in diameter and was used for sausage packing; the second quality (between 15 mm. and 18 mm.) was mainly used for the manufacture of sports gut.

About the year 1925 things were more settled in Russia; the gut traders tried to recapture the lost markets; and in a short time they were successful in ousting the Indian product from the German and other European markets, chiefly because of the comparatively small diameter. (Incidentally intestines from Afghanistan, Bokhara and Srinagar compare favourably with those from Russia and their export has continued, though to a lesser extent.) Since then, exports from the Punjab have been reduced to a negligible quantity and the four firms who were handling the commodity have dropped the business.

In the Ladakh Trade Report for the year 1929, reference was made to the immense volume of business done *via* that route; enquiries from Lahore and other Punjab markets showed that no exporter in this province was either aware of that trade or was connected with it in any way. It appears that, in 1929, intestines from Central Asia were exported *via* Ladakh

because of the disturbances in China ; but in 1931 when conditions were easier in China the trade was diverted towards its old and cheaper route.

During the 1920-30 decade the Punjab attained an important place in the manufacture of sports gut. The industry was practised on a large scale in Sialkot and a few enterprising men in Lahore took up the manufacture of sports gut from intestines. In 1929 the industry was carried on here in four different sheds, with nine men working and the output was estimated at Rs. 10,000/- a year. In 1931, however, the output of these firms was in the vicinity of Rs. 3,000/- a year, while gut of equal value was being imported from other places for consumption here. Three of the firms used to cater for the local demand, while the fourth used to export to Australia and New Zealand. Since 1930 the Australian import duty of 35 per cent. on Indian gut, and the reduction in the purchasing power of the people, have severely affected the exports to that country. Consequent upon the heavy fall in exports, the Lahore firm which depended entirely on foreign markets, has suspended operations. Further, some firms of exporters, in order to push their sales began to allow from two to three months' credit to the foreign firms. This damaged the trade of the many exporting firms who could ill afford to lock up large sums with their foreign clients, and several of them were driven out of the market. It may be that eventually, their trade will be secured by the remaining firms, but not for some time ; meanwhile the exports have been affected to a considerable extent.

The Indian sports gut industry as it stands at present needs considerable improvement. According to the present methods employed by the makers, intestines, before being twisted to form *rouda* gut, are cut transversely so that they may be washed properly ; no satisfactory instrument is used for cutting and more often than not, the line of incision is very irregular. The differences in the diameter of the intestines tend to make the gut, when twisted, very uneven in thickness and lacking in tensile strength and resiliency. To remedy that, it is desirable, if possible, to cleanse the intestines without cutting them across. Indian gut is said to be inferior in tensile strength and resiliency to European makes and this complaint needs the special attention of the experts. The manufacture of surgical gut and cat-gut for the stringing of musical instruments, which at present are mostly made from gut of foreign origin, should be increased.

One Sialkot firm, by experimenting, have succeeded in making a perfectly white tennis gut, and they have also been able to improve its finish and resiliency. Further experiments could be carried on by experts

in well equipped laboratories, but it appears highly improbable that the Punjab industrialists, unorganised as they are at present, would be prepared to meet the cost of the establishment of a research laboratory. Perhaps Government might help here, and some of the cost might be met by the imposition of an export duty on Indian sports goods.

#### AMRITSAR CIRCLE.

*Qualities and Sources of Supply.*—The casings of intestines are obtained from all over the country, but the Ladakh-Yarkand and Kashmir guts are considered to be the best and are imported into India principally for export to America. The quality of intestine casings depends on the maximum diameter when blown up and those of the different sources of supply may be classified as under :—

Quality.	Country of supply.	Diameter when blown up in millimetres.	
		Maximum.	Minimum.
I.	Ladakh-Yarkand ..	35	24
II.	Kashmir ..	35	24
III.	Quetta-Peshawar, etc. ..	26	20
IV.	Punjab ..	18	..

*Prices.*—The 1931 quotations per hundred casings for different qualities of guts were :—

Ladakh-Yarkand	.. ..	Rs. 750-850
Kashmir	.. ..	„ 700-800
Quetta-Peshawar	.. ..	„ 500-700
Punjab	.. ..	„ 250-300

*Position of Trade.*—The export of casings from the Amritsar Circle in 1931 was estimated as under—

Dharamsala	.. ..	1,500 to 2,000 per annum
Amritsar	.. ..	15,000 „ 25,000 „ „

Many thousands of these pass on to dealers in Lahore, Bombay and Karachi.

*Growth of Trade in Intestine Casings via Leh.*—There was only one firm of importers in India of intestine casings from Ladakh, whose agent there collects the required quality and quantity, packs them properly and makes arrangements for their despatch. They are packed in bundles and are sent on horseback to Durgai Railway Station *via* Chitral, or to Rawalpindi Railway Station *via* Leh and Kashmir. Chitral is given preference over Leh

as it remains open for traffic all the year round, while the Leh route is under snow from November to May. Further, goods sent *via* Chitral can reach Durgai in about 25 to 30 days whereas *via* Leh it takes from one and a half to two months to reach Rawalpindi. The exporters at Karachi take up the whole supply of this firm as shown below : --

	1929.	1930. (Jan.-Sep.).	
	<i>Via Chitral-Durgai.</i>	<i>Via Leh-Rawalpindi.</i>	<i>Via Chitral-Durgai.</i>
No. of bundles booked to Karachi (each bundle weighs about 1½ maunds and contains about 1,000 casings).	150 (approximately)	44	81 to 100 (ready for despatch).
No. of casings ..	1,50,000	44,000	1,81,000
Total value @ Rs. 800-850 each bundle of about 1,000 casings for 1929 and Rs. 800/- for 1930.	Rs. 1,25,000	Rs. 35,200	Rs. 1,80,000

The following table shows the weight of intestine casings imported into the Amritsar Circle by the principal suppliers and exporters in 1929 and 1930; and also the station from which they were booked :—

*Gut casings imported into Amritsar Circle.*

<i>Station.</i>	<i>Weight sold in—</i>			
	<i>1929.</i>		<i>1930.</i>	
	<i>Maunds.</i>	<i>Seers.</i>	<i>Maunds.</i>	<i>Seers.</i>
Badamibagh (Lahore) ..	12.	10	..	..
Duzdap ..	711	36	423	7
Lahore ..	89	25	31	10
Rawalpindi ..	197	18	79	29
Amritsar ..	17	32	13	16
Peshawar Cant. ..	136	30	..	..
Peshawar City ..	..	..	39	3
Durgai ..	26	30	95	34
Miscellaneous ..	33	17	25	23
<i>Total</i> ..	<i>1,225</i>	<i>38</i>	<i>708</i>	<i>2</i>

MULTAN CIRCLE.

In Multan Circle the industry in intestine casings was carried on in 1931 at two places only, *viz.*, Multan and Dera Ghazi Khan. Although

the imports into India have increased, none was imported into the five districts of the Multan Division (Circle) either for local consumption or re-export; the production of the Circle depends entirely upon the number of cows and goats slaughtered daily in these two cities. In Multan, in 1930, there were four persons engaged in this industry and it is estimated that in the previous year they sent casings to Bombay and Karachi for export to America, to the value of Rs. 12,000/-, and to Sialkot to the value of Rs. 4,500/-. Superior quality stuff is exported while the inferior and damaged are sent to Sialkot for the sports goods manufactures. In 1931 the demand for superior casings in foreign countries greatly diminished and although the demand at Sialkot increased, the lack of foreign demand damaged the industry in this Circle.

#### LUDHIANA CIRCLE.

The intestines of cows, buffaloes, goats and sheep are collected in the Circle especially at Ludhiana, Ambala, Rewari, Simla and Hansi. The numbers of animals slaughtered within the municipal limits of Ludhiana for the years, 1927 to 1929, were :—

	1927.	1928.	1929.
Sheep and goats .. ..	34,815	32,721	28,779
Cows .. ..	5,280	5,474	3,655
Buffaloes .. ..	2,156	2,052	1,535

The approximate numbers slaughtered annually at Hansi and Ambala City were :—

	<i>Sheep and goats.</i>	<i>Cows and buffaloes.</i>
Hansi .. ..	1,310	2,430
Ambala City .. ..	11,300	3,000

The intestines were being purchased at the following rates :—

Cows .. ..	Rs. -/4/- to Rs. -/7/- per animal.
Buffaloes .. ..	„ -/1/6 per animal.
Sheep and goats .. ..	„ 3/- to Rs. 5/- per 100 animals.

The entire supply of cow and buffalo intestines at Ludhiana was purchased by a Delhi firm, while a local firm took those of sheep and goats. The intestines of cows at Ambala City were purchased by three firms, one in Moradabad, one in Delhi and one in Hansi, and the price varied from four to seven annas per animal. Intestines of sheep, goats and

buffaloes were not exported from Ambala City and Hansi, but were made into cords for carding cotton; in Ambala City the entire output of these animals was purchased by one man at from Rs. 2/- to Rs. 2/8/0 per 100 animals. The approximate amounts realised annually from the sale of intestines at Ludhiana, Ambala and Hansi were :—

			Rs.
Ludhiana	..	..	.. 3,585*
Ambala	..	..	.. 2,900
Hansi	..	..	.. 950

\*Average of three years; 1927, Rs. 3,922; 1928, Rs. 3,880; 1929, Rs. 2,953.

The intestines of cows and buffaloes are not utilised for industrial purposes in the Circle, but are exported by the Delhi and Moradabad firms to Europe and America. Those of sheep and goats are tested and the largest and undamaged ones are sold to exporters in Lahore and Amritsar at from Rs. 30/- to Rs. 50/- per hundred pieces of 70 feet each. The rejects are salted and sent to Sialkot for manufacture into sports gut, or made into strings for cotton-cleaners' bows. For the latter purpose, fourteen strands of intestines are joined together and twisted into lengths of 15 yards which are sold for about Re. 1/- or Rs. 1/2/0.

Recently an industry was started in Ambala City to manufacture tennis and badminton racquet gut from the intestines of sheep and goats but the output was very small.

INDEBTEDNESS OF GUT WORKERS.

A.—Roula.

Serial number.	Total debt.	SOURCES.					PURPOSES.				INTEREST PER CENT.				
		Em-ployer.	Sahakar.		Co-operative Society.	Rela-tives.	Busi-ness.	Mar-riages.	Family main-te-nance.	Miscel-laneous.	Nil.	12½	18½	24	37½
			Agri-culturist.	Non-Agri-culturist.											
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.						
1	2,200	..	..	2,200	..	..	..	2,200	..	..	300	..	..	2,200	..
2	600	..	..	400	200	..	..	..	600	..	..	200	..	..	100
3	200	..	..	200	..	..	..	..	..	200	..	..	..	200	..
4	200	..	..	..	200	..	..	..	..	200	..	200	..	..	..
5	100	..	..	..	100	..	..	..	..	..	100	..	..	..	..
6	400	..	400	..	..	..	..	400	..	..	400	..	..	..	..
7	300	..	..	300	..	..	..	300	..	..	200	..	100	..	..
8	200	200	..	..	..	..	..	200	..	..	200	..	..	..	..
9	50	50	..	..	..	..	..	50	..	..	50	..	..	..	..
10	20	20	..	..	..	..	..	20	..	..	20	..	..	..	..
11	350	150	..	60	..	140	..	350	..	..	200	..	..	..	60
12	250	..	..	250	..	..	..	250	..	..	..	..	..	..	250
13	700	..	500	200	..	..	..	700	..	..	500	..	..	200	..
14	50	..	50	..	..	..	..	..	..	50	50	..	..	..	..
15	586	..	..	586	..	..	586	..	..	..	..	..	..	586	..
16	300	..	..	300	..	..	..	300	..	..	..	..	..	300	..
17	20	20	..	..	..	..	..	..	20	..	20	..	..	..	..
18	2,700	..	..	2,700	..	..	2,700	..	..	..	..	..	2,700	..	..
19	90	20	20	..	..	50	..	..	..	90	90	..	..	..	..
20	740	250	490	..	..	..	..	..	740	..	740	..	..	..	..
21	100	..	100	..	..	..	..	..	..	100	..	..	..	100	..
22	800	..	800	..	..	..	800	..	..	..	800	..	..	..	..
23	50	50	..	..	..	..	..	..	50	..	50	..	..	..	..
24	40	40	..	..	..	..	..	..	..	40	40	..	..	..	..
25	50	50	..	..	..	..	..	..	..	50	50	..	..	..	..
26	100	100	..	..	..	..	..	..	100	..	100	..	..	..	..
27	30	30	..	..	..	..	..	..	30	..	30	..	..	..	..
28	50	50	..	..	..	..	..	..	50	..	50	..	..	..	..
29	75	75	..	..	..	..	..	..	75	..	75	..	..	..	..
<b>Total</b>	<b>11,351</b>	<b>1,105</b>	<b>2,300</b>	<b>7,196</b>	<b>500</b>	<b>190</b>	<b>4,086</b>	<b>4,870</b>	<b>1,065</b>	<b>730</b>	<b>4,066</b>	<b>500</b>	<b>2,800</b>	<b>3,586</b>	<b>410</b>
<b>Percentage</b>	<b>100.0</b>	<b>9.7</b>	<b>20.8</b>	<b>63.4</b>	<b>4.4</b>	<b>1.7</b>	<b>36.0</b>	<b>42.9</b>	<b>14.7</b>	<b>6.4</b>	<b>35.7</b>	<b>4.4</b>	<b>24.7</b>	<b>31.6</b>	<b>3.6</b>

**APPENDIX B.**  
*Indebtedness of Gut Workers.*

*B.—Patha.*

Serial number.	Total debt.	SOURCES.						PURPOSES.				INTEREST.				
		Em- ployer.	Ahrta.	Sahukar.		Co-ope- rative Society.	Relatives	Business.	Marriage.	Family mainte- nance.	Miscel- laneous.	Nil.	12½	18½	24	37½
				Agri- culturist.	Non- Agri- culturist.											
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.						
1	950	..	350	..	600	..	..	350	..	..	600	350	..	400	200	..
2	100	..	..	..	100	..	..	..	100	..	..	..	..	..	100	..
3	140	..	..	..	140	..	..	..	140	..	..	..	..	..	140	..
4	400	..	200	..	200	..	..	200	200	..	..	..	..	..	400	..
5	1,000	..	..	..	1,000	..	..	..	500	500	..	..	..	..	1,000	..
6	100	..	100	..	..	..	..	100	..	..	..	..	..	..	100	..
7	450	..	150	..	300	..	..	150	300	..	..	..	..	100	150	200
8	500	..	50	..	450	..	..	50	450	..	..	50	..	..	450	..
9	550	..	..	..	500	50	..	..	550	..	..	..	50	..	500	..
10	50	..	..	..	50	..	..	..	50	..	..	..	..	..	50	..
11	75	..	..	..	75	..	..	..	..	75	..	..	..	..	75	..
12	200	..	..	..	200	..	..	..	200	..	..	..	..	..	..	200
13	500	..	..	..	500	..	..	..	500	..	..	..	..	..	500	..
14	50	50	..	..	..	..	..	50	..	..	..	50	..	..	..	..
15	200	..	..	..	200	..	..	..	200	..	..	..	..	..	200	..
16	100	..	..	..	100	..	..	..	..	..	100	..	..	..	100	..
17	100	100	..	..	..	..	..	100	..	..	..	100	..	..	..	..
18	54	54	..	..	..	..	..	54	..	..	..	54	..	..	..	..
19	60	60	..	..	..	..	..	60	..	..	..	60	..	..	..	..
20	100	..	..	..	100	..	..	..	..	..	100	..	..	..	100	..
21	40	40	..	..	..	..	..	40	..	..	..	40	..	..	..	..
22	28	28	..	..	..	..	..	28	..	..	..	28	..	..	..	..
23	150	..	..	..	50	..	100	..	150	..	..	100	..	..	..	50
24	110	110	..	..	..	..	..	110	..	..	..	110	..	..	..	..
25	50	50	..	..	..	..	..	50	..	..	..	50	..	..	..	..

(Continued.)

APPENDIX B.—(Continued).

26	100	100	..	..	..	..	100	..	..	..	100	..	..	..	..
27	78	78	..	..	..	..	78	..	..	..	78	..	..	..	..
28	40	..	..	..	..	40	..	40	..	..	..	..	..	40	..
29	100	..	..	..	..	100	..	100	..	..	..	..	..	100	..
30	400	..	..	..	..	400	..	400	..	..	..	..	..	400	..
31	1,825	815	..	..	1,010	..	815	1,010	..	..	815	..	..	1,010	..
32	200	..	90	..	200	..	90	..	..	200	210	..	..	..	80
33	356	..	256	..	100	..	256	..	100	..	256	..	..	..	100
34	200	200	..	..	..	..	200	..	..	..	200	..	..	..	..
35	400	200	..	..	200	..	200	200	..	..	200	..	..	200	..
36	200	200	..	..	..	..	200	..	..	..	200	..	..	..	..
37	150	150	..	..	..	..	150	..	..	..	150	..	..	..	..
38	500	500	..	..	..	..	500	..	..	..	500	..	..	..	..
39	255	255	..	..	..	..	255	..	..	..	255	..	..	..	..
40	50	50	..	..	..	..	50	..	..	..	50	..	..	..	..
41	234	234	..	..	..	..	234	..	..	..	234	..	..	..	..
42	57	57	..	..	..	..	57	..	..	..	57	..	..	..	..
43	200	200	..	..	..	..	200	..	..	..	200	..	..	..	..
44	100	..	..	..	100	..	..	100	..	..	..	..	..	100	..
45	50	..	..	..	50	..	..	..	50	..	..	..	..	50	..
46	200	200	..	..	..	..	200	..	..	..	200	..	..	..	..
47	300	..	..	..	300	..	..	300	..	..	..	..	..	..	300
48	500	500	..	..	..	..	500	..	..	..	500	..	..	..	..
49	200	200	..	..	..	..	200	..	..	..	200	..	..	..	..
50	100	..	..	..	100	..	..	100	..	..	..	..	..	..	100
51	500	500	..	..	..	..	250	250	..	..	500	..	..	..	..
52	400	200	..	..	200	..	200	200	..	..	200	..	..	..	200
53	600	600	..	..	..	..	600	..	..	..	600	..	..	..	..
54	500	500	..	..	..	..	500	..	..	..	500	..	..	..	..
55	900	900	..	..	..	..	900	..	..	..	900	..	..	..	..
56	600	600	..	..	..	..	600	..	..	..	600	..	..	..	..
57	240	200	..	..	40	..	240	..	..	..	200	..	..	..	40
58	250	..	..	..	250	..	..	..	..	250	..	..	..	250	..

APPENDIX B.—(Continued.)

Serial No.	Total debt.	SOURCES.						PURPOSES.				INTEREST.				
		Em- ployer.	Akhia.	Sahukar.		Co- opera- tive Society.	Rela- tives.	Business.	Marri- age.	Family mainte- nance.	Miscel- laneous.	Nil.	12½	18½	24	37½
				Agri- culturist.	Non- Agricul- turist.											
59	400	350	..	..	50	..	..	400	..	..	..	350	..	..	..	50
60	100	..	100	..	..	..	..	100	..	..	..	100	..	..	..	..
61	200	..	..	200	..	..	..	..	200	..	..	..	..	..	..	..
62	500	400	100	..	..	..	..	500	..	..	..	500	..	..	200	..
63	500	..	..	..	500	..	..	..	500	..	..	..	..	..	..	500
64	500	500	..	..	..	..	..	500	..	..	..	500	..	..	..	..
65	1,040	200	90	..	250	500	..	200	250	..	500	540	500	..	..	..
66	1,112	..	662	..	..	450	..	607	405	..	100	112	450	..	..	..
67	250	..	..	..	250	..	..	250	..	..	..	250	..	..	..	550
68	900	900	..	..	..	..	..	900	..	..	..	900	..	..	..	..
69	1,100	1,100	..	..	..	..	..	1,100	..	..	..	1,100	..	..	..	..
70	300	240	..	..	..	60	..	240	60	..	..	240	60	..	..	..
71	929	700	..	..	..	69	160	700	69	..	160	660	69	..	..	..
72	450	450	..	..	..	..	..	450	..	..	..	450	..	..	..	..
73	560	500	..	..	..	60	..	500	60	..	..	500	60	..	..	..
74	300	300	..	..	..	..	..	..	300	..	..	300	..	..	..	..
75	500	500	..	..	..	..	..	500	..	..	..	500	..	..	..	..
76	700	700	..	..	..	..	..	700	..	..	..	700	..	..	..	..
77	2,600	2,500	..	..	..	100	..	2,500	100	..	..	2,500	100	..	..	..
78	400	400	..	..	..	..	..	400	..	..	..	400	..	..	..	..
79	2,500	2,500	..	..	..	..	..	2,500	..	..	..	2,500	..	..	..	..
80	500	500	..	..	..	..	..	500	..	..	..	500	..	..	..	..
81	690	660	..	30	..	..	..	660	30	..	..	660	..	..	30	..
82	260	210	..	50	..	..	..	210	..	..	50	210	..	..	50	..
83	510	400	..	..	110	..	..	400	110	..	..	450	..	..	60	..

APPENDIX B.—(Concluded.)

84	100	40	..	..	60	..	..	40	60	..	..	40	..	..	60	..
85	35	..	..	..	35	..	..	..	..	35	..	..	..	..	35	..
86	100	..	..	..	50	50	..	..	100	..	..	50	..	..	50	..
87	120	..	..	..	120	..	..	..	120	..	..	..	..	..	120	..
88	403	..	260	128	15	..	..	260	128	15	..	260	..	128	15	..
89	194	..	140	54	..	..	..	140	54	..	..	140	..	..	54	..
90	522	..	60	204	258	..	..	60	366	36	60	260	..	58	204	..
91	200	..	..	200	..	..	..	..	200	..	..	..	..	..	200	..
92	100	..	..	100	..	..	..	..	100	..	..	..	..	..	100	..
93	40	..	..	40	..	..	..	..	..	..	40	..	..	..	40	..
94	423	..	40	35	275	..	73	200	..	73	150	363	..	..	60	..
95	373	..	133	200	40	..	..	133	200	..	40	133	..	..	240	..
96	370	..	..	280	90	..	..	..	280	..	90	..	..	..	370	..
97	85	..	..	40	20	..	25	..	..	85	..	85	..	..	..	..
98	300	..	..	..	300	..	..	..	300	..	..	..	..	300	..	..
99	300	..	36	264	..	..	..	36	264	..	..	..	..	..	300	..
100	90	..	..	40	50	..	..	..	90	..	..	..	80	..	..	..
101	200	..	..	..	1,200	..	..	450	300	..	450	1,200	..	..	..	..
102	910	..	600	310	..	..	..	..	910	..	..	..	..	910	..	..
103	800	400	..	300	..	..	100	400	300	100	..	800	..	..	..	..
104	657	..	..	180	..	..	..	477	180	..	..	477	..	..	..	180
105	500	..	..	500	..	..	..	..	500	..	..	500	..	..	..	..
106	125	125	..	..	..	..	..	125	..	..	..	125	..	..	..	..
107	800	800	..	..	..	..	..	800	..	..	..	800	..	..	..	..
108	800	400	..	..	400	..	..	..	400	400	..	400	..	..	400	..
109	400	400	..	..	..	..	..	..	200	200	..	200	..	..	200	..
110	800	800	..	..	..	..	..	..	500	300	..	800	..	..	..	..
Total	45,480	25,383	3,417	2,155	11,728	1,339	458	26,945	13,502	2,143	2,890	30,802	1,429	1,896	8,733	2,820
Percentage	100.0	55.8	7.5	6.9	25.8	2.9	1.1	59.2	29.7	4.7	6.4	67.3	3.1	4.2	19.2	6.2

**APPENDIX C.**  
**QUESTIONNAIRE USED BY THE INVESTIGATOR.**

**1.—WORKERS.**

Serial No. Village (or town).

1. Name.

Religion and caste.

Original residence

District.

When migrated.

Present residence.

Nearest market and distance.

2. Size and composition of family.

Name.	Relation-ship.	Age.	Worker or dependent.	REMARKS.
Males ..				
Females ..				

3. Extent of literacy.

4. Occupation—

(a). Main.

(b). Subsidiary.

5. Particulars concerning gut industry :

(a). Factory or independent worker.

(b). Number of working members.

(c). How the trade was learnt.

(d). Sources of raw materials and rates.

(e). Average monthly consumption.

(f). Process of manufacture (State implements and chemicals).

(g). Average monthly outturn (Quantity of each quality).

(h). How marketed (rates).

6. Average monthly income of the family from—

(a). Main occupation.

(b). Subsidiary occupation.

7. Hours and times of work :

(a). In winter.

(b). In summer.

## 8. Average monthly expenditure on—

## (a). Food—

	Amount.	Rate.
Flour.		
Rice.		
<i>Dal.</i>		
Meat.		
Vegetables.		
<i>Ghi.</i>		
Condiments.		
Fruits.		
Sweets.		
(b). Clothing.		
(c). Rent.		
(d). Fuel and light.		
(e). Household requisites, <i>e.g.</i> , utensils, etc.		
(f). Trade requisites.		
(g). Miscellaneous—		
(i). Remittance to dependents.		
(ii). Travelling expenses.		
(iii). Medicines.		
(iv). Drinks, smokes and betel-nut.		
(v). Social and religious functions.		
(vi). Charity and subscription.		
(vii). Amusement and recreation.		
(viii). Education.		
(ix). Customary and other dues.		
(x). Rates of interest and repayment of debt.		
(xi). Menials, <i>e.g.</i> , barber, washerman.		

## 9. Indebtedness :

	Debts.	Advances.
Amount.		
Sources.		
Purposes.		
.....		
Date.		
Interest.		
Security.		
.....		
Terms of repayment.		

## 10. Housing—

(a). Description of dwelling.

(b). Accommodation—

Rooms.

Verandah.

Yard.

Kitchen.

Where is the work done ?

Is there a public latrine closeby ?

(c). Owner and rent.

(d). Water supply.

(e). Sanitation.

## 11.

*Note.*—In the case of factory workers questions (5) *b, d, e, f, g, and h* do not arise.

*Date.**Signature.*

## II.—EMPLOYERS.

Serial No. \_\_\_\_\_

Place \_\_\_\_\_

## 1. Name of firm.

Nature of concern (entrepreneur, partnership or limited concern).

Relationship with respect to the gut industry.

Address.

Reasons for selecting—

(a). Sialkot.

(b). Present locality.

When started ?

## 2. Capital—

(a). Initial capital invested :—

(i). Land.

(ii). Building.

(iii). Machinery.

(iv). Miscellaneous.

(b). Annual recurring expenses :—

(i). Raw produce.

(ii). Advances.

(iii). Income-Tax.

(iv). Rent.

(c). Sources of capital invested and terms of repayment of loans—

(i). Owned.

(ii). Bank.

(iii). *Sahakar*.

(iv). Others.

## 3. Labour :—

- (a). Terms of employment.
- (b). Rules of service.
- (c). Members employed with castes—
  - (i). Men.
  - (ii). Women.
  - (iii). Boys (under 15).
  - (iv). Girls (under 12).
- (d). Native places of workers.
- (e). Distance of present residence from place of work.
- (f). Approximate period a labourer works in the year.
- (g). Terms of apprenticeship or training.
- (h). Lodging arrangements.
- (i). Education.
- (j). Medical provision.

## 4. Products :—

- (a). Sources of raw material—
  - (i). Entrails.
  - (ii). *Patha*.
  - (iii). Chemicals.
- (b). Methods of manufacture. (Give as Appendix.)
- (c). Qualities of gut produced.
- (d). Monthly outturn.

## 5. Marketing :—

- | (a). Local—    | Quantity. | Price. |
|----------------|-----------|--------|
| (i). Sialkot.  |           |        |
| (ii). Outside. |           |        |
- (b). Foreign countries.
  - (c). Methods and cost of marketing.
  - (d). Methods and cost of transport.

## III.—GENERAL.

1. Trace the history of the development of gut industry with special reference to the Punjab.
2. What are the chief countries manufacturing gut; what position does the Punjab hold in foreign market?
3. Do you import gut and articles of which gut forms a part; if so, from where and at what rates; what are the transit and custom charges? Ascertain how far indigenous products can replace these.
4. Has any protection been given to gut industry; if so, has it justified itself?
5. Compare the qualities of gut manufactured from different animals in the Punjab.
6. What are the methods of manufacture followed in the Punjab; compare these with foreign methods.
7. Does the Indian gut compare unfavourably with foreign gut; if so, why?
8. Suggest improvements in methods of manufacture, distribution and sale of indigenous gut.
9. How can : (a) the Industries Department, (b) Co-operative Societies, and (c) chemical, industrial and financing bodies, help in improving the quality and sale of gut.
10. Describe the co-ordination of gut manufacture as a cottage and a factory industry (*cf. patha vs. rouda*).
11. What prospects are there of improvement in export trade of gut?

## GLOSSARY OF TERMS.

ADDA	.. Apparatus used for stretching, grinding and drying the <i>rouda</i> and <i>patha</i> strings.
AHTIA	.. Broker; an agent who imports raw material for gut and supplies the manufacturers.
AK KA DOODH	.. Fluid of the Indian milk-weed.
ANNA	.. Indian coin; one-sixteenth of a rupee.
ARAIN	.. Mohammedan agricultural tribe; often found as market gardeners near cities.
AWAN	.. Mohammedan agricultural tribe.
BHAROLI	.. Receptacle for grain.
BRAHMAN	.. Highest (priestly) caste among the Hindus.
CHADDAR	.. Coarse loin cloth.
CHAMAR	.. Leather-worker caste; untouchable.
CHANA KI DAL	.. Roughly ground gram used as lentils.
CHAPATI	.. Indian loaf; a flat round cake made of unleavened flour.
CHHATAK	.. Indian weight; one-sixteenth of a seer; equal to 2.057 ozs.
CHUHRA	.. Sweeper caste; untouchable.
DAL	.. Lentils.
GHI	.. Clarified butter, used instead of lard or other cooking fats.
HUQQA	.. Hubble-bubble; smoking pipe.
'ID	.. Mohammedan festival.
JAT	.. One of the principal agricultural tribes of the Punjab.
JOWAR	.. Large millet ( <i>Andropogon sorghum</i> or <i>sorghum vulgare</i> ).
KASHMIRIS	.. Mohammedan immigrants from Kashmir State or their descendants; usually weavers.
KARERA	.. Disease among animals, especially sheep and goats in which grains are formed in the membrane of the intestines.
KHADDAR	.. Rough hand-woven cloth.
KHES	.. Thick cotton sheet.
KHICHRI	.. Rice and split pulse cooked with <i>ghi</i> and spices.
LANGOTI	.. Small loin cloth.
MANI	.. Indian weight varying between six and eight maunds.

MAUND	Indian standard weight of forty seers; equal to <del>89.8</del> lbs.
MEGH	.. Low caste; untouchable.
MIRASI	.. Minstrel caste.
MISTRI	.. Foreman; often used to indicate any artisan.
MOHARRAM	.. Lit. 'The Sacred'; the first month of the Mohammedan year, held sacred on account of the death of Imam Husain, son of Ali.
MUSALLI	.. Muslim convert from ( <i>hukra</i> class; a low class field labourer.
NIAIN	.. Land close to the village site which receives the night-soil and rubbish of the village.
PACHHI	.. Refuse of sugarcane after the juice has been extracted.
PATHA	.. Sinew; tendon.
PENJAS	.. Cotton cleaners.
PIE	.. Indian money of account; one-twelfth of an anna.
PANJA	.. Implement for scraping raw intestines.
QURESHI	.. Mohammedan tribe to which the Prophet belonged.
RABI	.. Spring harvest or winter crop.
RAIGER	.. Low caste; found in and about Hissar; formerly engaged in making saltpetre.
RANGKAT	.. Sodium hydrosulphite.
RAZAI	.. Heavy quilt.
ROUDA	.. Intestines of sheep and goats.
RUPEE	.. Indian standard coin, now stabilised about 1s. 6d.
SAHUKAR	.. Money-lender.
SAWIAN	.. Vermicelli prepared from fine wheat flour.
SAYAD	.. Highest (priestly) caste among Muslims; the descendants of Ali, son-in-law of Mohammed.
SEER	.. 1/40th of a maund; 32.9 ozs.
SEPI	.. Agricultural worker on contract.
SHEIKH	.. Muslim non-agricultural tribe.
SIPPI	.. Clam-shell.
TELI	.. Oil-presser caste.
THATTI	.. Slum quarters of sweepers who are low caste.
TULAI	.. Light quilt.
TOTA	.. Broken rice.
WALAYITI SODA	.. Bleaching powder.
ZEMINDAR	.. Landowner; cultivator.

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## COST OF GINNING AND PRESSING COTTON IN THE PUNJAB

BY

PARTAP SINGH PHULLAR, B.Sc.

AND

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## PREFACE.

In 1929 the Indian Central Cotton Committee awarded two research scholarships, to Messrs. Partap Singh and Ajaib Singh, graduates of the Punjab Agricultural College, to enable them to study cotton marketing and economics in the Punjab. They first attended the M.A. classes in Economics at the Punjab University for one year and then carried out research work for two years under the direction and guidance of the Professor of Agriculture at Lyallpur. The results of their research were embodied in the following five reports :—

1. Local Consumption of *Kapas* in the Lyallpur District in 1930-31.
2. Sources of Seed Supply of Cotton in the Lyallpur District for the Years 1930-31 and 1931-32.
3. Cost of Production of Cotton by Survey Method in the Lyallpur District, 1931-32.
4. Cost of Transport of *Kapas* from Villages to the Lyallpur Market.
5. Cost of Ginning and Pressing Cotton in the Punjab.

Nos. 1 and 2 of these have been published in the journals of the Imperial Council of Agricultural Research and No. 5 was presented to the Board of Economic Inquiry, Punjab, by the Indian Central Cotton Committee through the Director of Agriculture, Punjab. It was felt by the Board that this would be of considerable interest and value to the Province and directly in line with the general work of the Board in carrying on investigations into the economic conditions of the Punjab.

Thanks are due to Mr. W. Roberts of Khanewal and to Mr. H. R. Stewart, Director of Agriculture, Punjab, for the trouble they took in going through the manuscript and making valuable suggestions.

March, 1934.

J. W. T.

## COST OF GINNING AND PRESSING COTTON IN THE PUNJAB.

*Introduction.*—Cotton is a very important money-crop in the Punjab. The Agricultural Department has already done work of great economic value by evolving and establishing better varieties of this crop. After leaving the field, cotton passes through a large number of technical processes and a long chain of middlemen before it reaches the actual consumer. Thus, there is plenty of scope for fraudulent practices which reduce the profits of the cultivator. Both the legislator and the administrator are at present handicapped in taking measures to improve the present situation by want of reliable information. It is, therefore, essential that statistics should be collected relating not only to the production of cotton in the field but also to the processes through which the crop passes afterwards. The marketing of seed cotton in the Punjab has already been studied and the next link in the chain is its ginning and pressing. The present inquiry was undertaken in order to find out the cost of ginning and pressing in the Punjab.

*Procedure followed during the Inquiry.*—To obtain the required information a questionnaire, as appended, was prepared in consultation with representatives of a firm which deals in the export of raw cotton and has factories of its own in this province. The Director of Agriculture, Punjab, included the questions on capital costs and improved the questionnaire in other directions. The Agricultural Expert to the Imperial Council of Agricultural Research added the questions on the rates charged per maund for ginning *kapas* (seed cotton) and for pressing cotton when work is done for outsiders.

The Director of Agriculture, Punjab, addressed a circular letter to all the important factories in the Punjab asking them to afford facilities for this inquiry, but only twelve agreed to assist. These twelve factories are scattered over most of the important cotton growing tracts of the Punjab : five of them being situated in the Montgomery District, one in Multan, two in Lahore, two in Shahpur and two in Hissar District. In order to collect the required information all these factories were visited during the period from December, 1930, to the first week of February, 1931. As factory owners do not wish the figures to be published under their own names, each factory has been given a number which has been used for that factory throughout the report.

Most factory owners do not keep accounts according to modern systems of book-keeping, but maintain a record of current expenditure during a working season. These books are, often, not traceable after the annual accounts have been compiled and consequently, account books were available for only one year in ten factories and for three years in the other two. The numbers by which these factories will be referred to in this report and the years for which their accounts were studied are given below :—

<i>No. of Factory.</i>	<i>Years for which accounts were studied.</i>
1 ..	1927-28, 1928-29 and 1929-30.
2 ..	1929-30.
3 ..	"
4 ..	"
5 ..	"
6 ..	"
7 ..	1925-26, 1927-28 and 1928-29.
8 ..	1929-30.
9 ..	"
10 ..	"
11 ..	"
12 ..	"

(N.B.—Factory No. 11 is only a ginning factory while No. 12 is only a pressing factory. All the others do both ginning and pressing.)

Some of the factory owners record their expenditure under a number of separate headings, while others only make short entries of cash spent. In order, therefore, to bring the various items of expenditure relating to different factories to a common basis for comparison they have been classified in the following four groups:—

- (1). Stores, including coal, oils, leather goods, hessian, hoops, and repairs to machinery.
- (2). Wages, including gin and press hamalage, and salaries of establishment for working and slack seasons.
- (3). Miscellaneous expenses, including repairs to buildings, insurance, stationery, water charges and taxes.
- (4). Interest and depreciation on buildings, machinery and furniture.

Most of the factory owners in the Punjab usually gin and press their own *kapas*, for the purchase of which they have their own staff. In order to keep in touch with the trend of cotton prices they maintain telegraphic communication with Bombay and Karachi. The cost of telegrams and the expenses incurred in the purchase of *kapas* have not been included in this report as they do not form a legitimate part of the cost of ginning and pressing.

*Interest and Depreciation on Capital Cost.*—Expenditure in connection with stores, wages and miscellaneous expenses is incurred more or less every year; so there was not much difficulty in getting this from the account books. The estimation of the amount to be charged as interest and depreciation on capital cost of buildings and machinery, however, was not an easy matter as some factory owners do not assess the value of their buildings and machinery each year, but simply keep a record of the original cost or purchase price. Nor is there any regular practice of preparing a yearly profit and loss account taking into consideration the depreciation and interest charges on the capital cost of the factory. Some difficulty was, therefore, experienced in estimating this item.

The rate of interest on the capital cost of the factory and rates of depreciation on the buildings and machinery, etc., were fixed in consultation with some factory owners and an engineering firm dealing in machinery.

Capital sunk in a cotton factory building is usually a safe investment, the risk of fire being covered by insurance; the rate of interest therefore should not be high and it has been taken at six per cent. per annum in this inquiry.

Rates of depreciation of buildings and machinery are given below :—

				Per cent.
Pacca buildings	..	..	..	2½
Kachcha "	..	..	..	5
Machinery, tools and plant	..	..	..	5
Furniture	..	..	..	7½

The cost of ginning and pressing has been calculated both with and without interest and depreciation charges so that interest and depreciation charges at rates suitable to local conditions can be added, if desired.

Capital cost also includes the amount spent on subsequent additions and alterations. In factories Nos. 4, 8, 9 and 10, capital cost could not be ascertained from the local offices, and a fixed sum has been charged as interest and depreciation. The same amount has been included in the present calculations.

*Allocation of Expenses between Ginning and Pressing.*—Cotton presses are generally worked in conjunction with ginning factories and there are certain expenses which are common to both ginning and pressing such as coal, other stores, pay of the engineer, manager, etc., and these had to be allocated between ginning and pressing. It was found from actual observation that from 24 to 28 maunds of coal was consumed in pressing 100 bales of cotton, the exact quantity depending on the quality of coal and the condition of the

machinery and chimney. These figures were confirmed by some of the factory owners and engineers and the total consumption of coal has, therefore, been divided between ginning and pressing on this basis. Other stores required for pressing are insignificant as compared with their total consumption for ginning and pressing combined. This cost has been debited to pressing according to the estimates given to us by some factory owners and engineers.

Two-thirds of the pay of common establishment, miscellaneous charges, interest and depreciation, etc., have been charged to ginning and one-third to pressing; this ratio was fixed in consultation with some of the more intelligent factory owners. Generally the rate charged for pressing a bale is approximately one-third of the cost of both ginning and pressing, as the cost of pressing is roughly one-half of the cost of ginning.

*Cost of Ginning per Bale.*—In the calculations in this report a bale means 392 lbs. of lint. The cost of ginning has been calculated by dividing the total expenses by the number of bales ginned in a season and the cost for various factories is given separately in Table I. on page 12. Apart from local differences in wages in different localities the chief factors which govern the cost of ginning are:—

- (a). Number of bales ginned in a season.
- (b). Percentage of actual working days to the total number of days from the date of commencement of ginning to the date on which a factory is closed for the season.
- (c). Capital cost of the factory.

*Number of Bales ginned in a Season.*—It is but natural that the total number of bales ginned in a season should affect the cost of ginning. To illustrate this, figures for factory No. 1 are given below:—

Year.	Number of bales ginned.	COST OF GINNING PER BALE.	
		Without including interest and depreciation on the capital cost.	Including interest and depreciation on the capital cost.
		Rs. a. p.	Rs. a. p.
1927-28 ..	7,235	5 15 9	11 13 9
1928-29 ..	13,858	4 1 3	7 2 6
1929-30 ..	22,043	2 15 6	4 14 8

As overhead charges remain more or less the same, the greater the number of bales ginned in a season the smaller the cost of ginning per bale.

*Percentage of Actual Working Days to the Total Number of Days from the Date of Commencement of Ginning to the Date on which a Factory is closed for the Season.*—Sometimes a factory does not work continuously all the season; ginning is done for a few days and then there is a break for some reason or other. The following figures of working days for 1927-28 and 1928-29, for factory No. 7 illustrate this:—

Month.	GINNING.		PRESSING.	
	1927-28.	1928-29.	1927-28.	1928-29.
August .. ..	..	..	2	..
September .. ..	4	9	4	..
October .. ..	..	9	1	8
November .. ..	14	4	6	2
December .. ..	17	9	6	3
January .. ..	9	6	8	3
February .. ..	..	15	1	8
March .. ..	7	21	2	8
April .. ..	2	8	2	6
May .. ..	..	8	..	4
June .. ..	..	2	..	3
<i>Total</i> .. ..	<i>53</i>	<i>91</i>	<i>32</i>	<i>45</i>

Erratic working of this nature eventually leads to high operating costs as not only has the staff, which is permanently engaged for the season, to be retained, but it also increases coal consumption to raise steam afresh in a cold boiler when work is started again after a stop. Such intermittent work increases the cost of ginning per bale and to illustrate this a table is given below in which factories are arranged in ascending order according to the percentage of actual working days:—

Year.	Number of factory.	Total number of days between the commencement and stoppage of ginning.	Actual number of days on which ginning was done.	Percentage of column 4 to 3.	Cost per bale without interest and depreciation.
1927-28 .. ..	7	204	53	26	Rs. s. p. 8 0 3
1928-29 .. ..	7	251	91	35	6 7 5
1925-26 .. ..	7	186	109	59	7 3 5
1927-28 .. ..	1	185	120	65	5 15 9
1929-30 .. ..	6	140	95	65	4 13 7
" .. ..	4	167	114	68	4 13 0
" .. ..	11	83	67	69	5 7 4
1928-29 .. ..	1	201	154	77	4 1 3
1929-30 .. ..	2	156	120	77	3 13 11
" .. ..	1	212	168	79	2 15 6
" .. ..	5	136	111	82	3 14 7

The figures given in columns 3 and 4 of the foregoing table have been taken from Table IV. on page 15.

There appears to be a general trend for the cost of ginning to vary inversely with the percentage of actual working days. There are, however, some exceptions which may be explained as follows:—

In factory No. 7, the cost of ginning per bale was higher in 1925-26 than in 1928-29 in spite of the fact that the percentage of working days to the total number of days between the opening and closing of the factory was higher in the former year; but heavy repairs were done to the machinery and buildings in 1925-26, and the figures for other stores and miscellaneous expenses were unusually high in that year.

In factory No. 1, the cost of ginning was very low in 1929-30, owing to the fact that during this year the factory worked double shifts and a very large number of bales were ginned during the season. The number of actual working days for this factory for 1929-30 is 168 as given in column 3 of the foregoing table, but as the factory worked double shifts on some days the effective number of working days was more than 168 calendar days. This naturally decreased the cost of ginning.

The cost per bale was comparatively high in the case of factory No. 11 in 1929-30, because the cost of generating the motive power was high in this factory and the number of working days was also small, although the percentage to the total number of days in column 3 is high. There are only 20 single roller gins, but two engines are used to supply power as the original steam engine was small and could not supply sufficient power. The owner, instead of putting in a bigger steam engine installed an additional oil engine which increased the cost of generating power. The number of working days as shown above is also small and hence an increased cost per bale in spite of the high percentage of working days to total number of days between the dates of opening and closing of the factory.

*Capital Cost of the Factory.*—The capital cost of a factory depends not only on the size and quality of the machinery and buildings, but also on the year during which it was built or purchased. Other things being equal capital cost affects the cost of ginning as shown by the following figures:—

Year.	Number of factory.	Total capital cost.	Total interest and depreciation.	Interest and depreciation debited to ginning at two-thirds of the total.	Quantity of cotton ginned.	Interest and depreciation per bale (ginning).
1929-30 ..	5	Rs. 130,000	Rs. a. p. 12,834 12 0	Rs. a. p. 8,556 8 0	Bales. 6,582	Rs. a. p. 1 4 10
" ..	6	175,000	17,676 8 0	11,784 5 4	6,477	1 13 1

Both these factories are situated in one place and the number of gins is almost the same (68 and 70). Interest and depreciation charges are Rs. 0/8/3 per bale more in factory No. 6, the capital cost of which was higher. This factory ginned 105 bales less than factory No. 5, but even if the number of bales ginned had been equal there would still have been a difference of Rs. 0/7/10 per bale.

*Relative Importance of the Various Items of Expenditure.*—The following figures, which have been calculated from Table II. on page 13, show the relative importance of the various items:—

Year.	Number of factory.	PERCENTAGES OF TOTAL COST.			
		Stores.	Wages.	Miscellaneous.	Interest and depreciation.
1925-26	7	37.8	32.7	6.9	22.6
1927-28	7	20.3	35.9	6.2	37.6
..	1	21.4	25.0	4.0	49.6
1928-29	7	29.0	37.3	3.3	30.4
..	1	27.1	25.6	4.1	43.2
1929-30	1	28.2	29.1	3.1	39.6
..	4	35.9	22.3	8.7	33.1
..	6	44.4	23.7	4.6	27.3
..	5	41.3	29.3	4.5	24.9
..	2	36.2	21.9	3.6	38.3
..	3	34.5	29.1	4.1	32.3
..	10	39.7	27.4	4.2	28.7
..	11	23.4	27.4	6.4	42.8
..	8	38.2	22.9	4.2	34.7
..	9	32.2	19.0	3.5	45.3
<i>Average</i>	..	<i>32.6</i>	<i>27.2</i>	<i>4.3</i>	<i>35.4</i>

The above-mentioned figures show that (a). stores, (b). wages and miscellaneous expenses combined and (c). interest and depreciation each form roughly one-third of the total cost of ginning. These figures when arranged in a frequency table appear as follows:—

Classes.	FREQUENCIES.			
	Stores.	Wages.	Miscellaneous	Interest and depreciation.
Per cent.				
50 to 46.1	..	..	..	1
40 " 42.1	1	..	..	3
42 " 38.1	3	..	..	2
38 " 34.1	4	2	..	2
34 " 30.1	1	1	..	3
30 " 26.1	3	5	..	2
26 " 22.1	1	5	..	2
22 " 18.1	2	2	..	..
18 " 14.1	..	..	..	..
14 " 10.1	..	..	..	..
10 " 6.1	..	..	4	..
6 " 2.1	..	..	11	..

Cost of ginning varies widely but under normal conditions\* it may be taken to lie about five rupees per bale without including interest and depreciation (the actual\* average Rs. 5/0/6), and between seven and eight rupees per bale, including depreciation and interest charges (actual average Rs. 7/13/11).

*Rate Charged per Bale for Ginning Alone.*—This figure was not available in several cases as ginning and pressing are generally done together. Wherever ginning was done alone it varied from Rs. 4/12/0 to Rs. 8/1/0 approximately. Rates charged for ginning vary from place to place, but not usually in the same place, as they are determined by local competition. The cost of ginning, however, varies a good deal in the same place for the reasons which have already been discussed.

*Cost of Pressing per Bale.*—For the purpose of calculating the cost of pressing, a bale is again taken as 392 lbs. of lint. If a bale weighs more or less it is charged for accordingly. This practice is common in all the places visited, except in Kasur, where the rate for pressing is charged on the actual number of bales pressed irrespective of their weight. The cost of pressing is also governed by the same three factors as in ginning and the effect of each of these factors is shown below.

(1). *Number of Bales Pressed in a Season.*—The following table gives the cost of pressing per bale for the same factory in different years when the number of bales pressed was different :—

Year.	Number of factory.	Number of bales pressed.	COST OF PRESSING PER BALE.	
			Without interest and depreciation.	With interest and depreciation.
			Rs. a. p.	Rs. a. p.
1927-28 .. ..	1	7,233	3 1 2	6 0 2
1928-29 .. ..	1	14,633	2 7 9	3 15 0
1929-30 .. ..	1	22,043	1 15 7	2 15 2

(2). *Percentage of Working Days to the Total Number of Days between the Dates of Commencement and Final Stoppage of the Press.*—It will be seen from the following table that there is a ten-

\*Conditions were abnormal in case of factory No. 7 in all the three years, and in factory No. 1 in 1927-28, because these factories did not work regularly for the full season and hence the number of bales ginned and pressed was small. The cost per bale was therefore high and these high figures have been included in calculating the actual average cost. The cost of ginning, ignoring these abnormally high figures, may be taken as the cost under normal working conditions.

dency for the cost of pressing to decrease as the percentage of working days increases, but there are some variations due to local causes. For instance, the figures for factory No. 3 are higher on account of higher salaries of the establishment while the cost of pressing was increased in factory No. 1 in 1928-29 on account of heavy repairs to the press:—

Year.	Number of factory.	Total number of days between the commencement and final stoppage of pressing.	Actual number of days pressing was done.	Percentage of column 4 to 3.	Cost per bale without interest and depreciation.
					Rs. a. p.
1927-28 .. ..	7	237	32	14	4 2 6
1928-29 .. ..	7	247	45	18	3 8 10
1925-26 .. ..	7	187	54	29	3 8 3
1927-28 .. ..	1	182	84	46	3 1 2
1929-30 .. ..	4	166	85	51	2 6 0
.. ..	6	145	76	52	2 1 10
.. ..	3	145	77	53	2 7 5
.. ..	2	153	98	64	2 0 8
1928-29 .. ..	1	201	133	66	2 7 9
1929-30 .. ..	1	204	141	69	1 15 7
.. ..	5	138	100	72	2 2 2

(3). *Capital Cost.*—The following table shows the influence of capital charges on the cost of pressing:—

Year.	Number of factory.	Total capital cost.	Total interest and depreciation.	Interest and depreciation debited to pressing at one-third of the total.	Quantity of cotton pressed.	Interest and depreciation per bale for pressing.
		Rs.	Rs. a. p.	Rs. a. p.	Bales.	Rs. a. p.
1929-30 ..	5	130,000	12,634 12 0	4,278 4 0	6,582	0 10 5
.. ..	6	175,000	17,676 8 0	5,892 2 8	6,477	0 14 7

The relative importance of the various items of expenditure is shown by the following figures showing the percentages of the various items of expenditure to the total expenditure calculated from Table III. on page 14 :—

Year.	Number of factory.	PERCENTAGES OF TOTAL COST.			
		Stores.	Wages.	Miscellaneous.	Interest and depreciation.
1925-26	7	51.5	20.2	5.3	23.0
1927-28	7	33.8	28.4	6.2	31.6
"	1	26.3	21.0	3.8	48.9
1928-29	7	38.4	28.8	4.3	28.5
"	1	39.6	20.2	3.2	37.0
1929-30	1	45.0	19.8	2.2	33.0
"	4	43.1	18.1	8.1	30.7
"	6	44.4	20.5	5.0	30.1
"	5	52.7	19.8	4.1	23.4
"	2	41.5	18.7	3.4	36.4
"	3	37.2	25.4	4.2	33.2
"	10	58.1	17.2	3.1	21.6
"	11	49.3	14.8	0.6	35.3
"	8	46.3	16.6	4.0	33.1
"	9	38.2	14.0	3.4	44.4
<i>Average</i>	..	<i>43.0</i>	<i>20.2</i>	<i>4.1</i>	<i>32.7</i>

Stores account for a greater percentage of the total expenditure, but wages are less for pressing than for ginning.

Table I. shows that the cost of pressing per bale varied from Rs. 1/12/8 to Rs. 4/2/6, exclusive of interest and depreciation. Under normal\* working conditions, however, the cost of pressing varies from Rs. 2/- to Rs. 2/8/0 per bale, without interest and depreciation, and from Rs. 2/12/0 to Rs. 4/2/9 per bale with interest and depreciation\* (The actual average without interest and depreciation was Rs. 2/9/0 and with interest and depreciation Rs. 3/13/7). In cases that came under investigation the rate charged per bale actually varied from Rs. 2/6/6 to Rs. 5/- (Table I., column 10).

\* See footnote to page 8.

*Miscellaneous Information.*—There are some items in the questionnaire which are not directly concerned with the cost of ginning and pressing cotton and the information collected on these points is given briefly below :—

(1). *Wastage.*—There is a certain amount of wastage in the process of ginning and pressing which has not been included in the cost given above. In the case of a factory owner who buys *kapas*, wastage may be taken as part of the cost of ginning and pressing, but it has nothing to do with this cost when ginning and pressing is done on a contract rate for others. For this reason, it has been left out in the calculations given above. Figures for wastage could be obtained from four factories only, and the amount has been worked out by subtracting the total weight of lint and cotton seed from the total weight of *kapas*. It is expressed as a percentage of the weight of *kapas* and is given below in a tabulated form :—

No. of Factory.	1927-28.	1928-29.	1929-30.
1 .. ..	2.04	1.7	2.40
5 .. ..	..	..	2.39
6 .. ..	..	..	2.04
11 .. ..	..	..	1.50

The factors which determine the amount of wastage are :—

- (a). Cleanliness and moisture content of *kapas*.
- (b). Efficiency of labour and machinery.

Most of the wastage takes place in ginning as there is very little in pressing and the amount varies considerably from factory to factory. In factory No. 11 not only is there no wastage recorded, but the weight of lint and seed has actually exceeded the weight of *kapas* purchased ; this can be due either to damping of cotton or fraudulent weighing at the time of purchase of *kapas*.

(2). None of the factories included in this inquiry joined any cotton pool nor was any rebate allowed when ginning and pressing was done on a contract rate during the periods for which the accounts were studied.

(3). Table IV. gives the dates of opening and final closing of the factories as well as the total number of working days and hours.

TABLE I.

Cost of Ginning and Pressing per Bale of 392 lbs. Lint.

Year.	Number of the factory.	GINNING.				PRESSING.				GINNING AND PRESSING.		
		Cotton ginned.	Cost per bale without interest and depreciation.	Cost per bale with interest and depreciation.	Rate charged per bale from outsiders.	Cotton pressed.	Cost per bale without interest and depreciation.	Cost per bale with interest and depreciation.	Rate charged per bale.	Cost per bale without interest and depreciation.	Cost per bale with interest and depreciation.	Rate charged per bale.
		Bales.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Bales.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1925-26	7	5,674	7 3 5	9 5 1	7 13 0	5,674	3 8 3	4 9 2	4 8 6	10 11 8	13 14 3	12 5 6
1927-28	7	2,475	8 0 3	12 13 6	5 9 4	3,047	4 2 6	6 1 10	2 6 6	12 2 9	18 15 4	7 15 10
"	1	7,235	5 15 0	11 13 0	7 0 0	7,233	3 1 2	6 0 2	2 11 6	9 0 11	17 13 11	10/- to 11/8
1928-29	7	4,193	6 7 5	9 4 8	4 12 0	4,193	3 8 10	4 15 5	2 12 0	10 0 3	14 4 1	7 8 0
"	1	13,858	4 1 3	7 2 6	8 0 6	14,633	2 7 9	3 15 0	3 0 6	6 9 0	11 1 6	10/- to 11/-/6
1929-30	1	22,043	2 15 6	4 14 8	8 1 0	22,043	1 15 7	2 15 2	3 0 6	4 15 1	7 13 10	10/8 to 11/-/6
"	4	6,632	4 13 0	7 3 0	..	7,459	2 6 0	3 6 10	3/8 to 4/-	7 3 0	10 9 10	10/8 to 11/-
"	6	6,477	4 13 7	6 10 8	..	6,477	2 1 10	3 0 5	..	6 15 5	9 11 1	10/8 to 11/-
"	5	6,582	3 14 7	5 3 5	..	6,582	2 2 2	2 12 7	..	6 0 9	8 0 0	10/8 to 11/-
"	2	10,336	3 13 11	6 4 5	..	10,612	2 0 8	3 3 5	2 8 0	5 14 7	9 7 10	10 0 6
"	3	6,389	5 1 10	7 8 11	..	6,389	2 7 5	3 11 0	..	7 9 3	11 3 11	10 0 0
"	10	6,907	3 15 8	5 9 4	..	9,502	2 3 0	2 11 4	2/10 to 3/-	6 1 8	8 4 8	10 0 0
"	11	1,008	5 7 4	9 8 3	..	..	..	..	..	..	..	..
"	8	4,218	4 4 1	6 8 3	..	4,218	2 4 7	3 6 8	..	6 8 8	9 14 11	..
"	9	4,981	4 7 7	8 2 10	..	4,981	2 5 2	4 2 9	..	6 12 9	12 5 7	..
"	12	..	..	..	..	6,101	1 12 8	2 12 4*	3/8 to 5/-†	..	..	..
Average	..	..	5 0 6	7 13 11	..	..	2 9 0	3 13 7	..	7 9 10	11 9 11	..

\*Interest and depreciation here means the lease money paid to the owner of the press.

†There was only one press at Hisar and the local customers had to pay Rs. 5/-, while outsiders paid Rs. 3/8/0.

**TABLE II.**  
*Analysis of Cost of Ginning per Bale of 392 lbs. Lint.*

Year.	Number of factory.	STORES.				WAGES.		Miscellaneous.	Interest and depreciation.	Total per bale.
		Coal.	Oil.	Leather goods.	Other Expenses.	Hamalage.	Establishment.			
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1925-26	7	1 12 9	0 5 2	0 9 5	0 13 0	1 3 1	1 13 0	0 10 3	2 1 8	9 5 1
1927-28	7	1 5 1	0 5 3	0 10 5	0 5 1	1 4 3	3 5 5	0 12 9	4 13 3	12 13 0
1927-28		1 2 13	0 4 1	0 6 0	0 11 7	0 15 8	1 15 10	0 7 8	5 14 0	11 13 9
1928-29	7	1 6 0	0 6 4	0 7 3	0 7 6	1 3 0	2 4 5	0 4 11	2 13 3	9 4 8
1928-29	1	0 13 10	0 3 8	0 5 6	0 8 5	0 11 4	1 1 11	0 4 7	3 1 3	7 2 6
1929-30	1	0 13 2	0 2 6	0 3 2	0 3 4	0 12 0	0 10 11	0 2 5	1 15 2	4 14 8
"	4	1 0 4	0 4 6	0 7 3	0 13 4	0 11 9	0 13 10	0 10 0	2 6 0	7 3 0
"	6	1 5 1	0 3 4	0 11 10	0 11 2	0 12 6	0 12 9	0 4 11	1 13 1	6 10 8
"	5	1 3 9	0 2 5	0 9 8	0 2 7	0 13 3	0 11 2	0 3 9	1 4 10	5 3 5
"	2	1 4 4	0 2 10	0 6 3	0 6 11	0 11 4	0 10 7	0 3 8	2 6 6	6 4 5
"	3	1 7 11		(1 1 9)		0 11 7	1 7 7	0 5 0	2 7 1	7 8 11
"	10	1 0 10	0 5 2	0 7 5	0 6 0	0 14 4	0 10 2	0 3 9	1 9 8	5 9 4
"	11	1 0 1	0 15 1*	(0 4 6)		0 11 2	1 14 8	0 9 10	4 0 11	9 8 3
"	8	1 4 10		0 8 9	0 10 3†	0 13 1	0 10 10	0 4 4	2 4 2	6 8 3
"	9	1 7 8	0 3 4	0 9 9	0 5 4	0 14 8	0 10 3	0 4 7	3 11 3	8 2 10

\* An oil engine is used to work some of the gins.

† Also includes oils.

TABLE III.

*Analysis of the Cost of Pressing per Bale of 392 lbs. Lint.*

Year.	Number of factory.	STORES.				WAGES.		Miscellaneous.	Interest and depreciation.	Total per bale.
		Coal.	Hessian.	Hoops.	Other Expenses.	Hamalage.	Establishment.			
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1925-26 .. ..	7	0 6 0	0 10 9	1 3 4	0 1 7	0 4 8	0 10 1	0 3 10	1 0 11	4 9 2
1927-28 .. ..	7	0 5 11	0 11 7	0 13 4	0 2 2	0 4 8	1 8 1	0 4 9	1 15 4	6 1 10
1927-28 .. ..	1	0 2 3	0 10 5	0 11 4	0 1 4	0 4 3	0 15 11	0 3 8	2 15 0	6 0 2
1928-29 .. ..	7	0 6 0	0 10 2	0 11 8	0 2 8	0 4 7	1 2 4	0 3 5	1 6 7	4 15 5
1928-29 .. ..	1	0 2 4	0 8 9	0 10 9	0 3 2	0 4 3	0 8 6	0 2 0	1 7 3	3 15 0
1929-30 .. ..	1	0 2 4	0 8 9	0 9 1	0 1 1	0 3 10	0 5 6	0 1 0	0 15 7	2 15 2
" .. ..	4	0 3 6	0 8 11	0 10 0	0 1 3	0 3 9	0 6 2	0 4 5	1 0 10	3 6 10
" .. ..	6	0 3 2	0 7 9	0 9 4	0 1 3	0 3 6	0 6 5	0 2 5	0 14 7	3 0 5
" .. ..	5	0 2 10	0 8 6	0 10 8	0 1 6	0 3 3	0 5 7	0 1 10	0 10 5	2 12 7
" .. ..	2	0 2 10	0 8 3	0 9 0	0 1 3	0 4 1	0 5 6	0 1 9	1 2 9	3 3 5
" .. ..	3	0 3 2	0 7 10	0 9 4	0 1 7	0 3 2	0 11 10	0 2 6	1 3 7	3 11 0
" .. ..	10	0 4 3	(1 3 10)		0 1 2	0 3 9	0 3 8	0 1 4	0 9 4	2 11 4
" .. ..	8	0 3 0	0 9 6	0 10 9	0 2 1	0 3 8	0 5 5	0 2 2	1 2 1	3 6 8
" .. ..	9	0 5 0	0 8 6	0 9 8	0 2 4	0 4 3	0 5 1	0 2 3	1 19 8	4 2 9
" .. ..	12	0 3 5	0 7 0	0 10 2	0 1 3	0 3 6	0 3 1	0 0 3	0 15 8*	2 12 4

\* Interest and depreciation here mean the lease money paid to the owner of the press.

**TABLE IV.**  
*Dates of Starting and Closing and the Number of Working Days of Different Factories.*

Year.	Number of factory.	GINNING.				PRESSING.			
		Date of commencement.	Date of closing.	Actual Number of—		Date of commencement.	Date of closing.	Actual Number of—	
				Working days.	Working hours.			Working days.	Working hours.
1925-26 .. ..	7	1-10-25	4-4-26	109	..	1-10-25	5-4-26	54	..
1927-28 .. ..	7	13-9-27	3-4-28	53	..	11-8-27	3-4-28	32	..
" .. ..	1	26-10-27	27-4-28	120	1,089½	29-10-27	27-4-28	84	630½
1928-29 .. ..	7	19-9-28	2-6-29	91	..	3-10-28	5-6-29	45	..
" .. ..	1	6-11-28	25-5-29	154	1,621½	9-11-28	28-5-29	132	994½
1929-30 .. ..	1	1-11-29	31-5-30	168	..	9-11-29	31-5-30	141	..
" .. ..	4	1-11-29	16-4-30	114	..	3-11-29	11-4-30	85	..
" .. ..	6	9-11-29	3-4-30	95	901	12-11-29	5-4-30	76	508
" .. ..	5	12-11-29	27-3-30	111	1,005	15-11-29	1-4-30	100	..
" .. ..	2	12-11-29	16-4-30	120	1,112½	15-11-29	16-4-30	98	897½
" .. ..	3	..	..	..	..	8-11-29	1-4-30	77	..
" .. ..	10	..	..	..	..	..	..	..	..
" .. ..	11	23-10-29	13-1-30	67	560	..	..	..	..
" .. ..	8	..	..	..	..	..	..	..	..
" .. ..	9	..	..	..	..	..	..	..	..
" .. ..	12	..	..	..	..	..	..	..	..

*Questionnaire used to find out the Cost of Ginning and Pressing.*

I. GINNING.

Name of the ginning factory and location:

Give the actual cost of the following items for a full working season :---

*A. Working Costs.*

- (i). Stores including (a). oils, (b). leather goods, (c). others.
- (ii). Coal.
- (iii). Spares including tools and other stores.
- (iv). Water charges.
- (v). Gin wages.
- (vi). Petty repairs to buildings and machinery.
- (vii). Salary allowance of establishment employed during the working season.
- (viii). Office expenses including office furniture, stationery, etc., with brief description of furniture and its capital cost at the beginning of the year.

*B. Other Costs.*

- (i). A brief description of the buildings regarding size, construction, and state of repairs, etc.
- (ii). Year in which the factory was built and original cost.
- (iii). Capital value of buildings at the beginning of the season under review.
- (iv). Interest and depreciation on buildings.
- (v). A brief description of the machinery installed.
- (vi). The original capital cost of machinery and the year of purchase.
- (vii). Valuation of machinery at the beginning of the season.
- (viii). Interest and depreciation on machinery.
- (ix). Taxes.
- (x). Insurance.
- (xi). Salary allowance for slack season.
- (xii). Area and the value of the site.
- (xiii). Rate charged per maund of *kapas* when ginned for outsiders.

*C. Miscellaneous.*

- (i). Total quantity of lint produced in bales of approximately 400 lbs. during 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (ii). Cost of ginning 400 lbs. lint in the years, 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (iii). Price charged for ginning 400 lbs. in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (iv). What rebate, if any, for 400 lbs. lint was given in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (v). Did the ginning factory belong to a pool in the years, 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (vi). If so, how much was given to the pool per 400 lbs. lint in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (vii). Or, if silent, the share per gin received from the pool in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.

## II. PRESSING.

Give the actual cost of the following items for a full working season :—

*A. Working Costs.*

- (i). Stores including (a). oils, (b). leather goods, (c). others:
- (ii). Coal.
- (iii). Hessian, twines, hoops.
- (iv). Water charges.
- (v). Wages paid to menial employees.
- (vi). Petty repairs to buildings and machinery.
- (vii). Salary allowance paid to staff during the working season.
- (viii). Office expenses including office furniture, stationery, etc., with brief description of the furniture.

*B. Other Expenses.*

- (i). A brief description of the buildings regarding size, construction and state of repairs, etc.
- (ii). The year in which the factory was built, original cost of buildings.
- (iii). Capital cost of buildings at the beginning of present season.
- (iv). Interest and depreciation on buildings.
- (v). A brief description of the machinery.
- (vi). The original capital cost of machinery, and the year of purchase.
- (vii). Valuation of machinery at the beginning of the season.
- (viii). Interest and depreciation on machinery.

- (ix). Taxes.
- (x). Insurance.
- (xi). Salary allowance for slack season.
- (xii). Area and value of the site.
- (xiii). Rate charged per bale of cotton when pressed for outsiders.
- (xiv). Total number of bales of approximately 400 lbs. pressed in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xv). Cost of baling 400 lbs. lint in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xvi). Price charged for pressing 400 lbs. lint in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xvii). What rebate, if any, has been given per bale in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xviii). Did the press belong to a pool in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xix). If so, what amount was given per bale to the pool in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.
- (xx). Or, if silent, the share per bale received from the pool in 1925-26, 1926-27, 1927-28, 1928-29 and 1929-30.

Give the following information :—

- (i). Number of days the factory or press worked during the season, and number of hours per day.
- (ii). Quantity of cotton ginned.
- (iii). Quantity of cotton pressed.
- (iv). Actual wastage in ginning (work it out by subtracting the total weight of cotton seed and cotton lint from the total weight of *kapas* which came into the factory).
- (v). Wastage in pressing, if any. When a ginning factory and a press are worked together the common expenses should, if possible be given separately.

# The Board of Economic Inquiry, Punjab.

**PUBLICATION No. 38.**

(GENERAL EDITOR : J. W. THOMAS, B.Sc., B.Com.)

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## FINANCE AND MARKETING OF CULTIVATORS' WHEAT IN THE PUNJAB.

Being the report of investigations in the Lyallpur, Ferozepore  
and Attock Districts during 1930-31 by F. A. Shah, B.A.,  
and L. R. Dawar, M.A.,

UNDER THE SUPERVISION OF

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[ The Board does not hold itself responsible for any opinions expressed or  
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## PREFACE.

The Board of Economic Inquiry, Punjab, had under consideration some inquiries into some of the main crops of the Province when in 1927-28 the Indian Central Cotton Committee instituted an investigation into the financing and marketing of the cultivators' cotton in the Punjab. In this inquiry, the Board rendered appreciable help. It was then felt that a similar inquiry for the wheat crop would be useful, because in 1930-31 the Punjab alone accounted for 37·6 per cent. of the total area under wheat in India and of the total cultivated area of 30·3 million acres in the Punjab. In 1930-31 wheat occupied no less than 9·3 million acres. Accordingly, inquiries regarding the financing and marketing of wheat, were conducted in three of the more important wheat growing districts of the Province, namely Lyallpur, Ferozepore and Attock and the results are summarised in this report.

Of the three districts selected for enquiry, cultivation in Lyallpur is done almost entirely by canal-irrigation; in Ferozepore we find three types of cultivation, namely, well, canal and *barani*, while in Attock the cultivation is very largely dependent on rainfall. The following figures taken from the 1930 and 1931 *Season and Crops Reports* give the wheat areas and the average annual rainfall in the three districts.

		<i>Lyallpur.</i>	<i>Ferozepore.</i>	<i>-Attock.</i>
Rainfall in inches	..	13·08	17·38	24·19
Wheat acreage irrigated	..	662,200	360,895	17,105
Unirrigated	..	2,344	176,409	535,354
<i>Total</i>	..	<u>664,544</u>	<u>537,304</u>	<u>552,459</u>

The inquiries in the Lyallpur and Ferozepore areas were conducted in 1930 by S. Farzand Ali Shah and L. Lajpat Rai Dawar, respectively. The investigation in Attock was conducted in the following year by S. Farzand Ali Shah.

The object of the inquiry was to find out how cultivators financed their wheat crops during its different stages from the time of sowing to its final disposal, to study the local marketing conditions and to ascertain how far the cultivators were compelled by need for money to sell their wheat at a disadvantage.

The investigation was divided into two parts : the first dealing with the village, and the second with the market. Eight villages and three to five markets were selected in each District and care was taken to see that, so far as possible, the different conditions prevailing in each were duly represented by this selection. The questionnaire used, which was in large part based on that employed in the cotton inquiries, appears as an Appendix at the end of the book.

Four to five visits were made to each village. The first was made between the middle of March and the middle of April when the crop was ripening but none had been harvested and inquiries were made about the areas owned and sown with wheat, the advances received so far in this connection and the state of indebtedness of the cultivators. The second and third were made between the middle of April and the middle of June, when the crop was being harvested and threshed, to note yields, deductions made for menials and particulars about the earlier sales. In the fourth and fifth visits which were made from the middle to the end of June and the middle of July to the beginning of August, inquiries were made to elicit particulars of further sales. The market inquiries were made during the intervals between the visits to the villages.

*27th April, 1934.*

KARTAR SINGH.

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## SUMMARY.

### VILLAGE SECTION.

1. In the three districts 1,638 cultivators living in 24 villages were examined, of whom 502 were in Lyallpur (Muslims, Hindus, Sikhs), 488 in Ferozepore (Muslims, Sikhs) and 688 in Attock (Muslims). Distances of villages to markets varied from 2 to 22 miles, and of the roads 12 were entirely metalled, seven entirely unmetalled and five were part of the way metalled and part unmetalled. In Lyallpur all the holdings were cultivated by canal-irrigation; in Ferozepore there were the three types, by canal, by well and the unirrigated; in Attock except for three villages with a few well holdings all the cultivation was unirrigated. The bullock cart was the common means of transport in Lyallpur and Ferozepore and the donkey and camel in Attock.

2. Of the 1,638 cultivators, 652 (39.8 per cent.) were proprietors, 293 (17.9 per cent.) proprietor-tenants and 693 (42.3 per cent.) tenants. Lyallpur had the largest percentage of proprietors, 247 or 49.2 per cent. and Ferozepore the smallest, 151 or 33.7 per cent.; on the other hand Ferozepore had the largest percentage of tenants, 213 or 47.6 per cent. and Lyallpur the smallest, 172 or 34.3 per cent. Proprietors who were also tenants varied from 18.7 per cent. in Ferozepore to 16.5 per cent. in Lyallpur.

3. In all the districts the tenants generally preferred *batai* rentals but about one-third of the proprietor-tenants preferred cash rents. In Attock there was a considerable group of occupancy tenants.

4. The 1,638 holdings comprised 30,898 acres, of which 14,771 or 47.8 per cent. was under wheat. In Lyallpur and Attock the majority of the holdings run from 10 to 40 acres but in Ferozepore they were slightly larger, i.e., from 15 to 50 acres.

5. Of the 14,771 acres under wheat, 7,957 (54 per cent.) was unirrigated, 6,202 acres (42 per cent.) canal-irrigated and only 612 acres (4 per cent.) well-irrigated. Lyallpur cultivation is all by canals, Attock practically all *barani* and Ferozepore about half *barani* and the other half under canal and well-cultivation.

6. In Lyallpur 98 per cent. of the area was under improved varieties, while Attock had about 87 per cent. under *desi* (red) and *nabri* (white) and Ferozepore had 60 per cent. under wheat and gram or barley mixed.

7. Average yields in maunds based on estimates of the 13,347 acres examined for yields were as follows:—

District.	HOLDINGS—		
	Canal.	Well.	Barani.
Lyallpur	12.36	..	..
Ferozepore	11.73	14.0	9.13
Attock	..	..	3.11

These estimates are below those given in the *Season and Crops Report* but verbal replies of cultivators are generally found to be inexact.

8. Details of deductions from crops for menials are given for Ferozepore and Attock Districts; in the former deductions are from the common

heap before division and in the latter with one exception, from the cultivators' heap after division. In Lyallpur menials got 20·8 per cent. of the outturn while in Attock they only got 7·7 per cent.

9. Of the total outturn of 111,340 maunds, 33,613 maunds (30 per cent.) was sold by August 15th and 70 per cent. had been held in expectation of higher prices or for home consumption or use as seed.

10. Cultivators supplied their own seed in 63·7 per cent. of cases; while *sahukars* supplied seed in 19·8 per cent., landlords and relatives or friends each 7 per cent.; in all cases where seed was taken from a single source.

11. Of the 33,613 maunds sold, 15,056 maunds (47·8 per cent.) were sold in markets and 17,557 were disposed of in the villages. But only 18·6 per cent. of the cultivators sold in the markets while 39·3 per cent. took part in village transactions and 41 per cent. made no sales or transactions in wheat. Ferozepore sold 83·8 per cent. of the total sold there, in the market, while Attock used 88·6 per cent. in repayment of debt in the village.

12. In the Lyallpur District the average monthly rates of wheat per maund in the markets from April to June 1930 varied between Rs. 3/5/3 and Rs. 3/0/9; the corresponding rates in the surrounding villages for the same period varied between Rs. 3/- and Rs. 2/12/3. The rates per maund secured in the villages selling wheat in Chak Jhumra and Jaranwala markets were Rs. 0/4/9 and Rs. 0/5/6 lower than the central market rates, while in the villages around Lyallpur rates were between Rs. 0/4/0 and Rs. 0/6/4 per maund lower than those in the Lyallpur market itself.

13. In Lyallpur about half of the *rabi* instalment of land revenue was paid by the sale of wheat while about 17 per cent. of it was borrowed from co-operative societies and about 14 per cent. from *sahukars*. In Attock about 25 per cent. of the *rabi* instalment was paid from rents received from occupancy tenants and about 21 per cent. by sale of wheat.

14. Rs. 62,041 in cash and 3,429 maunds in kind was taken as advance by 729 cultivators (or 44·5 per cent. of all cultivators) with promise to repay at harvest. But 1,142 cultivators (about 70 per cent. of all) had 'old debts' amounting to Rs. 7,36,448 in cash and 642 maunds in kind. The incidence of advances and old debts is shown in the following table:—

District.	AVERAGE DEBT			
	Total No. of cultivators.	Borrower only.	Per acre of—	
			Total.	Borrowers'
			<i>wheat area.</i>	
	Rs.	Rs.	Rs.	Rs.
<i>Advances—</i>				
Lyallpur .. ..	46·3	258·3	4·3	21·6
Ferozepore .. ..	83·3	144·4	10·1	21·4
Attock .. ..	13·9	36·5	2·1	4·5
<i>Old Debt—</i>			<i>cultivated area.</i>	
Lyallpur .. ..	943·4	1,350·9	44·5	57·2
Ferozepore .. ..	301·1	680·5	14·5	32·1
Attock .. ..	174·5	208·0	11·5	12·8

Lyallpur had no advances or debts in kind and Ferozepore no old debts in kind. The *sahukar* still holds the lead both in the number of loans made and in the amount thereof. Other important sources for loans are the landlord, the *artia*, relatives and co-operative societies. The incidence of debt per head is generally much greater for owner-tenants than for either owners or tenants.

15. Of the total debts (advances and old debts) 37 per cent. was spent for productive purposes, like purchase of land and cattle, taking of mortgages and constructing of wells; and 63 per cent. for such expenses as marriages, redemption of old debts and family maintenance; the percentages are the same in the case of advances and old debts separately.

16. The bulk of the debts were taken at rates of interest varying between 17 and 30 per cent., but in Attock the rate runs up to 40 per cent. The highest number of debts carried interest of between 21-30 per cent. Interest-in-kind (*tak* or *choah*) is also charged on cash loans in Attock; in Ferozepore advances-in-kind were on the *deorhi* and *sawai* systems.

17. In Lyallpur 500 cultivators and in Ferozepore 431 were asked to state what difficulties they experienced in selling their wheat in the market. About 22 per cent. in the former and 16 per cent. in the latter district stated that they never sold wheat in the market. A great number of sellers complained of the heavy deductions levied, of the rates being fixed under cover, of defective weighings and of bad roads.

18. Wheat was stored by the cultivators in their houses. Gunny bags were popular both in Lyallpur and Ferozepore. Earthen vessels of many shapes and sizes are used for storing grain, these are known variously as *bharolis*, *bukharis*, *chuaras*, etc.

#### MARKET SECTION.

19. The investigation covered nine markets; three in Ferozepore (incomplete information about Muktsar, a fourth market in this District was collected, but could not be used in all cases), four in Lyallpur and two in Attock. Seven of these ten towns had what are called *mandis* (separate market places), but in three the *artias*' shops were widely scattered. The number of *artias* found in these markets was 438, of European firms 25, and of mills 12. Transactions were by auction in three places, by the 'open bid' system in two places and 'under cover' in five. Sixty-three roads led into these ten markets, 21 metalled and 42 unmetalled. All the markets were on the railway except Talagang in Attock.

20. The investigation covered 2,165 distinct transactions in wheat involving 55,246 maunds; cultivators in 1,617 transactions sold 41,783 maunds and traders in 548 transactions sold 13,463 maunds. The transactions by cultivators in each of the three districts ranged between 70 and 78 per cent of the total and of traders between 22 and 30 per cent. The quantities sold by cultivators in each district ranged between 66 and 70 per cent. of the total sold in these districts.

21. In a very few cases villages up to 35 miles sent wheat but the bulk of both the sellers and quantities sold came from a ten mile radius of the market. The amounts brought per seller increased with the distance covered.

22. Bullock carts, donkeys and camels were the common means of conveyance. Lyallpur markets and Moga used carts, Ferozepore Cantonment and Fazilka used all three, and in Attock donkeys were commonly used and in some cases camels. Traders commonly hire conveyance. The average rates of hire for carts, camels and donkeys was 2.25, 3.01 and 3.08 pies per maund per mile in the case of metalled roads and 3.31, 2.87 and 3.75 pies in case of unmetalled roads.

23. Out of 1,594 cultivator sellers in markets who were questioned, about one-half replied that sales were made to meet revenue demands and less than one-third of them that they were made in order to repay debts.

24. Even in the markets where Co-operative Sales Shops were found only about ten per cent. of the cultivators used them. Most of the others either expressed ignorance regarding their existence or claimed to have previous connections with an *artia* or that loans could not be secured through or from a co-operative shop.

25. In no market was there any organization to manage and control the market and to check fraudulent or unjust practices.

26. In the Ferozepore and Attock Districts the sales took place between 6 and 9 a.m., and in Lyallpur District between 10 a. m. and 5 p.m. The time for delivery of wheat was before 1 p.m. in Ferozepore and Attock and in Lyallpur at any time after noon.

27. Rates were settled by auction in the Ferozepore and Moga markets, by 'open bids' in the two Attock markets and 'under cover' in the Lyallpur markets and at Fazilka. The transactions were either '*pacca*' or '*kacheha*.'

28. An illiterate peasant cultivator needs an agent in the market for the sale of his produce.

29. The following practices which exist in one or more of these markets are alleged to be harmful to the seller—

- (i) where the *artia* buys the wheat for himself from his own client ;
- (ii) where a buyer after the rate is settled objects to the quality or the amount of dirt, etc., in the produce and thus gets the rate reduced ;
- (iii) where several heaps of different qualities belonging to several sellers are lumped into one transaction ; or
- (iv) where buyers go in ones and twos from shop to shop making detached bids so that the seller never knows which is the best offer and there is less competition.

30. In Moga, the four Lyallpur markets and Hassan Abdal weighing is done by regular employees of the *artias* while in Talagang the produce is weighed by the seller himself. In Fazilka weighmen have organized themselves into small groups and the *artia* must call some one of the group attached to his shop, but in Ferozepore Cantonment any weighman in the market can be called by any *artia*. When purchasing from the cultivator grain is weighed in all the markets on a hand scale except in Talagang where *choah*, a measure containing about three seers of wheat, is used.

31. Market charges both in cash and in kind differed considerably in these markets; they were least in Attock (though they may be concealed in lower prices given there) and were lower in the Co-operative Shops as compared with the *artias*.

32. Some 42 per cent. of traders and 22 per cent. of cultivator sellers in Lyallpur took advances while in Ferozepore only 2 per cent. of traders and 9 per cent. of cultivators did so and in Attock this practice was rare.

33. Grain is stored by the buyers and *artias* in store-rooms in their shops, or in shops or houses rented for the purpose in the vicinity of the market. An average room (*kotha*) was said to contain from 900 to 1,200 maunds of wheat. It was stated that loss through insect attack was greater in the case of market storage than in the cultivators' houses in villages; at Moga the *artias* estimated such damage at 30 maunds per room.

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## PART I.

### VILLAGE SECTION.

After consultation with the revenue officials eight villages were selected in each of the three Districts which were more or less representative of each tract. Statement I, is given on the following three pages and shows the number of cultivators examined, the type of village, the distances from the markets, the state of roads and the nature of the water supply in each case.

In the Lyallpur District five of the villages are in the Lyallpur *Tahsil*, two in Jaranwala and one in Samundri. Three of them are purely Mohammedan, four are Sikh and one has a mixed population of Sikhs, Hindus and Mohammedans. Six of the villages are inhabited by *abadkars* (peasant grantees) and two by *sufedposh* (rural officials who receive a small grant out of the revenue), where the land is mostly under tenants. Except for a Mohammedan village, which is inhabited by *janglis* (the original inhabitants of the tract), the cultivators of all the remaining villages have migrated from the densely populated East Central Punjab Districts of Jullundur, Hoshiarpur, Gurdaspur and Amritsar. All the villages have a perennial supply of canal water and their distances from the central markets vary between three and sixteen miles. Five of them have good metalled roads leading to the central market, one has a *kachcha* (unmetalled) road in fair condition and two have bad *kachcha* roads; the most common means of transport is the *gadda* (bullock cart). The number of cultivators included in the inquiry was 502.

In the Ferozepore District four villages are in the Moga *Tahsil* and one each in Ferozepore, Muktsar, Fazilka and Zira *Tahsils*. Three are inhabited solely by Mohammedans, four by *Jat* Sikhs and one by Mohammedan and Sikh *Jats*. Two villages receive irrigation by wells, three from perennial canals and three from miscellaneous sources, *e.g.*, perennial or inundation canals and wells. The distances from the central markets vary between two and twenty-two miles, to which three villages have good metalled roads, one a bad *kachcha* road and four partly metalled and partly *kachcha*. The chief means of transport is the *gadda* and the number of cultivators was 448.

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\* A copy of the questionnaire used by the investigators is given at the end of the report.

STATEMENT I-A.

Particulars of Villages Selected in Lyallpur District.

Village.	Tahsil.	CULTIVATORS.				Nearest local market.	Distance in miles.	Kind and state of roads.	Nature of water supply.
		Religion and tribe.	Original home district.	Type.	Number examined.				
197 R. B.	Lyallpur	Mohammedan, Arain.	Jullundur	Abadkar	68	{ Lyallpur { Chak Jhumra	{ 7 { 7 }	Kachcha, fair.	Perennial canal.
263 R. B.	Do.	Sikh, Jat.	Do.	Do.	77	Lyallpur	16	Pacca, good.	Do.
110 J. B.	Do.	Sikh, Hindu and Mohammedan.	Gurdaspur, Jullundur and Delhi.	<i>Sufedposh</i> : cultivation by tenants.	62	Chak Jhumra	7	Do.	Do.
218 R. B.	Do.	Sikh, Jat	Gurdaspur, Amritsar, Hoshiarpur, etc.	Do.	54	Lyallpur	3	Do.	Do.
48 G. B.	Samundri	Sikh, Jat.	Amritsar	Abadkar	43	Gojra	8	Do.	Do.
67 G. B.	Jaranwala	Sikh, Kamboh	Jullundur	Do.	88	Jaranwala	8	Do.	Do.
282 G. B.	Do.	Mohammedan, Jangli.	Original inhabitants from Ravi riverain, Amritsar	Do.	72	Do.	15	Kachcha, bad.	Do.
2 J. B.	Lyallpur	Mohammedan, Jat.	Amritsar	Do.	38	Lyallpur	12	Do.	Do.

NOTE.—The bullock cart is the usual means of transport.

STATEMENT I-B.

Particulars of Villages Selected in Ferozepore District.

Village.	Tahsil.	CULTIVATORS.			Nearest local market.	Distance in miles.	Kind and state of roads.	Nature of water supply.
		Religion and tribe.	Type.	Number examined.				
Chotia Khurd ..	Moga	Mohammedan, Jat.	Peasant proprietors.	22	{ Moga Talwandi	15	} <i>Kachcha</i> , bad, 2 miles <i>Pacca</i> , good, 13 miles <i>Kachcha</i> , fair <i>Pacca</i> , good.	<i>Barani</i> , wells and inundation canals. Wells.
Dunnawali ..	Do.	Sikh, Jat.	Do.	34	Moga	2		
Gill ..	Do.	Do.	Do.	66	Do.	9	Do.	Perennial canal.
Malyana ..	Do.	Do.	Do.	118	Do.	17	<i>Kachcha</i> , fair, 5 miles <i>Pacca</i> , good, 12 miles	<i>Barani</i> , well and perennial canals.
Ghall Khurd ..	Ferozepore	Do.	Do.	55	{ Ferozepore Moga	13 22	} <i>Pacca</i> , good.	<i>Barani</i> and wells.
Sammewali ..	Muktsar	Mohammedan, Rajput.	Mostly tenants.	57	Muktsar	15	<i>Kachcha</i> , bad.	Perennial canal.
Kabul Shah ..	Fazilka	Mohammedan and Sikh, Jat.	Peasant proprietors and occupancy tenants.	61	Fazilka	10	<i>Kachcha</i> , bad, 2 miles <i>Pacca</i> , good, 8 miles.	Do.
Talwandi Nau- bahar.	Zira	Mohammedan, Arain and Sayad.	Peasant proprietors.	35	Moga	11	<i>Kachcha</i> , bad, 1 mile <i>Pacca</i> , good, 10 miles.	Wells.

NOTE.—1. The cultivators are natives of the district.

2. The means of transport is the bullock cart, but in Chotia Khurd and Kabul Shah, donkeys are also popular.

STATEMENT I.-C.

Particulars of Villages Selected in Attock District.

Village.	Tahsil.	CULTIVATORS.			Nearest local market.	Distance in miles.	Kind and state of roads.	Nature of water supply.	Means of transport.
		Religion and tribe.	Type.	Number examined.					
Burhan ..	Attock	Mohammedan, Pathan.	Peasant proprietors and tenants.	137	Hasan Abdal	7	Pacca, good.	Barani wells.	Donkeys.
Kharala Kalan	Fatehjang	Mohammedan, Khattar.	Do.	60	Fatehjang	3	Kachcha, bad.	Barani.	Do.
Gali Jagir ..	Do.	Mohammedan, Awan.	Tenants	46	Do.	10	Pacca, fair.	Do.	Do.
Langrial ..	Pindigheb	Mohammedan, Rajput Jodhre.	Peasant proprietors.	73	Pindigheb	6	Do.	Do.	Do.
Kahal ..	Do.	Mohammedan, Khattar.	Do.	50	Thatta	8	Kachcha, bad.	Do.	Camels.
Jasial ..	Talagang	Mohammedan, Awan.	Do.	196	Talagang	6	Kachcha, fair.	Barani wells.	Donkeys.
Adlakka ..	Do.	Do.	Do.	78	Do.	4½	Kachcha, bad.	Barani.	Do.
Moorat ..	Do.	Do.	Tenants	48	Do.	4	Do.	Barani and wells.	Do.

NOTE.—The cultivators are natives of the district.

Attock District has an overwhelming majority of Muslims and in the villages selected the villagers are all of this religious persuasion. One village is in the Attock *Tahsil*, two each in Fatehjang and Pindigheb *Tahsils* and three in Talagang *Tahsil*. Four villages are held by the *Awoans*, two by *Khattars*, one by *Pathans* and one by Rajput *Jodhres*; two are cultivated exclusively by tenants, four by peasant proprietors and two by both tenants and proprietors. All the villages are dependent on rainfall and only three have a few *chahi* (well-irrigated) holdings. The distances from the central market (to which three villages have metalled and five unmetalled roads) vary from three to ten miles. Donkeys are the most common means of transport in this area. The number of cultivators included in the inquiry was 688.

Statement II. shows the various types of cultivators under investigation in each district. In Lyallpur 49.2 per cent. were proprietors and 34.3 per cent. tenants. In Ferozepore and Attock Districts the proprietors represented 33.7 and 36.9 per cent and tenants, 47.6 and 44.8 per cent., respectively. In Lyallpur 16.5, in Ferozepore 18.7 and in Attock 18.3 per cent. of the cultivators were both proprietors and tenants.

#### STATEMENT II.

##### *Proprietors and Tenants Examined in each District.*

District.	PROPRIETORS ONLY.	PROPRIETOR-TENANTS.	TENANTS ONLY.	TOTAL.
Lyallpur ..	247	83	172	502
Percentage ..	(49.2)	(16.5)	(34.3)	(100.0)
Ferozepore ..	151	84	213	448
Percentage ..	(33.7)	(18.7)	(47.6)	(100.0)
Attock ..	254	126	308	688
Percentage ..	(36.9)	(18.3)	(44.8)	(100.0)
Total ..	652	293	693	1,638
Percentage ..	39.8	17.9	42.3	100.0

Statement III. on the following page shows the conditions under which the tenants cultivate their holdings. The figures show that in the Lyallpur District the tenants-at-will prefer the *batai* system, while proprietor-tenants prefer cash rents; there are no tenants who enjoy occupancy rights. In the other two districts the *batai* system is

STATEMENT III.

Classification of Tenants and Types of Rentals.

District.	PROPRIETORS WHO ARE ALSO TENANTS.			TENANTS.									TOTAL.		
	Batai.	Money rent.	Money rent and batai.	OCCUPANCY TENANTS.			TENANTS AT-WILL.			OCCUPANCY TENANTS WHO ARE ALSO TENANTS-AT-WILL.					
				Batai.	Money rent.	Money rent and batai.	Batai.	Money rent.	Money rent and batai.	Batai.	Money rent.	Money rent and batai.	Batai.	Money rent.	Money rent and batai.
Lyallpur .. .. .	28	52	3	..	..	..	152	20	..	..	..	..	152	20	..
Ferozepore* .. .. .	133	53	27	..	..	..	..	..	..	..	..	..	70	4	10
Attock† .. .. .	124	2	..	96	4	8	123	..	2	69	..	3	288	4	13
<i>Total</i> .. .. .	285	107	30	96	4	8	275	20	2	69	..	3	510	28	23
<i>Percentage of Total</i> .. .. .	67.5	26.4	7.1	..	..	..	..	..	..	..	..	..	90.9	5.0	4.1

\*Detailed accounts for occupancy tenants and tenants-at-will are not available.

†There are also 3 tenants-at-will (*Imam masjid*) who hold land free of rent.

also prevalent among the tenants. Attock has a fair number of occupancy tenants who belong to various castes—some notified agricultural and others non-agricultural—who have held tenures for generations past. They have permanent rights in their tenancies and cannot ordinarily be ejected by the owners of the land; they can also mortgage and sell their rights in the land. On *barani* soil the *batai* system is most common, the landlord's share varying between one-third and one-half of the produce. Cash rents, generally Rs. 10/- per acre, are usual on well-irrigated land.

The total area of all the 1,638 holdings surveyed was 30,898 acres, and of this 14,771 acres or 47·8 per cent., was under wheat. Statement IV. shows the different sizes of cultivators' holdings in each district and the average area under wheat. It must be borne in mind that the inquiry covered only the holdings of resident cultivators in their own villages and the land worked by outside cultivators was not included. In the Lyallpur and Attock Districts the majority of cultivators' holdings varied in size between ten and forty acres (79 and 56 per cent., respectively) while in Ferozepore they were between fifteen and fifty (51 per cent.). The average size of the holdings surveyed came to 22·4 acres in Lyallpur, 22 in Ferozepore and 14·2 in the Attock District. The total area under wheat on these holdings reckoned as a percentage of the total cultivated area of the holdings is:—

<i>District</i>		<i>Per cent.</i>
Lyallpur	.. ..	44·7
Ferozepore	.. ..	36·2
Attock	.. ..	63·3
<i>Total</i>	.. ..	<u>47·8</u>

Statement V. gives the wheat areas under the different types of cultivation. Lyallpur District has a permanent supply of water for irrigation from the perennial canals and nearly all the wheat area is canal-irrigated. Ferozepore District receives considerable water from canals and wells, but 51·15 per cent. of the area is dependent on rainfall. Attock District has 98·65 per cent. *barani* and only 1·35 per cent. well-irrigated.

## STATEMENT IV.

*Size of Cultivators' Holdings and Wheat Areas.*

District.	Size of holding.	Number of holdings examined.	Percentages.	Total area of all holdings examined.	Area under wheat.	Average area under wheat on different holdings.	Percentage of wheat area to total area of holdings.
	Acres.			Acres.	Acres.	Acres.	
Lyallpur	1-5	7	1.4	27	18	2.5	66.0
	Over 5-10	51	10.1	397	203	4.0	51.2
	„ 10-20	204	40.6	2,923	1,359	6.7	46.5
	„ 20-40	192	38.3	5,215	2,293	12.0	44.0
	„ 40-60	40	8.0	1,863	798	19.0	42.9
	60 and over	8	1.6	624	272	34.0	43.6
	<i>Total</i>	<i>502</i>	<i>100.0</i>	<i>11,049</i>	<i>4,943</i>	<i>9.84</i>	<i>44.7</i>
Ferozepore	Under 15	178	39.8	2,394	1,125	6.3	46.9
	15 to under 50	229	51.1	5,785	1,895	8.3	32.8
	50 „ „ 80	32	7.1	1,240	458	14.3	36.7
	80 and over	9	2.0	681	180	20.0	26.5
		<i>Total</i>	<i>448</i>	<i>100.0</i>	<i>10,109</i>	<i>3,658*</i>	<i>8.2</i>
Attock	1-5	97	14.1	304	257	2.7	84.5
	Over 5-10	188	27.3	1,476	1,034	5.5	70.1
	„ 10-20	272	39.5	3,896	2,419	9.0	62.7
	„ 20-40	112	16.3	3,131	1,940	17.3	62.0
	„ 40-60	17	2.5	808	395	23.2	48.9
	60 and over	2	0.3	125	105	52.5	84.0
	<i>Total</i>	<i>688</i>	<i>100.0</i>	<i>9,740</i>	<i>6,170</i>	<i>9.0</i>	<i>63.3</i>
<i>Grand Total</i>		<i>1,838</i>		<i>30,898</i>	<i>14,771</i>	<i>9.0</i>	<i>47.8</i>

\*About 60 per cent. of this area was under wheat sown with gram or barley.

## STATEMENT V.

*Acres under Wheat Classified according to the Types of Cultivation.*

District.	Unirrigated ( <i>barani</i> ).	Canal- irrigated.	Well- irrigated.	Total.
	Acres.	Acres.	Acres.	Acres.
Lyallpur ..	..	4,943	..	4,943
(Percentage) ..	..	(100·00)	..	(100·00)
Ferozepore ..	1,871	1,259	528	3,658
(Percentage) ..	(51·15)	(34·42)	(14·43)	(100·00)
Attock ..	6,086	..	84	6,170
(Percentage) ..	(98·65)	..	(1·35)	(100·00)
<i>Total</i> ..	7,957	6,202	612	14,771
<i>Percentage</i> ..	53·87	41·99	4·14	100·00

Statements VI. and VII. show the different varieties of wheat sown in each area and the average yield per acre.

Nos. 8-A and 11 varieties cover a considerable area in Lyallpur, actually 37·8 and 35·7 per cent., respectively, of the total wheat area. No. 8-A is sown for marketing as it fetches a higher price than other varieties; No. 11 because at one time it was considered the most profitable wheat and was, therefore, recommended by the Agricultural Department, but later, 8-A was considered better and substituted in its place. In the Attock District there are two main varieties, *desi* (red) and *nabri* (white). *Desi* is more popular and covered 68·35 per cent. of the wheat area in 1931; *nabri* and 8-A were also sown but together they covered only 20 per cent. In Lyallpur and Attock Districts wheat is sown by itself, but in Ferozepore District it is often sown with gram or barley and these mixed crops covered 60·2 per cent. of the area.

The average estimated yields in maunds in the three districts are shown in Statement VII. In Lyallpur the yield per acre on canal-irrigated land was 12·33 maunds and in Attock 3·11 maunds on *barani*. In Ferozepore there were two difficulties—(a). holdings were often under different types of cultivation, e.g., canal and well, and well and *barani*; and (b). wheat was very often sown mixed with gram or barley, mostly on *barani* or on canal-irrigated fields. The cultivators examined, however, gave the total outturn on their holdings,

STATEMENT VI.

*Acreege under Different Varieties of Wheat.*

District.	VARIETIES OF WHEAT.							Total.	Mixed with gram and other crops.	Grand Total.
	Desi or red.	Nahri or white.	8-A.	17.	11.	13.	Mixed types.			
Lyallpur .. ..	..	..	1,867	1,211	1,760	9	47	4,891	49	4,943
(Percentages) .. ..	..	..	(37·8)	(24·6)	(35·7)	(0·1)	(0·9)	(99·1)	(0·9)	(100·0)
Ferozepore .. ..	..	..	..	..	..	..	..	1,456	2,202	3,658
(Percentages) .. ..	..	..	..	..	..	..	..	(39·8)	(60·2)	(100·0)
Attock .. ..	4,217	1,138	95	..	..	..	720	6,170	..	6,170
(Percentages) .. ..	(68·35)	(18·45)	(1·54)	..	..	..	(11·66)	(100·00)	..	(100·00)
<i>Total</i> .. ..	<i>4,217</i>	<i>1,138</i>	<i>1,962</i>	<i>1,211</i>	<i>1,760</i>	<i>9</i>	<i>767</i>	<i>12,520</i>	<i>2,261</i>	<i>14,771</i>

which it was found impossible to apportion to each of the different types of cultivation. The investigator therefore selected only holdings representing single types of farming for his yield estimates : these were, canal-irrigated 1,003 acres, well 360 acres and *barani* 771 acres. A comparison of these with the estimated district yields (given in brackets in the statement) shows that for the holdings examined except for the canal and well-irrigated lands of the Ferozepore District they are less than the district figures. They are probably less reliable as the investigators had to depend largely on verbal statements of the cultivators, who are usually prejudiced against any inquiries being made into the yields of produce from their land.

STATEMENT VII.  
*Yields on Different Kinds of Land.*

District.	TOTAL ESTIMATED YIELD.			AVERAGE YIELD PER ACRE.		
	Canal-irrigated.	Well-irrigated.	<i>Barani</i> .	Canal-irrigated.	Well-irrigated.	<i>Barani</i> .
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Lyallpur ..	61,107	..	..	12.36 (14.6)*	..	..
Ferozepore ..	11,764	5,041	2,409	11.73 (10.9)*	14.00 (10.9)*	3.13† (8.5)*
Attock‡ ..	..	..	18,854	..	..	3.11 (4.5)*

\*These figures show the estimated yields of wheat for the districts as reported in *Season and Crops Reports*.

† In Kabul Shah the wheat harvest was bad owing to lack of rain and this might account for the low average yield.

‡ Wheat grown on well-irrigated land is generally used as green fodder.

Statements VIII., A. and B., show the rates of deductions made on account of menials in the Ferozepore and Attock Districts, respectively. The deductions in the former district are made from the common heap before it is divided between the proprietor and the tenant cultivator, and in the latter, except in the Gali Jagir village, out of the cultivators' share of the produce. In Lyallpur the dues of menials and others are about 21 per cent. of the total yield but the same charges are only 7.7 per cent. in Attock. The menials dealt with are :—

(a) Carpenters, who fashion new, and repair old, wooden agricultural implements ; wood is supplied by the cultivator.

(b) Blacksmiths, who make new and mend iron parts of agricultural implements ; iron is supplied by the cultivator.

STATEMENT VIII-A.

*Deductions for Menials in each Village.*

District.	Village.	Carpenter.	Blacksmith.	Barber.	Begari.	Mirasi (Minstrel).	Kumhar (Potter).	Urava (Winnower).
Ferozepore	Chotia Khurd	1 md. P.	1 md. P.	$\frac{1}{2}$ md. P.	$\frac{1}{2}$ md. P.	$\frac{1}{2}$ md. P.	..	..
	Dunnewali	Do.	Do.	..	..	..	..	..
	Ghall Khurd	1 sr. M.	1 sr. M.	..	..	..	..	..
	Kabul Shah*	Do.	Do.	..	20 to 30 srs. H.	5 srs. H.	1 sr. M.	1 sr. M.
	Gill	1 md. P.	1 md. P.	1 md. net	$\frac{1}{2}$ md. P.	..	..	..
	Malyana	Do.	Do.	$\frac{1}{2}$ md. net	..	$\frac{1}{2}$ md. net	..	2 mds. H.
	Sammewali	Do.	Do.	1 md. P.	1 sr. M.	20 srs. P.	$\frac{1}{2}$ sr. M.	1 sr. M.
	Talwandi Naubahar	1 sr. M.	1 sr. M.	Do.	Do.	20 srs. H.	..	Do.

P.—Per plough.

M.—Per maund.

H.—Per heap.

\* In Kabul Shah ten seers each per heap are given to the *patwari*, the *dharamsala* and the *masjid*.

STATEMENT VIII-B.

*Deductions for Menials in each Village.*

District.	Village.	Carpenter.	Blacksmith.	Barber.	Mochi.
Attock	Burhan ..	9 srs. and 9 G. P.	9 srs. and 9 G. P.	9 srs. and 9 G. P.	..
	Kharala Kalan ..	3 srs. M. and 7 G. P.			
	Gali Jagir ..	$\frac{1}{2}$ srs. M. and 5 G. P.			
	Langrial ..	$\frac{1}{2}$ sr. M. and 6 G. P.	$\frac{1}{2}$ sr. M. and 6 G. P.	$\frac{1}{2}$ sr. M. and 6 G. P.	$\frac{1}{2}$ srs. M. and 6 G. P.
	Kahal ..	2 srs. M. and 6 G. P.			
	Jasial ..	15 srs. + 5 G. P.			
	Adlakka ..	3 srs. M. and 5 G. P.			
	Moorat ..	3 srs. M. and 6 G. P.			

P.—Per plough.

M.—Per maund.

G.—Gaddis (*Gaddi*—A small bundle of wheat plants : for yield see next page.)

(c) Barber who does his usual job and also takes messages to relatives of cultivators in other villages.

(d) Mochi, the shoe-maker.

(e) *Begari*.—A labourer who is compelled to help Government officials in the communication of orders, transport of luggage, etc. He is also required sometimes to work as watchman in the village.

(f) *Mirasi* (minstrel) who conveys marriage and death messages and accompanies *machhis* carrying the female relatives of the cultivator, e.g., a daughter going to her father-in-law's house.

(g) *Kumhar* (potter) supplies earthen pots and carries grain on his donkeys from the threshing floor to the cultivators' house.

(h) *Urava* (winnowing) separates grain from *bhusa* with the help of the *chhaj* (winnowing basket); he also helps in threshing.

The average yields *per gaddi* in the different villages in the Attock District were found to be—

Village	Average yield in seers.
Burhan .. ..	half
Kharala Kalan .. ..	„
Langrial .. ..	„
Kahal .. ..	„
Jasial .. ..	two
Adlakka .. ..	one and a half.
Moorat .. ..	three-quarters.
Gali Jagir .. ..	five-eighths.

Information for Lyallpur District is not available but the following rates are mentioned in the *Farm Accounts in the Punjab* for 1926-27 :—

	Seers.	
Blacksmith .. ..	32	plus 2 bundles*
Carpenter .. ..	32	„ 1 „
Sweeper .. ..	32	
Barber .. ..	32	
Washerman .. ..	32	
Mohammedan Priest .. ..	16	
Water-carrier .. ..	32	
Potter .. ..	..	1 bundle*
Shoemaker .. ..	..	1 „
Itinerant Leech .. ..	..	1 „

Statement IX. shows the total outturn and disposal of crops for the holdings surveyed in each district. Ferozepore District shows the lowest Total Produce and percentage of wheat sold during the period of inquiry ; its Disposal. Lyallpur has the most and Attock stands second. No wheat was held up in expectation of better prices in the Attock District,

\* A bundle contains about 16 seers of grain and 20 seers of *bhusa*.

STATEMENT IX.

*Total Outturn and its Disposal.*

District.	Total outturn.	Deduction for menials' dues payments in kind to reapers, winnowers and permanent servants.	QUANTITY SOLD.			Quantity kept for local consumption.	Quantity held up in expectation of better prices.	REMARKS.
			Up to 15th June.	16th June to 15th August.	Total.			
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	
Lyallpur .. ..	61,107	12,685	..	..	28,348*	21,165	3,909	
(Percentage) .. ..	(100·0)	(20·8)	..	..	(38·2)	(34·6)	(6·4)	
Ferozepore .. ..	31,379	..	4,031	1,611	5,642	9,678	2,760	Only 57·5% taken into account, for the rest see note below.
(Percentage) .. ..	(100·0)	..	(12·8)	(5·1)	(17·9)	(30·8)	(8·8)	
Attock .. ..	18,854	1,440	..	..	4,623*	12,791	..	Cultivators' share =15,307.
(Percentage) .. ..	(100·0)	(7·7)	..	..	(24·5)	(67·8)	..	

\* Figures for the different dates not available.

NOTES.—1. Cultivators' net share in Lyallpur and Ferozepore not calculated as the information was not available.

2. Lyallpur and Attock.—The figures showing the amount kept for local consumption and that held up for higher rates include landlords' share due from the tenant-cultivators.

3. Ferozepore.—42·5 per cent. of the total outturn comprises deductions for menials, the amounts given to landlords as their share in the produce, and the amount consumed by the cultivators up to the time when inquiry was finished.

where the average outturn of wheat per acre, as estimated by the investigator, was 3.11 maunds, (*vide*. Statement VII.), and thus it would appear that the total wheat produce of an average holding would hardly suffice to meet the needs of the cultivator's family for the year. Generally wheat was neither exported nor held up for higher rates, except in a few cases by big landlords. It is the common practice of the cultivators to try to retain enough wheat for family consumption and seed for the following year. Other cereals such as gram, barley and *bajra* are also used as food and whatever can be spared of wheat is given to the family shopkeeper in repayment of debt.

Statement X. gives the sources of seed for the holdings surveyed in the three districts, and shows that in each district a majority of the cultivators supplied their own; percentages of those doing so wholly from their own stock are: for Lyallpur 83.3 per cent., for Ferozepore 60.0 and for Attock 51.6.

In Lyallpur much of the seed included under the head "Cultivators' own" originally came from the Government Farm and its produce is resown every season. The next most important source is the *sahukar* who supplies seed to the cultivator or money to purchase it. He provided 9.5 per cent. of the cultivators with seed in Lyallpur, 17.2 in Ferozepore and 29.1 in Attock or in nearly 20 per cent. of the cases investigated. Next come two groups, landlord and relatives who were each responsible for supplying seed to 7 per cent. of the cultivators examined and usually free of interest. The landlord is as much interested in the land as the tenant who cultivates it, and he helps the tenant, if necessary, so as not to allow his land to remain unsown for want of seed.

Statement XI. shows the extent to which wheat was sold in villages and markets. It was found that out of 23,348 maunds sold in Lyallpur District 11,262 maunds were disposed of in the market (48.24 per cent.) and 12,086 maunds in the village (51.76 per cent.). In Ferozepore District out of 5,642 maunds 4,727 were disposed of in the market (83.8 per cent.) and 915 maunds in the village. In Attock out of 4,623 only 67 maunds were sold in the market and 4,556 (98.58 per cent.) in the village. In Attock the quantity of wheat sold in the market is small and the cultivators are so much in the hands of local *sahukars* that wheat is sold almost entirely to them; also the roads leading to markets are bad and the cost of transportation high. In Lyallpur which has the largest sales, we find them equally distributed between market and village.

## STATEMENT X.

*Sources of Seed Supply in Different Districts.*

Sources of supply.	DISTRICT.							
	Lyallpur.		Ferozepore.		Attock.		Total.	
	No. of culti- vators.	Percentage.						
Cultivators' own .. ..	418	83.3	280	100.0	355	51.6	1,049	63.6
<i>Sahukar</i> .. ..	48	9.5	77	17.2	200	29.1	325	10.3
Government Farm .. ..	3	0.6	5	1.1	2	0.3	10	0.6
Landlord .. ..	13	2.6	81	18.1	21	3.1	115	7.0
Other cultivators or relatives .. ..	18	3.6	..	..	97	14.1	115	7.0
Partly <i>sahukar</i> and partly own .. ..	2	0.4	7	1.6	3	0.4	12	0.8
Partly Government Farm and part- ly own .. ..	..	..	2	0.4	..	..	2	0.1
Partly landlord and partly <i>sahukar</i> .. ..	..	..	7	1.6	..	..	7	0.5
Partly <i>sahukar</i> and partly other cultivators .. ..	..	..	..	..	3	0.4	3	0.2
Partly landlord and partly own .. ..	..	..	..	..	5	0.7	5	0.3
Partly other cultivators and partly own. .. ..	..	..	..	..	2	0.3	2	0.1
<i>Total</i> .. ..	502	100.0	448	100.0	688	100.0	1,638	100.0

NOTE.—Figures are not available to show the amounts taken from different sources.

The village sales are further divided into "cash sales" and "in repayment of debt." Lyallpur ranks highest with 37.8 per cent. in local sales for cash; and Ferozepore and Attock have only 8.5 and 10.0 per cent., respectively. The last mentioned district shows the highest percentage of sales made to repay debt (83.6) while Lyallpur has 14.4 per cent. and Ferozepore only 7.7.

The percentages of wheat directly marketed through commission agents are :—

<i>District.</i>	<i>Percentage.</i>
Lyallpur .. ..	47.82
Ferozepore .. ..	83.80
Attock .. ..	1.42

STATEMENT XI.

Wheat disposed of by Cultivators in Villages and Markets.

District.	QUANTITY SOLD, IN MAUNDS.			NO. OF CULTIVATORS WHO SOLD WHEAT.			Cultivators who made no sale up to the end of the inquiry.
	VILLAGES.		Markets.	In village.	In market.	Partly in village and partly in market.	
	On cash terms.	In repayment of debt.					
<b>Lyallpur</b> .. ..	8,908	3,178	11,262	222	152	8	120
<i>(Percentages)</i> .. ..	<i>(38.15)</i>	<i>(13.61)</i>	<i>(48.24)</i>	<i>(44.2)</i>	<i>(30.28)</i>	<i>(1.6)</i>	<i>(23.92)</i>
<b>Ferozepore</b> .. ..	478	437	4,727	50	150	11	237
<i>(Percentages)</i> .. ..	<i>(8.46)</i>	<i>(7.74)</i>	<i>(83.8)</i>	<i>(11.16)</i>	<i>(33.47)</i>	<i>(2.46)</i>	<i>(52.9)</i>
<b>Attock</b> .. ..	459	4,097	67	372	3	..	313
<i>(Percentages)</i> .. ..	<i>(9.95)</i>	<i>(88.63)</i>	<i>(1.42)</i>	<i>(84.07)</i>	<i>(0.43)</i>	..	<i>(45.49)</i>
<b>Total</b> .. ..	<b>9,845</b>	<b>7,712</b>	<b>16,056</b>	<b>644</b>	<b>305</b>	<b>19</b>	<b>670</b>
<i>(Percentages)</i> .. ..	<i>(29.29)</i>	<i>(22.94)</i>	<i>(47.77)</i>	<i>(39.32)</i>	<i>(18.62)</i>	<i>(1.16)</i>	<i>(40.91)</i>

The cultivators seldom ascertain market rates except for a small number of the more intelligent men who visit the markets frequently and keep in touch with the fluctuating rates. In the market the *artia*, through whom the sales are made, supplies the cultivators with the current wheat quotations and any other relevant information which they may ask for; in the village the *bania* and these returned cultivators are sources of information.

Statement XII. shows the market rates in Lyallpur District from April to July 1930 and the corresponding rates prevailing in the nearest villages. The monthly averages were—

	Markets.		Villages.	
	Rs. a.	p.	Rs. a.	p.
April	..	..	3 5 3	3 0 0
May	..	..	3 3 9	2 15 0
June	..	..	3 0 9	2 12 3
July	..	..	2 12 3	..

The figures show a gradual downward tendency of prices in both the markets and the villages. This fall from April to July is probably a peculiar feature of the year 1930 owing to the heavy fall in prices generally.

The difference between the market and village rates in Chak Jhumra and Jaranwala markets was Rs.  $-\frac{4}{9}$  and Rs.  $-\frac{5}{6}$  per maund, respectively, but in Lyallpur the difference varied between Rs.  $-\frac{4}{4}$  and Rs.  $-\frac{6}{4}$  per maund owing to the heavy market deductions and the expenses incurred in the transport from village to market.

### STATEMENT XII.

*Rates prevailing in the Markets and the nearest Villages  
in the Lyallpur Inquiry in 1930.*

Market.	APRIL.		MAY.		JUNE.		JULY.	
	Market.	Village.	Market.	Village.	Market.	Village.	Market.	Village.
	Rs. a.	p.						
Lyallpur ..	3 6 4	3 0 0	3 4 6	3 0 5	3 3 6	2 14 2	2 7 6	..
Chak Jhumra	3 5 2	..	..	2 14 8	3 2 0	2 13 4	2 5 0	..
Jaranwala ..	3 5 4	3 0 0	3 3 6	2 13 11	..	2 9 2	2 7 6	..
Toba Tek Singh.	3 4 6	..	3 3 0	..	2 13 2	..	2 7 0	..

NOTES.—1. Figures are the monthly averages showing rates of wheat per maund.  
2. Information about Ferozepore and Attock Districts is not available.

The most important and the immediate charge on the cultivator, after each harvest, is the payment of land revenue, water-rates and cesses. An attempt was made to find what percentage of these is paid directly by the sale of grain and what other sources the cultivator uses to find the money. Statement XIII shows that in Lyallpur District 50·53 per cent. of the total demand

## STATEMENT XIII.

*Amount and Sources of Land Revenue and Cesses paid by the Cultivators.*

Sources.	LYALLPUR DISTRICT.		ATTOCK DISTRICT.			
	Rabi 1930.		Kharif 1930.		Rabi 1931.	
	Amount.	Percentage.	Amount.	Percentage.	Amount.	Percentage.
	Rs.		Rs.		Rs.	
Past agricultural savings ..	3,219	4·49	182	6·88	55	2·22
Sale of grain (in Attock, jowar and bajra for kharif dues, and wheat for rabi in both districts) ..	36,200	50·53	156	5·89	520	21·04
Pensions, service and labour ..	..	..	76	2·85	45	1·84
Sale of cattle or wool ..	875	1·22	216	8·18	141	5·72
Sale of fodder, ghi or wood fuel ..	..	..	87	3·29	35	1·42
Rent collected from occupancy tenants ..	..	..	1,009	38·16	628	25·37
Sahukar ..	10,093	14·08	731	27·62	755	30·58
Co-operative Society ..	12,200	17·04	..	..	..	..
Arzia ..	2,947	4·11	..	..	..	..
Landlord ..	1,119	1·57	..	..	..	..
Relatives or fellow cultivators ..	1,836	2·57	147	5·54	112	4·56
Mortgaging land or pledging ornaments ..	215	0·30	7	0·25	14	0·56
Miscellaneous ..	2,930	4·09	35	1·34	22	0·88
Amount not paid until the end of the inquiry. (First fortnight of August) ..	..	..	..	..	144	5·81
<b>Total ..</b>	<b>71,634</b>	<b>100·00</b>	<b>2,646</b>	<b>100·00</b>	<b>2,469</b>	<b>100·00</b>

NOTES.—1. Ferozepore District—Information not available.

2. Lyallpur District—(a) Information about kharif instalment paid in 1929 not available.

(b) Figures for rabi 1930 include water-rates.

3. Attock District—(a) Tenants pay nothing to Government directly; owners are held responsible for full payment.

(b) The rabi instalment of land revenue in 1931 in Attock District formed 83·99 per cent. of the total value of the wheat crop.

was met by selling wheat ; and 17·04 per cent. by borrowing from the Co-operative Societies and 14·08 from the *sahukars*. In Attock District up to one-third of the revenue demand was paid from the rent received from the occupancy tenants (38·16 per cent. in *kharif* and 25·37 per cent. in *rabi*). The next important source is the *sahukar*, who lent 27·62 per cent. for the former instalment and 30·58 per cent. for the latter. In the *rabi* harvest 21·04 per cent. was paid from the sale of wheat, whereas only 5·89 per cent. was paid from *jowar* and *bajra* sales at the *kharif* harvest.

Cultivators' indebtedness has been divided into two parts, "advances" and "old debts." "Advances" is used to denote the amount of debt incurred from the sowing of the wheat crop until its harvesting, and also the amount raised a month or two earlier on the understanding that the debtor will re-pay by the sale of wheat. "Old debts" stands for arrears of previous loans and are unsecured as mortgage debts have been excluded.

Statement XIV.-A. shows the advances taken by the cultivators, the different sources from which these were taken and the numbers who borrowed. From this it will be seen that out of 1,638 cultivators only 729 (44·5 per cent.) took advances ; the percentages in each district being for Lyallpur 20·1 per cent., for Ferozepore 56·9 and for Attock 54·2.

The *sahukar* provided 43·1 per cent. of the advances to cultivators ; the landlord or proprietor and relatives were also of considerable help as the former provided 21·8 per cent. and the latter 17·3 of the advances taken.

Statement XIV.-B. shows that 1,142 cultivators, 69·7 per cent., had old debts and the percentage with such debts in each district is for Lyallpur 68·5 per cent., for Ferozepore 50·2 and for Attock 83·3.

Here again, as in "advances," the *sahukar* was the most important source of borrowing ; he had provided 29·3 per cent. of the cultivators with money. The next in importance were relatives and the Co-operative Credit Societies ; each providing 8·9 per cent., and these are followed by the landlords or proprietors with 8·2 per cent.

A comparison of the two statements seems to indicate that where a large number of cultivators were already in debt the advances were less.

STATEMENT, XIV-A.

Number of Cultivators who took Advances from Different Sources.

District.	Total number of cultivators recorded.	Number of cultivators who took advances.	SOURCES.									
			Sahukar.	Co-operative Society.	Landlord or proprietor.	Relatives.	Artia.	Government (Taccavi).	Others.	More than one source.		
Lyallpur	502	101	24	10	38	4	13	..	0	3		
(Percentages)	..	(100·0)	(23·3)	(9·9)	(37·6)	(3·9)	(12·9)	..	(8·9)	(3·0)		
Ferozepore	448	255	72	2	91	9	15	..	6	60		
(Percentages)	..	(100·0)	(23·2)	(0·8)	(35·7)	(2·5)	(5·9)	..	(2·4)	(23·5)		
Attock	688	373	218	..	30	113	..	..	1	11		
(Percentages)	..	(100·0)	(58·4)	..	(8·1)	(30·3)	..	..	(0·3)	(2·9)		
Total	1,638	729	314	12	159	126	28	..	16	74		
(Percentages)	..	(100·0)	(43·1)	(1·6)	(21·8)	(17·3)	(3·8)	..	(2·2)	(10·2)		

## STATEMENT XIV-B.

*Old Debts of Cultivators and Sources of Borrowing.*

District.	Total number of cultivators recorded.	Number of cultivators in debt.	SOURCES.								
			<i>Sahukar.</i>	Co-operative Society.	Landlord or proprietor.	Relatives.	<i>Artia.</i>	Government ( <i>Taccari</i> ).	Others.	More than one source.	
Lyalpur	502	344	43	34	38	20	23	..	30	156	
(Percentages)	--	(100·0)	(12·5)	(9·9)	(11·0)	(5·8)	(6·7)	..	(8·7)	(45·4)	
Ferozepore	448	225	61	27	51	7	20	..	1	58	
(Percentages)	--	(100·0)	(27·1)	(12·0)	(22·7)	(3·1)	(8·9)	..	(0·4)	(25·8)	
Attock	688	573	231	40	5	74	..	3	2	218	
(Percentages)	..	(100·0)	(40·3)	(7·0)	(0·9)	(12·9)	..	(0·5)	(0·4)	(38·0)	
<b>Total</b>	<b>1,638</b>	<b>1,142</b>	<b>335</b>	<b>101</b>	<b>94</b>	<b>101</b>	<b>43</b>	<b>3</b>	<b>33</b>	<b>432</b>	
<b>Percentages</b>	<b>..</b>	<b>(100·0)</b>	<b>(29·3)</b>	<b>(8·9)</b>	<b>(8·2)</b>	<b>(8·9)</b>	<b>(3·7)</b>	<b>(0·3)</b>	<b>(2·9)</b>	<b>(37·8)</b>	

*Advances.*—The actual amounts of advances in cash and in kind taken from different sources are given in Statement XV-A. It will be seen that the total advances were, in cash Rs. 62,041, and in kind 3,429 maunds. The position of each district in this respect was—

<i>District.</i>	<i>Cash.</i>		<i>Kind.</i>	
	<i>Rs.</i>	<i>Percentage.</i>	<i>Maunds.</i>	<i>Percentage.</i>
Lyallpur ..	20,722	33·4	..	..
Ferozepore ..	37,111	59·8	1,049	30·6
Attock ..	4,208	6·8	2,380	69·4
<i>Total</i> ..	<u>62,041</u>	<u>100·0</u>	<u>3,429</u>	<u>100·0</u>

The following table shows the percentage importance of the various sources of advances :—

<i>Source.</i>	<i>Cash.</i>	<i>Kind.</i>
✓ Landlord or proprietor ..	38·7	14·1
<i>Sahukar</i> ..	27·9	68·1
<i>Aria</i> ..	16·8	..
Relatives ..	5·9	17·7
Co-operative Society ..	3·6	..
Government ( <i>Taccavi</i> ) ..	3·2	..
Others ..	3·9	0·1
<i>Total</i> ..	<u>100·0</u>	<u>100·0</u>

*Old Debts.*—Statement XV-B. gives the amount of old debts borrowed from different sources. The total for the three districts was Rs. 7,36,448 in cash loans and 642 maunds in kind ; the latter were altogether raised in Attock District. The percentage position of the districts as regards old cash debts was as follows :—

<i>District.</i>	<i>Cash.</i>		<i>Kind.</i>	
	<i>Rs.</i>	<i>Percentage.</i>	<i>Maunds.</i>	<i>Percentage.</i>
Lyallpur ..	4,49,415	61·0	..	..
Ferozepore ..	1,46,190	19·9	..	..
Attock ..	1,40,843	19·1	642	100·0
<i>Total</i> ..	<u>7,36,448</u>	<u>100·0</u>	<u>642</u>	<u>100·0</u>

STATEMENT XV-A. A

Sources and Amounts of Advances.

Sources.	LYALLPUR DISTRICT.				FEROZEPUR DISTRICT.				ATTOCK DISTRICT.				TOTAL.			
	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.
	Rs.		Mds.		Rs.		Mds.		Rs.		Mds.		Rs.		Mds.	
<i>Sahukar</i> ..	3,746	18.1	..	..	10,910	29.5	545	51.9	2,680	63.7	1,795	75.4	17,336	27.9	2,340	68.1
Co-operative Society.	2,135	10.3	..	..	90	0.2	..	..	..	..	..	..	2,225	3.6	..	..
<i>Artia</i> ..	5,332	25.7	..	..	5,001	13.7	..	..	..	..	..	..	10,423	16.8	..	..
Landlord or Proprietor.	5,219	25.2	..	..	18,479	49.8	458	43.7	297	7.1	21	0.9	23,995	38.7	479	14.1
Relatives ..	1,400	6.7	..	..	1,009	2.7	46	4.4	1,231	29.2	500	23.5	3,640	5.9	606	17.7
Government (Taccavi).	890	4.3	..	..	1,080	2.9	..	..	..	..	..	..	1,970	3.2	..	..
Others .. ..	2,000	9.7	..	..	452	1.2	..	..	..	..	4	0.2	2,452	3.9	4	0.1
<i>Total</i> ..	20,722	100.0	..	..	37,111	100.0	1,049	100.0	4,208	100.0	2,380	100.0	62,041	100.0	3,429	100.0

STATEMENT XV-B.

Sources and Amounts of Old Debts.

Sources.	LYALLPUR DISTRICT.				FEROZEPUR DISTRICT.				ATTOCK DISTRICT.				TOTAL.			
	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.
	Rs.		Mds.		Rs.		Mds.		Rs.		Mds.		Rs.		Mds.	
Sahukar ..	1,31,697	29.3	..	..	38,980	26.7	..	..	1,05,652	75.0	444	69.2	2,76,329	37.5	444	69.2
Co-operative Society.	68,453	15.3	..	..	19,762	13.5	..	..	10,386	7.3	..	..	98,601	13.4	..	..
Artis ..	67,902	15.1	..	..	24,300	23.5	..	..	..	..	..	..	1,02,202	13.9	..	..
Landlord or Proprietor.	42,707	9.5	..	..	48,915	33.5	..	..	..	..	..	..	91,622	12.5	..	..
Relatives ..	44,221	9.8	..	..	2,585	1.7	..	..	18,709	13.3	198	30.8	65,515	8.9	198	30.8
Government (Taccavi)	..	..	..	..	..	..	..	..	5,403	3.9	..	..	5,403	0.7	..	..
Others ..	94,435	21.0	..	..	1,648	1.1	..	..	633	0.5	..	..	96,716	13.1	..	..
Total ..	4,49,416	100.0	..	..	1,46,190	100.0	..	..	1,40,843	100.0	642	100.0	7,36,448	100.0	642	100.0

The following shows the percentage importance of the sources of old debts :—

Source.	Cash.	Kind.
✓ <i>Sahukar</i> .. ..	37·5	69·2
<i>Artia</i> .. ..	13·9	..
✓ Co-operative Society ..	13·4	..
Landlord or Proprietor ..	12·5	..
Relatives .. ..	8·9	30·8
Government ( <i>Taccavi</i> ) ..	0·7	..
Others .. ..	13·1	..
<i>Total</i> .. ..	<u>100·0</u>	<u>100·0</u>

The *sahukar* ranks highest in this respect although his position as the chief rural financier is said to be declining owing to the extension of the Co-operative Societies. A statement showing the amount of total debt (old debt plus advance money) taken from various sources in each district is given as Appendix A. to the Village Section of the Report.

No instance was noted of a borrower having given a written undertaking to sell the crop to, or through, the lender, but it was found that, in every case where a loan had been taken from an *artia*, there was a verbal undertaking that the crop would be sold through him; the cultivators considered themselves morally bound to the *artia*, and also by necessity because of the fear of the creditor demanding immediate recovery if they failed to sell through him.

Statement XVI.-A. shows the amount of advances and Statement Amounts and Pur- XVI.-B. the purposes for which the old debts were taken. poses of Loans. Analysing them we get the following percentages of productive loans in each district :—

District.	Cash.		Kind.	
	Advances.	Old debts.	Advances.	Old debts.
Lyallpur ..	33·0	36·3	..	..
Ferozepore ..	38·3	23·0	25·4	..
Attock ..	52·7	53·6	87·2	75·9
<i>Average</i> ..	<i>37·5</i>	<i>37·0</i>	<i>68·3</i>	<i>75·9</i>

Of the total (old debts plus advances) in cash about 37 per cent. was spent on productive purposes, *e.g.*, buying land, bullocks, fodder and seed, taking land on mortgage, the construction of wells for irrigation, etc.

The remaining 63 per cent. was spent for unproductive purposes ; the most important being—

Purpose.	Percentages—	
	Advances.	Old debts.
Marriages ..	17.7	17.7
Redeeming old debts ..	9.4	9.6
Family maintenance ..	3.4	8.1

It will be seen from the statements that loans-in-kind, which are generally for seed and household consumption, were not made in Lyallpur District. A statement showing the purposes for which total debts (old debt plus advances) were taken in each district is given as Appendix B. to this part of the Report.

### STATEMENT XVI-A.

*Purposes for which Advances were taken.*

Purpose.	Lyallpur District.	Percentage.	Ferozepore District.	Percentage.	Attock District.	Percentage.	Total.	Percentage.
	Rs.		Rs.		Rs.		Rs.	
<b>CASH—</b>								
<i>Unproductive—</i>								
Litigation ..	..	..	828	2.2	..	..	828	1.3
Marriages ..	3,094	14.9	7,055	19.0	820	19.5	10,969	17.7
Payment of old debts ..	2,034	9.8	3,555*	9.6	215	9.0	5,804	9.4
Family expenses ..	1,386	6.7	93†	0.3	631	15.0	2,110	3.4
Government dues ..	5,898	28.5	1,442	3.9	75	1.8	7,415	11.9
Miscellaneous ..	1,474	7.1	9,935	26.8	250	5.9	11,659	18.8
<i>Productive—</i>								
Land rent ..	1,969	9.5	1,213	3.3	..	..	3,182	5.1
Building purposes ..	294	1.4	140	0.4	100	2.4	534	.9
Purchase of land ..	..	..	..	..	250	5.9	250	.4
Land in mortgage ..	1,594	7.7	..	..	..	..	1,594	2.6
Seed ..	447	2.2	5,184	13.9	764	18.2	6,395	10.3
Purchase of bullocks ..	2,532	12.2	7,666	20.6	1,103	22.3	11,301	18.2
<b>Total ..</b>	<b>20,722</b>	<b>100.0</b>	<b>37,111</b>	<b>100.0</b>	<b>4,298</b>	<b>100.0</b>	<b>62,041</b>	<b>100.0</b>
<b>KIND—</b>								
Seed ..	..	..	266	25.4	2,076	87.2	2,342	68.3
Family expenses ..	..	..	..	..	304	12.8	304	8.9
Miscellaneous ..	..	..	783	74.6	..	..	783	22.8
<b>Total ..</b>	<b>..</b>	<b>..</b>	<b>1,049</b>	<b>100.0</b>	<b>2,380</b>	<b>100.0</b>	<b>3,429</b>	<b>100.0</b>

\* The figure includes loans taken for more than one purpose, e.g., payment of old debts, purchase of cattle and payment of Government dues.

† This amount was spent partly on family maintenance and partly in payment of Government dues.

Statements XVII-A and B show the amounts of advances and old debts, respectively, (a) against proprietors, (b) proprietors who were also tenants and (c) tenants in each district, classified according to the rates of interest demanded.

STATEMENT XVI-B.

Purposes for which Old Debts were contracted.

Purposes.	Lyalpur District.		Morozepore District.		ATTOCK DISTRICT.				TOTAL.			
	Rs.	Percentage.	Rs.	Percentage.	Cash.	Per cent.	Kind.	Per cent.	Rs.	Per cent.	Kind.	Per cent.
<i>Unproductive—</i>												
Litigation ..	10,350	2·3	9,220	6·3	9,932	7·0	..	..	29,502	4·0	..	..
Marriage expenses ..	84,661	18·8	32,687	22·3	13,055	9·2	..	..	1,30,403	17·7	..	..
Payment of old debts ..	54,629	12·2	*8,110	5·5	8,017	5·7	..	..	70,756	9·6	..	..
Family expenses ..	33,550	7·5	†4,480	3·1	21,629	15·7	154·5	24·1	59,659	8·1	154·5	24·1
Government dues ..	43,803	9·7	1,444	1·0	1,750	1·2	..	..	47,000	6·4	..	..
Unclassified debts ..	..	..	40,876	28·0	..	..	..	..	40,876	5·6	..	..
Miscellaneous ..	59,507	13·3	15,735	10·8	10,933	7·7	..	..	86,176	11·7	..	..
<i>Productive—</i>												
Construction of well ..	..	..	†8,242	5·6	4,024	2·8	..	..	12,266	1·7	..	..
Building purposes ..	4,147	0·9	300	0·2	1,490	1·0	..	..	5,937	0·8	..	..
Purchase of land ..	67,558	15·0	6,673	4·6	16,612	11·7	..	..	90,841	12·3	..	..
Taking land in mortgage ..	..	..	..	..	2,940	2·0	..	..	2,940	0·4	..	..
Redemption of mortgaged land ..	..	..	..	..	320	0·2	..	..	320	..	..	..
Seed ..	15	..	2,964	2·0	1,557	1·1	487·5	75·9	4,436	0·6	487·5	75·9
Land lease and rent ..	52,960	11·8	..	..	..	..	..	..	52,960	7·2	..	..
Purchase of bullocks ..	38,234	8·5	15,559	10·6	47,793	34·2	..	..	1,01,586	13·8	..	..
Purchase of fodder ..	..	..	..	..	791	0·5	..	..	791	0·1	..	..
<b>Total ..</b>	<b>4,49,415</b>	<b>100·0</b>	<b>1,46,190</b>	<b>100·0</b>	<b>1,40,843</b>	<b>100·0</b>	<b>642·0</b>	<b>100·0</b>	<b>7,36,448</b>	<b>100·0</b>	<b>642·0</b>	<b>100·0</b>

\*The figures show amounts stated as spent on mixed purposes, e.g., payment of old debts, purchase of bullocks, horses, buffaloes and payment of Government dues.

†The amount was spent partly upon family maintenance and partly on the payment of land revenue.

‡The amount was spent upon construction of wells and payment of land leases and rent.

STATEMENT XVII-A.

Amounts of Advances at Various Rates of Interest.

Types of cultivators.	CASH ADVANCES (IN RUPEES).									ADVANCES IN KIND (IN MAUNDS).			
	Total.	RATE OF INTEREST PER CENT. PER ANNUM.								Total advance.	Without interest.	Sawai† system.	Deorhi† system.
		Without interest.	Below 12	12 to 16	17 to 20	21 to 30	31 to 40	Above 40	On <i>tak</i> system.*				
<i>Lyallpur District—</i>													
Proprietors ..	10,610	319	229	2,729	2,180	5,153	..	..	..	..	..	..	..
Proprietor-tenants ..	4,155	520	..	1,480	1,320	832	..	..	..	..	..	..	..
Tenants ..	5,957	2,926	..	581	756	1,697	..	..	..	..	..	..	..
Total ..	20,722	3,765	229	4,790	4,256	7,682	..	..	..	..	..	..	..
Percentage ..	100·0	18·2	1·1	23·1	20·5	37·1	..	..	..	..	..	..	..
<i>Beroze ore District—</i>													
Proprietors ..	12,728	758	140	3,340	3,512	4,353	200	425	..	139	15	4	120
Proprietor-tenants ..	17,277	546	610	3,119	5,491	5,931	240	1,340	..	499	37	164	298
Tenants ..	7,106	2,144	350	370	975	3,054	20	213	..	411	64	80	267
Total ..	37,111	3,448	1,080	6,829	9,978	13,338	460	1,978	..	1,049	116	248	685
Percentage ..	100·0	9·3	2·9	18·4	26·9	36·0	1·2	5·3	..	100·0	11·1	23·6	65·3
<i>Attock District—</i>													
Proprietors ..	1,048	383	..	..	20	630	15	..	..	1,127	87	988	52
Proprietor-tenants ..	1,813	400	140	..	..	250	1,023	..	..	570	119	448	2·5
Tenants ..	1,347	985	..	..	..	212	88	32	30	683	356	318	9·5
Total ..	4,208	1,768	140	..	20	1,092	1,126	32	30	2,380	562	1,764	64
Percentage ..	100·0	42·0	3·3	..	0·5	26·0	26·8	0·7	0·7	100·0	23·6	73·7	2·7

\* Interest in kind, e.g., 2 seers of maize and one seer of wheat per rupee of the loan at each *kharij* and *rabi* harvests, respectively : about 12 per cent. per annum according to harvest prices in 1930-31.

† *Sawai* and *Deorhi* literally mean 25 and 50 per cent., but as advances are made for about six months, the interest is really 56½ and 125 per cent. per annum, respectively.

STATEMENT XVII-B.

Amounts of Old Debt at Various Rates of Interest.

Types of cultivators.	CASH DEBT (IN RUPEES).										DEBT IN KIND (IN MAUNDS).				
	Total.	RATE OF INTEREST PER CENT. PER ANNUM.									Total.	Without interest.	Sawai system.	Dearhi system.	
		Without interest.	Below 12	12 to 16	17 to 20	21 to 30	31 to 40	Above 40	200 choahs* †	On tak system. †					
<b>Lyalpur District—</b>															
Proprietors ..	2,37,588	3,722	48,382	79,153	50,611	54,822	898	..	..	..	..	..	..	..	..
Proprietor-tenants ..	1,03,605	1,286	26,996	40,798	17,981	16,544	..	..	..	..	..	..	..	..	..
Tenants ..	1,08,222	11,743	9,898	28,050	16,035	42,196	300	..	..	..	..	..	..	..	..
<b>Total</b> ..	<b>4,49,415</b>	<b>16,751</b>	<b>85,276</b>	<b>1,48,001</b>	<b>84,627</b>	<b>1,13,562</b>	<b>1,198</b>	..	..	..	..	..	..	..	..
<b>Percentage</b> ..	<b>100·0</b>	<b>3·7</b>	<b>19·0</b>	<b>32·9</b>	<b>18·8</b>	<b>25·8</b>	<b>0·3</b>	..	..	..	..	..	..	..	..
<b>Ferozepore District—</b>															
Proprietors ..	49,796	245	300	21,575	7,859	19,217	600	..	..	..	..	..	..	..	..
Proprietor-tenants ..	79,615	1,005	..	14,779	27,096	35,430	965	340	..	..	..	..	..	..	..
Tenants ..	16,779	1,778	1,036	1,649	3,792	8,184	..	340	..	..	..	..	..	..	..
<b>Total</b> ..	<b>1,46,190</b>	<b>3,028</b>	<b>1,336</b>	<b>38,003</b>	<b>38,747</b>	<b>62,831</b>	<b>1,565</b>	<b>680</b>	..	..	..	..	..	..	..
<b>Percentage</b> ..	<b>100·0</b>	<b>2·1</b>	<b>0·9</b>	<b>26·0</b>	<b>26·5</b>	<b>42·9</b>	<b>1·1</b>	<b>0·5</b>	..	..	..	..	..	..	..
<b>Attok District—</b>															
Proprietors ..	73,701	11,886	4,315	3,382	4,150	14,742	21,037	100	13,822	287	281·75	25·50	182·25	74·0	..
Proprietor-tenants ..	35,257	3,808	2,675	3,078	360	3,305	15,051	900	5,460	820	13·75	13·75	..	..	..
Tenants ..	31,815	7,971	727	1,908	772	5,815	9,874	1,254	695	2,869	346·50	200·50	104·30	41·7	..
<b>Total</b> ..	<b>1,40,843</b>	<b>23,465</b>	<b>7,717</b>	<b>8,368</b>	<b>5,282</b>	<b>23,862</b>	<b>45,962</b>	<b>2,254</b>	<b>19,977</b>	<b>3,956</b>	<b>642·0</b>	<b>239·75</b>	<b>286·55</b>	<b>116·7</b>	<b>18·0</b>
<b>Percentage</b> ..	<b>100·0</b>	<b>16·7</b>	<b>5·5</b>	<b>6·0</b>	<b>3·7</b>	<b>16·9</b>	<b>32·6</b>	<b>1·6</b>	<b>14·2</b>	<b>2·8</b>	<b>100·0</b>	<b>37·4</b>	<b>44·6</b>	<b>18·0</b>	<b>..</b>

\* A measure equal to three seers : 7½ maunds of maize in *kharif* and 7½ maunds of wheat in *rabi* per Rs. 100/- per annum ; i.e., 25 per cent. per annum according to harvest prices in 1930-31.

† About 12 per cent. per annum.

Analysing the figures we get the following percentages of the amounts of advances and old debts at different rates of interest in each district.

STATEMENT XVII-C.

*Percentage of Debt at Different Rates of Interest.*

Rates of interest per cent. per annum.	Lyallpur District.	Ferozepore District.	Attock District.	Average.
<i>Advances.</i>				
Without interest .. ..	18.2	9.3	42.0	23.2
Below 12 .. ..	1.1	2.9	3.3	2.4
From 12 to 16 .. ..	23.1	18.4	..	13.8
.. 17 .. 20 .. ..	20.5	26.9	0.5	15.9
.. 21 .. 30 .. ..	37.1	36.0	26.0	33.0
.. 31 .. 40 .. ..	..	1.2	26.8	9.3
Above 40 .. ..	..	5.3	0.7	2.0
<i>Tak system</i> .. ..	..	..	0.7	0.2
<i>Old Debts.</i>				
Without interest .. ..	3.7	2.1	16.7	7.5
Below 12 .. ..	19.0	0.9	5.5	8.5
From 12 to 16 .. ..	32.9	26.0	6.0	21.6
.. 17 .. 20 .. ..	18.8	26.5	3.7	16.3
.. 21 .. 30 .. ..	25.3	42.9	16.9	28.3
.. 31 .. 40 .. ..	0.3	1.1	32.6	11.3
Above 40 .. ..	..	0.5	1.6	0.9
200 choahs .. ..	..	..	14.2	4.7
<i>Tak system</i> .. ..	..	..	2.8	0.9

The figures confirm the assumption that the bulk of advances and old debts were taken at rates of interest varying between 17 and 30 per cent. per annum but in Attock the prevailing rates run up to 40 per cent.

Interest free loans were advanced by relatives and landlords. Attock District shows the highest percentage under this head, chiefly owing to the

fact that almost all the landlords are Muslims and therefore they do not charge interest. The advances and old debts shown under the heading "below 12%" are mostly *taccavi* loans (@ 6½ per cent.) and those "from 12 to 16 per cent." are loans advanced by the Co-operative Credit Societies (@ 12½ per cent. per annum). As already mentioned, the majority of the borrowings were at rates varying between 17 and 40 per cent. on loans from *sahukars*, Hindu landlords or proprietors and *artias*; the common rates of interest being *paisa rupaiya mahwar*\* (18½ per cent. per annum) and 25 per cent. per annum. Most of the loans under the head "31 to 40 per cent." were advanced by the *sahukara* class at a rate of *do paisa rupaiya mahwar* † or 37½ per cent. per annum, but from the cultivators who had little or no security to offer, some *sahukars* charged at the rate of 75 per cent. per annum.

In some villages of the Attock District interest-in-kind is charged on cash loans such as "*choah rupaya fasal*," or three seers of grain per rupee per harvest (maize in *kharif* and wheat in *rabi*). Another system is called *tak* which was found only in two of the villages; under this system two seers of maize per rupee of the loan at *kharif* harvest and one seer of wheat per rupee at *rabi*, are generally taken as interest. If the debtor fails to pay the amount of grain due as interest at harvest time, its value is added to the principal and compound interest charged at the rate of 75 per cent. per annum. The *sahukars* who had advanced on *tak* or *choah* lost proportionately on the fall in prices of food grains in 1930, hence there was a general tendency to change from their old methods.

In Ferozepore District 65.3 per cent. of the total advances-in-kind were taken on *deorhi*‡ and 23.6 on *sawai*§ system; the remaining 11.1 was advanced by relatives or landlords, free of interest. Of such advances in the Attock District 73.7 per cent. were taken on *sawai* system, and the balance was free of interest. Of the old debts in kind 37.4 per cent. were without interest, 44.6 on *sawai* and 18.0 on *deorhi* system. Here, as elsewhere, "interest rates ordinarily vary with the supply of money, the demand for it, the risk incurred in lending it and the trouble and expense of collecting it". ||

A statement showing the amount of total debt (old debts plus advances) raised at various rates of interest, by the different classes of cultivators is given in Appendix C. to this part of the Report.

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\* One pice per rupee per month. † Two pice per rupee per month.  
 ‡ One and a half times the amount to be repaid after each harvest (6 months) i. e., 125 per cent. per annum.  
 § One and a quarter times repaid as above (6 months), i. e., 56½ per cent. per annum.  
 || M. L. Darling, "Rusticus Loquitor," page 328.

Statements XVII, A. and B., showed the amounts of loans in cash and in kind, taken by different classes of cultivators in each district and the rates of interest paid. The percentages of the total amount borrowed by the different classes are—

District.	PERCENTAGES OF TOTAL AMOUNT BORROWED BY—					
	Proprietors.		Proprietor-tenants.		Tenants.	
	Cash.	Kind.	Cash.	Kind.	Cash.	Kind.
<i>Advances.</i>						
Lyallpur ..	51·2	..	20·0	..	28·8	..
Ferozepore ..	34·3	13·2	46·6	47·6	19·1	39·2
Attock ..	24·9	47·3	43·1	24·0	32·0	28·7
<i>Old debts.</i>						
Lyallpur ..	52·9	..	23·0	..	24·1	..
Ferozepore ..	34·1	..	54·4	..	11·5	..
Attock ..	52·3	43·9	25·1	2·1	22·6	54·0

In the 24 villages investigated, there were 652 proprietors (39·8 per cent. of the total number of cultivators); of these 433 (26·4 per cent.) were in debt. In the same villages there were 293 proprietor-tenants and 693 tenants only (17·9 per cent. and 42·3 per cent., respectively, of the total number of cultivators); of these 210 (12·8 per cent.) and 499 (30·5 per cent.), respectively, were in debt.

Statements XVIII, A. and B., show the average incidence of advance money and old debts, respectively, per head and per acre. The average incidence of cash debt (advances and old debts) per head of proprietors, proprietor-tenants and tenants was—

District.	DEBT PER HEAD.					
	Proprietors.		Proprietor-tenants.		Tenants.	
	Total.	In debt.	Total.	In debt.	Total.	In debt.
<i>Advances.</i>						
Lyallpur ..	Rs. 42·95	Rs. 294·32	Rs. 71·77	Rs. 397·13	Rs. 24·15	Rs. 83·10
Ferozepore ..	84·25	179·85	84·56	107·62	81·06	146·37
Attock ..	14·72	43·27	22·70	57·56	4·23	8·64
<i>Old debts.</i>						
Lyallpur ..	961·9	1,503·7	1,226·5	1,668·9	642·0	880·1
Ferozepore ..	329·8	829·9	199·8	364·8	373·3	846·9
Attock ..	131·6	156·7	289·0	342·3	102·9	125·0

STATEMENT XVIII-A.

Incidence of Advances.

District.	Types of cultivators.	No. of cultivators recorded.	No. who took advances.	WHEAT AREA.		TOTAL AMOUNT OF ADVANCES.		AVERAGE AMOUNT OF ADVANCE.							
				Total.	Held by borrowers.	PER HEAD FOR ALL CULTIVATORS.		PER HEAD PER BORROWER.		PER ACRE OF TOTAL WHEAT AREA.		PER ACRE OF WHEAT AREA HELD BY BORROWERS ONLY.			
						Cash.	Kind.	Cash.	Kind.	Cash.	Kind.	Cash.	Kind.		
LYALPUR.	Proprietors ..	247	36	Acres. 1,676	Acres. 259	Rs. 10,610	Mds. ..	Rs. 42-95	Mds. ..	Rs. 294-32	Mds. ..	Rs. 6-33	Mds. ..	Rs. 41-00	Mds. ..
	Proprietor-tenants ..	83	15	1,387	259	5,957	..	71-77	..	397-13	..	4-29	..	32-71	..
	Tenants ..	172	50	1,880	439	4,155	..	24-15	..	83-10	..	2-20	..	9-41	..
	<i>Total</i> ..	<i>502</i>	<i>101</i>	<i>4,943</i>	<i>957</i>	<i>20,722</i>	<i>..</i>	<i>46-29</i>	<i>..</i>	<i>258-31</i>	<i>..</i>	<i>4-27</i>	<i>..</i>	<i>21-62</i>	<i>..</i>
FEROZEPUR.	Proprietors ..	151	71	1,330	532	12,728	44	84-25	0-29	179-85	0-61	9-57	0-03	23-92	0-08
	Proprietor-tenants ..	84	66	1,670	734	7,106	181	84-56	2-15	107-62	2-74	4-25	0-10	9-68	0-24
	Tenants ..	213	118	658	465	17,227	365	81-06	1-71	146-37	3-09	26-18	0-55	37-05	0-78
	<i>Total</i> ..	<i>448</i>	<i>255</i>	<i>3,658</i>	<i>1,731</i>	<i>37,051</i>	<i>590</i>	<i>83-29</i>	<i>1-38</i>	<i>144-41</i>	<i>2-14</i>	<i>10-13</i>	<i>0-16</i>	<i>21-41</i>	<i>0-34</i>
ATTOCK.	Proprietors ..	254	141	2,564	1,245	1,048	1,127	14-72	2-81	43-27	5-65	1-87	0-36	4-4	0-80
	Proprietor-tenants ..	126	72	1,118	664	1,813	570	22-70	4-93	57-56	8-34	3-75	0-46	7-8	0-84
	Tenants ..	308	160	2,488	1,410	1,347	683	4-23	3-64	8-64	5-95	0-60	0-68	1-31	0-92
	<i>Total</i> ..	<i>688</i>	<i>373</i>	<i>6,170</i>	<i>3,319</i>	<i>4,208</i>	<i>2,380</i>	<i>13-88</i>	<i>3-79</i>	<i>36-49</i>	<i>6-64</i>	<i>2-07</i>	<i>0-50</i>	<i>4-5</i>	<i>0-85</i>

STATEMENT XVIII-B.

Incidence of Old Debt per Head and per Acre.

District.	Types of cultivators.	Number of cultivators recorded.	Number who were in debt.	CULTIVATED AREA.		TOTAL DEBT.		AVERAGE DEBT.							
				Total.	Held by borrowers only.	Cash.	Kind.	PER HEAD OF ALL CULTIVATORS.		PER HEAD PER BORROWER.		PER CULTIVATED ACRE FOR ALL HOLDINGS.		PER CULTIVATED ACRE HELD BY BORROWERS ONLY.	
								Cash.	Kind.	Cash.	Kind.	Cash.	Kind.	Cash.	Kind.
				Acres.	Acres.	Rs.	Mds.	Rs.	Mds.	Rs.	Mds.	Rs.	Mds.	Rs.	Mds.
LYALLPUR.	Proprietors ..	247	168	5,823	3,641	2,27,588	..	981·0	..	1,503·7	..	40·8	..	65·3	..
	Proprietor-tenants ..	83	61	2,197	1,067	1,01,803	..	1226·5	..	1,668·9	..	46·4	..	61·1	..
	Tenants ..	172	125	3,029·3	2,433	1,10,024	..	642·0	..	880·1	..	36·2	..	45·2	..
	<i>Total</i> ..	<i>502</i>	<i>344</i>	<i>11,040</i>	<i>7,741</i>	<i>4,49,415</i>	<i>..</i>	<i>943·4</i>	<i>..</i>	<i>1,350·9</i>	<i>..</i>	<i>44·5</i>	<i>..</i>	<i>57·2</i>	<i>..</i>
PUNJAB.	Proprietors ..	151	60	3,834	1,039	49,798	..	329·8	..	829·9	..	13·0	..	30·4	..
	Proprietor-tenants ..	84	46	1,949	724	16,779	..	199·8	..	364·8	..	8·6	..	23·2	..
	Tenants ..	213	119	4,326	2,191	79,615	..	373·8	..	846·9	..	18·4	..	36·3	..
	<i>Total</i> ..	<i>448</i>	<i>225</i>	<i>10,109</i>	<i>4,554</i>	<i>1,46,190</i>	<i>..</i>	<i>301·1</i>	<i>..</i>	<i>680·5</i>	<i>..</i>	<i>14·46</i>	<i>..</i>	<i>32·1</i>	<i>..</i>
ATCOCK.	Proprietors ..	254	215	3,704	3,266	33,701	282·8	131·6	1·1	156·7	1·3	9·1	0·1	10·3	8·7
	Proprietor-tenants ..	126	103	2,001	1,870	35,257	13·7	289·0	11·3	342·3	0·1	17·6	..	18·9	..
	Tenants ..	308	255	4,035	3,421	31,885	345·5	102·9	1·1	125·0	1·4	7·9	0·1	9·9	0·1
	<i>Total</i> ..	<i>688</i>	<i>573</i>	<i>9,740</i>	<i>8,557</i>	<i>100,843</i>	<i>642·0</i>	<i>174·5</i>	<i>4·5</i>	<i>208·0</i>	<i>0·9</i>	<i>11·5</i>	<i>0·6</i>	<i>12·8</i>	<i>2·9</i>

In the Lyallpur District the proprietors and tenants seem to be much more heavily indebted than in the other districts. It is said that the successive failures of the crops in the three or four preceding years, and the abnormal fall in the prices of agricultural products in the year 1930, are the chief factors responsible for this heavy indebtedness.

Attock District is very poor in respect to regular markets; 98·6 per cent. of the cultivators disposed of their surplus wheat in the villages to the cultivators' Difficulties in Marketing local shop-keepers who happen to be their *sahukars* also, and the rest was marketed directly by the cultivators. In Lyallpur 500 cultivators and in Ferozepore 431 were questioned as to the difficulties experienced by them in marketing their produce; 22·2 per cent. in the former District and 16·0 per cent. in the latter stated that they had never been to the market at all or not for a long time. In Lyallpur 38 per cent. had nothing to say; they seemed to be quite ignorant of the marketing system; 7·8 per cent. in Lyallpur and 43·8 per cent. in Ferozepore said that they experienced no difficulty and only 32·0 per cent. in the former District and 40·2 per cent. in the latter pointed out the following difficulties:—

Nature of Difficulties in Marketing.	Percentage of the total complaints.	
	Lyallpur.	Ferozepore
1. Heavy Deductions .. .. .	69·4	34·7
2. Low rates for good quality wheat and the system of auctioning more than one heap at a time .. .. .	6·3	2·9
3. Defective weighing .. .. .	11·3	4·6
4. Rates fixed under cover .. .. .	1·8	30·0
5. No voice in <i>mandi</i> .. .. .	8·1	1·7
6. No shady place for the bullocks to stand in the market compound .. .. .	3·1	..
7. Roads leading to <i>mandi</i> bad .. .. .	..	13·9
8. <i>Kachcha</i> transactions unjust to the sellers .. .. .	..	2·3
9. <i>Rulai</i> charge in addition to <i>karta</i> .. .. .	..	1·2
10. <i>Chhanai</i> charge incurred even when there was no dirt or dust in grain .. .. .	..	2·3
11. <i>Mehra</i> (Hindu water-carrier) deduction .. .. .	..	3·5
12. <i>Pacca</i> weight in <i>maund</i> not understood .. .. .	..	2·9

502 cultivators in the Lyallpur District were approached for their opinions on the question of "Open markets with open prices." 58·6 per cent. could not give definite answers, 25·9 per cent. favoured auction sale by *artias*, but with less deductions and 13·1 per cent.

favoured the system of direct sales with no *artia* and no deductions. Only 2·4 per cent. favoured the present system where prices are fixed under cover.

The cultivators of seven villages in Ferozepore District market their produce by auction in Moga, Ferozepore-Cantonment and Muktsar. 250 of these cultivators were asked whether they would prefer sales under cover to the existing auction sales and nearly all favoured the existing system. The cultivators of the eighth village market their produce in Fazilka, where prices are fixed under cover. 55 cultivators of this village were asked whether they preferred open bids to the present system of sales; the latter was favoured by three cultivators only but none could offer any argument in support; the other 52 favoured the auction system for the following reasons:—

<i>Reasons.</i>	<i>Cultivators in—</i>	
	Seven villages.	Eighth village.
1. There is no certainty that the rates given by the <i>artias</i> are those given by the buyers .. .. .	..	5
2. Better rates under auction system .. .. .	62	16
3. At an auction everything is open .. .. .	132	29
4. Auction system advantageous .. .. .	48	2
5. Auction saves from <i>dalali</i> charges .. .. .	3	..
6. In favour of auctions but against the system of auctioning more than one heap at a time .. .. .	5	..

In the market wheat sellers find no difficulty in recovering the full price from the *artias*; as soon as the heap is weighed, the seller receives full payment after deduction of the customary allowances.

In each district cultivators were questioned as to what they did, if on reaching the market with their wheat they found that they could not get a good price that day. About 90 per cent. said that they sold their wheat whatever the rate; they never left it in the market or took it back to their villages. This enforced sale regardless of a low price for the day is said to be due to the following causes:—

(a) Inconvenience to a cultivator (habituated to a particular mode of village life) who has to pass a night in the city.

(b) Cultivators think it much too expensive to spend two rupees on feeding their bullocks for the night in addition to the cost of their own board and lodging.

(c) Produce is mostly taken for sale to the market only when the cultivators are hard pressed for money and cannot afford to wait, no matter how tempting the future prospects may be.

(d) Wheat, when deposited with the *artia*, is often trampled on and spoiled by the hoofs of the stray animals and some of it destroyed.

In the villages there are no facilities for common storage and every cultivator has to make his own arrangements. In Attock Storage in Villages. District the ordinary means of storage is *sakari* (earthen bin); gunny bags are also used, but only by the few who can afford to buy bags. The means of storage adopted in the Lyallpur and Ferozepore Districts are :—

Means of Storage.	Percentage of the total number of cultivators.	
	Lyallpur.	Ferozepore.
Gunny bags .. .. .	39.0	20.1
Corner of a living room .. .. .	28.9	39.6
<i>Kothi</i> .. .. .	17.9	12.6
Iron pan .. .. .	1.0	..
<i>Bharoli</i> .. .. .	..	12.0
<i>Bukhari</i> .. .. .	..	3.7
<i>Parchhatti</i> .. .. .	..	3.2
Earthen pots .. .. .	..	2.7
<i>Chauras</i> .. .. .	..	2.4
Separate room .. .. .	..	2.1
<i>Kup</i> .. .. .	..	0.5
Partly in bags and partly in earthen bins .. .. .	3.0	..
Partly in bags and partly in heaps .. .. .	..	1.1
Not stated .. .. .	10.2	..

The iron pans are a peculiarity only in Sikh villages in Lyallpur District. The *kothi*, *bharoli*, *bukhari*, *parchhatti*, *chauras*, *kup* and earthen pots are different kinds of earthen bins described below.

The *kothi* has a rectangular shape with partitions making three or four different compartments; it is really a combination of a number of earthen vessels with a door to each compartment, and used for different articles, usually grain, household utensils, sugar, *ghi*, etc.

A *bharoli* is a cylindrical bin with concave sides ; the top is narrow and generally covered by an earthen pot, and there is a small outlet near the bottom which is kept closed by an earthen or cloth plug.

In the corner of a room two small walls are erected to form a quadrangle with the walls of the house and this is called *bukhari*.

*Parchhathi* is an earthen vessel placed high above the level of the floor on wooden planks, which have both ends stuck fast in the opposite walls.

*Kup* is a heap of grain thatched with straw, or plastered with mud from outside, and shaped like a cone.

The *chauras* is a square-built earthen vessel, well plastered both inside and outside with mud and cow-dung. The grain is poured in through a hole in the top and taken out through a small outlet near the bottom. Both *kothi* and *chauras* are placed on supports one or two inches high in a corner of a room, but not touching the wall on any side as this keeps the grain cool and also less liable to attacks by insects and rats. The containers are made by the womenfolk and considered a decoration in the living rooms.

Wheat is not put in *kothis*, *bharolis* or *chauras* straight from the threshing floor but is first allowed to lie for four or five days on the floor of the room, so that it may be aired, otherwise it is said to run the risk of an early insect attack. During this time, however, it is open to the depredations of rats.

In each district wheat is attacked by *khapra*, weevil or *susri*, and rats, and in Lyallpur District, the white-ant also causes some damage. The insect attacks begin generally at the close of the rainy season, but the inquiry in each district finished before this time, and reliable information regarding the loss through these attacks was not available. A common method of killing the insects in the seed-stores is to allow the grain to lie in the sun for some time, and then have it thoroughly trampled by bullocks, the grain all the time being turned over ; this continues until it is thought that all the insects have been destroyed. In Lyallpur and Attock Districts the wheat is then winnowed and stored, but in Ferozepore District it is stored without being winnowed as the cultivators think that if it is stored uncleaned there is less liability of a repetition of the attack. At times the wheat is put out in the sun and then winnowed without being trampled by bullocks but this is a less effective method. The work of cleaning the insect infested wheat is generally done by the cultivator himself, or by his servants or womenfolk ; hired labour is seldom employed.

Rats and mice cause heavy loss, if they can get to the wheat store ; the steps taken to destroy them are traps, cats and poison pills.

The following notes were taken in the Ferozepore area while discussing "insect attacks on wheat" with the cultivators :—

1. A plaster of mud containing *nim* or some other bitter substance is a preventative against insect attacks.

2. If wheat, lying in a corner of the house, or in a *bharoli*, *kothi* or *chauras*, is attacked with *khapra*, there is a great probability of the attack being repeated if wheat is again stored in the same place next year. This is attributed to the eggs of the insects lodging in nooks and crevices.

3. Weevil or *susri* is considered more harmful than *khapra*, because while the latter is busy with a small portion of the heap, the *susri* affects a much larger quantity. A *khapra* insect eats up a whole seed before proceeding to another, while a *susri* passes on from one grain to another, consuming only a small portion of each.

4. One cultivator mentioned that at least grain for seed can be well preserved by putting it in gunny bags and burying these in the *bhusa*. Later, however, when the opinion of a group of cultivators was taken, it was said that while grain could be safeguarded in this way against insect attack, it was not a very good means of storage because *bhusa* heats the grain and weakens its germinating power.

When questioned as to whether the probability of loss through insect or rat attacks could be reckoned as one of the causes of early sales by cultivators, several voices in the group simultaneously replied in the negative. One or two were heard to say that the cultivator was not yet so farseeing in the motives for his actions ; early sales were always made under pressure of necessity.

APPENDIX A. TO PART I.

Sources of Total Debts.

Sources.	LYALLPUR DISTRICT.				FEROZEPUR DISTRICT.				ATTOCK DISTRICT.				TOTAL.			
	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.	Cash.	Per cent.	Kind.	Per cent.
	Rs.		Mds.		Rs.		Mds.		Rs.		Mds.		Rs.		Mds.	
Sahukar ..	1,35,443	28·8	..	..	40,890	27·2	545	51·9	1,08,332	74·7	2,230	74·1	2,93,665	36·8	2,784	68·4
Co-operative Society	70,588	15·0	..	..	19,852	10·8	..	..	10,386	7·2	..	..	1,00,826	12·6	..	..
Artia ..	73,234	15·6	..	..	39,301	21·5	..	..	..	..	..	..	1,12,025	14·1	..	..
Landlord or Proprietor.	47,926	10·2	..	..	67,394	36·8	458	43·7	297	0·2	21	0·7	1,15,617	14·5	479	11·8
Relatives ..	45,621	9·7	..	..	3,594	2·0	46	4·4	19,040	13·7	758	25·1	69,155	8·7	804	19·7
Government (Taccavi loans).	..	..	..	..	1,080	0·6	..	..	5,463	3·8	..	..	6,543	0·8	..	..
Others ..	97,325	20·7	..	..	2,100	1·1	..	..	633	0·4	4	0·1	1,00,058	12·5	4	0·1
Total ..	4,70,137	100·0	..	..	1,33,301	100·0	1,049	100·0	1,45,051	100·0	3,022	100·0	7,98,489	100·0	4,071	100·0

## APPENDIX B. TO PART I.

*Purposes for which Total Loans (Cash and Kind) were taken.*

Purposes.	Lyallpur District.	Percentage of the total.	Ferozepore District.	Percentage of the total.	Attock District.	Percentage of the total.	Total debt.	Percentage of the total.
<b>CASH LOANS—</b>								
	Rs.		Rs.		Rs.		Rs.	
Marrige and funeral expenses ..	87,755	18·7	39,742	21·7	13,875	9·6	1,41,372	17·7
Litigation ..	10,350	2·2	10,048	5·5	9,932	6·8	30,330	3·8
Purchase of bullocks ..	40,766	8·7	23,225	12·7	49,396	34·1	1,13,387	14·2
Payments of old debts ..	56,663	12·0	11,665	6·4	8,232	5·7	76,560	9·6
Purchase of fodder ..	..	..	..	..	791	0·5	791	0·1
Family maintenance ..	34,936	7·4	4,573	2·5	22,760	15·7	62,269	7·8
Government dues ..	49,704	10·6	2,886	1·6	1,825	1·3	54,415	6·8
Construction of well ..	..	..	8,242	4·5	4,024	2·8	12,266	1·6
Building purposes ..	4,441	0·9	440	0·2	1,590	1·1	6,471	0·8
Purchase of land ..	69,150	14·7	6,673	3·6	16,862	11·6	92,685	11·6
Taking land in mortgage ..	..	..	..	..	2,940	2·0	2,940	0·4
Redemption of mortgaged land ..	..	..	..	..	320	0·2	320	..
Seed ..	462	0·1	8,048	4·4	2,321	1·6	10,831	1·4
Land lease or rent ..	54,929	11·7	1,213	0·6	..	..	56,142	7·0
Unclassified debts ..	..	..	40,876	22·3	..	..	40,876	5·1
Miscellaneous ..	60,981	13·0	25,670	14·0	10,183	7·0	96,834	12·1
<i>Total</i> ..	<i>4,70,137</i>	<i>100·0</i>	<i>1,83,301</i>	<i>100·0</i>	<i>1,46,051</i>	<i>100·0</i>	<i>7,98,489</i>	<i>100·0</i>
<b>KIND LOANS—</b>								
	Mds.		Mds.		Mds.		Mds.	
Seed ..	266	25·4	..	..	2,564	84·8	2,830	69·5
Family expenses ..	..	..	..	..	458	15·2	458	11·3
General purposes ..	783	74·6	..	..	..	..	783	19·2
<i>Total</i> ..	<i>1,049</i>	<i>100·0</i>	<i>..</i>	<i>..</i>	<i>3,022</i>	<i>100·0</i>	<i>4,071</i>	<i>100·0</i>

**APPENDIX C. TO PART I.**  
*Amounts of Debt raised at various Rates of Interest.*

Types of cultivator.	CASH (IN RUPEES).										KIND (IN MAUNDS.)				
	Total.	Free of interest.	RATE OF INTEREST PER CENT. PER ANNUM.								Total amount.	Without interest.	Sawal system.	Deorhi system.	
			Below 12.	12 to 16.	17 to 20.	21 to 30.	31 to 40.	Above 40.	200 choaks.	On lak system.					
<i>Lyalpur District—</i>															
Proprietors ..	2,48,198	4,041	48,611	81,882	52,791	59,075	898	..	..	..	..	..	..	..	..
Proprietor-tenants ..	1,07,760	1,806	26,996	42,281	19,301	17,376	..	..	..	..	..	..	..	..	..
Tenants ..	1,14,179	14,669	9,898	28,637	16,791	43,884	300	..	..	..	..	..	..	..	..
<i>Total</i> ..	<i>4,70,137</i>	<i>20,516</i>	<i>85,505</i>	<i>1,52,800</i>	<i>88,883</i>	<i>1,21,235</i>	<i>1,198</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>4.3</i>	<i>18.2</i>	<i>32.5</i>	<i>18.9</i>	<i>25.8</i>	<i>0.3</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Ferozepore District—</i>															
Proprietors ..	62,524	1,003	440	24,915	11,371	23,570	800	425	..	..	139	15	4	120	
Proprietor-tenants ..	96,892	1,551	610	17,898	22,587	41,361	1,205	1,680	..	..	499	37	164	298	
Tenants ..	23,885	3,922	1,366	2,019	4,767	11,238	20	553	..	..	411	64	80	267	
<i>Total</i> ..	<i>1,83,301</i>	<i>6,476</i>	<i>2,416</i>	<i>44,832</i>	<i>48,725</i>	<i>76,169</i>	<i>2,025</i>	<i>2,658</i>	<i>..</i>	<i>..</i>	<i>1,049</i>	<i>116</i>	<i>248</i>	<i>685</i>	
<i>Percentage</i> ..	<i>100.0</i>	<i>3.5</i>	<i>1.3</i>	<i>24.5</i>	<i>26.6</i>	<i>41.6</i>	<i>1.1</i>	<i>1.4</i>	<i>..</i>	<i>..</i>	<i>100.0</i>	<i>11.1</i>	<i>23.6</i>	<i>65.3</i>	
<i>Attock District—</i>															
Proprietors ..	74,749	12,269	4,315	3,382	4,170	15,372	21,052	100	13,822	267	1,409	113	1,171	126	
Proprietor-tenants ..	37,070	4,008	2,815	3,078	360	3,555	16,074	900	5,460	820	566	133	434	..	
Tenants ..	33,232	8,956	727	1,908	772	6,027	9,962	1,285	695	2,899	1,029	556	421	51	
<i>Total</i> ..	<i>1,45,051</i>	<i>25,233</i>	<i>7,857</i>	<i>8,368</i>	<i>5,302</i>	<i>24,954</i>	<i>47,088</i>	<i>2,285</i>	<i>19,977</i>	<i>3,986</i>	<i>3,004</i>	<i>802</i>	<i>2,026</i>	<i>177</i>	
<i>Percentage</i> ..	<i>100.0</i>	<i>17.4</i>	<i>5.4</i>	<i>5.8</i>	<i>3.6</i>	<i>17.2</i>	<i>32.4</i>	<i>1.6</i>	<i>13.3</i>	<i>2.8</i>	<i>100.0</i>	<i>26.7</i>	<i>67.4</i>	<i>5.9</i>	

## APPENDIX D.

*Rainfall in inches from June 1930 to May 1931, in Attock, Lyallpur and Ferozepore Districts.*

Months.	ATTOCK DISTRICT.					Lyallpur.	Ferozepore.
	Talagang.	Pindigheb.	Fatehjang.	Campbellpur.	Hasan Abdal.		
June .. ..	0.53	0.16	0.12	0.29	..	1.05	1.35
July .. ..	4.76	2.09	6.84	5.48	3.97	4.32	9.90
August .. ..	..	0.70	..	..	..	3.55	0.13
September .. ..	0.59	0.70	2.58	1.78	2.02	0.28	1.32
October .. ..	0.45	0.06	..	..	..	..	..
November .. ..	..	..	..	..	..	..	0.06
December .. ..	..	..	..	..	0.18	..	..
January .. ..	0.71	1.95	1.57	2.92	2.05	0.33	0.15
February .. ..	0.34	0.23	0.62	0.27	0.47	0.34	0.82
March .. ..	..	..	..	..	..	..	..
April .. ..	..	..	0.04	..	0.05	1.27	0.39
May .. ..	1.7	0.76	0.36	0.69	0.30	1.15	0.57
<i>Total</i> .. ..	<i>9.08</i>	<i>6.55</i>	<i>12.13</i>	<i>11.43</i>	<i>9.04</i>	<i>12.29</i>	<i>14.69</i>

## APPENDIX E.

Information regarding the ploughs and live-stock kept was collected only in eight villages in Attock (the last District to be investigated), which had a total cultivated area of 9,740 acres, of which 6,170 acres (63·3 per cent.) were under wheat. There were 892 ploughs in use, giving an average of 10·9 acres of cultivated area and 6·5 acres of wheat area per plough. The table on page 48 gives for each class of cultivators, the number of ploughs and cattle kept, and shows that more ploughs and plough cattle are kept by tenants than by proprietors. The total number of plough cattle kept was 1,996; of which 47·9 per cent. were bullocks and 47·1 per cent. cows. She-buffaloes, which were only 5 per cent. of the total, were mainly used for working the wells; the number of bullocks and cows used in ploughing is nearly the same, as frequently a yoke consists of a bullock and a cow. This combination is chiefly due to the poverty of the cultivators, who prefer to purchase a cow which costs from Rs. 15/- to Rs. 25/-, rather than a bullock of Rs. 50/- to Rs. 80/-. Necessity has driven the cultivators to such a limit that even cattle in milk are not spared from the yoke; of the total number of plough-cows and buffaloes, 29·5 per cent. and 48·5 per cent. respectively, were in milk. If the total cultivated area is divided by the number of total plough cattle, the average is 9·75 acres of land per pair of plough cattle but, if the number of plough-cows actually yielding milk and the she-buffaloes used for well work be eliminated, the area per pair of plough cattle is 12 acres.

In addition to 325 cattle used in ploughs which were also yielding milk, there were 976 other animals giving milk being:—

			<i>Number.</i>	<i>Per cent.</i>
Cows	..	..	424	43·4
Buffaloes	..	..	68	7·0
Goats	..	..	484	49·6

There seems to be a great dearth of buffaloes in the area, but the number of goats is fairly large. The average daily yield of milk, ascertained from inquiries made from the cultivators is 1·87 seers per cow, 3·12 seers per buffalo and 0·62 seers per goat per day; the milch cattle used for cultivation yield less milk than the others. According to the daily average yield, the total supply of milk amounts to nearly 2,273 seers per day. With the total population at 3,811, we get a supply of 0·59 seers of milk per head per day.

In the statement the column "Others" includes mules, donkeys, camels, horses, and dry milch cattle, which number altogether 1,635. Donkeys are very useful animals and a fairly large number of the cultivators keep them for the transport of fodder, fuel, manure, water—where it has to be brought from a distance—and for ploughing and riding.

The total of all animals kept by the cultivators examined in the eight villages is 5,556 ; this gives an average of 1.7 cultivated acres per animal.

*Ploughs and Live Stock kept in Attock District.*

Types of cultivators.	No. of ploughs.	PLOWH CATTLE.				MILCH CATTLE.*				Others.	Total young stock.	Total.	Grand total.
		Bullocks.	Cows.	She-buffaloes.	Total.	Cows.	Buffaloes.	Goats.	Total.				
Proprietors ..	317	338	323	43	704	111	17	121	249	393	345	738	1,691
Proprietor-tenants ..	171	185	166	14	366	72	9	69	150	327	192	519	1,034
Tenants ..	404	434	451	42	927	241	42	204	577	915	412	1,327	2,831
<i>Total</i> ..	<i>892</i>	<i>957</i>	<i>940</i>	<i>99</i>	<i>1,996</i>	<i>424</i>	<i>68</i>	<i>484</i>	<i>976</i>	<i>1,635</i>	<i>949</i>	<i>2,584</i>	<i>5,556</i>
<i>Percentage</i> ..	<i>..</i>	<i>47.9</i>	<i>47.1</i>	<i>5.0</i>	<i>100.0</i>	<i>43.4</i>	<i>7.0</i>	<i>49.6</i>	<i>100.0</i>	<i>63.3</i>	<i>36.7</i>	<i>100.0</i>	<i>..</i>

\*Only animals in milk. Complete records are not available to show here the numbers dry; they are included among "others."

## APPENDIX F.

The following statement, also for Attock District only, shows the number of working members of the families and their dependents for each class of cultivators in the selected villages :—

Types of cultivators.	WORKING MEMBERS.			DEPENDENTS.			Grand total.
	Males.	Females.	Total.	Males.	Females.	Total.	
Proprietors ..	393	208	601	331	482	813	1,414
Proprietor-tenants ..	218	104	322	159	265	424	746
Tenants ..	577	238	815	343	493	836	1,651
<i>Total</i> ..	<i>1,188</i>	<i>550</i>	<i>1,738</i>	<i>833</i>	<i>1,240</i>	<i>2,073</i>	<i>3,811</i>
<i>Percentage</i> ..	<i>68.4</i>	<i>31.6</i>	<i>100.0</i>	<i>40.2</i>	<i>59.8</i>	<i>100.0</i>	..

Out of a total number of 3,811, 45.6 per cent. were actually working members and 54.4 per cent. were dependents; 68.4 per cent. of the former were males and 31.6 per cent. females. The women of nearly every caste, except a few well-to-do *Pathan* families, help in cultivation along with the men and nearly one-third of the total labour force was contributed by them.

The number of dependents, who do not work, was 2,073, 40.2 per cent. males and 59.8 per cent. females. These included the women observing *pardah*, children of tender age, and old, feeble, disabled and blind people.

The figures show that on the average, one working member has to support and maintain more than one person who does no work, and on the average about two workers are required to maintain one plough. The average wheat area per plough is 6.5 acres and the average outturn per acre 3.11 maunds. The gross produce per plough is 20.1 maunds of wheat from which about five persons (two workers and three non-workers) are to be maintained for the full year. According to the estimates of the late Mr. Barry\* 35 maunds of grain are required to feed four adults and a youth for a year, and thus the average gross produce per plough falls short of this estimate by 14.9 maunds. The figures for these villages would appear to support the contention that the wheat produce of the district is insufficient to feed the population. The difference between the supply of wheat and the demand for food grains is made good by the frequent use of *bajra* and *jowar*, and this appears to be the main reason why the price of wheat in Attock and Rawalpindi is usually higher than in the east of the Punjab.

\*" The Rates of Food Consumption by Zemindars in the Talagang Tahsil of the Attock District " (Board of Economic Inquiry, Punjab, Publication No. 6.)

## PART II.

### MARKET SECTION.

This part deals with the financing and marketing of wheat in nine selected central markets, three in Ferozepore, four in Lyallpur and two in the Attock District; incomplete information was also gathered regarding Muktsar market in Ferozepore District but it could not be used in all cases. All the markets deal in produce other than wheat as well. Seven of these are centralised markets in which an open square is surrounded with *artias*' shops and in the other three the shops are scattered through the town. The number of *artias*' shops was 438, of European firms 25 and of mills 12. Sixty-three roads led into these markets, 21 unmetalled and 42 metalled. All the markets were on the railway except Talagang in Attock. Details of these markets are given in Statement I, on the next page.

Statement II. divides sellers in markets into two main classes of non-professional sellers who are grouped as 'Cultivators', and professional sellers or 'Traders', and shows the number and quantities of sales made in each market by each class. Menials making sales of grain collected by them for services rendered to the wheat growers in their villages, and non-cultivating landlords making sales of wheat obtained from their tenants have been included under cultivators.

78.4 per cent. of the sales of wheat in the Ferozepore, 72.6 per cent. in the Lyallpur, and 70.3 per cent. in the Attock District markets were made by the cultivators themselves; the amounts involved in these sales being 77.0, 75.0 and 66.1 per cent., respectively, of the total amounts of wheat sold in these markets. The investigator in the Ferozepore District remarks: "It is possible that the marked fall in the price of wheat during this year may have increased the percentage of sales by cultivators in the markets but even so the *artias* were emphatic that they always depend for their work very much more on the growers than on the traders."

STATEMENT I.

Particulars regarding Markets Selected for Inquiry.

Name of Market.	Whether there exists a separate market place.	No. of <i>artias</i> ' shops.	No. of European firms.	No. of Mills.	How transactions are settled.	Roads leading to the market.	If situated on a railway line.
<b>FEROZEPUR DISTRICT—</b>							
Ferozpur Cantonment	Yes	19	1	2	Auction	{ 3 <i>pacca</i> 6 <i>kachcha</i>	Yes
Moga	"	26	2*	..	"	{ 5 <i>pacca</i> 1 <i>kachcha</i>	"
Fazilka	No †	62	..	..	Under cover	{ 1 <i>pacca</i> 5 <i>kachcha</i>	"
Muktsar	Yes	58	..	..	Auction	6 <i>kachcha</i>	"
<b>LYALLPUR DISTRICT—</b>							
Lyallpur	"	92	10‡	3	Under cover	{ 3 <i>pacca</i> 4 <i>kachcha</i>	"
Chak Jhumra	"	25	4	..	" "	{ 2 <i>pacca</i> 3 <i>kachcha</i>	"
Toba Tek Singh	"	75	4	3	" "	7 <i>kachcha</i>	"
Jaranwala	"	70	4	4	" "	{ 3 <i>pacca</i> 4 <i>kachcha</i>	"
<b>ATTOCK DISTRICT—</b>							
Hasan Abdal	No †	9	..	..	Open bids	4 <i>pacca</i>	"
Talagang	" †	2	..	..	" "	6 <i>kachcha</i>	No

\* They open only during the busy part of the wheat season.

† There is no market place; the *artias* have shops in all quarters of the city and the carts, camels and donkeys coming to them cause considerable obstruction to traffic and to the ordinary business of the town.

‡ Only five firms deal in wheat.

## STATEMENT II.

*Sales of Wheat by Cultivators and Traders in Different Markets.*

Markets.	NO. OF SALES BY—		QUANTITY.	
	Cultivators.	Traders.	Cultivators.	Traders.
<b>FEROZEPUR DISTRICT—</b>				
Ferozepore Cantonment ..	207	92	4,323	2,022
Moga .. .. .	470	92	12,987	2,962
Fazilka .. .. .	112	34	2,341	884
<i>Total</i> .. .. .	<i>789</i>	<i>218</i>	<i>19,651</i>	<i>5,868</i>
<i>Percentage</i> .. .. .	<i>78.4</i>	<i>21.6</i>	<i>77.0</i>	<i>23.0</i>
<b>LYALLPUR DISTRICT—</b>				
Lyallpur .. .. .	129	72	5,766	3,830
Chak Jhumra .. .. .	70	34	2,515	964
Toba Tek Singh .. .. .	140	9	6,233	299
Jaranwala .. .. .	111	55	5,607	1,624
<i>Total</i> .. .. .	<i>450</i>	<i>170</i>	<i>20,121</i>	<i>6,717</i>
<i>Percentage</i> .. .. .	<i>72.6</i>	<i>27.4</i>	<i>75.0</i>	<i>25.0</i>
<b>ATTOOK DISTRICT—</b>				
Hasan Abdal .. .. .	322	131	1,801	624
Talagang .. .. .	56	29	210	254
<i>Total</i> .. .. .	<i>378</i>	<i>160</i>	<i>2,011</i>	<i>878</i>
<i>Percentage</i> .. .. .	<i>70.3</i>	<i>29.7</i>	<i>66.1</i>	<i>33.9</i>

Statement III, on the next page, gives the number of wheat sellers coming from various distances by metalled, unmetalled, Areas served by Wheat Markets. and part of the way by metalled and part by unmetalled roads. Without regard to the nature of the roads we may group the sellers as below :—

Distance.	No. of wheat sellers.	Percentage of total.	Quantity of wheat.	Percentage of total.	Average quantity of wheat per seller.
			Maunds.		Maunds.
Below 5 miles .. .. .	356	16.5	6,979	12.6	19.6
5 to below 10 miles .. .. .	749	34.6	17,439	31.6	23.2
10 " " 15 " " .. .. .	601	27.7	14,669	24.8	24.4
15 " " 20 " " .. .. .	380	17.6	12,379	22.4	32.6
20 " " 25 " " .. .. .	72	3.3	3,433	6.2	47.7
25 " " 30 " " .. .. .	5	0.2	289	2.3	57.8
30 " " 35 " " .. .. .	2	0.1	58	0.1	29.0
<i>Total</i> .. .. .	<i>2,165</i>	<i>100.0</i>	<i>55,246</i>	<i>100.0</i>	<i>25.5</i>

The markets serve villages situated within a radius of 35 miles and the majority of wheat sellers come from distances up to ten miles. While 44 per cent. of the total amount of wheat sold was brought from within a radius of ten miles the average quantity per seller was greater for longer distances,

## STATEMENT III.

*Number of Sellers coming to Markets from Various Distances.*

Markets.	NUMBER OF SELLERS COMING FROM—							Total.
	Below 5 miles.	5 to below 10 miles.	10 to below 15 miles.	15 to below 20 miles.	20 to below 25 miles.	25 to below 30 miles.	30 to 35 miles.	
<i>Metalled Road—</i>								
Ferozepore Cantonment ..	8	7	25	3	..	..	..	43
Moga ..	28	33	58	6	9	1	..	135
Fazilka ..	1	..	1	..	..	..	..	2
Lyallpur ..	4	19	16	19	2	..	..	54
Chak Jhumra ..	9	13	4	..	..	..	..	26
Toba Tek Singh ..	..	..	..	..	..	..	..	..
Jaranwala ..	1	16	11	3	..	..	..	31
Hasan Abdal ..	25	42	23	..	..	..	..	90
Talagang ..	..	..	..	..	..	..	..	..
<i>Total</i> ..	76	130	138	25	11	1	..	381
<i>Unmetalled Road—</i>								
Ferozepore Cantonment ..	24	28	57	25	5	..	..	139
Moga ..	12	8	8	5	2	1	..	36
Fazilka ..	43	35	27	26	6	..	..	137
Lyallpur ..	6	36	10	17	4	1	..	74
Chak Jhumra ..	12	30	6	..	..	..	..	48
Toba Tek Singh ..	39	64	29	16	1	..	..	149
Jaranwala ..	9	15	37	11	1	..	..	73
Hasan Abdal ..	64	197	76	2	..	..	..	339
Talagang ..	19	43	15	8	..	..	..	85
<i>Total</i> ..	228	456	265	110	19	2	..	1,080
<i>Partly metalled and partly unmetalled road—</i>								
Ferozepore Cantonment ..	30	34	36	18	..	..	..	118
Moga ..	8	58	111	178	34	..	2	391
Fazilka ..	2	2	1	1	..	..	..	6
Lyallpur ..	2	9	23	30	7	2	..	73
Chak Jhumra ..	2	23	5	..	..	..	..	30
Toba Tek Singh ..	..	..	..	..	..	..	..	..
Jaranwala ..	1	21	22	17	1	..	..	62
Hasan Abdal ..	7	16	..	1	..	..	..	24
Talagang ..	..	..	..	..	..	..	..	..
<i>Total</i> ..	52	163	198	245	42	2	2	704
<i>Grand total</i> ..	356	749	601	380	72	5	2	2,165
<i>Percentage</i> ..	16.5	34.6	27.8	17.5	3.3	0.2	0.1	100.0

The following two statements deal with the means and ownership of Means of Transport, transport employed by cultivators and traders when carrying wheat to markets for sale. The most important means of conveyance are carts, donkeys and camels, though in five cases tongas were used in the Ferozepore District and one in Lyallpur, and in one case a lorry in Ferozepore. In the Attock District produce was taken to market in 7 cases on mules and in 37 cases men carried it on their own heads. In the Lyallpur District and around Moga where the roads are good, the usual means of conveyance is a cart; around Ferozepore Cantonment and Fazilka carts are to be found in the villages near metalled roads. But in the villages on unmetalled roads donkeys and camels are mostly employed. In the Attock District the roads are *kachcha* and the cart is therefore scarcely ever found in use.

While 69·3 per cent. of the cultivators owned their means of transport, on the other hand 68·3 per cent. of the traders had to hire their transport. The potter's donkey is often used to carry produce. About half of the traders were found to employ this animal.

## STATEMENT IV.

*Ownership of the Means of Transport employed by Cultivators and Traders.*

Means of Transport.	CULTIVATORS.				TRADERS.			
	Owued.	Hired.	Bor- rowed.	Total.	Owued.	Hired.	Bor- rowed.	Total.
Cart ..	818	237	..	1,055	21	213	..	234
Donkey ..	235	189	20	444	126	110	6	242
Camel ..	40	35	3	78	11	47	..	58
Mulo ..	..	..	..	..	7	..	..	7
Lorry ..	..	..	..	..	..	1	..	1
Tonga ..	2	1	..	3	2	1	..	3
<i>Total</i>	<i>1,095</i>	<i>462</i>	<i>23</i>	<i>1,580</i>	<i>167</i>	<i>372</i>	<i>6</i>	<i>545</i>
<i>Percentage</i>	<i>69·3</i>	<i>29·2</i>	<i>1·5</i>	<i>100·0</i>	<i>30·6</i>	<i>68·3</i>	<i>1·1</i>	<i>100·0</i>

NOTE.—35 cultivators and 2 traders, who carried wheat on their heads, have not been included in the statement.

STATEMENT V.

Means of Transport employed by Cultivators and Traders when carrying Wheat to Markets for Sale.

Markets.	CULTIVATORS.								TRADEES.							
	Cart.	Donkey.	Camel.	Mule.	Tonga.	Lorry.	Carried on head.	Total.	Cart.	Donkey.	Camel.	Mule.	Tonga.	Lorry.	Carried on head.	Total.
Ferozepore Cantonment	122 (58·9)	66 (31·7)	17 (8·2)	..	2 (1·1)	..	..	207 (100·0)	27 (29·7)	51 (56·0)	11 (12·1)	..	2 (2·2)	..	..	91 (100·0)
Moga	450 (95·7)	13 (2·8)	7 (1·5)	..	..	..	..	470 (100·0)	71 (77·2)	16 (17·4)	5 (5·4)	..	..	..	..	92 (100·0)
Fazilka	52 (46·4)	50 (44·6)	9 (8·0)	..	1 (1·0)	..	..	112 (100·0)	13 (38·2)	20 (58·9)	1 (2·9)	..	..	..	..	34 (100·0)
Lyalpur	124 (96·1)	5 (3·9)	..	..	..	..	..	129 (100·0)	58 (79·4)	4 (5·5)	9 (12·3)	..	1 (1·4)	1 (1·4)	..	73 (100·0)
Chak Jhumra	62 (88·6)	6 (8·5)	2 (2·9)	..	..	..	..	70 (100·0)	26 (76·5)	7 (20·6)	1 (2·9)	..	..	..	..	34 (100·0)
Toba Tek Singh	138 (98·6)	..	2 (1·4)	..	..	..	..	140 (100·0)	6 (66·7)	3 (33·3)	..	..	..	..	..	9 (100·0)
Jaranwala	104 (93·7)	6 (5·4)	1 (0·9)	..	..	..	..	111 (100·0)	33 (60·0)	11 (20·0)	11 (20·0)	..	..	..	..	55 (100·0)
Hasan Abdal	3 (0·9)	245 (76·6)	39 (12·2)	..	..	..	33 (10·3)	320 (100·0)	..	112 (86·2)	9 (6·9)	7 (5·4)	..	..	2 (1·5)	130 (100·0)
Talagang	..	53 (94·6)	1 (1·8)	..	..	..	2 (3·6)	56 (100·0)	..	18 (62·0)	11 (38·0)	..	..	..	..	29 (100·0)
Total	1,055	444	78	..	3	..	35	1,615	234	242	58	7	3	1	2	547
Percentage	(65·3)	(27·5)	(4·8)	..	(0·2)	..	(2·2)	(100·0)	(42·8)	(44·2)	(10·6)	(1·3)	(0·5)	(0·2)	(0·4)	(100·0)

NOTE.—Figures in brackets are percentages of the total instances against each market.

Statement VI shows the rates of hire per maund per mile of the various means of conveyance used by cultivators and traders. They have been worked out from the information collected in the different markets as to the distances from which the produce was brought, the means of conveyance used in cases where this had been hired, and the charges paid. Information relating to routes including both metalled and unmetalled sections was of no use in this connection.

## STATEMENT VI.

*Rates for Hire of Different Means of Transport per Maund per Mile.  
(In pies).*

Markota.	METALLED ROAD.			UNMETALLED ROAD.		
	Cart.	Donkey.	Camel.	Cart.	Donkey.	Camel.
Ferozapore ..	1-62	3-0	2-75	2-93	3-66	2-76
Fasilka ..	..	..	..	3-5	4-3	4-0
Moga ..	2-36	..	..	..	4-28	3-46
Lyalpur ..	2-1	2-4	..	2-65	3-0	2-1
Chak Jhumra ..	2-95	3-2	..	3-4	3-1	3-0
Toba Tek Singh ..	..	..	..	2-5	..	2-0
Jaranwala ..	2-2	3-3	..	3-2	3-5	2-8
Hasan Abdal ..	..	3-49	3-28	5-0	4-45	3-68
Talagang ..	..	..	..	..	..	2-0
<i>Average</i> ..	<i>2-25</i>	<i>3-08</i>	<i>3-01</i>	<i>3-31</i>	<i>3-75</i>	<i>2-9</i>

A total of 1,594 cultivators making sales in markets were questioned as to why they were making the sale at that particular time. Seven stated that they were doing so because they thought prices were favourable at that time; 239 could not specify any particular need but said that they had miscellaneous expenses to meet, while the other 1,348 pointed out specific needs for money, and these are summarised in Statement VII. In certain cases two or more equally important wants were indicated by the cultivator; in the Statement all these have been taken into account, hence the total exceeds 1,348.

STATEMENT VII.

*Wants which were alleged to have led to Sales of Wheat by Cultivators.*

Markets.	Repay- ment of debts.	Marriage expenses.	Litiga- tion.	Govt. dues.	Land rent.	Purchase of seed..	Advances to siri.	Purchase of milch cattle.	Purchase of plough cattle.	Building houses.	Funeral expenses.
Ferozepore Cantonment	102	21	..	71	9	3	2	2	11	..	..
Moga ..	107	74	..	182	77	5	5	2	15	..	..
Fazilka ..	57	8	..	47	3	..	..	..	1	..	..
Lyalpur ..	31	3	..	81	1	..	..	..	..	..	..
Chak Jhumra ..	19	1	..	48	..	..	..	..	1	..	..
Toba Tek Singh ..	16	2	..	124	..	..	..	..	..	..	..
Jaranwala ..	14	5	..	81	1	..	..	..	..	..	..
Hasan Abdal ..	109	3	1	107	..	..	..	..	3	10	1
Talagang ..	5	..	..	33	..	..	..	..	1	..	..
<i>Total</i> ..	<i>460</i>	<i>117</i>	<i>1</i>	<i>774</i>	<i>91</i>	<i>8</i>	<i>7</i>	<i>4</i>	<i>32</i>	<i>10</i>	<i>1</i>
<i>Percentage</i> ..	<i>30.6</i>	<i>7.8</i>	<i>0.1</i>	<i>51.4</i>	<i>6.0</i>	<i>0.5</i>	<i>0.5</i>	<i>0.3</i>	<i>2.1</i>	<i>0.6</i>	<i>0.1</i>

In the Lyallpur District all the markets investigated had a co-operative shop; in the Ferozepore District there was only one (in Moga), and in the Attock District there was none. 911 cultivators returning after making sales in markets which had such shops were asked as to whether they had sold their wheat through these shops, but only 91 (10 per cent.) had done so and the other 820 (90 per cent.) had sold through *artias*. Below are the reasons given by the cultivators for, or against, selling through co-operative sales shops:—

<i>Reasons for sale—</i>	<i>Number.</i>	<i>Per cent.</i>
Member of the co-operative shop .. ..	14	15.4
Expect more just dealings .. ..	12	13.2
Commission and other deductions are lighter .. ..	40	43.9
Communal and class considerations .. ..	22	24.2
To test the truth of statements made in favour of sales through co-operative shops .. ..	3	3.3
<i>Total</i> .. ..	<u>91</u>	<u>100.0</u>

<i>Reasons against sale—</i>	<i>Number.</i>	<i>Per cent.</i>
Ignorance of the existence of the co-operative shop .. ..	323	39.4
Loans in advance not available .. ..	127	15.5
Took advances from an <i>artia</i> on the understanding that produce would be sold through him .. ..	26	3.2
Long established connections with the <i>artia</i> .. ..	232	28.3
Find no special advantage in selling through the co-operative shop .. ..	17	2.1
Prices lower at the co-operative shop .. ..	3	0.3
Weight of the produce declared less than his own estimate .. ..	1	0.1
No special reason .. ..	91	11.1
<i>Total</i> .. ..	<u>820</u>	<u>100.0</u>

In none of the markets investigated was there any organization to control the market and keep in check fraudulent or unjust practices; Ferozepore Cantonment and Fazilka markets had *panchayats* but these had little to do with the sellers. The Management of Markets.

members were mostly *pacca artias* and their chief concern was the regulation of *kotha* or *bichak* transactions. Neither of these *panchayats* has ever interfered in a dispute between an outside seller, cultivator or trader, and an *artia*, nor have they much to do with the ordinary market practices; in their own sphere, however, they have great influence. The weapon they employ most is social boycott.\* It is unfortunate that detailed information is not available about the Lyallpur Market Committee, which the investigator states was in existence for a period of over fifteen years and was dissolved only in 1926.

Statement VIII. shows the usual times at which transactions in wheat were conducted in the different markets during the period of the inquiry which was in summer. The markets in the Attock and Ferozepore Districts open earlier in the day than those in the Lyallpur District, as they are regional markets. Those in Lyallpur are world markets and better organised; the business is done during regular office hours and there are representatives of big firms who make enormous purchases every day during the season. The rates which they offer are influenced by those at Karachi and consequently they have to wait until telegraphic information is received from their offices at that port.

#### STATEMENT VIII.

*Times at which Transactions take place.*

Markets.	Time of opening for wheat transactions.	Time of delivery of wheat.
Ferozepore Cantt. ..	6 to 7 a.m.	8 a.m. to 12 noon.
Moga ..	Do.	7 a.m. to 1 p.m.
Fazilka ..	Do.	Do.
Muktsar ..	Do.	8 a.m. to 12 noon.
Lyallpur ..	about 10 a.m.	3 p. m. to sunset.
Chak Jhumra ..	about 5 p.m.	} 5 p. m. to sunset and again next morning.
Toba Tek Singh ..	Do.	
Jaranwala ..	Do.	8 a.m. to 12 noon.
Hasan Abdal ..	7-30 to 8 a.m.	9 a.m. to 1 p. m.
Talagang ..	8 to 9 a.m.	

\*In this connection the first paragraph of the Articles of Association drawn up on 17th June, 1920, by the *Chaudhary* of the *Fazilka Panchayat* is instructive. It states that the necessity of drawing up rules and regulations arose because of the large number of deficiencies in weight of *kothas*, in *bichak* transactions, and that any one who refuses to abide by the rules will be considered by the *panchayat* to have committed an offence and will be boycotted.

Except in the Fazilka market, wheat is invariably heaped in front of the *artia's* shop before the settlement of rates begins. In Fazilka in 21 out of 110 (19.1 per cent.) instances noted, the rate was settled before unloading the wheat and it was weighed at the buyer's place.

Three different systems of conducting sales were noted, viz. :—

- (i) Auction.
- (ii) Open Bids.
- (iii) Cover.

The first is in vogue in Ferozepore Cantonment and Moga ; the second in Hasan Abdal and Talagang, the third in Lyallpur, Chak Jhumra, Toba Tek Singh, Jaranwala and Fazilka.

The auction system is really only the open bids system done collectively and with mob psychology added, as opposed to the Auction System. secrecy of the cover system. Intending buyers collect round the heap of grain and make their bids to the *artia*, who keeps calling the latest bid until a higher offer is made. When he finds that no buyer will give more, he asks for the owner's consent and this being given, he winds up the transaction by shouting "*ek—do—tin—ho gaya*" (one, two, three —finished).

In this case after the wheat has been heaped in front of his shop, the Open Bids System. *artia* goes round to inform buyers, who come and examine the wheat, and then make their offers. This system is unlike the auction in that there is no shouting of bids. The buyer tells the *artia* the rate he is prepared to give, and the *artia* closes the deal as soon as he gets a suitable offer. The system lacks the competition and stir of an auction which often means better rates for the seller, but it has the advantage of being conducted in the open. In the Talagang market one heap of wheat is sometimes sold in small lots to different buyers.

The various buyers or their agents collect round the heap of wheat, Cover System. examine its quality, and then one by one they clasp the *artia's* hand under the cover of a cloth, making signs to him by fingers of the rates they are prepared to offer. The process is repeated by each buyer until the *artia* settles the rate in favour of one of them, presumably the highest bidder.

The replacement of the cover system by auctions would probably be advantageous, but the Ferozepore investigator notes that certain other matters also deserve attention. He says, "At present even in markets where the auction system, is already in vogue things are not all they

might be." The buyers do not act together; generally auctions are proceeding simultaneously at two or three places. The reasons for this are :—

(i). The demand may be weak compared with the supply in the market and the *artias* fear lest the heaps may remain on their hands; so they try to draw customers to their respective shops, by shouting or actually dragging the buyers to their own heaps, or sometimes by setting up a make-belief auction with one or two men around the heap who are there simply in order to attract others. (ii) At other times the conditions are reversed, as when the supply is small and buyers are anxious to purchase but hope that the rates may be lower when fewer buyers are present and competition likely to be less keen. Some buyers then go away from the main group, and make offers at other heaps, thus causing a number of independent auctions to be set up which gradually attract other buyers. (iii) On other occasions some buyers with a demand for a particular quality of wheat, say red variety, separate from the main group, (which might be busy with say *sharbati* wheat) and make offers for the said wheat independent of the main body. (iv) Sometimes a number of buyers get together at different places and begin to make offers, thus starting a number of simultaneous auctions. The investigator was told that in Kot Kapura it is a custom of the market that independent auctions cannot be started and generally buyers do not pass a shop till they have made a bid for all the heaps lying there.

In his desire to save time and trouble or probably because he is anxious that all his heaps may be auctioned before the group of buyers leaves his shop, the *artia*, at times, puts up to auction simultaneously a number of heaps, not necessarily of the same quality. The question as to how the price had been settled was put to 84 persons returning home after selling their wheat in the Moga market. Three replied that they were not present at the time the rate was settled; 58 (71·6 per cent.) said the wheat was auctioned in single heaps; and 23 (28·4 per cent.) stated that their wheat was auctioned along with other heaps. Of the 23 cases last-named in eight cases two heaps were auctioned in one lot, in seven cases three, in three cases four, in four cases five, and in one case seven heaps were auctioned in one lot. It was stated that where a number of heaps were auctioned together, the *artia*, instead of giving to each seller the settled rate, discriminated between them according to the quality of each one's wheat, giving a higher rate to those with a superior quality and a lower rate to those with an inferior quality.

Though there is no rule debarring the seller from disposing of his goods direct to the buyers, yet an intermediary is invariably employed, who may be the manager of the co-operative shop or one of the *artias*. The Ferozepore investigator states :—“ There are times when the *artia* does not act in the interest of his employer, the seller, but he has his reputation to maintain if he means to retain his business. The investigation showed that many of an *artia's* clients come to him year after year, and sometimes all the cultivators from one village come to one *artia*. Further it should be borne in mind that the *artia*, who knows the business conditions as well as anyone in the market is in a better position than the sellers, coming from villages, to arbitrate in the matter of rates. Lastly the *artia* always makes cash payments immediately after the transaction has been completed even though he himself is seldom paid immediately. ”

In addition to acting as the agent for the sellers many *artias* also act as agents for large buyers in a more realistic sense than as mere go-betweens. Suppose an *artia* to have received a large order from a wholesale firm authorising him to buy within specified rate limits. He may execute this order out of the ordinary day to day transactions carried on at his own shop or he may purchase from other shops specifically against such order. If he does the former he is open to the suspicion of trying to secure his own advantage as both a buyer and a seller. In the Ferozepore Cantonment and Hasan Abdal markets such transactions are common but since there is much publicity connected with such purchases and sales this acts as a safeguard.

The Ferozepore investigator reports two specific instances of this kind.—

(i) “ I saw to-day an auction of a heap of wheat closed with what the *artia* termed as *sarkari boli*, or his personal bid. In reply to my enquiry from another *artia* who was standing by as to whether such a thing was allowed in the market, I was told that there could be no objection against this, so long as transactions were settled openly by auction. In Moga where also transactions are settled by auction, -I did not come across a single instance of an *artia* buying goods marketed through himself. I was told by one of them that such a thing was detrimental to the interests of the *artia* himself, as the sellers would, in most of these instances, be suspicious of this transaction and might even transfer their patronage to another.

(ii) “ I found one buyer, protesting against an *artia* settling an auction of a heap of wheat by purchasing it on his own account at Rs. 3/1/- per

maund. When the bid was at Rs. 3/-/6 per maund, the *artia* suddenly said "Rs. 3/1/- per maund—*koi bolega*" and then in the same breath added, '*ho gaya*,' thus giving the others no chance of bidding higher. A buyer was ready to give Rs. 3/2/- per maund but the *artia* said that he should have spoken earlier. The seller was not present at the auction."

No *dalals* or brokers are employed in the settlement of transactions in  
 The Dalal Ferozepore Cantonment, Moga and Muktsar markets, where  
 (Broker). rates are settled by auction, nor in Talagang and Hasan  
 Abdal, where the open bids system is in vogue. In the other five markets, Lyallpur, Chak Jhumra, Toba Tek Singh, Jaranwala and Fazilka where transactions are settled under cover, a *dalal* is nearly always employed. The *artia* acts for the seller and the *dalal* for the buyer.

In Ferozepore Cantonment and Moga markets transactions of wheat  
 Nature of Transac- are *pacca*; once a deal has been arranged the buyer and  
 tions: Kachcha, seller are bound to carry it through. An unusual practice  
 Pacca. is common in Fazilka, where, although the seller is bound to observe the terms of the contract, the buyer can withdraw any time he likes, without giving any reason. The practice is highly prejudicial to the seller and no justification could be given for its prevalence; one grain dealer naively remarked that "It was so for grain because it was so for wool." \* Because of this it is a common practice with buyers in the Fazilka market to try to get a reduction in price by raising objections. The seller is often helpless because of the inconvenience of taking his produce back home and because it is generally too late to find another buyer. A settlement is effected by the *dalal*, with the *artia* putting up a fight on behalf of the seller. The following are the details of a few of the disputes of this kind witnessed in this market.

(i). Gram was sold through an *artia*, by a *bania* of village Paliwala (14 miles from Fazilka), and weighed at the buyer's place. The rate had been fixed at Rs. 3/11/3 per maund, but after six bags had been filled the buyer said that the gram was moist and ordered the weighing to be stopped. The seller asserted that allowance for moisture had already been made, as the rate he had agreed to was one anna less than the market rate. The seller's *artia* sided with him and the *dalal* who was sent for also advised the buyer not to bother about such small matters, but he would not agree and the rate was ultimately reduced to Rs. 3/11/- a maund.

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\* Fazilka is an important wool market.

(ii) Another case was where the rate had been fixed at Rs. 2/12/- per maund. When about half the wheat had been weighed the buyer took a handful from the heap and after examining it said that the wheat underneath was not of the same quality as at the top. The cultivator challenged this and his *artia* supported him; however, a number of other people who had collected there, took the buyer's side, and the matter developed into a lively controversy. Ultimately, the rate was lowered by two pice per maund.

(iii) A third example was where mixed gram and barley was being sold but after eight maunds had been weighed, the buyer said that the proportion of gram was not the same at the bottom of the heap as at the top and the rate was reduced from Rs. 2/9/3 to Rs. 2/8/- per maund.

The weighing of produce is done by a distinct class of market functionaries called *tolas*, except in Talagang where it is done by the seller himself. In Moga, the Lyallpur markets and in Hasan Abdal they are attached to particular *artias* as regular employees; in Fazilka they have formed themselves into small groups and the *artia* may call for any one of the group attached to his shop; in Ferozepore Cantonment any one of the weighmen in the market can be called by any *artia*.

In Talagang weighing is done by means of a *choah* (a measure made of iron or wood containing three seers of wheat). In all other markets it is done by means of a hand-scale and a five-seer weight, and this amount is at once thrown into a bag which contains the following weights of wheat at the different markets :—

Ferozepore Cantonment and ..	Ordinarily 2½ maunds but when the purchase is being made to fill a <i>kotha</i> ( <i>bichak</i> transactions) only 2 maunds.
Moga.	
Fazilka ..	.. Bags are made to contain 2½ maunds, but when the purchase is being made to fill a <i>kotha</i> , 1½ maunds are weighed on an ordinary <i>chaddar</i> (sheet) which is taken and emptied in the godown.
Lyallpur, Chak Jhumra, ..	Ordinarily 2½ maunds, but if the buyer is a European firm 2¾ maunds,
Toba Tek Singh and ..	
Jaranwala.	

Every person who serves the seller in the market has to be paid. There are also in most markets other customary deductions, such as allowances to buyers, charity payments, etc. Some of them are made in kind and disbursed by the weighman; those in cash are recovered by the *artia* from the sale proceeds along with his *arit*. Statements IX., A. and B., show deductions made in cash and kind, respectively, at the *artias'* shops; those at the co-operative shops are given in the appendix to this section of the Report.

*Arit or Commission.*—This is the charge made by the *artia* for the services rendered by him in effecting the sale. In some markets it is paid by the sellers, while in others by the buyers; in the latter case it is known as *dami*. *Arit* is charged in Ferozepore Cantonment, Lyallpur, Chak Jhumra, Toba Tek Singh, Jaranwala, Hasan Abdal and Talagang markets; and *dami* in Moga, Fazilka and Muktsar. In the Muktsar market also this charge was made formerly from the sellers at a rate of one per cent. In 1907, however, it was decided by the *artias* that the rate should be increased to Rs. 1/9/- per Rs. 100/-, and also that the charge should be made in future on the buyers instead of the sellers. The buyers resented this and for about a month they made no purchases in the market, but the *artias* were also determined and there was a lively conflict. The *artias* were fortunate as rates went up and buyers from outside came in large numbers so that the local buyers also had to agree to the charge.

The rate of *dami* is the same in all markets and is charged from all buyers, but the rate of *arit* varies in different markets and even in the same market different rates are charged; some sellers borrow money from *artias* and then the *arit* is above the average, while regular clients and persons of influence in their villages who can effect the clientele of the *artias* get concessions.

*Tolai or Weighman's charge.*—In Moga the weighman's charge is fixed at four annas per Rs. 100/-, and is paid by the buyer. In addition, the weighman usually gets one seer of grain per cart from the seller, as *inam*; although the latter is optional, the results of inquiry showed that in about 93 per cent. cases the seller gave this *inam* if asked.

Total number of cases investigated .. ..	502
Number who were asked by weighmen for <i>inam</i> ..	325
Number who gave <i>inam</i> .. ..	304
Number who refused .. ..	21

In Fazilka five annas per Rs. 100/- is charged from the buyer for the weighman, but the *artia* keeps this for himself, the weighman being allowed to remunerate himself by a deduction of two *chhataks* per maund from the seller's produce. In Ferozepore Cantonment ten annas per Rs. 100/- is deducted from the seller but the amount actually paid to the weighman by the *artia* is ten annas per 100 maunds weighed, e.g., for selling 100 maunds of grain at Rs. 3/- per maund the *artia* charges 30 annas from the seller; of this he pays 10 annas to the weighman, and keeps 20 for himself. In Lyallpur, Chak Jhumra, Toba Tek Singh and Jaranwala markets,  $3\frac{1}{2}$ ,  $2\frac{1}{2}$ ,  $3\frac{1}{2}$  and 5 annas per Rs. 100/-, respectively, are charged to the seller on this account. In Hasan Abdal the weighman is paid by the *artia* out of his commission at the rate of one pice per bag. In Talagang as the weighing is done by the seller himself, there is no charge on this account.

*Chungi*.—This is a deduction made in Moga, Fazilka, Lyallpur, Chak Jhumra, Toba Tek Singh and Jaranwala markets. In Moga the rate is five annas per Rs. 100/- and it is passed on to the buyer. In Fazilka the rate is six and a half annas per Rs. 100/- and it is kept by the *artia* himself. Most of the *artias* questioned as to this deduction replied that it was "custom" and this was regarded as a sufficient justification for its existence. In the other markets, Lyallpur, Chak Jhumra, Toba Tek Singh and Jaranwala the rate is one and a quarter annas per Rs. 100/-, and the amount is passed on to the buyer's *palledars*. *Kat* deduction, found only in the Ferozepore Cantonment market, is made to cover the 15 days' discount allowed to buyers for cash payment, viz.,  $7\frac{1}{2}$  annas at two pice per diem per Rs. 100/-.

*Dharmao*, *Gaushala* and *Mandar* are deductions made for charitable purposes such as cow protection, temples, etc.

*Karta* is a deduction made to cover dust, dirt, moisture, etc., in the grain, and goes to the buyer; it is made only in the Ferozepore Cantonment market. The whole burden of this deduction does not fall on the seller because of the competition among buyers who have to take such allowances into account when making offers.

The following statement shows the number of growers and traders who took advances from *artias* through whom they sold their wheat. This practice is much more common in the Lyallpur than in the Ferozepore District. In the Attock District none of the traders or cultivators questioned had taken any advances from *artias*,

Advances from  
Artias.

**STATEMENT IX-A.**  
**Market Deductions in Cash per Rs. 100/-**

Markets.	Arit (Commission).	Tolai (Weighing charges).	Chhanai (Cleaning).	Dalali (Brokerage).	Shagirdi (Apprenticeship).	Chungi.	Palledari (Labour).	Charity fund (Dharmas, Gauahala, Mandar, etc.)	Total.
1	2	3	4	5	6	7	8	9	10
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Ferozepore Cantt. ..	0 12 0 to 1 9 0	0 10 0	0 8 0 (1 pice per maund.)	..	..	₹ 7 6	..	0 2 0	2 7 6 to 3 4 6
Moga ..	..	..	do.	..	..	0 5 0	..	0 3 0	1 0 0
Fazilka ..	..	..	do.	..	..	0 6 6	..	0 0 3	0 14 9
Muktsar* ..	..	..	do.	..	..	..	..	0 0 6	0 8 6
Lyalpur ..	0 8 0 to 1 0 0	0 3 9	0 3 0 to 0 4 0	0 1 3	0 2 6	0 1 3	0 3 9	0 0 6 to 0 1 6	1 8 0 to 2 2 0
Chak Jhumra ..	0 12 0 to 1 0 0	0 2 6	0 3 0 to 0 4 0	..	..	0 1 3	0 2 6	..	1 5 3 to 1 10 3
Toba Tek Singh ..	0 8 0 to 1 0 0	0 3 9	0 5 0	0 1 3	..	0 1 3	0 3 6	0 0 9	1 7 6 to 1 15 6
Jaranwala ..	0 12 0 to 1 4 0	0 5 0	0 3 0 to 0 4 0	..	0 1 3	0 1 3	0 5 0	0 1 9	1 13 3 to 2 6 3
Hasan Abdal ..	0 0 6 per bag†	..	..	..	..	..	..	..	0 0 6 per bag.
Talagang ..	1 0 0‡	..	..	..	..	..	..	..	1 0 0

\* Gate entry (Municipal charge), Rs. -/2/- per Rs. 100/-.

† Also 8 *chhataks* per maund in kind.

‡ The *artia* meets all other charges out of this commission.

§ *Kat* deduction only.

*Notes.*—In Moga and Fazilka markets Rs. -/4/- and -/5/- per cent., respectively, are charged from the buyer as weighing charges.

In Moga, Fazilka and Muktsar markets *arit* @ Rs. 1/9/- per cent. is charged from the buyer and is known as *Dami*.

STATEMENT IX-B.

*Market Deductions in Kind.*

Markets.	Tola (Weighman).	Charhava (Labour).	Changar (Labour).	Dalal (Broker).	Mehra (Waterman).	Cook.	Ohhra (Sweeper).	Congress.*	Beggars.	Sample.	
Ferozapore Cantt.	..	1 sr. per cart.	..	..	..	..	1 sr. per cart.	..	A hand- ful each.	..	
Moga	..	1 sr. per cart.	do.	..	..	..	do.	..	do.	..	
Fazilka	..	2 chs. per maund.	do.	$\frac{1}{2}$ ch. per maund.	$\frac{1}{2}$ ch. per maund.	1 sr. per cart.	1 ch. per maund.	..	do.	..	
Muktesar	..	1 sr. per cart.	1 ch. per maund.	..	..	do.	$\frac{1}{2}$ sr. per cart.	..	do.	..	
Lyalpur	..	..	1 ch. per bag.	2 chs. per bag.	..	..	12 chs. per heap.	A handful per heap.	4 chs. per heap.	do.	$\frac{1}{2}$ ch. per bag.
Chak Jhumra	..	..	..	1 ch. per bag.	..	..	..	..	do.	do.	
Toba Tek Singh	..	..	1 ch. per bag.	1 to 2 chs. per bag.	..	A handful per heap.	12 chs. per heap.	A handful per heap.	..	do.	..
Jaranwala	..	..	..	2 chs. per bag.	..	8 chs. per heap.	1 to 1 $\frac{1}{2}$ srs. per cart.	8 chs. per heap.	8 chs. per heap.	do.	$\frac{1}{2}$ ch. per bag.
Hasan Abdal	..	8 chs. per maund.	..	..	..	..	..	..	do.	..	
Talagang	..	..	..	..	..	..	..	..	do.	..	

\*Fee for national congress during Non-Co-operation movement.

## STATEMENT X.

## Advances taken from Artias.

Markets.	CULTIVATORS.				TRADERS.			
	No. questioned.	No. who took advances.	No. who stated the amount of advances.	Total amount of advances.	No. questioned.	No. who took advances.	No. who stated the amount of advances.	Total amount of advances.
Ferozapore Cantt. ..	207	23	14	Rs. 1,155	92	4	2	Rs. 400
Moga ..	470	13	13	257	92	..	..	..
Fazilka ..	112	37	14	1,251	34	1	1	30
<i>Total</i> ..	789	73 (9.3%)	41	2,663	218	5 (2.3%)	3	430
Lyalpur ..	129	44	19	8,837	72	28	14	10,300
Chak Jhumra ..	70	10	10	9,572	34	7	10	10,845
Toba Tek Singh ..	140	32	28	15,912	9	..	..	..
Jaranwala ..	111	12	6	3,325	55	26	12	12,700
<i>Total</i> ..	450	98 (21.77%)	62	37,646	170	71 (41.76%)	36	33,945

Grain is stored by the buyers and artias in the spare rooms in their shops, and in shops or houses specially rented for the purpose, usually close to the *mandi*. Generally *pacca* Storage Capacity in Markets. rooms are preferred as there the liability to insect or rat attack is less. When demand for storage is, however, large all sorts of rooms whether good or bad have to be requisitioned but care is always taken to see that the roof does not leak and at times floor may be covered with sand or bhusa as a precaution against insect attack. An average room contains from 900 to 1,200 maunds of wheat. The following figures give approximate estimates of total storage capacity available at the different markets at the time of the inquiry :—

	<i>Maunds.</i>
Ferozapore Cantt. ..	400,000
Moga ..	395,000
Fazilka ..	500,000
Lyalpur ..	400,000
Chak Jhumra ..	250,000
Talagang ..	1,000
Hasan Abdal ..	31,000

It was stated that the loss through insect attack was greater in case of market storage than in case of the wheat stored in the cultivators' houses in villages, and this may be due to the fact that greater care and precautions can be taken with small amounts of wheat than with large stocks that the mandi buyers have to store. At Fazilka it was stated that the insect attack depended on climatic conditions and varied from year to year. Considerable loss is also caused by dampness here as the water level is high. At Moga the *artias* estimated the damage from insect attack at 30 maunds per room.

APPENDIX TO PART II.

Cash Deductions in Co-operative Shops per Rs. 100/-.

Market.	Arit (Commission).	Tolai (Weighing charges).	Chhannai (Clearing).	Dalali (Brokerage).	Chungi.	Palledar and changar charges (Labour).	Charity fund.	Total charges per Rs. 100/-
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Moga ..		All deductions—same as on the <i>artias'</i> shops.						
Lyallpur ..	0 8 0	0 4 0	0 3 0	0 1 3	0 1 3	0 5 6	0 0 3	1 7 3
Chak Jhumra ..	0 12 0	0 2 6	..	do.	..	0 6 6	..	1 6 3
Toba Tek Singh ..	0 8 0	0 3 0	0 5 0	do.	0 1 3	0 5 6	0 0 6	1 8 6
Jaranwala ..	0 12 0	0 3 0	0 3 0	..	do.	0 4 6	..	1 7 9

Deductions in Kind in Co-operative Shops.

Markets.	Mehra (Waterman).	Chhannai (Cleaning).	Palledar (Buyer's labourer).	Congress.	Sample.
Moga .. ..		All deductions—same as on the <i>artias'</i> shops.			
Lyallpur .. ..	..	..	..	..	½ ch. per bag.
Chak Jhumra .. ..	..	1½ chs. per bag.	1½ chs. per bag.	..	do.
Toba Tek Singh .. ..	..	..	..	..	..
Jaranwala .. ..	8 chs. per heap.	..	2 chs. per bag.	8 chs. per heap.	1 ch. per bag.

NOTE.—The other markets have no co-operative shops.

## QUESTIONNAIRE USED BY THE INVESTIGATORS.

## WHEAT FINANCE INQUIRY.

## VILLAGE SECTION.

## INSTRUCTIONS FOR INVESTIGATORS.

## GENERAL.

1. There are three periods of investigation during which replies are to be taken from cultivators and recorded in the village books.

*First Period.*

This period should fall a little before harvest, i.e., March.

*Second Period.*

This should fall immediately after the harvest is over and threshing started so as to record early sales, if any. It is necessary that investigators should pay more visits of shorter duration to each village during this period, and should try to be present when some heaps of wheat are being weighed in the fields. Deductions made at this time for menials, etc., should be carefully recorded and included in the total yield. Accurate outturns can only be obtained in this way.

*Third Period.*

This should fall some time after payment of the Land Revenue and should continue until the majority of sales have been made.

*Note.*—Always enter date of commencement and end of each period of investigation and the dates of investigator's visits to each village.

2. Replies should be recorded from every wheat grower in the villages selected for investigation.

3. In reply to questions such as "to whom was a sale made" or "from whom was an advance taken" proper name of the buyer or lender is not required. It will suffice to write *sahukar*, landlord, trader, etc.

4. In recording quantities of wheat adhere to the standard weights or measures used in the market or village concerned, but also state the equivalent quantity in maunds. (In some districts earthen or wooden measures are used for finding out the quantity of wheat, while in others scales and weights are used. To bring them to one standard, however, the weight should also be converted into *pacca* maunds, seers and chhataks and entered in the books.)

5. Whenever possible the rate and date of sale of wheat should also be given. If exact date is not known give approximation, e.g., "1st week of June," etc.

6. It is advisable to keep all investigators' rough notes, calculations, etc., on the blank leaves opposite the questionnaire in the record books.

## NOTES ON INDIVIDUAL QUESTIONS.

*A.—General for each village.*

*Questions 2, 3 and 4.*—Replies can be obtained from the cultivator and should be checked by village land revenue records.

*B.—General for each cultivator.*

*Question 3.*—If a cultivator is both a proprietor and a tenant, record the area owned and the area rented separately.

*Question 5.—Types of wheat.*—If a cultivator is growing both pure and mixed types of wheat, give the area under each separately; also give areas of wheat grown with other crops.

*C.—First Period.*

*Questions 2 and 3.*—Under Question 2 give the amount of advances, money and seed, actually received by borrowers. Under Question 3 give the amount, money or seed, which he has contracted to repay and state dates of repayment, if fixed.

*Notes.*—Sometimes the lender charges interest in advance. For instance, if he has agreed to lend Rs. 100/- at 12 per cent. for one year, the debtor will receive only Rs. 88/- after the deduction of Rs. 12/- as interest, which means that instead of Rs. 100/- the sum which he has contracted to repay, he actually receives only Rs. 88/- in cash.

Investigators should make every effort to obtain reliable information on this point.

*Question 7.*—Advance sales of standing crop on the basis of area or produce of that crop. If advance sales have been made to a person from whom an advance was taken the fact should be recorded.

*D.—Second Period.*

*Question 1.*—It is probable that some of the heaps may be ready for weighment at the time of Investigator's visit to the village? If so, he should try to be present when weighment of such heaps is made in the fields. He should make notes of such cases and compare the yield with others that were not weighed in his presence.

*Question 2.*—In recording dates of sale, give dates as exactly as possible. If exact date is not known, approximation such as "1st week of June" or "2nd half of July," etc., will do. Do not enter such remarks as "three weeks ago."

*Question 3.*—Enter the date on which this reply is recorded.

*Question 4.—Rate.*—The rate is the actual amount of money per unit weight of wheat agreed upon at the time of sale, exclusive of any subsequent deductions.

*Question 5.*—The total amount of money received by the cultivator as the result of his sale would be entered here.

*Question 11.*—It is important to get an exact reply to the Question. The point at issue will be to see how many cultivators would prefer to borrow money on the security of their wheat. Only reliable information should be recorded.

*E.—Third Period.*

*Question 1.*—In recording quantities of wheat held up for local consumption or selling at higher rates, give approximate weight, if exact quantity is not known.

*Question 2.*—If money due on wheat is outstanding it should be ascertained whether the seller has himself allowed the money to remain with the buyer. If so, why?

*Question 8.*—In cases where advances on wheat remaining with grower were taken from the same person from whom cultivation advances were obtained, the fact should be made clear in the reply.

*Question 12.*—The sources should be stated whether from sale of wheat or other crop, cattle, land, etc. If the money has been borrowed state from whom—money-lender, co-operative society, relative, etc.—and the rate of interest charged.

*Question 13.*—This is to be found by lumping all Government dues and finding out what proportion of this has been met, immediately, or ultimately, by sale of wheat.

*District of Inquiry.* — . . . . .

GENERAL FOR EACH VILLAGE.

(To be ascertained at the commencement of the inquiry.)

1. Name of village.
2. Total cultivated area.
3. Area under wheat this year.
  - (i) Wheat mixed with other crops. (ii) Wheat types mixed.
  - (a) Irrigated from canal. (b) Irrigated from other sources (state sources) (c). Unirrigated.
4. Area under wheat last year.
  - (i) Wheat mixed with other crops. (ii) Wheat types mixed.
  - (a) Irrigated from canal. (b) Irrigated from other sources (state sources). (c) Unirrigated.
5. How does this year's crop compare with last year's.
6. Date of ripening.—Is the crop this year earlier or later than usual, and by how much ?
7. Name the nearest wheat market(s) and nearest railway station ? What is the distance (a) to market, (b) to nearest railway station, and is the road *kachcha* or *pacca*, and is it good, fair or bad ?
8. What is the character and capacity of the storage accommodation for wheat in the village ?
  - (a) What methods of storage are usually followed ? (b) Is wheat in stores damaged by insects, (mention names of these insects) ? Send samples to Entomologist, Lyallpur.
  - (c) What is the extent of loss in storage—
    - (i) From insect attack. (State which of the insects is considered the most harmful). (ii) From rats and mice.
9. What is (are) the common system(s) of weight(s) and measures in use in the village for wheat ? Reduce the weights to tolas.

District of Inquiry.....

Serial No.....

(Information to be obtained from each wheat grower.)

1. Village.
2. Name of cultivator.
3. Is he a proprietor, tenant or both? If a tenant, what is the nature of his tenancy (money rent, share system, etc.).
4. Total area of his holding.
5. Area under wheat—  
(a) unirrigated, (b) irrigated from canal, (c) irrigated from other sources (state sources).
6. Type of wheat—  
(a) pure (b) mixed types with gram or other crops, (c) mixed.
7. Sources of seed supply (cultivator's own, *sahukar*, Government Farm, etc.).

FIRST PERIOD FROM 1ST MARCH TO 10TH APRIL.

Dates of Investigator's visit to village.....

1. Has any advance been taken up-to-date (debts to be recorded separately)? Give reasons for taking the advance.
2. How much did you borrow and how much did you actually receive in advance? Include any advance in seed taken (state if taken on cash terms or on *sawai* system).  
(In some districts particularly the south, east and northern parts of the Province, cultivators take seed on special conditions paying one and a half, double or more, in kind, after the crop is harvested. Information should be collected on this point.)
3. What amount have you undertaken to repay?
4. Rate of interest.
5. Source of advance (landlord, co-operative society, *sahukar*, trader, etc.).  
If advances have been taken from more than one source, give amount and rate of interest from each source separately.
6. Did you actually sell wheat through, or to the person from whom you borrowed money?
7. Have you undertaken to repay any portion of your loan in kind? (Details of any such transaction would be important.)
8. Is the crop already sold, and if so, is the price fixed on acreage, or on weight of produce? State to whom sold; and for what price and terms; also on what dates?

## SECOND PERIOD FROM 25TH APRIL TO 15TH JUNE.

Dates of Investigator's visit to the village. ....

1. What is the total quantity of wheat grain obtained from your whole crop ?
2. Has any wheat been actually sold ; if so, state amount in maunds, to whom sold, petty merchants, *dalal*, *sahukar* or trader, where sold, and when (dates of sales) ? If sold to village *sahukar*, was the price received in cash or credited in the cultivator's account with *sahukar* as repayment of debt.
3. Has any money been received for this wheat (enter date of recording this reply) ?
4. What were the rates (in case of more than one rate, give amount sold at each rate) ?
5. What was the net amount of money actually received ?
6. Where was the wheat delivered by the cultivator (locally in village or elsewhere, give name of place or market) ? How far away—  
(a) by road and (b) by rail (in miles). Who paid for—(a) cartage, (b) railway freight (i.e., seller or purchaser) ?
7. If sold in market, was the sale made through *artia* or broker or co-operative commission shop or other co-operative organisation ?
8. (a) Was the wheat sold outright or deposited with *artia*, *dalal*, *sahukar*, etc., for sale ?  
(b) Was any advance taken by the seller on the security of any produce left with the selling agency, and if so, on what terms ?
9. Did you ascertain the market rates before selling your wheat ; if so, from what source ?
10. If the cultivator has sold his wheat in the village, inquire reasons why he did not sell in market.
11. Has any advance been taken on the wheat remaining with you ? if so, how much ; and from whom ; and under what conditions ?
12. Were you offered any rate for this wheat ? (Enter date of offer and actual market rate of the same day.)

## THIRD PERIOD FROM 15TH JULY TO 15TH AUGUST.

Dates of Investigator's visit to the village. ....

1. What is the total quantity of wheat sold by you ? (Since investigator's last visit)—and how much now remains with you for—  
(a) local consumption, (b) selling at higher rates.
2. Have you received the whole money due on what sold ? (Enter date of recording this reply.) If not, how much is outstanding, and why ? and from whom ?

3. How much grain (in maunds) was sold—
  - (a) Locally in village—
    - (i) on cash terms, (ii) in-repayment of debt.
  - (b) In market. (c) Name of market and distance from village.
4. What were the rates received in the—
  - (a) local (village) sales (give dates), (b) market sales (give dates).
5. If sold in market, was the sale made through *artia* or broker?
6. Was the wheat sold outright or deposited with *artia*, *dalal*, *sahukar*, etc.?
7. Did you ascertain the market rates before selling? If so, from what source?
8. Has any advance been taken on the wheat remaining with you? If so, how much; and from whom; and under what conditions?
9. What rates are you now offered for wheat held up for sale? (Enter date of recording the reply and market rate for the same day.)
10. (a) How is wheat attacked by insects (mention names of insects)? Send samples to Entomologist, Lyallpur.
  - (b) How was the wheat stored which has been attacked? And how was the wheat stored which has not been attacked?
  - (c) Has wheat been attacked by rats and mice?
  - (d) What is the extent of damage?
  - (e) How does this damage compare with the previous year?
11. What amounts have you paid for (a) land revenue, (b) cesses and (c) occupiers' rates for—
  - (a) the last (*kharif*) instalment and (b) the present (*rabi*) instalment.
12. From what sources were the payments met—
  - (a) for the *kharif* instalment, (b) for the *rabi* instalment.
13. What percentage under the above heads should be charged against the wheat crop?

#### GENERAL FOR EACH INDIVIDUAL.

[Note for Investigators.—The investigator should carefully explain the following questions to the cultivator under examination and should enter his actual replies only. If the cultivator has no reply to offer, state that fact.]

Enter here such information as can be obtained about difficulties in marketing, in finance and in holding up produce for higher rates.

1. Would an open wheat market with open prices be of any advantage to the cultivator? If so, how?
2. Is there any difficulty in—
  - (a) knowing the rate at which his agent sells the wheat, and
  - (b) recovering the full money?
3. Are deductions made from the price? (All deductions should be entered whether in cash or in kind.) If so, what are they said to be for—and what rate(s) is (are) charged in respect of each?
4. If you take your wheat to market and cannot get a good rate on that date what do you do with it?
5. (a) How do you store your wheat?  
 (b) How much do you lose annually during storage—
  - (i) through attacks of insects? (ii) through attacks of rats and mice?
- (c) Are your bins insect and rat-proof? (d) What steps do you take to kill rats and mice in seed stores? (e) What steps do you take to kill insects? (f) What expenditure have you to incur in clearing insect infested wheat?

## WHEAT FINANCE INQUIRY.

## MARKET SECTION.

## INFORMATION TO BE OBTAINED EACH DAY.

## GENERAL INSTRUCTIONS ON QUESTIONS.

*Question 3.*—Answer to this question should show what market rate was fixed and whether made known to the sellers during the day. It should be stated how the rate was fixed and in what way it was made public.

*Question 4.*—Any intimated changes in the market rate during the day should be recorded.

*Question 5.*—Answer to the first portion of the question should be "Yes" or "No."

If any notice or telegram is posted, a copy should be given.

*Question 6.*—The quantities of wheat—(a) brought fresh from the villages, (b) already stored in market for resale, and (c) offered that day for sale may be recorded separately.

1. Name of market.
2. Date of inquiry.
3. The market rate. How and when fixed. Was it posted or announced in the market?
4. Any change in the rate during the day. Were these posted or announced?
5. Were any Karachi rates posted up? If so, what rates? And when and where?
6. Approximate arrivals of wheat during the day—
  - (i) Brought from the villages
  - (ii) Already stored in market and to-day offered for sale.
7. (a) Compare on the same date the condition of wheat as regards insect attack—
  - (i) Stored in the mandi.
  - (ii) Brought from villages.

(b) How far has the insect attack lowered the price?

(c) State the expenses incurred in clearing insect attacked wheat.
8. State the quantity of each quality of wheat in the market on the date in question.

INFORMATION TO BE OBTAINED FROM EACH INDIVIDUAL BRINGING  
WHEAT TO MARKET FOR SALE.

INSTRUCTIONS ON QUESTIONS.

To get complete replies to the questions, the investigators will have to keep in touch with each individual recorded during the entire day, from the time he arrives at the market with his wheat until the sale is completed and he has received his final payment. In view of this, it is advisable that one investigator should not attempt to obtain too many records on any one day.

*Question 2.*—If wheat was partly grown and partly bought by the individual bringing it to market, the amount under each head should be given even if only approximately known.

*Question 5.*—The record here should be the actual weight of wheat brought as given in his reply by the individual recorded.

*Note.*—Replies to questions 2, 3, 4 and 5 can often be obtained in the morning before sales commence.

*Question 9 (a).*—The rate accepted is the rate fixed at the actual time of sale and intimated to the cultivator by the *dawal* or by the buyer. It is most important to note that the final rate, *i.e.*, after deductions, etc., have been made should not be entered here. The reply should give the rate fixed when the wheat is sold. If this rate is not made known to the seller, the entry should state that fact only.

*Question 9 (b).*—What money have you received? The answer should give the total amount finally received by the seller for his wheat after all deductions have been made, *i.e.*, the actual amount the seller takes home with him.

*Question 10.—Deductions.*—All deductions of whatever kind should be entered here. Under deductions should be entered ordinary market deductions on account of charity, weighment, *dawali* charges, etc. These entries should account for the invariable differences between the rate of sale, the weight of wheat and the money actually received.

Under this head should also be entered, deductions in weight, *i.e.*, differences between weight brought to market (*i.e.*, *Question 5*) and weight in market, also allowances in kind (*i.e.*, wheat) should be detailed here.

Serial No. ....

Name of Market.....

1. Date of inquiry.
2. Was the wheat grown by you or have you bought it?
3. From what village have you brought it?  
Distance, in miles. Road metalled or not.
4. Means of transport (cart, camel or donkey).  
Your own or hired. If hired, at what rate?
5. What weight of wheat have you brought?
6. Quality of wheat (good, average or bad).

*Note.*—Wheat should be classified into grades based on the analysis of each lot. Percentage of sound white and red grains and that of impurities may be considered in the gradation of wheat. The grade in which the wheat was placed by buyers should also be ascertained and recorded. This is to show whether it tallies with the investigators' grade or not.

Inquiry on this point seems to be very important in order to find out whether wheats of similar quality get the same rate on the same day. From such data it may be known whether superior grades of wheat get any premium over inferior ones or not.

7. Why are you selling your wheat ?

(Is it on account of financial pressure, e.g., paying land revenue, liquidation of *sahukar's* debts, or in view of attraction for higher prices at this time, or because prices are considered to be more favourable now.)

8. What is the weight of the total quantity of your wheat as declared by the weighman ?

9. (a). What rates did you accept ?

(b). What money have you received ?

10. To what deductions did you agree ?

11. How much of this deduction is on account of damage from insect attack ?

12. Have you ever tested the weight of your wheat in the market against the weight of your wheat in village ; if so, with what result ?

13. Can you wait for payment of your wheat, if arrangements were made to sell it directly to outside mill owners or some big firms at higher rates on a co-operative basis ?

14. Have you any control in fixing the customary charges deducted by *artias* on the sale of your wheat ?

15. (a). Why do you sell through Co-operative Shop ?

(This will apply to those who are already selling through that shop.)

(b). Why don't you sell your wheat through Co-operative Shop ?

(This will be asked from those who are not selling through that shop.)

*Note.*—These questions will be put only to cultivators bringing wheat into the market for sale.

16. Have you taken an advance ? Are you in debt to the shopkeepers to whom you sold your wheat ; if so, for how much and for what purpose or purposes and on what security ? If so, of what amount and from whom, (*sahukar, dalal, artia* or trader) ?

### GLOSSARY OF TERMS.

ABADKAR	.. Peasant grantee in Canal Colonies.
ANNA	.. One-sixteenth of a rupee
ART	.. Commission.
ARTIA	.. Commission agent.
AWAN	.. Mohammedan agricultural tribe.
BAJRA	.. Bulrush or spiked millet ( <i>Pennisetum typhoides</i> ).
BANIA	.. Hindu shopkeeper ; money-lender.
BARANI	.. Dependent on rainfall.
BATAI	.. A system of farming, where the rent is a certain proportion of the produce ; cf., metayer system.
BEGARI	.. A labourer who is compelled to work with or without payment ; forced labour.
BHAROLI	.. Earthen bin.
BHUSA	.. Straw crushed and broken into short lengths by trampling with bullocks during the process of threshing.
BICHAK	.. Invoice ; granary receipt ; paper containing a detailed account regarding the amount, cost, etc., of grain purchased in lots and stored together in a room, with a view to the sale of same in one lot.
BUKHARI	.. Earthen grain receptacle (see p. 40).
CHADDAR	.. Sheet.
CHAH	.. Well-irrigated.
CHANGAR	.. Low class menial ; act-as reapers and assist in mandis.
CHARHAVA	.. Labourer in mandi who assists in loading and unloading grain in pans.
CHAUDHARY	.. Headman of a guild, profession or trade.
CHAURAS	.. A rectangular earthen grain bin (see p. 40).
CHHAJ	.. Winnowing basket.
CHHANAI	.. Sieving charges.
CHHATAK	.. Indian weight equal to 2.057 ozs., or one-sixteenth of a seer.
CHOAH	.. A measure of grain equal to 2 seers of maize in the kharif and 1 seer of wheat in the rabi harvest ; in loans in kind equals $7\frac{1}{2}$ maunds per Rs. 100/- per annum.
CHUNGI	.. A cess levied from grain-sellers.

DALAL	.. Broker.
DALALI	.. Brokerage.
DAMI	.. Market deduction made from the buyer.
DARA SALES	.. Where several heaps of different qualities belonging to more than one seller are lumped into one transaction.
DEORHI	.. Interest in kind @ 50 per cent. per harvest (6 months), i.e., 125 per cent. per annum, when compounded.
DESI	.. Indigenous.
DHARMAO	.. Contribution for charitable purposes levied in markets.
DHARAMSALA	.. Contribution for the maintenance of the Hindu religious institutions.
DISTRICT	.. The most important administrative unit of area ; there are 29 districts in the Punjab.
GADDA	.. Bullock cart ; the chief means of transport for agricultural produce in the Punjab.
GADDI	.. A small bundle of wheat plants.
GAUSHALA	.. Charitable contribution for maintenance of old and decrepit cattle.
GHI	.. Clarified butter, used instead of lard or other cooking fats.
IMAM MASJID	.. Muslim priest who performs the regular services at the mosque.
INAM	.. Gift ; present , gratuity.
JANGLI	.. A generic name for the nomads of the Sandal Bar ; <i>lit.</i> forest dweller : savage.
JAT	.. One of the principal agricultural tribes in the Punjab.
JODHRE	.. A Mohammedan agricultural tribe.
JOWAR	.. Large millet ( <i>Andropogon sorghum</i> ).
KACHCHA	.. Not perfect, complete, finished or fixed ; in case of weights and measures it distinguishes the local (village) from the standard weights ; for wells it denotes those which are unlined with bricks ; for houses those made of mud ; for roads, those which are unmetalled ; also used for measures of area, e.g., <i>bigha kham</i> or <i>kachcha</i> ; cf., <i>pacca</i> .
KARTA	.. A charge against dust and dirt in the grain.
KAT	.. Discount.
KHAPRA	.. (Beetle <i>Trogoderma Khapra</i> ).

- KHARIF .. Autumn harvest : monsoon or summer crops.
- KHATTAR .. A Mohammedan agricultural tribe in the North-Western Punjab.
- KOTHA ... Room : granary.
- KOTHI .. Earthen bin (see p. 39).
- KUMHAR .. Potter class now taking to transport of and petty trading in grain.
- KŪP .. A conical stack of grain covered with straw or plaster.
- MACHLI .. Muslim water-carrier.
- MAHWAR .. Per month.
- MANDAR .. Temple ; or deductions levied in markets for its upkeep.
- MANDI .. Market place ; a set of shops built round three or four sides of a square, a wide brick pavement being provided for unloading, examining, cleaning and bagging grain.
- MASJID .. Mosque.
- MAUND .. Indian standard weight of forty seers ; equal to  $82\frac{2}{7}$  lbs.
- MEHRA .. Hindu water-carrier.
- MIRASI .. Minstrel caste.
- MOCHI .. Leather worker caste ; shoemaker.
- NAHRI .. *Lit.* canal-irrigated ; a white variety of wheat.
- NIM .. Margosa tree : the leaves have medicinal properties (*Melia azadirachta*).
- PACCA .. Sound, perfect, complete, fixed ; applied to weights and measures it denotes those recognized by the Government as distinguished from those having a local sanction ; for wells and houses implies the use of kiln-baked bricks in their construction ; for roads those which are metalled, *cf.*, *kachcha*.
- PACCA ARTIAS .. Commission agents who act generally for buyers in large transactions.
- PAISA .. Pice ; Indian coin equal to 1/64th of a rupee.
- PALLEDAR .. A servant who assists at the time of sale of grain in markets.
- PANCHAYAT .. A committee of influential men ; a council.
- PAROHATTI .. An earthen vessel for storing grain (see p. 40).
- PARDAN .. Cover ; veil.
- PATHAN .. A Mohammedan agricultural tribe : Afghan.

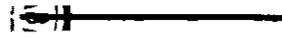
PATWARI	.. Village accountant.
PIE	.. One-twelfth of an anna.
RABI	.. Spring harvest ; winter crops.
RULAI	.. Charges for the man who fills the balance pan at the time of weighing after shaking out the dust.
RUPAIYA	.. See Rupee.
RUPEE	.. Indian standard coin, fixed at 1s. 6d. sterling.
SAHUKAR	.. Money-lender.
SAHUKARA	.. Pertaining to money-lending.
SARKARI BOLI	.. Bid of the commission agent when he is a buyer himself, official bid.
SAWAI	.. Interest in kind 25 per cent. per harvest ; i.e., 56½ per cent. per annum, when compounded.
SEASON AND CROPS REPORT	.. An annual report issued by the Department of Agriculture showing the state of seasons and crops for the year under review.
SEER	.. One-fortieth of a maund ; 32.9 ozs.
SHARBATI	.. A variety of wheat.
SIRI	.. A sharer or partner in cultivation.
SUFEDPOSH	.. Rural officials who receive a small grant out of revenue.
SUSRI	.. Wheat pest : weevil.
TACCAVI	.. Loan given by Government for seed, cattle or agricultural improvements.
TAHSIL	.. Sub-division of a district with a separate administrative staff. In the Punjab there are usually from three to five <i>tahsils</i> in a district.
TAK	.. Interest in kind @ 3 seers per rupee per harvest compounded if payment is postponed.
TOLA	.. Weighman.
TOLAI	.. Weighman's charge.
URAVA	.. Winnower.

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~~(GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.)~~  
SOCIETY



## MARKET PRACTICES

IN THE

## PUNJAB.

8

Being a study of the practices affecting the producer in the grain and cotton markets, together with the rules and regulations governing similar practices under the Bombay and Berar market legislation.

**INQUIRY**

CONDUCTED BY

**L. R. DAWAR, M.A.**

UNDER THE SUPERVISION OF

**H. CALVERT, B.Sc., C.S.I., C.I.E.**



[The Board of Economic Inquiry, Punjab, does not hold itself responsible for any opinions expressed or conclusions reached by the writers.]

1934.

## Recent Publications of the Board on Agricultural Subjects.

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Studies in the Cost of Crop Production in the  
Punjab.

Farm Accounts in the Punjab, 1932-33 (Ninth Issue)

Cost of Ginning and Pressing Cotton in the Punjab.

Finance and Marketing of Cultivators' Wheat in  
three districts of the Punjab.

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A complete list of Board's publications is given on the  
back cover.

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## FOREWORD.

The unsatisfactory practices prevailing in various Punjab markets have for a long time been a matter for comment, but it has never been easy to distinguish between fact and rumour. The Indian Central Cotton Committee have been pressing for some years past for the establishment of open cotton markets on the Berar system, and the Royal Commission on Agriculture recommended action with a view to securing regulation by legislation.

The District Boards Act (Punjab) enables the Local Government to direct that the establishment, maintenance and management of markets shall be a matter for the control of District Boards; but nothing in the way of regulation appears to have been introduced. Similarly the Punjab Municipal Act empowers the Municipal Committees to provide for the proper regulation of markets, for the preparation and exhibition of the prices current and for fixing the fees and other charges to be levied in such markets. Such Committees may also define the standard weights and measures to be used and may provide for their inspection. Nothing effective, however, seems to have been done, certainly nothing for the primary markets. A number of bodies have framed bye-laws and several have prescribed standard weights and measures, but the regulation of the transactions between seller and buyer has not been seriously attempted.

The Indian Central Cotton Committee continued their efforts and inquiries were set on foot into the marketing of cotton and much useful and interesting information was collected, but it was considered that action, if undertaken, should not be limited to cotton alone but should extend to marketing in general.

The Royal Commission on Agriculture also recommended the establishment of regulated markets on the Berar system, which should deal in produce generally and not only cotton, and they considered that Local Governments should take the initiative by legislation and by establishing such markets in suitable places.

Bombay took the lead in such legislation and it was perhaps excusable that the Punjab Government should desire to watch the working of this Act

before embarking upon schemes of its own. When Mr. Calvert, who supervised the present inquiry, after serving as a member of the Linlithgow Committee, returned to the Punjab in 1929, he took up this matter and it was as a result of his advice that the Board of Economic Inquiry has collected the material contained in this report: Commissioners were requested to collect information regarding the rules and regulations of the committees of management, if any, in the markets of their Divisions, and an investigator of the Board made a detailed study in 1930-31 of some twenty-five markets of agricultural produce in seventeen districts of the Punjab.

The report comprises a descriptive and critical study of the practices that were found in these markets and gives alongside the rules and regulations governing similar practices under the Berar and Bombay market legislation.

Chapter I. contains a description of the middlemen - commission agents and brokers—and the constitution and management of the market committees and discusses their usefulness to the sellers; also detailed particulars are given of the constitution and the rules regulating the working of the market committees provided for under the Bombay and Berar legislation as the main machinery for controlling markets and carrying out the law.

Chapter II. deals with the methods of transacting business prevalent in Punjab markets to-day and of the advantages and defects of open bids versus secret bids. It also deals with hours of business, with *dara* sales (wherein a number of heaps of produce belonging to different sellers and sometimes of unequal qualities is sold in one transaction to save time and trouble), with the binding nature or otherwise of offers made by middlemen, with the machinery for settling disputes, and with certain restrictions which might well be imposed on dealers in these markets.

Chapter III. deals with weights and methods of weighing. It is truly astonishing that nearly seventy years after the first introduction of railways and sixty years after the introduction of modern commerce and finance in this Province, in this supremely important matter of standard weights and measures we have made so little progress, and the forthcoming publication of the Board on "The Use of Faulty Weights and Measures in the Punjab" gives a vivid picture of the chaos and uncertainty that prevails in this sphere throughout the province. Of stamped weights in use only 50·8 per cent. were accurate and of

unstamped and *kachcha* only 12 per cent. This chapter gives the provisions under the Bombay and Berar legislation relating to the checking and correcting of weights and scales in markets. It further describes how suitable methods of weighing can be devised and discusses the various instruments of weighing in use and the wisdom of installing weighbridges; the relations of the weighman to the professional middleman are also dealt with in some detail.

Chapter IV. deals with market deductions which in these markets form, when taken together, a considerable burden, especially on the seller. The nature, number and propriety of these charges in various markets is fully discussed.

In Appendix A. are given some important particulars of the twenty-five markets visited by the investigator. About one-half of these are large markets, one-third small, and the remaining of moderate importance. The number of *artias* in 21 of these markets, for which details are available, was 1032 : 369 were *kachcha artias*, 559 *kachcha-pacca artias*, and 104 *pacca artias*. Besides, eight markets had a co-operative shop, and one (at Okara) a *Zemindara Sale Society*. Twenty-one markets had cotton factories numbering 131, of which 106 were working during the 1930-31 season. In the other appendices are to be found reproductions of the Bombay Cotton Markets Act, the Berar Cotton and Grain Markets Law, the constitutions of existing Market Committees in the Punjab, and Model Bye-Laws on Weights and Measures for Municipalities under the Punjab Municipal Act of 1911; also an example of how auction is conducted.

It should, however be mentioned that the Berar Rules quoted in this report have, since the report of the inquiry was submitted, been considerably altered; unfortunately the revised rules were received too late to incorporate them. The salient changes that are noticeable show that the revision has been made mainly to bring the rules in line with those under the Bombay Act: representation has been given to cultivators, provision has been made for a disputes sub-committee and for the publication of Bombay and New York cotton prices; rates are to be settled openly and where funds permit weighbridges are to be installed.

The gathering together of all this material under one cover should make it much easier to understand the prevalent market conditions in the Punjab and perhaps help in the devising of methods both private and public to improve what is in many respects a disgraceful state of affairs.

One mistake made by the public in this Province is to look to the Government to remedy all evils ; many of the evils described herein can only be remedied by the force of an enlightened and active public opinion.

E. D. LUCAS,

*Acting Secretary.*

*7th June, 1934.*

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1934

## CHAPTER I.

### CONSTITUTION OF THE MARKET.

The term 'Market' as used in economic studies is very wide, but in this report it is used in a restricted sense, and means a place where agricultural products like grain, *gur*, cotton, etc., brought from the countryside are offered for sale, through agents who specialise in this business.

**Market: Definition.**

It will be noted, however, that even in the restricted sense, it is not altogether synonymous, except in a few places,\* with what is locally known in most towns and cities as a *mandi* and which has been defined in the report of the Royal Commission on Agriculture in India as consisting of "a set of shops built round three or four sides of a rectangle, a wide brick pavement being provided for unloading, examining, cleaning, weighing and bagging the grain."† Our definition has been made wide enough to include even places such as Gujar Khan, Sirsa and Fazilka, where there is no regular *mandi* and where the *artias*' shops are scattered throughout the city; and also other places where although there is a *mandi* for the sale of grain, cotton transactions are settled and weighings done either in the vicinity of or within the factory compound.

**Market not Synonymous with Mandi.**

Under the Bombay Cotton Markets Act (XVII of 1927) which deals only with cotton, the use of the term market can be applied only to such as have been so notified in the *Bombay Government Gazette*.

Sec. 4 (1). The local Government may, after consulting the District Local Board and such other local authorities as they deem necessary, or upon a representation made by the District Local Board, by notification in the *Bombay Government Gazette*, declare that any place shall be a cotton market established under this Act.

(2). Every such notification shall define the limits of the cotton market so established, and may, for the purposes of this Act, include within such limits such local area as the local Government may prescribe.

Prescribed means (Sec. 3-iv) 'prescribed by rules or by-laws made

---

\* Phullarwan, Sangla, Abohar, Amritsar, where all crops, including cotton, are sold and weighed within the *mandi*.

† *Ibid.* page 384.

under this Act.' By-laws which mean [Rule 2 (5),] 'by-laws made by a market committee' are not yet available. The rules notified by the local Government, in this connection, are as follows :—

Rule 2 (6). "Cotton market" shall include market yard, market proper, and market approaches.

(9). "Market approaches" includes all land which is the property of Government or of a local authority within such distance of the market yard as may be prescribed by Government by notification in the *Bombay Government Gazette* in this behalf.

(10). "Market proper" includes all land with the buildings thereon within such distance from the market yard as Government may, by notification in the *Bombay Government Gazette*, prescribe, and shall also include all cotton mills, ginning and pressing factories and their compounds, and all yards where cotton is stored within the area so notified.

(11). "Market yard" includes any enclosure or building declared to be a market yard by Government by notification in the *Bombay Government Gazette*.

Under the Berar Act known as the Berar Cotton and Grain Markets Law of 1897, it rests with the Resident to declare any place a market.

Sec. 2. The Resident may, by notification in the *Hyderabad Residency Orders*, declare that any place, the property of the Government or of the public or of a Municipal Committee or District Board, is a market or bazaar for the sale of agricultural product generally or for the sale of a particular class or classes of agricultural produce, and may from time to time amend, vary or rescind any such notification.

The area of the market as defined in the rules made under this Act includes the following :—

Rule 46 (1). The market yard (the enclosure bounded by walls and railings known as the cotton market yard) ;

(2). The market proper (including all lands, the property of the Government or of the Municipality, within a radius of 500 yards from the centre of the market yard) ; and

(3). The approaches (including all lands, the property of the Government or of the Municipality, within a radius of one mile from the centre of the market yard).

Both the Bombay and the Berar legislation prohibit any business, which it is their object to regulate, being set up or carried on within the limits of notified markets, or within a specified distance thereof, except with previous sanction duly obtained and subject to such conditions as may be imposed in such sanction.

#### *Bombay Act.*

Sec. 17. Wherever the Local Government has, by a notification under Section 4, declared any place to be a cotton market, no person shall, within the limits of such cotton market or within a distance thereof to be notified in the *Bombay Government Gazette* in this behalf in each case by the local Government, except with

#### *Berar Act.*

Sec. 7 (1) When the Resident has, by notification under Section 2, declared any place to be a market or bazaar for the sale of agricultural produce generally, or for the sale of any particular class or classes of agricultural produce, no new market or bazaar shall, except with the sanction in writing of the Resident and subject to

the sanction in writing of the local Government expressed over the signature of a Secretary to Government and subject to such conditions as may be imposed in such sanction, set up, establish or continue or allow to be continued, any market for the purpose of the purchase and sale of cotton.

*Explanation.*—A person shall not be deemed to set up, establish or continue or allow to be continued, a place as a market for the purpose of the purchase and sale of cotton if he sells his own cotton outside the premises set apart by the market committee for the purpose of purchase and sale of cotton.

Sec. 18. Whoever in contravention of this Act, sets up, establishes, continues or allows to be continued, any market for the purpose of the purchase and sale of cotton, or violates the conditions under which he has been allowed to set up, establish or continue, any such market, shall on conviction by a magistrate be punished with fine which may extend to Rs. 500/-, and, in case of a continuing breach of the provisions of Section 17, with fine which may extend to Rs. 100/- for each day after the first during which the breach continues.

such conditions as the Resident may think fit to impose, be established for the like purpose within five miles of the market or bazaar notified as aforesaid.

(2). Whoever establishes a market or bazaar in contravention of this section, or violates the conditions under which he is authorised to establish a market or bazaar under this section, shall be punishable, with fine which may extend to fifty rupees, and, in the case of a continuing breach with fine which, in addition to such fine as aforesaid, may extend to five rupees for each day after the first during which the breach continues.

Of the different people who constitute a 'Market,' the most important is the *artia*. Any one, or even more than one, of the others may be missing and there may yet be a market, but there can be none if there are no *artias*, just as there can be none if there are no buyers and sellers. There are three kinds of *artias* in the markets, *Kachcha*, *Pacca*, and *Kachcha-Pacca*.

A *kachcha artia* is one who acts for the seller-cultivators, village traders and other dealers from the countryside. In some markets he receives commission from the sellers, in some from the buyers and in others from both parties: but he is primarily an agent of the seller to whom his duties are to—

- (i) Secure for his crop as high a price as possible ;
- (ii) Arrange for correct weighing ;

- (iii) See that the buyer does not get any undue allowances or deductions ; and
- (iv) Pay him the right amount as soon as possible after the transaction is completed, irrespective of the fact that the *artia* himself is not paid immediately by the buyer, and takes the risk involved if the latter should fail to pay. In any case the *artia's* money remains locked up for some period without interest. The period during which payment may be made by the buyer to the *artia* varies in different markets.

A *pacca artia* is the representative of the buyers who are usually firms in towns and cities and he usually buys through a *kachcha artia*. He sometimes also receives goods for sale from these firms but mainly he is a buyer. Instructions are sent him by his clients to make purchases of produce of specified quality within definite rate limits, and his business is to execute these orders. The advantages that accrue to outside buyers in making purchases through a *pacca artia* are the following :—

(i) He serves as a local agent, and thus business may be carried on in a market without any special representative being sent there. When one is sent the *artia* provides board and lodging.

(ii) Being conversant with local conditions the *artia* is in a position to give useful advice.

(iii) Knowing the local practices of the market in detail, he is able to get the benefit of all local allowances, of which a stranger might be deprived.

(iv) He takes the responsibility for payment to the *kachcha artia*. The buyer needs to pay him at the outset only some advance and in case of established connections even this is not necessary.

(v) He makes all the necessary arrangements for weighing, bagging, cartage, etc., which would cause considerable inconvenience to an outsider.

In every market there are a number of *kachcha-pacca artias* who act for both buyers and sellers.

Under the Bombay and Berar Acts no distinction is made between the three different types of *artias*. In both provinces a general definition is given which covers all of them.

*Bombay Act.*

Rule 2 (2). 'General Commission Agent' means and includes a general commission agent who in consideration of "arat" or commission, offers to make, or makes, purchases or sales of cotton or offers to do or does things necessary for completing and carrying out those purchases or sales for and on account of others, that is, his principals or constituents.

*Berar Act.*

Rule 4 (*Explanation*). 'An *artia*' means and includes a general commission agent who, in consideration of *arat* or commission, offers to make or makes purchases or sales of *kapas* or cotton and offers to do or does all things necessary for completing and carrying out these purchases, or sales for and on account of others, that is, his principals or constituents.

The term '*dalal*' means a middleman, whose main function is to bring buyers and sellers together. One distinction between a *dalal* and an *artia* is that the latter always has a shop and invests his own capital in all transactions, whereas the *dalal* has no shop and, as is commonly said, his capital is a towel and a note-book. He is found in all the markets visited except Ludhiana, Gurdaspur, Jakkhal and Gujar Khan, where transactions are settled by auction. In the Amritsar and Hafizabad markets some *dalals* represent the buyers and others the sellers. In markets where there is only one kind of *dalal*, he is a representative of the buyer although in so far as he assists in a sale he is useful to the seller. He is useful to the buyer because it is his business to know the market and the conditions of demand and supply; he is also a good judge of quality, colour, weight, moisture-content, percentage of foreign material, variety and class of an agricultural product. The employment of a *dalal* in a transaction is not, however, absolutely essential. It depends altogether on the buyer who may, or may not, engage one. Generally the buyer and his *dalal* are both present during the settlement of a transaction and consult each other on the offers made. In most markets where a *dalal* is employed, it is he who gives his hand under the cloth to the *artia*, but if the buyer so desires, he can do it himself. At times when the buyer is busy he does not even accompany the *dalal* but gives him the limits within which to purchase a certain quality and the *dalal* has to buy at as favourable a rate as possible. The *dalal* acts not in his own name but in that of his employer. He has nothing to do with the handling of goods,

Dalals.

and since he does not have actual possession of the produce which he buys or sells he is in no way responsible for payment ; an exception is found in the Amritsar market where *dalals* are generally men of relatively high status and sales are made to them even without their disclosing to the *artia* the name of the buyer.

The Bombay Act defines the *dalal* (broker) as follows :—

Rule 2 (4). ' Broker ' means any agent (not being a private servant) habitually employed on commission to make contracts for the purchase or sale of cotton for the purchase of which he does not advance any money, or with the possession of documents of title to which he is not entrusted.

*Explanation.*—A servant or an agent employed to purchase or sell or to bargain for cotton on account of others, whether remunerated by fees or not, is not a broker within the meaning of these rules, provided that such servant or agent is employed by one person or by one firm only, and that he does not obtain or demand fees from any other person except the one person or firm that employs him.

Under the Berar Act though the term *dalal* has been used at many places, and there are rules controlling the activities of *dalals*, no attempt has been made to define the term.

Both the Bombay and the Berar Acts have provisions authorising the local governments to make rules for the licensing of *dalals* by market committees. For the relevant clauses see Sections 6 (vi) and 4 (1) (b) of the Bombay and Berar Acts, respectively. The rules that have been made are as follows :—

#### *Bombay Act.*

Rule 56 (1). The market committee shall license such and so many persons as may from time to time appear proper to be licensed brokers and to be licensed weighmen and the market committee may at any time withdraw any license granted by it.

(2). Any person feeling himself aggrieved by an order of the market committee passed under sub-rule (1) may prefer an appeal to the Collector within thirty days from the date of such order.

(3). Any person who takes service or who advances money for the purpose, or is entrusted with the possession or documents of title, of any cotton in connection with which he is employed shall *ipso facto* cease to be licensed.

#### *Berar Act.*

Rule 53. The Committee shall license such and so many persons as may from time to time appear proper to be licensed brokers and to be licensed weighmen, and the committee may at any time withdraw any license granted by it :

Provided, that no license shall be refused or withdrawn except on grounds which are reasonable and proper, and that the persons who hold licenses at the date when these rules come into force or have already obtained a license (as the case may be) shall have a preferential claim. In case a question arises as to whether the grounds on which a license has been refused or withdrawn are reasonable and proper, an appeal on the question shall lie to the Deputy Commissioner, and his decision thereon shall be final :

Provided that no private servant shall be licensed as a broker or as a weighman, that a licensed broker or weighman taking service shall *ipso facto* cease to be licensed. No unlicensed broker or weighman shall practice in the market.

Rule 57. Every broker and every weighman licensed under these rules shall keep such books in such form and render such daily or monthly returns at such time and in such form as the market committee may from time to time prescribe, and shall render such assistance in the collection and prevention of the evasion of fees due under these rules and in the prevention of the breach of the rules as may be required by the market committee.

Rule 58 (1). Licenses shall remain in force for one year only: but may be renewed.

(2). The fee for a broker's license shall be Rs. 20, and that for a weighman's license Rs. 5; and the same fees shall be applicable for each annual renewal.

Rule 59. No person shall in the absence of express agreement be bound to employ a broker in any transaction or be required to pay for a broker employed by any other party to the transaction or to pay for a broker when none is employed.

Provided also that no private servant shall be licensed as a broker or as a weighman, and that a licensed broker or weighman taking service shall *ipso facto* cease to be licensed.

Rule 66. Same as Rule 57 of the Bombay Act.

Rule 54. Licenses shall remain in force for one year only, but may be renewed, and shall be issued and renewed on the payment of such fees as the Committee, with the previous sanction of the Commissioner, may from time to time prescribe.

Rule 55. Unless and until another scale of fees is prescribed, the following fees shall be charged:—For each broker Rs. 20 per annum. For each weighman, *Nil*.

Rule 56. Same as Rule 59 of the Bombay Act.

Rule 62. Servants and agents employed to purchase or sell or to bargain for cotton on account of others, whether remunerated by fees or not, are not brokers within the meaning of the term as used in these rules, provided that they are employed by one person or by one firm only, and that they do not obtain or demand fees from any other person except the one person or firm that employs them.

Rule 64. No license shall be granted to any person who is employed to purchase or to sell for, or to bargain for, or to weigh for, any firm or individual, and any licensee taking or agreeing to take such employment shall cease to be a licensed broker or weighman, as the case may be.

In the Punjab *dalals* have to take out a license only in the Jullundur Fentonganj market which, as will be pointed out later is the only place that has a market committee worth the name. The relevant resolutions passed by the committee are as follows :—

(i) “Every *dalal* shall in future obtain from the Committee a license which will be granted on payment of a fee of Re. 1/- per head. No one who does not possess a license will be allowed to work as a *dalal* in the market.

(ii) All *artias* in the market should be given a notice that they shall within a week dispose of all goods which have been placed in their custody by *dalals* or in which *dalals* have a share with them.

(iii) No *artia* shall, in future, enter into any transaction to which any *dalal* or any one of a *dalal's* relatives is a party.

(iv) If a *dalal* ever makes a ready purchase on his own account none of the customary allowances of the market allowed to regular buyers shall be given to him.”

The Member-in-Charge collected some information through the Deputy Commissioners in all districts of the Province on the question of management and control of markets. The only market committees reported were in Lyallpur, Amritsar, Hodal (in Gurgaon District) and Jullundur; the constitutions of the first three are given in Appendix D. of the report. The first two committees have since gone out of existence and elsewhere there were no committees for the control of business in the markets. The fourth in the Fentonganj in Jullundur City was the only committee worth the name found during the course of the inquiry. This committee has framed no rules but the resolutions passed by it at various meetings serve the purpose and the important ones have been reproduced in Appendix D. But the Fentonganj and Hodal committees, (and also those of Amritsar and Lyallpur when they existed), had nothing to do with the improvement of market conditions for the benefit of the sellers; they have never been anything more than combinations of *artias* (both *kachcha* and *pacca*) for their own business purposes.

There is in every market a code of rules for the guidance of business but these are not kept on record; there is only a general understanding regarding the recognised practices of the market.

which have to be observed. As soon as the seller reaches the market with his produce he hands it over to the *artia* and the latter is thereafter responsible for safeguarding his interests, and to see that the sale is completed in conformity with the recognised market usage. There is in no market any authority over the *artia* to see that the seller is fairly treated, that no unauthorised deductions are made, or that the *artia* does not in any way subordinate the interests of the seller to his own profit; there is no one to whom a seller can report if he thinks he has been cheated and who can decide matters in dispute. Nor is there in any market any regular organization to keep a general eye on the interests of the sellers, to see that none of the market practices is prejudicial to their interests or is unfair to them.

Instances have occurred in certain markets where the *kachcha-artias* combined and by united action forced the buyers to agree to changes in market practices which were found to be prejudicial to the interests of the sellers; but in all such cases the combinations broke down as soon as the immediate object for which they were formed had been attained. These combinations would have been more frequent and the lot of the sellers better but for the fact that in every market there are a number of *artias* who do business for both buyers and sellers. These *kachcha-pacca-artias* are generally opposed to others forming an effective combination in the interest of the sellers.

The Bombay and the Berar Acts provide for the establishment of market committees by law. These form the main machinery through which the law for the regulation of markets is to be carried out.

Berar Act, Section 4 (1). The Resident may in respect of any market or bazaar notified under Section 2, make rules for.....(d) generally, the guidance of such committees or persons as may from time to time be appointed for the purpose of carrying out of this law.

Details about the constitution and working of such committee are to be found in the rules under the Act.

Rule 6. On or as soon as possible after the 15th June in every year the Deputy Commissioner shall submit for the Commissioner's approval not less than five persons selected from the list prepared under Rule 1 for appointment to the Committee of Management. Such Committee shall ordinarily consist of five members, but shall not be considered to be improperly constituted by reason only of the number of members being at any time less than that number.

Selection shall ordinarily be made by the Deputy Commissioner in the following manner :—

- (a) Two of the five members of the Committee shall be elected by the Municipal Committee at a special meeting to be held not later than the 31st May in each year from among such of the members of the Municipal Committee as may be fully qualified under Rule 2, and the result shall be communicated to the Deputy Commissioner before the 8th June following.
- (b) The remaining three members of the Committee shall be elected by ballot at an election to be held by the Deputy Commissioner or such officer as he may depute for the purpose not later than the 10th June by the persons appearing on the list prepared by the Deputy Commissioner under the foregoing rules.
- (c) In the event of the Municipal Committee failing to elect and report the election of two representatives by the date prescribed above, or electing and reporting the election of only one by that date, or in the event of the market not being situated within municipal limits, the vacancies, one or two, as the case may be, shall be filled by election as provided in clause (b) of this rule or by nomination by the Deputy Commissioner, as that officer may decide.
- (d) The ballot shall be scrutinized by the Deputy Commissioner or by an officer appointed by him for the purpose, and their decision thereon shall be recorded in writing and deemed final. In the event of the votes being equal in any case, the officer conducting the election shall have a casting vote.
- (e) Should the persons entitled to vote under clause (b) fail to elect the number of members required, the Deputy Commissioner shall nominate them, and should the Commissioner not approve of the names submitted after election or otherwise, the nomination and appointment of other persons in their places shall rest with the Deputy Commissioner and the Commissioner.
- (f) No second election will be held under any circumstances.

The Berar Act while it provides that market committees may be appointed leaves the details about constitution, etc., to be worked out in the rules made under that Act. Under the Bombay Act the constitution of the committees is prescribed in the Act itself.

**Bombay Act, Section 5.** For every cotton market there shall be a market committee. The market committee shall be constituted as prescribed and shall consist of not less than twelve and not more than sixteen members. Of these not less than half shall be persons elected by the growers of cotton of such area as the local Government may prescribe, one shall be a member nominated by the local Government, one shall be elected by the District Local Board of the district in which the cotton market is situated, one by the municipality, if any, of the area in which the market is situated, and the remainder shall be elected by the traders in the cotton market in such manner as may be prescribed.

The rules made under the Act which relate to the above section are as follows :—

**Rule 3.** Immediately on the publication of a notification under Section 4 (1) of the Act, the Collector shall arrange for the constitution of a market committee for the market in accordance with Section 5 of the Act and these rules.

Rule 4 (1) Same as Section 5, above, with some change in wording.

*Explanation*—Where the total number of members of the market committee as determined by the Collector is an odd number, one more shall be deemed to have been added to such total number for the purpose of determining the one-half to be elected by the growers of cotton.

Rule 4 (2) In the event of any local body mentioned in Section 5 of the Act failing to elect a representative by the date prescribed by the Collector the vacancy shall be filled up by the Collector by nomination from the members of such local body.

In giving representation to growers the Bombay Act makes an important departure from the Berar Act. The framers of the Bombay Act made use of the experience of the Berar<sup>e</sup> markets about which it has been said that "the theory of management is considerably better than the practice in most of the markets."

From the rules it appears that the representatives of the growers must belong to the same class, and consequently the majority of the members of the market committees are more often than not likely to consist of growers. It seems, therefore, that in the Punjab where the majority of traders and the growers generally belong to different castes and religions and where there is a risk of all Government measures which tend to protect the agriculturists being misunderstood, marketing legislation on the lines of the Bombay Act, if proposed, would need to be adapted to the Punjab situation, e.g., the creation of a distinction between *pacca* and *kachcha artias* so as to include *kachcha artias* among the growers' representatives. Some representation for the village trader in markets where he is of some importance, would appear to be necessary also since he too is vitally interested in the improvement of the market.

#### *Electorates.*

##### *Bombay Act.*

Rule 6 (1). The following persons shall form the cotton trade electorate and shall be qualified to serve on the market committee—

(i) Every person who on his own account or on account of the undivided Hindu family, of which he is the manager, has, in the year immediately preceding the financial year in which the election is held, purchased or sold in the market not less than 100 *khandis* of ginned cotton or 300 *khandis* of unginced cotton or the equivalent thereof.

(ii) The principal agent, or, if the principal agent is otherwise disqualified the next senior agent or servant, of every firm or company or co-operative cotton sale society which has, in the year immediately preceding the

##### *Berar Act.*

Rule 1. Immediately on the publication of these orders, and hereafter on or as soon as possible after the 1st April in each year, the Deputy Commissioner shall prepare a list of persons eligible for appointment as members of the Managing Committee of a market or bazaar.

Rule 2. The following persons shall be eligible for appointment :—

(1) Every member of the Municipal Committee—if the market or bazaar is situate within municipal limits—who is not in any way personally interested in the cotton trade.

(2) Every person who on his own account, or on account of the undivided Hindu family of which he is the manager, has in the financial year immediately preceding the financial

financial year in which the election is held, purchased or sold in the market, as evidenced by the market registers, not less than 100 *khandis* of ginned cotton or not less than 300 *khandis* of un-ginned cotton or the equivalent thereof.

(iii). A general commission agent who has in the year immediately preceding the financial year in which the election is held purchased or sold in the market, as evidenced by the market registers, not less than 500 *khandis* of ginned cotton or not less than 1,500 *khandis* of un-ginned cotton, or the equivalent thereof in ginned and un-ginned cotton taken together :

Provided always that no person shall be eligible who—

(a) does not ordinarily reside within 10 miles of the market yard ;

(b) is a female ; ;

(c) is not 21 years of age ;

(d) is of unsound mind ; or

(e) is certified by a registered medical practitioner to be affected with incurable disease ;

(f) has been declared an insolvent ; or has been sentenced by a Criminal Court whether within or without British India to imprisonment for an offence punishable with rigorous imprisonment for a term exceeding six months ;

(g) is a clerk or servant of the market committee, or is a licensed weighman ; or

(h) has directly or indirectly any share or interest in any contract or employment with or on behalf of, or under, the market committee ;

(i) being a cotton trader has not registered his name under rule 53.

Rule 6 (2). The following persons ordinarily residing within the talukas (or parts thereof) served by the market, shall form the cotton growers' electorate and shall be qualified to serve on the market committee :—

(i) holders of land whether unalienated or alienated or both conjointly assessed or assessable at not less than Rs. 25 ; or

(ii) tenants of unalienated lands assessed at not less than Rs. 25 ; or

(iii) tenants in alienated villages of lands assessed or assessable at not less than Rs. 25 :

year in which the appointment is made, purchased or sold in the market, as evidenced by the market registers, not less than 100 *bhojas* of ginned cotton or 100 *khandis* of un-ginned cotton.

(3) The principal agent, or, if the principal agent is otherwise disqualified, the next senior agent or servant, of every firm or company which has in the financial year next preceding the financial year in which the appointment is made, purchased or sold in the market, as evidenced by the market registers, not less than 500 *bhojas* of ginned cotton or not less than 500 *khandis* of un-ginned cotton :

Provided that no person shall be eligible for appointment who—

(a) has not resided within the limits, or within five miles from the limits of the town or municipality, as the case may be, in which the market or bazaar is situate for three months on the date on which the list is prepared ;

(b) is a female, is not 21 years of age, is of unsound mind, or is affected with incurable disease ;

(c) has been declared an insolvent or has been convicted of such offence, or has been subjected by a Criminal Court to such order as implies, in the opinion of the Deputy Commissioner, a defect in character which unfits him to serve as a member of the Committee ;

(d) is a clerk or servant of the Committee, or is a licensed broker, or is a licensed weighman ; or (e) has directly or indirectly any share or interest in any contract or employment with, or on behalf of, or under, the Committee ;

(f) being a buyer or seller has not registered his name under Rule 50.

(4) An *artia* who has in the financial year last preceding the financial year in which the appointment is made, purchased or sold in the market, as evidenced by the market registers, not less than 500 *bhojas* of ginned cotton or not less than 500 *khandis* of un-ginned cotton.

Provided always that no person shall be eligible who—

(a) has been declared an insolvent ; or has been sentenced by a criminal court whether within or without British India to imprisonment for an offence, punishable with rigorous imprisonment for a term exceeding six months ;

(b) is a clerk or servant of the market committee ;

(c) has directly or indirectly any share or interest in any contract or employment with, or on behalf of, or under, the market committee ;

(d) is not 21 years of age ;

(e) is of unsound mind ;

(f) is certified by a registered medical practitioner to be affected with incurable disease.

*Note.*—The question which talukas (or parts thereof) are served by the market shall be determined by the Collector of the district in which the market is situated.

*Person Disqualified to Cease to be Member.*

Rule 5. No person shall continue to be a member of the market committee who at any time after his nomination or election becomes subject to any of the disqualifications mentioned in the provisos to Rule 6 and his seat shall become vacant.

Rule 5. A person shall become ineligible for appointment if he ceases to be a member of the Municipal Committee or if he ceases to reside within the limits of the town or municipality, as the case may be, in which the market or bazaar is situate, or within five miles from such limits. A person shall be held to have "ceased to reside" if he is continuously absent from his residence for four months, and for eight months in case of Karinja Municipality.

*Voters' List.*

Rule 7. When a market is first notified under Section 4 of the Act, the Collector shall cause to be prepared a list of persons who appear to be qualified under Rule 6 and these persons shall form the first cotton trade and cotton growers' electorates. For elections subsequent to the first, the market committee shall cause such a list to be prepared from the market registers and shall furnish such list to the Collector. He shall hear and dispose of applications for inclusion in the list of electors and objections to the inclusion of any name or names in that list and his decision shall be final.

Rule 8 (1) The Collector shall cause the two lists of electors to be published separately in the vernacular in such manner as may be necessary on the (1st April) in election year and shall fix a date for the election of the market committee which shall not be later than the (15th May) in the election year. The Collector or person duly authorised by him in writing shall make such arrangements as may be necessary for the holding and supervision of the election, for the scrutiny of the ballot and for declaration of the results of the election. The names of the members elected to the market committee including nominated members for the current year shall be published in the *Bombay Government Gazette*.

(2) The voters' lists shall show the name, father's name, residence and serial number of the voter and the nature of his qualification.

(3) The Collector shall cause sufficient number of the copies of the lists to be prepared in such manner as he considers convenient.

(4) A candidate for election shall be entitled to purchase from the Collector at a fair price copies of the list of voters.

#### *Period of Office of Market Committee.*

Rule 10. (1). The market committee shall come into office on the 1st day of September and shall hold office for three years.

(2) A member selected to fill a casual vacancy of a member who formed the first market committee of a newly notified market shall come into office on the date on which his name is published in the *Bombay Government Gazette*.

Rule 3. A copy of the list prepared by the Deputy Commissioner shall be exhibited on a board for public information at each of the following places, namely :—

- The Deputy Commissioner's office ;
- The Tahsildar's office ;
- The office of the Municipal Committee ; and
- The principal gate of the Cotton Market.

Rule 4. The Deputy Commissioner may, if he thinks fit, at any time, on receipt of an application, enter in the list the name of any person who is eligible for appointment, and may from time to time order the removal from the list of the name of any person who has ceased to be eligible for appointment.

Rule 7. The names of the persons approved by the Commissioner shall be notified in the *Central Provinces Gazette*, and they shall come into office on the first day of the November next following their appointment. A member appointed to fill a casual vacancy shall come into office on the date on which his appointment shall have been notified in the *Central Provinces Gazette*. All members shall vacate office on the 1st day of November following the date of their entrance into office: provided that between the date on which these rules come into force and the 31st day of October 1898 a provisional committee shall be nominated by the Deputy Commissioner and appointed by the Commissioner in the manner provided by the first paragraph of Rule 6, such provisional committee being composed

as far as may be of the members of the Committee already in office when these rules are published.

*Casual Vacancies.*

Rule 11. If a casual vacancy amongst the elected members in the market committee occurs owing to a member having died, resigned or becoming ineligible for office, the vacancy shall be filled up by a bye-election for the remaining period of the term.

Rule 8. A casual vacancy occurs when a member having died, resigned, or become ineligible for office, whether, before entry into office or during the term of office, the Deputy Commissioner, on the matter being brought to his notice, declares a vacancy. It shall be the duty of the Chairman of the committee to bring to the notice of the Deputy Commissioner facts which would justify the Deputy Commissioner in making such a declaration. On the occurrence of a casual vacancy, the Deputy Commissioner shall submit the names of not less than two persons for the Commissioner's approval, and the person selected by the Commissioner shall thereupon succeed to the vacancy.

*Supervision of Market Committee.*

Rule 12. The Collector shall nominate a responsible officer to supervise the work of the market committee.

*Supersession of Market Committee and Removal of Members.*

Rule 13. Government may in case of incompetency supersede a market committee and either order a new election or make such arrangement for the carrying on of the functions of the market committee as it may think fit.

Rule 15. The Commissioner may at any time remove a chairman or member if he refuses to act or becomes incapable of acting or if his continuance in office is undesirable in the interests of the public or of the market committee, if the market committee recommends the removal by a majority of two-thirds of its members.

Rule 9. Nothing in these rules shall be deemed to prevent the Chief Commissioner from at any time superseding a Committee or removing any member from the Committee and appointing other members either in lieu of or in addition to members appointed under these rules, and from selecting such members in such manner as he may consider advisable.

Rule 15. A Chairman may be removed by the Chief Commissioner by reason of his having ceased to be eligible for appointment as member of the Committee or for any other cause.

*Resignation by Chairman or Member.*

Rule 14. The chairman or any member of the market committee wishing to resign the chairmanship or membership shall submit a written application to the Collector. No such resignation by the chairman or member shall be valid until it is accepted by the Collector.

*Election of Chairman of the Committee and his Powers.*

Rule 16. The market committee shall elect one of its members to be a chairman. He shall conduct all correspondence and the servants of the market committee shall, subject to these rules and to the orders of the market committee, be subject to his control. He shall be responsible for the keeping of accounts, for the punctual rendering of all reports and returns and for the custody of all monies not deposited in the treasury or with a banker, and shall be the chief executive officer of the market committee.

Rule 17. The chairman shall hold office for the one year from the date of his election as chairman: provided that if the term of the market committee expires before the expiry of his term of office, the chairman shall hold office until a new market committee comes into office and elects its chairman.

*Meetings of the Committee.*

Rule 18. The chairman, or in his absence a member elected for the occasion, shall preside at meetings, and the chairman or presiding member shall be entitled to speak and vote on all questions, and shall also have a casting vote in every case in which the votes are equally divided.

Rule 19. A minute book shall be kept for permanent record, and a record of the proceedings of every meeting shall be made by, or under the supervision of, the chairman or other presiding member and shall be signed by him.

Rule 22. The Collector or any of his assistants authorised by him in writing, the president of the district local board, or any member of the board authorised by the president in writing, the president of the municipality, or any other member of the municipality authorised by the president in writing shall be entitled to attend any meeting of the market committee located within

Rule 13. The Committee shall, subject to the confirmation of the Deputy Commissioner, appoint one of its members to be Chairman. He shall conduct all correspondence. All contracts shall be entered into in his name, and the servants of the Committee shall subject to these rules and to the orders of the Committee, be subject to his control. He shall keep the accounts, shall be responsible for the punctual rendition of all reports and returns, and for the custody of all monies not deposited in the treasury or with a banker, and shall be the chief executive officer of the Committee.

Rule 14. The Chairman shall, subject to the provisions of Rule 15, hold office from the date of his appointment until a new Committee has come into office. But in the event of the Chairman's dying, resigning, or becoming incapable of acting, the Committee shall appoint another Chairman.

Rule 16. Same as Rule 18 of the Bombay Act.

Rule 17. Same as Rule 19 of the Bombay Act.

Rule 18. The Deputy Commissioner, or the Chairman of the Municipal Committee, or any member authorised in writing by such Deputy Commissioner or Chairman, shall be entitled to attend any meeting of the Committee and to address the Committee on any matter.

Rule 19. The meetings of the Committee shall, as a rule, be open to the

their jurisdiction. A copy of the notice convening the meeting shall be sent to the Collector, the president of the district local board and to the municipality.

Rule 23. A copy of the proceedings of every meeting of the market committee shall be forwarded to the Collector forthwith.

public, but on a motion carried by two-thirds of the members present, strangers may be required to withdraw.

Rule 20. A copy of the proceedings of every meeting of the Committee shall be forwarded to the Deputy Commissioner forthwith, and, if the market or bazaar is situate within municipal limits, through the office of the Municipality.

*Appointment of Sub-Committees, Etc.*

Rule 21. The market committee may also appoint two or more of its members to be a sub-committee or to be joint committee for the conduct of any work or works or to report on any matter or matters and may delegate to any one or more of its members such of its own powers as may be necessary.

The market committee shall also appoint a sub-committee called the disputes sub-committee consisting of (1) any one person included in a panel compiled from the representatives of the cotton growers on the market committee, (2) one of the cotton traders on the market committee, and (3) one of the representatives of the local bodies on the market committee, to settle any disputes that may be referred to it either by the market committee or by the buyers or sellers or both. The dispute shall so far as possible be decided on the spot and on the same day.

Anyone lodging a complaint shall pay a fee of annas 0-4-0 to the market committee.

*The Powers and Bye-Laws of the Market Committee.*

Rule 20. The market committee shall so far as the funds at its disposal will permit, but subject to the provisions of these rules, provide (1) for the maintenance and improvement of the market, its surrounding, and approaches, (2) for the construction and repair of buildings, *chabutras* and other erections necessary for the purpose of the market, and (3) for the health, convenience and safety of the persons using the market.

The market committee shall draw up bye-laws under Section 7 of the Act,

Rule 12. Same as Rule 21 of the Bombay Act except that there is no provision for a disputes sub-committee.

Rule 10. The Committee shall so far as the funds at its disposal will permit, but subject to the provisions of these rules and to such exceptions and conditions as the Deputy Commissioner may, subject to the provisions of these rules, from time to time make and impose, provide (1) for the maintenance and improvement of the market, its surroundings, and approaches; (2) for the construction and repair of buildings, *chabutras* and other erections necessary for the purposes of the market; and (3) for

consistent with these rules, regulating its own procedure. The bye-laws should deal with *inter alia*—

- (a) the time and place of meeting;
- (b) the manner of convening meetings and of giving notice thereof;
- (c) the quorum required at meetings;
- (d) the conduct of proceedings at meetings;
- (e) the division of duties among the members;
- (f) the persons by whom receipts may be granted on behalf of the market committee for money paid;
- (g) the guidance of its members and officers and all persons employed or appointed for the purpose of carrying out the Act or the rules framed thereunder;
- (h) the method of disposal and of hearing of complaints; and
- (i) the regulation of the duties of brokers or commission agents.

the health, convenience, and safety of the persons using the market.

Rule 11. The Committee may with the previous sanction of the Deputy Commissioner from time to time, make rules consistent with these rules as to—

- (a) the time and place for meetings;
- (b) the manner of convening meetings, and of giving notice therefor;
- (c) the quorum required at meetings;
- (d) the conduct of proceedings at meetings;
- (e) the division of duties among the members;
- (f) the persons by whom receipts may be granted on behalf of the Committee for money paid; and
- (g) the guidance of all persons employed or appointed for the purpose of carrying out the law or the rules framed under the law.

#### *Servants of the Committee.*

Rule 24. The market committee may employ such servants as may be necessary and proper for the efficient execution of its duties.

Rule 22. The Committee may employ such servants as may be necessary and proper for the efficient execution of its duties, and may assign to such servants such pay as it thinks fit.

Rule 23. When any appointment is made by the Committee to an office carrying a salary exceeding Rs. 10 per mensem, the Committee shall furnish to the Deputy Commissioner full particulars in writing regarding the age, parentage, caste, residence, and qualification of the person appointed and the salary allotted to him.

Rule 24. No servant of the Committee in pensionable employ drawing a salary exceeding Rs. 10, nor any other servant drawing a salary of Rs. 25 or upwards, and no Government official employed by the Committee, shall be dismissed or degraded save with the previous sanction of the Deputy Commissioner.

Rule 25. If in the opinion of the Deputy Commissioner—

- (a) the number of servants employed by the Committee under Rule 22 or the pay assigned by the Committee to these servants or to any particular servant is excessive; or

(b) any such servant is unfit for his employment, the Committee shall, on the requisition of the Deputy Commissioner, reduce the number or the pay, or, as the case may be, dismiss the unfit servant.

*Restrictions on the Power of the Committee.*

Rule 26. The Committee shall be guided by those general principles of which the Government has approved in their several departments of administration.

*Duty of Market Committee.*

Rule 25. The market committee shall furnish all information which the Collector may require and shall be responsible for—

(1) the maintenance of proper checks on all receipts and payments by its officers;

(2) the proper execution of all works chargeable to the market committee fund.

Rule 26. Except where Government on application by the market committee shall otherwise direct, all receipts on account of fees recovered under these rules and all other items of income whatsoever shall be credited at least once a week in full into the Government treasury or sub-treasury or any bank authorised by Government, and all balance shall be kept in such treasury or bank and shall not be drawn out except in accordance with these rules.

Rule 27. All payments except from imprest shall be made by cheques and no cheques shall be cashed by the treasury or the bank unless drawn as prescribed in Rule 28.

Rule 28. Every cheque drawn on behalf of the market committee shall be signed by the chairman or in his absence by any two members. No such cheque shall be drawn except on a

Rule 27. The Committee shall take all possible steps to secure an adequate check on the due crediting of receipts and on payments made by its officers and servants, and it shall furnish to the Deputy Commissioner all information he may require regarding the action taken in this respect.

Rule 28. The Committee shall make due arrangements to insure that works sanctioned have been duly executed.

Rule 29. All receipts on account of fees recovered under these rules and all other items of income whatsoever shall be daily credited in full into the Government treasury or sub-treasury where there is one, and all balances shall be kept in such treasury, and shall not be drawn out except in accordance with these rules.

Rule 29-A. The surplus of the cotton markets on the 31st October shall be transferred on the 1st November of each year to the Municipal Committee or the District Board concerned under Section 4 (2) of the Berar Cotton and Grain Markets Law, 1897.

*Note.*—The word 'surplus' shall be taken to mean all unexpended balances.

Rule 30. All payments shall be made on cheques drawn on behalf of the Committee.

Rule 31. Every cheque drawn on behalf of the Committee shall be signed by the Chairman, or, in his absence, by two other members. No such cheque may be drawn except on a bill

bill which has been examined and passed by the chairman or on the issue or recoupment of an imprest, if any, and the chairman shall not pass any bill for payment without the previous sanction of the market committee, except to provide for the following matters:—

- (1) Salary of fixed establishment;
- (2) payment for works and repairs sanctioned by competent authority; and
- (3) urgent expenditure for which there is budget provision or which does not exceed Rs. 50 :

Provided that in the absence of the chairman from the town, the bills for payment of the above nature may be passed and signed by any two members.

Rule 29. (1) All remittances to the treasury or the bank shall be accompanied by challans in duplicate and a pass-book.

(2) Upon receipt of the money by the treasury or the bank both sides in the pass-book shall be written up-to-date by the treasury or the bank accountant; the entries shall be initialled by the treasury officer or the agent of the bank and the book returned.

Rule 30. The pass-book is not an account book of the market committee but is simply a copy of the account kept in the treasury or the bank of the money paid in and withdrawn on behalf of the market committee and must therefore be always written up-to-date by the treasury department or the bank by whom the original account is kept.

Rule 31. At the close of each month the balance in pass-book shall be struck and the amount written in words and signed by the treasury officer or the agent of the bank as the case may be.

Rule 32. No works for which plans and estimates have not been previously prepared and sanctioned may be included in the budget.

which has been examined and passed by the Chairman or on the issue or recoupment of an imprest, if any. And the said Chairman shall not pass any bill for payment, without the previous sanction of the Committee, except to provide for the following matters:—

- (1) Salary of fixed establishment.
- (2) Payments for works and repairs sanctioned by competent authority.
- (3) Sums for emergent purposes which, in anticipation of the sanction of the Deputy Commissioner, may be met on the authority of the Chairman :

Provided that, in the absence of the Chairman from the town, bills for payments of the above nature may be passed and signed by any two members.

Rule 32. No payment shall be made from the Government treasury on any cheque purporting to be drawn on behalf of the Committee unless it be signed by the Chairman or by two members as already provided.

Rule 32-A. All remittances to the treasury shall be accompanied by challans in duplicate and a pass-book. Upon receipt of the money by the treasury, both sides of the pass-book shall be written up-to-date by the Treasury Accountant: the entries shall be initialled by the Treasury Officer and the book returned.

Rule 32-B. Same as Rule 30 of the Bombay Act.

Rule 32-C. Same as Rule 31 of the Bombay Act.

Rule 33. Provision for works and repairs may be made in the budget estimates under the following sanctions :

(1) When the cost of the work is less than Rs. 200, the sanction of the Committee :

(2) When the cost of the works exceeds Rs. 200, the sanction of the Deputy Commissioner, and subject to the preparation of plans in the case of all works the cost of which is likely to exceed Rs. 50.

**Rule 33.** Plans and estimates for works estimated to cost less than Rs. 500 shall be signed by the chairman. In the case of original works estimated to cost more than Rs. 500 the professional approval of the municipal engineer, when the market is situated within municipal limits or a municipal borough, or in other cases of the district local board engineer, and in the absence of a municipal engineer, or the district local board engineer, of the executive engineer of the district shall be obtained and evidenced by his counter-signature.

**Rule 34.** All works shall be carried out under the supervision of the chairman.

**Rule 34.** Plans and estimates for works estimated to cost less than Rs. 200 shall be signed by the Chairman, and plans and estimates for works estimated to cost more than Rs. 200 shall be signed by the Chairman and by the Deputy Commissioner, in token of approval of design and cost. In the case of original works estimated to cost more than Rs. 500, the professional approval of the Executive Engineer of the district shall be obtained, and evidenced by his counter-signature.

**Rule 35.** All works shall be carried out under the supervision of the Chairman unless the Deputy Commissioner in any particular case directs otherwise.

**Rule 36.** Contracts entered into by the Committee shall ordinarily be reduced to writing and the provisions of the Stamp and Registration Acts shall be complied with. Written contracts shall be signed on behalf of the Committee by the Chairman and one member.

**Rule 35.** (1) For the purposes of these rules the cotton market year shall be held to commence on the 1st September and end on the 31st August.

(2) The market committee shall annually hold a special meeting in the first week of May to prepare a budget of income and expenditure for the ensuing year. The budget along with the accounts of the previous year shall be submitted by the 15th June to the Collector.

(3) No expenditure shall be incurred for which there is no budget provision, unless it can be met by re-appropriation from savings under other heads.

**Rule 37.** For the purposes of the rules following, the cotton market year shall be held to commence on the 1st November and end on the 31st October.

The Committee shall annually hold a special meeting in the first week of June and shall prepare a budget of income and expenditure for the ensuing year. The budget shall be submitted to the Deputy Commissioner, who shall sanction the same with such alterations as he may consider proper and shall communicate the sanctioned budget to the Committee. The Committee shall regulate their expenditure in accordance with it.

**Rule 38.** Annual accounts for the past year shall be submitted to the Deputy Commissioner annually along with the budget.

Rule 36. The accounts of the market committee shall be audited locally by the local audit establishment of the Accountant-General, Bombay. At the time of audit the chairman or other member of the market committee selected shall cause to be produced all accounts, registers, documents and subsidiary papers which may be called for by the audit officer for the purposes of his audit. Any explanation called for by that officer for the settlement of any discrepancy shall also be immediately furnished to him.

Rule 38-A. The accounts of the cotton markets shall be audited locally by the Local Audit Establishment of the Comptroller, Central Provinces. At the time of audit the Chairman, Vice-Chairman or Secretary shall cause to be produced all accounts, registers, documents and subsidiary papers which may be called for by the audit officer for the purposes of his audit. Any explanation called for by that officer for the settlement of any discrepancy shall also be immediately furnished to him.

To meet the cost of the Local Audit Establishment, the Cotton Market Funds will, with effect from the 1st April 1904, contribute to the Provincial Revenues one per centum on the total annual expenditure. In calculating the total expenditure on which fees are to be levied, all amounts falling under the heads of "Advances and Deposits" including the amount of expenditure on Public Works audited by the Examiner, Public Works Accounts, and the surplus amount paid, are to be left out of account.

Rule 48. A proper account of each individual cart-load shall be maintained by the market committee and entered in a book which may be prescribed for the purpose and no collective entries shall be made in it. When a cart has entered the market yard and its load has been purchased, it shall not be allowed to go out except on the presentation of a pass at the gate of the market yard. The pass shall be printed in duplicate and shall specify the names of the buyers and sellers and the rate at which the buyer has agreed to purchase the load. The signature of the buyer shall be taken on both copies of the form of the pass and the duplicate shall be handed over to the seller for presentation at the gate, the original being retained for record by the market committee. The records of individual sales will be posted up from these passes.

Rule 49. The market committee shall maintain a full record of all complaints which come before the disputes sub-committee.

*Management of Market Yard and Market fees.*

Rule 37. The market committee shall have the absolute control of the market yard, and subject to these rules and to the orders of Government and to such control as is by these rules or by any other law vested in the Collector or in the municipality or the district local board, shall manage it as if it were the private property of the market committee, having regard always to the convenience of the cotton trade and the purpose for which the control is vested in the market committee. The market yard shall be open for trading at such hours as the market committee may from time to time fix. Carts shall stand in such places and for such times as may be permitted and ingress and egress may be permitted to such persons and at such times as the market committee may consider proper. The conservancy of the market yard shall be a first charge on the funds at the disposal of the market committee, and the upkeep of roads, wells, water troughs and buildings shall be wholly charged to that fund, and the committee shall be responsible for the perfect conservancy of the yard and for the upkeep of the roads, wells, water troughs and buildings therein so far as funds permit.

Rule 47. Same as Rule 37 of the Bombay Act except for a little difference in wording and the following addition :

Provided that no registered buyer or registered seller or registered buyer and seller shall be excluded from the yard at any time when the yard is open to the general public.

Rule 48. In the market proper, the Committee shall exercise such rights only as may be necessary for the more convenient enjoyment of the control of the market yard and for the convenience and comfort of the persons using the market and for the collection of fees. The Committee and, if the market or bazaar is situate within municipal limits, the Municipal Committee, shall be jointly responsible for the conservancy of this area and for the proper repair and upkeep of all public roads in this area; but the cost of such conservancy and the expenditure required for the upkeep of roads in this area shall be borne wholly by the Committee, unless the Deputy Commissioner, for reasons to be recorded by him, after consulting the Committee and the Municipal Committee, decides otherwise. Subject to police and municipal orders and rules, the Committee may in this area exercise such control over carts, cartmen, and passengers as may be necessary to prevent traffic to and from the market being impeded. They may also prevent any cart laden with cotton, and especially if duty has not been paid, from standing in any portion of the area or entering the area without express permission. In the approaches the Committee will exercise no control (except that they may regulate places at which carts laden with cotton may stand, and the roads by which and the times within which they may move); but they shall, if the market or bazaar is situate within municipal limits, out of the funds at their disposal, and to the extent of funds at their disposal, make such contributions to the funds of the Municipality, as may in the opinion of the Deputy Com-

Rule 38. The market committee shall draw up a schedule of fees to be levied in the market on seed cotton, ginned cotton and cotton waste.

Rule 39. The fees shall be payable as soon as the cotton is brought into the market but unless there is reason to fear that payment will be evaded, they shall not be recovered till the cotton is removed from the market yard after sale.

Rule 40. A receipt shall be granted to the payer in respect of every fee collected under these rules, and a register of collections shall be kept.

Rule 41. The fees shall be collected by paid servants of the market committee and shall not be farmed out.

Rule 42. Every servant employed by the market committee for the collection of fees shall wear a suitable badge of office provided by the market committee.

Rule 43. The market committee shall prescribe suitable security to be taken from its employees who are entrusted with the handling of money.

Rule 44. Every person authorised to collect the fees shall be provided with a locked money box, the key of which shall remain in charge of the chairman. The receipts shall be placed in the box by the payee, or in his presence by the person receiving the same, and the box shall be opened daily at a fixed hour by the chairman or such other member of the market committee as may be appointed for the purpose, who will be responsible for comparing the counterfoil receipts and register of receipts with the amount actually received.

Rule 45. Any person removing or attempting to remove cotton from the market yard before the fee has been paid and the receipt prepared

missioner, after consultation with the Committee and with the Municipal Committee, from time to time appear reasonable, having regard to the filth deposited by, and the wear and tear to roads caused by, carts laden with cotton, and the bullocks and attendants appertaining to them.

Rule 39. The following fees shall be levied in the market:—

(1) On every package of ginned cotton, six pies.

(2) On every cart laden with unginned cotton, one anna.

Rule 40. Same as Rule 39 of the Bombay Act.

Rule 41. Same as Rule 40 of the Bombay Act.

Rule 42. Same as Rule 41 of the Bombay Act.

Rule 43. Same as Rule 42 of the Bombay Act.

Rule 44. Same as Rule 44 of the Bombay Act.

Rule 45. Same as Rule 45 of the Bombay Act, but the limit of fine under this Act is Rs. 50.

and granted or practising any device in order to evade or facilitate the evasion of the payment of the fee, shall be liable on conviction by a magistrate to a fine not exceeding Rs. 25.

Rule 46. The bye-laws to be drawn up by the market committee shall *inter alia* fix the hours during which the market shall be open for trading. No registered trader shall be excluded from the market during any time when it is open to the public.

Rule 52. Any person entering or attempting to enter the market yard when directed not to do so or disobeying the directions of the market committee in regard to the places where carts laden with cotton may stand, or in regard to the roads by which and in regard to the times at which, they may proceed, shall be liable on conviction by a magistrate to a penalty not exceeding Rs. 10 for the first offence and Rs. 50 for any subsequent offence.

Rule 49. Same as Rule 52 of the Bombay Act.

#### *Registration of Cotton Traders.*

Rule 53. Any person shall on application at the office of the market committee be entitled to have his name immediately registered as a cotton trader on his executing an agreement, in such form as the market committee may prescribe agreeing to conform with the market rules and on his paying such fee, if any, not exceeding Rs. 50 per annum as may be prescribed by bye-laws.

Rule 50. Any person shall, on application at the office of the Committee be entitled to have his name immediately registered as a buyer or as a seller or as a buyer and seller on his executing an agreement in such form as the Commissioner, may from time to time prescribe, agreeing to conform to the market rules, and on his paying such fee, if any, not exceeding Rs. 50 per annum, as the Committee, with the previous sanction of the Commissioner may from time to time prescribe :

Provided that in the case of *artias* or agents acting for or employed by more than one person or by more than one firm, every such *artia* or agent shall make an application at the office of the Committee to have his name registered and on his executing an agreement in such form as the Commissioner from time to time prescribes, agreeing to conform to the market rules, and upon his paying such fee, if any, not exceeding Rs. 100 per annum, as the Committee, with the previous sanction of the Commissioner, may from time to time prescribe, his

Rule 54. (1) The market committee may by resolution either permanently or for a fixed period remove from the register the name of any person registered as a cotton trader who violates any of the conditions of his agreement.

(2) In the event of there being a dispute as to whether the conditions of the agreement have been violated or not, the matter shall after all the evidence on both sides has been recorded by the chairman, be referred to the Collector whose decision shall be final.

(3) On the application of the chairman, the Collector may depute any other officer to record the evidence. In the event of the market committee removing the name of any person for a period of more than six months, the confirmation of the Collector shall be necessary.



#### *Prosecutions.*

Rule 80. No prosecution shall be instituted for any breach of any of these rules without the previous sanction of the market committee. No prosecution shall be instituted against a registered trader, until he has been given an opportunity of explaining his conduct and then only under the special orders of the market committee passed at a special meeting of which notice shall be given to all members, provided always that a prosecution for any offence under these rules may be instituted by the Collector.

name shall immediately be registered as a buyer or seller or as a buyer and seller according as he may have requested in the application, and any such *artia* or agent who does not conform or refuses to conform to the conditions of this proviso shall not be entitled to buy or sell in the market on account of his principals or constituents.

Rule 51. The Committee may remove from the register the name of any person registered as a buyer or as a seller or as a buyer and seller who violates the conditions of his agreement either permanently or for a fixed period not exceeding three months. In the event of there being a dispute as to whether the conditions of the agreement have been violated or not, the matter shall, after all the evidence on both sides has been recorded by the Chairman, be referred to the Deputy Commissioner for decision. The Deputy Commissioner shall decide the question on a perusal of the papers either after hearing or without hearing the parties, and his decision on that point shall be final. On the application of the Chairman, the Deputy Commissioner may depute any other officer subordinate to him to record the evidence. In the event of the Committee removing the name of any person permanently, the confirmation of the Deputy Commissioner shall be necessary.

Rule 80. No prosecution shall be instituted for any breach of any of these rules without the previous sanction of the Committee or of the Chairman or other officer authorised by the Committee in this behalf. No prosecution shall be instituted against a registered seller, or against a registered buyer, or registered buyer and seller, until he has been given an opportunity of explaining his conduct, and then only under the special orders of the Committee passed at a special meeting of which notice shall be given to all the members.

Rule 81. Notwithstanding anything contained in Rule 77, a prosecution for any offence under these rules may at any time be instituted by the Deputy Commissioner.

## CHAPTER II.

### MARKET TRANSACTIONS.

The various methods of settling rates\* noted during the inquiry may be classified as follows :—

Methods of Settling Rates.

‘ Cover ’ System.

- (i). Repeated Bids.†
- (ii). Single Bid.‡

‘ Open ’ System.

- (i). Auction.§
- (ii). Open Bids.||

There is no great difference in the way bids are made under cover in the various markets. Each buyer in turn takes the right hand of the *artia* under the cover of a cloth and conveys his bid by clasping the fingers, the value of each finger depending on the ruling rate of the commodity. If the rate is below Rs. 4/-, each finger indicates a rupee, but if higher, then the value of each finger rises. For instance, if the rate is in the neighbourhood of Rs. 30/- per maund the offer will be conveyed by two grasps. The first will denote tens, each finger representing Rs. 10/-; while in the second grasp each finger will represent a rupee. Similarly if a buyer wishes to bid Rs. 43/- he will first enclose in his grasp four fingers of the *artia* to indicate Rs. 40/- and then three fingers to represent Rs. 3/-. In some cases only one grasp is used instead of two, i.e., Rs. 33/- may be indicated by a single grasp of three fingers, as the tens are taken for granted. After the number of rupees has been indicated, then annas are dealt with in terms of *pallus* or *paos* (four anna piece); pice and *dhelas* (half pice) come last.

\* In Lyallpur, Gojra, Jaranwala and Okara when arrivals of cotton are large the buyers and *kachcha artias* usually settle as a preliminary step on basic rates for the day for American and *desi* cottons before rates begin to be settled for individual carts. These rates are based on telegraphic intimations received from Bombay for pure strains.

† Found in Phullarwan, Jaranwala, Sangla, Sheikhpura, Okara, Arifwala, Mian Chanun, Jhang, Amritsar, Hafizabad, Multan, Gurdaspur, Abohar, Fazilka, Ambala City, Jullundur and Hoshiarpur markets.

‡ Sargodha, Lyallpur and Gojra markets.

§ Jakhal, Ambala Cantt. and Gujar Khan markets.

|| Rohtak and Ludhiana markets.

The cover system is supposed to keep other bidders in the dark, but it is frequently asserted that some people can guess the amount of the bids made under cover. One broker of Amritsar gained a provincial reputation in this art; another was well-known in Hafizabad and the neighbouring markets.

*Repeated Bids.*—The buyers or their *dalals* collect round the heap of grain and make bids to the *artia*. After the latter has taken all the offers once, he asks the buyers to offer more and bids are made by the different buyers until no one is ready to bid higher. The *artia* then accepts or rejects the highest bid and the buyers pass on to the next heap of grain and the above process is repeated. This system may be further sub-divided into the Phullarwan,\* Jaranwala† and Amritsar‡ methods. In the first mentioned market the *dalal* accompanies the buyer but only to advise him as the offer is made by the buyer himself. In Jaranwala bids are made by the *dalals*, while in Amritsar both the *artia* and the buyer are represented by *dalals*.

*Single Bid.*—Buyers collect round the heap of grain with their *dalals*, each of whom after consultation with his employer makes one offer to the *artia*. The offer is final and there is no repetition. This method has been adopted in order to save time; otherwise it would not be possible to dispose of all the daily consignments in the big markets.

In the open system of settling rates, there is no secrecy as  
 \*Open System.                      the bids are made orally and in public.

*Auction System.*—The buyers inspect the grain by taking handfuls from various parts of the heap and then make their bids to the *artia* in the usual fashion of an auction. For an actual example see Appendix F.

*Open Bids System.*—Under the system of open bids rates are settled openly, but not by the auction method where the *artia* repeats the latest offer and exhorts the buyers to bid higher. The buyers may make their offers individually or in groups.

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\* Found in Phullarwan, and Hoshiarpur.

† Jaranwala, Sangla, Sheikhpura, Okara, Arifwala, Jhang, Mian Chanun, Multan, Gurdaspur, Abohar, Fazilka, Jullundur, Ambala City.

‡ Amritsar, Hafizabad.

There is not much to choose between the 'single' and the 'repeated' systems of bids under cover, as the former is simply a device to economise time in the big markets. The auction system is more open and lively than the 'open bids' system which is passive and inert, and probably secures a better price for the seller.

Comparative Advantages and Disadvantages of the Different Systems.

The comparative merits and demerits of the auction and the cover system of sales, as they were stated by buyers and *artias*, are set forth below.

Cover and the Auction System of Sales Compared.

*For the Cover System and against Auction.*

(i) It takes more time to effect transactions by auction. Also in an auction there is no counterpart to the 'single bid' cover system, which prevails in big markets like Lyallpur, Gojra and Sargodha. Auctions would be difficult in big markets like these, unless some system of grading the produce is developed.

(ii) In an auction there is no secrecy, and the experienced and the inexperienced are more nearly on the same footing. The former therefore get no special advantage from their long standing in the trade.

(iii) In an auction every thing is open, and if among a group of bidders real buyers are few, prices may tend to be lower than they would be if individual buyers were ignorant of the bids of others, and each gave his bid only considering the limit up to which he could afford to buy; whether a person is or is not a buyer, as long as he is making a bid, he is seemingly a competitor, e.g., if there are two buyers and one of them makes a bid of Rs. 3/6/- per maund under cover and the other of Rs. 3/9/-, the *artia* can even then continue to take offers from the one making the lower bid and thus induce the higher bidder to increase his bid further even though his last bid was already high enough to get the transaction settled in his favour.

(iv) In the excitement of an auction buyers may make offers on the spur of the moment which they may find disadvantageous.

(v) In an auction the buyer raises his bid by small steps over the previous offer and in this way may have the transaction settled in his favour at a lower rate than his maximum, whereas in the cover bid system the buyer, being ignorant of what others are giving, offers the highest bid that he can afford to make.

(vi) In an auction the *artia* is compelled to accept the offer of the highest bidder even though he may know the buyer's financial position to be insecure. But in the case of the cover system of sales, the *artia* can avoid such a risk by accepting any offer from one who makes a lower bid but whose financial standing is sound, or he may postpone the sale on the ground that the rates offered are not suitable.

*For Auction and against the Cover System.*

(i) Rates are likely to go higher in an auction, due to more intense competition among the buyers, and the sellers thus stand to gain.

(ii) Auction is open and straightforward ; under the cover system the sellers remain in the dark. Instances are common where even the rate settled does not become known to them till some time after the buyers have left. The margin for deception is, therefore, very wide.

(iii) In an auction the seller is induced to take a keener interest in the transaction than otherwise as he can follow the efforts of the *artia* in disposing of his produce ; there are no mysterious processes as in the cover system, which make him feel that the procedures adopted are too complex for him to grasp.

(iv) Since in an auction a buyer can get guidance in making his offers from the offers of other buyers, he does not need the advice of a *dalal*.\*

The Bombay Cotton Markets Act prohibits the settlement of transactions by secret signs.

Rule 47 (2). The price of cotton brought into the market for sale shall be settled openly and not by any secret signs.

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\*There are certainly no *dalals* in markets where transactions are at present settled by auction ; but it is possible that in big markets as Lyallpur and Amritsar where buyers do not have the time to make purchases personally, *dalals* would continue to exist to do this work for them.

There is no provision in the Berar Act on this point. The Bombay Act further provides for publication of rates in the markets.

Rule 51. The official closing price of the previous evening of the East India Cotton Association, Bombay, shall be published each morning before the usual time of opening the market and along with it a calculation showing the parity price for *kapas* in the local market. This shall be published in such a manner as to be readily available to all persons in the market and the market committee shall appoint one of its servants to be responsible for seeing that this is done.

The question of publication of rates has been discussed in the report of the Indian Cotton Committee, 1919, pages 126 and 127; the views of the Committee are there summed up as follows:—

“We are somewhat doubtful about the advantages likely to be derived from the publication of Bombay prices but, on the whole, are inclined to think that it may result in benefit to the cultivators.”

The doubts expressed above have been confirmed in the Punjab. In the report of the Indian Central Cotton Committee entitled “Report on an Investigation into the Finance and Marketing of Cultivators’ Cotton in the Punjab, 1927-28,” it is stated:—“Although Bombay rates converted into terms of local rates have been posted in many of the markets of the Province in previous years, the practice was discontinued this season as it was considered that it was serving no useful purpose. One reason for this is that the mixing in recent years of Punjab-American with *desi* cottons has rendered calculations of the value of Punjab-American too complicated except for experts engaged in the trade.” (p. 13).

When making purchases the buyers in Lyallpur, Gojra and Sangla markets all keep together, and no *artia* can sell to any individual buyer. In the other markets, the practice of buyers moving together prevails in varying degrees. In Jaranwala, Okara and Sargodha occasional sales may be made to individual buyers but the majority of transactions take place with the buyers moving in pretty large groups. At the bottom of the scale in this category are Ludhiana, Sirsa, Rohtak and Multan where buyers move in very small groups or singly. The advantages to the sellers of the buyers moving together when making purchases are that prices rise on account of the keener competition, and what is more important, the chances of an *artia* using underhand means in his own interest or showing undue favour to any particular buyer are minimised.

Where Buyers Move Together.

There is no rule under the Bombay and Berar Acts requiring buyers to move together at the time of settling transactions.

Mention may here also be made of the practice which prevails in Ambala City, Multan, Jullundur and Rohtak of cotton

transactions being settled inside the factories because of which the buyers get detached, weakening competition and lowering the prices.

Rule 47 (1) of the Bombay Act provides: "The price of cotton must be settled in open market, that is the cotton market yard: Provided that no deduction shall be made from the agreed price of the consignment except for the inferior quality of cotton as compared with the sample on the basis of which the purchase was made or for damage including excessive moisture."

The times at which the transactions begin vary considerably in the different markets under inquiry; but this in itself is no defect as there is nothing to be gained from mere uniformity. What needs consideration is that the time should be convenient to both buyers and sellers in view of the local conditions. Times fixed should be such as to make it possible for all the arrivals to be dealt with from day to day, for, it is a matter of common experience that if any weighings are left to the next day and the rate happens to fall, the buyers claim allowances on the plea of low quality, and however unjust they be, the sellers are compelled to allow them to some extent as the fall in the rate makes it difficult for them to resist. Further, as far as possible, weighings should be completed early enough in the day to enable the sellers to return home in good time. The hours of business in the markets at Phullarwan, Sargodha, Jhang and Okara seem to need revision in view of these considerations.

Under the Bombay Act power has been given to the market committees to regulate hours of business.

Rule 46. The bye-laws to be drawn up by the market committee shall *inter alia* fix the hours during which the market shall be open for trading.

Next we come to the question of *dara* sales, i.e., the sale of heaps of varying qualities at a flat rate, a practice which was found to be common in all the markets under inquiry. This system secures a good many advantages for the buyers and *artias* in pushing through their sales and purchases,\* as in the bigger markets it is not possible

**Dara Sales : Advantages and Disadvantages.**

\* The greatest advocate of *Dara* sales is as a matter of fact the buyer. The system saves him considerable time and botheration, which would be needed were he to move about making purchases of single heaps. It also saves him making many calculations and keeping a larger number of accounts in his books. Also he needs fewer men to keep watch over his purchases. The *artia* also stands to gain. It saves him as it does the buyer both time and trouble. He does not have to keep a large number of accounts with different buyers, nor go to so many for his payments.

to spend time evaluating each heap separately. But this system does not tend to the proper evaluation of the superior quality of crop in a mixed lot and works out badly for the sellers. Certain *artias* claimed that when making payments they apportioned the rate among the sellers concerned so that each got his due in view of the quality of his crop, but there were others who admitted that justice was not always done. It seems to be a common practice with the *artias* to use this apportioning as a means of conferring favours on some of their clients and what is still worse, it is said that at times the calculations are made in such a way that the *artia* profits thereby. One explained it thus :—

“ Suppose that two heaps of different qualities, one fifty maunds and the other twenty maunds are sold at a flat rate of Rs. 3/- per maund. Suppose also that the twenty-maund-heap is better than the fifty-maund-heap. The *artia* may give Rs. 2/14/0 per maund for the inferior and Rs. 3/2/0 per maund for the superior quality. It thus looks as if he has been perfectly fair but actually he pays only Rs. 206/4/0 although he gets from the buyer Rs. 210/-, thus making an extra Rs. 3/12/0 for himself.”

This practice discourages the growing of better qualities since if these are not going to fetch a higher price, there is no use in producing them.

One remedy that suggests itself is the elimination altogether

Possible Improvements  
regarding Dara Sales. of the *dara* system, but this, as markets are now conducted, can only be done in small markets.

In big markets like Lyallpur, Gojra and Okara, where arrivals are large it is hardly practicable to deal separately with each heap. It is further suggested that if the cover system be replaced by auctions things would improve automatically, because of the educative effect. When a seller sees a heap of inferior quality being sold along with his, he naturally objects or tries to claim the price that he considers his proper due. In the bigger markets where heaps are sold in lots so that the daily arrivals may be finished the same day, it might be possible to work out a rule that only heaps of the same quality should be sold together. But this raises the entire question regarding the proper grading of produce which would need a great change in the prevailing marketing methods,

Under the Bombay and Berar Acts there is no provision with regard to *dara* sales.

With regard to the binding power of grain transactions, four different systems have been found in vogue in the markets under inquiry :—

Binding Power of Transactions In Grain.

(i) Transactions, *kachcha* (alterable or breakable) for both buyers and sellers. Either party may break off at any time and for any reason or even without any reason at all.\*

(ii) Transactions, *pacca* (unalterable) for sellers, but a buyer can break off at any time and for any or no reason.†

(iii) Transactions, *pacca* for sellers but a buyer may claim an allowance in case the quality of the produce below the top of the heap proves to be inferior, and, in case the seller does not agree to the discount claimed, the buyer may cancel the agreement.‡

(iv) Transactions, *pacca* for both sellers and buyers provided the heap of grain is not above fifty maunds; if above fifty maunds then the buyer can claim an allowance on the plea of inferior quality, and if the seller does not agree then the agreement may be cancelled.§

The inconvenience and uncertainty which attach to the first system are grave defects, but it is preferable to the second which is one-sided and accords a privilege to the buyers which is unjustifiable.

The third system is free of these defects but the fourth is perhaps the best as it safeguards the interests of both parties. A buyer is generally able to ascertain the quality of a heap of grain up to 50 maunds and buyers should be induced to do so before making their offers rather than start disputes later when the position of the seller is weakened.

If attempts were made to have transactions altogether *pacca*, irrespective of quality and the size of the heap it might only lead

\* Found in the Rohtak market.

† Fazilka.

‡ Jaranwala, Lyallpur, Gojra, Hafizabad, Gurdaspur, Abohar, Ambala City, Jakkhal, Ambala Cantt. and Ludhiana.

§ Phullarwan, Sargodha, Sangla, *Sheikhupura*, Okara, Arifwala, Mian Channu, Jhang, Jullundur, Hoshiarpur, Multan, *Amritsar* and Gujar Khan.

[In the *Amritsar* market though the transactions are ordinarily *pacca* for sellers as in the other markets of this group, the seller can, if he likes, secure the privilege of making a provisional bargain on payment of a charge known as *sai*. This he does when he feels that the price offered is good enough, but a little waiting might bring a still better offer.]

to undesirable results. Buyers may make mistakes when making offers and deserve protection as otherwise honest buyers might shun the market and those who remained offer unduly low rates to cover risk of loss. The adoption of any system which did not protect buyers as well as sellers is to be avoided.

Where the heap of grain is more than fifty maunds, or where the buyers do not agree to bargains being made *pacca*, even up to fifty maunds, there are bound to be disputes and the only remedy seems to lie in providing for the proper settlement of these disputes.

In cotton transactions the conditions are far worse than in the case of grain. Except in two markets under inquiry, Fazilka and Sirsa, the grain is heaped by the seller at the *artia's* shop and it is there that the rates are settled and the weighing done. If during the weighing the buyer raises any objection which the seller considers unjustified, the latter can refuse to sell and the grain can remain lying at the *artia's* shop and a sale may be effected later. But cotton is sold in most markets under differing circumstances. Only in five markets\* is the cotton heaped like grain in front of the *artia's* shop. In others† the rates are fixed while the cotton is still in the carts, and which are then taken into the factory yards to be weighed. In Multan, Rohtak, Jullundur and Ambala City even the rates are settled in the factory yards. During weighing each unit as weighed is mixed with the cotton already in the yard, and if after some units have been weighed, the cotton at the bottom of the cart is considered to be not up to the quality of the cotton already weighed a deduction called *watta* is made. When cotton has been damped, or is found mixed with earth or sand or even leaves, or country-cotton (*desi*) has been too freely mixed with American, it is a perfectly legitimate charge and serves to check these malpractices. But unfortunately, it seems that, more often than

\* Phullarwan, Sangla, Sheikhpura, Amritsar, Abohar.  
 † Sargodha, Jaranwala, Lyallpur, Gojra, Okara, Jhang, Arifwala, Jullundur, Mian Chanun, Ludhiana, Ambala City, Multan, Rohtak, Hafizabad. (In Gurdaspur, Hoshiarpur, Fazilka, Ambala Cantt., Jakhaj, and Gujjar Khan markets very little cotton is marketed, if at all.)

not, this privilege is abused by the buyers, and at places where cotton is weighed in the factory yards the *artias* are loud in their complaints against the high-handedness of the factory owners. They alleged that in the majority of cases it was unjust that buyers should demand discounts for poor quality which they should have allowed for at the time of making their offers. The investigators in the Cotton Finance Inquiry conducted in the Punjab seem also to have received a similar impression, for in their report we find such statements:—"It is a common practice for buyers to offer high rates in the market and then to cut down these rates when delivery is being effected on the ground that *kapas* in the centre of the cart is dirty or inferior in quality to that exhibited on the outside." "Such complaints are invariably made when it is too late for the seller to take his produce elsewhere as a portion of it has already been weighed and mixed with other *kapas* in the purchaser's godown;" and last "the seller has therefore no option but to accept the reduced rate."\*

In Sargodha, Phullarwan, Amritsar, Abohar and Sheikhpura where the cotton is weighed at the *artias'* shops the conditions are more satisfactory than in places where the weighing is done in the factories. The power of the buyer to claim allowances is curtailed and the seller is in a stronger position to contest the claim of the buyer for allowances if he considers them to be unjustified. The seller has none of the handicaps from which he suffers when the weighing is done in the factory yard. If the sale cannot be effected on the first day it can be done on succeeding days; the cotton can stay in front of the *artia's* shop without extra expense. Cotton lying in heaps is easily examined by buyers and, as is done in Sangla and Sheikhpura, up to a certain weight of cotton, transactions can be treated as unalterable.

Many factory owners with whom this subject was discussed asserted that though the allowances claimed on the plea of low quality were not always justified, the general impression that

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\*Report of the Indian Central Cotton Committee on "An Investigation into the Finance and Marketing of Cultivators' Cotton in the Punjab," p. 34.

they were unfair to the sellers on account of these allowances was not correct. Different buyers, all anxious to secure a sufficient supply of cotton and knowing that reductions in rates can be secured later, offer rates, which they said, they could never afford to pay, and thus the loss to the sellers was not real but only apparent. If this is the case and the assertion is true, there seems to be no serious reason why the factory owners should object to the weighing being done in the markets. They will then only offer what they think is a fair price while the sellers will have no cause for complaint. There would be a difficulty, however, in some markets where at present, there is not enough accommodation for the daily arrivals of cotton to be heaped.\* But weighing of cotton in markets itself is said to have some disadvantages, *viz.* :—

(i) Cotton is damaged somewhat in quality owing to its collecting dust.

(ii) If it rains the cotton suffers more damage when heaped on the ground than when it is in the cart.

(iii) There is risk of its catching fire.

(iv) The seller has to bear an additional charge in the carriage of cotton to the factories.

It does not seem likely that all the markets will adopt the system of weighing the cotton outside the *artias'* shops except under compulsion, and even where this is done abuses will continue to exist to some extent as they do now in markets where the system is already in vogue. Until the sellers bring cotton of more uniform quality, there will be disputes and the only feasible course is to provide for a fair settlement of these disputes, and the machinery to settle them, it is desirable, should exist at the spot, be easily accessible to all parties and be inexpensive and impartial.

The Royal Commission on Agriculture in discussing this question of the machinery made no actual reference to these requirements, but the suggestion made in the concluding portion

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\* Lyallpur, Ludhiana, Rohtak, Multan and Sargodha.

of paragraph 334 of their report seems to cover them to a large extent.\*

In the Bombay Cotton Markets Act the following provision has been made for the settlement of disputes.

Rule 21. The market committee may also appoint two or more of its members to be a sub-committee or to be a joint committee for the conduct of any work or works or to report on any matter or matters and may delegate to any one or more of its members such of its own powers as may be necessary.

The market committee shall also appoint a sub-committee called the disputes sub-committee consisting of (1) any one person included in a panel compiled from the representatives of the cotton growers on the market committee, (2) one of the cotton traders on the market committee, and (3) one of the representatives of the local bodies on the market committee, to settle any disputes that may be referred to it either by the market committee or by the buyers or sellers or both. The disputes shall so far as possible be decided on the spot and on the same day.

Anyone lodging a complaint shall pay a fee of annas 4 to the market committee.

Rule 50. Every purchaser shall sign an agreement in the form in schedule 1 in favour of the seller before removing from the cotton market, any cotton that has been purchased. Printed forms of agreement shall be supplied to the purchaser free of cost by the market committee.

#### SCHEDULE 1.

##### FORM OF AGREEMENT.

Name of seller \_\_\_\_\_

Name of buyer \_\_\_\_\_

Rate per *khandi* or \_\_\_\_\_

Signature of market committee's servant.

I do hereby promise that when your cotton comes to be unloaded, if I refuse to take it at the price agreed upon, the matter shall be referred to the disputes sub-committee appointed for the purpose under Rule 21 whose decision shall be binding on me.

Signature of purchaser.

A *kachcha-pacca artia* has always two distinct services to perform. On the one hand he has to arrange for the sale of produce brought by his clients from the villages, and, on the other, to make purchases for his clients in the big towns who send him instruc-

\* "We consider it most desirable that some machinery should be provided for the settlement of all disputes, whether in regard to cotton or other agricultural products, and would suggest that it should take the form of a *panchayat* or a board of arbitrators. This board might consist of three members, one nominated by the buyer, one by the seller and the third, who would be the chairman, selected by both parties from the market committee. If the parties failed to agree on a chairman, he should be nominated by the chairman of the market committee." p. 304.

tions to this effect. Sometimes an *artia* of this type may buy goods marketed through himself to fill orders from outside, thereby acting as an agent for both buyers and sellers for the same goods. The practice is more common in some markets than in others, but nowhere is it very common. The method adopted when the purchase is made in competition with other buyers is one or other of the following :—

(i) The *artia* writes down his own offer on a piece of paper and after folding it puts it on the heap of grain. He then takes the offers of others before he unfolds his own slip and announces his bid.

(ii) He indicates his offer to his *dalal*, or one of his employees, and instructs him to shout it out when required, *i.e.*, when other buyers have made their offers.

(iii) The *artia* ranges himself as a buyer among others and asks another *artia* who does not intend to buy to deal with the offers.

(iv) After other buyers have made their offers and show no inclination to bid higher the *artia* shouts out his own which in this case is higher than that of any of the others.

In a transaction of this nature the same man is the principal and the agent and he charges, in a sense, a commission on his own purchases ; but it should be remembered that he would get two commissions even when he sells consigned goods and purchases goods on order from another. Further, it is possible that he may have more suitable goods at his shop than he can find in the hands of other *artias*, and that sometimes by making a return to the seller at the highest possible price he can still save something to the client for whom he is buying. The practice, however, does permit of dishonest dealings, particularly where sales are made to individual buyers throughout the day, or after the main round of buyers has passed an *artia's* shop ; and, it would seem that a certain amount of restriction on the practice is necessary.

The practice is banned under the Berar Act. This is provided for in clause 7 of the agreement to be executed by an *artia* under Rule 50 of the rules.—

"I shall not purchase either in my own name or in the name of another or in name jointly of myself and another or others, entirely on my own account or partially on my own account and that of another or others, any cotton in respect of which I have been employed as an *Adatya*.

Provided that when a sale to a purchaser has failed and a resale cannot be effected before 2 p.m. and the seller insists on resale, I may be permitted to purchase the cotton as a special case in which case I will report all the facts in detail to the Chairman of the Committee at the earliest possible opportunity stating the original price offered by the intendant purchaser for the cotton, the reduction in the price or allowance, when he claimed, and the price at which the purchase was made by me."

There is no such provision in the Bombay Act.

## CHAPTER III.

### WEIGHTS AND METHODS OF WEIGHING.

Variation in Standard of Weights in Markets. The weights used in all the markets except Ludhiana are standard or *pacca* weights in which 1 seer equals 80 *tolas*. In Ludhiana the local standard of *kachcha* weights is 1 seer=33·6 *tolas*. The Royal Commission on Agriculture gave its considered opinion against the variations in standards of weights, in view of the "hampering effect this has upon trade and commerce generally" and because the "needless complications and unevenness as between market and market tend to prejudice the interests of the cultivator."\* The information collected during the inquiries conducted by the Board into the use of faulty weights and measures in the Punjab† provides abundant evidence to show that there is a tendency for the sellers to be exploited as a result of these variations.

Inaccuracy of Weights and Scales. It is the inaccuracy of the weights and scales used in the Province which demands particular attention. During the investigation of weights and measures which was conducted in the *mandis*, cities and villages of twelve areas of the Province, it was found that only 50·8 per cent. of the stamped, and only about 12 per cent. of the unstamped and *kachcha* weights were correct. As regards scales, roughly speaking only one in three was accurate. How far weights are intentionally tampered with it is difficult to say, but it was found that, with one exception, at no place were there any satisfactory arrangements for the periodical examination and correction of the weights and scales in use. Other interesting facts revealed during the inquiry were that a scale which shows a level beam when hung with the pans empty is not necessarily correct and that very often even new weights sold in the bazaar are incorrect. Three sets of weights purchased in Lahore were checked against standard mint weights and of

\* *Ibid.* Report para. 339.

† Publication No. 41.

these only six odd pieces were found to be correct. These bazaar weights, usually made in Agra, are of cast-iron and it appears that the factories manufacturing them do not pay much attention to the quality of the material used with the result that weights from the same mould may vary considerably with every smelting. The explanation regarding scales is technical. There are two things to be considered: one is the respective weight of the beam plus its pan on each side of the pivot, and the other is the position of the pivot (fulcrum) with respect to the centre of the beam. If the pivot is not in the centre of the beam, such a scale may, by a little added weight on one side, be made to swing horizontally when unloaded, yet it may be most defective when actual weighing is done and the greater length of one side has its effect.\* In the investigation, therefore, each scale was tested in two ways: (a). unloaded, *i.e.*, with the pans hanging empty, and (b). loaded, *i.e.*, with two similar weights (from the investigator's own set) of the denomination commonly used on that scale, added to the pans.

The Government in its notification No. 23537, dated 8th October 1923, published Model Bye-Laws defining the standard weights and measures, to be used within a municipality (see Appendix E). The higher officials appear to have compelled, (for that is the impression one is left with after a study of the relevant files in most municipalities), 48 Municipal Committees and nine Notified Areas, to adopt these bye-laws to control the weights and measures used within their areas and to provide for their inspection. So far, however, only seven Municipal Committees and one Notified Area have provided themselves with the standard mint weights without which the bye-laws are useless, and of these only three have undertaken the actual operation of checking, correcting and stamping the weights. What has been done is inadequate, and now that inquiries have shown the extent of the evil to be appreciable, it may be hoped that the matter will receive the attention that it deserves. A necessary step will be to devise means whereby an accurate yet

\* If the fulcrum is not in the centre of the beam, the pull on the side which is shorter will be relatively less than that on the side where the beam is longer and hence the shorter side will tilt up.

cheap supply of weights will be readily available since, as already mentioned, at present even the new weights procurable in the bazaar are faulty.

Under the Bombay and Berar Acts the regulation and inspection of weights and scales has been provided for as follows:—

*Bombay Act.*

Rule 67.—Only authorised weights shall be used for the weighment of cotton in the market.

*Berar Act.*

Rule 67.—The following descriptions of weights shall alone be used for the weighment of cotton in bulk in the market:—

- (a) 7 md. weight of 196 lbs. (Avoirdupois).
- (b) 4 md. weight of 112 lbs. „
- (c) 2 md. weight of 56 lbs. „
- (d) 1 md. weight of 28 lbs. „
- (e) 2 dhara weight of 14 lbs. „
- (f) 1 dhara weight of 7 lbs. „
- (g) 4 lb. weight of 4 lbs. „
- (h) 2 lb. weight of 2 lbs. „
- (i) 1 lb. weight of 1 lb. „
- (j) Chain weighing 10 lbs. „

Rule 67-A.—A weight equivalent to the weight of the rope which is used to suspend a bundle of cotton (*docra*) on the weighing side of the scales shall be added to the weight side of the scales, in order to counterbalance the weight of the rope attached to the weighing side of the beam.

Rule 68.—The chairman, every member of the Market Committee, and every employee of the Committee authorized by the Market Committee in this behalf, shall be entitled, at any time and without notice, to inspect, examine, and test any scale or weight used, kept, or possessed in any open place within the limits of the market.

Rule 68.—Weights of the above description and weight are authorised. All weights intended to be used for, or capable of being used for the weighment of cotton in bulk which do not answer one of the above descriptions, are unauthorised.

Rule 69.—The Market Committee shall keep at least one set of authorised weights which shall be at all times available to the public for comparison with their own weights at all reasonable hours.

Rule 69.—Same as in Rule 68 of the Bombay Act.

Rule 72.—Every registered trader and every trader in cotton residing or trading within the limits of the market shall on a requisition in writing being made to him by the chairman or by any two members of the market committee, immediately produce for examination all and every scale and weight used, kept, or possessed by him or by any person or persons under his

Rule 70.—Every registered buyer, every registered seller, every registered buyer and seller, and every trader in cotton residing or trading within the limits of the market, shall, on a requisition in writing being made to him by the Chairman or by any two members of the Committee, immediately produce for examination, all and every scale and weight used, kept, or

authority or control, and shall allow the chairman or the said two members to inspect, examine and test the same.

**Rule 73.**—If any scale be found on examination to be untrue or any weight found on examination to be unauthorised or incorrect a report shall be forthwith forwarded in a form similar to that in schedule II, as the Collector may from time to time prescribe, to such Magistrate as the Collector may from time to time appoint, and the Magistrate shall order the confiscation and destruction of such scales or weights, or make such other order in the matter, as may appear proper.

**Rule 74.**—Whoever being bound under the provisions of rule 72 to produce any scale or weight for examination, or to allow the examination, inspection, or testing of any scale or weight does not produce the scale or weight, or does not allow the examination, inspection, or testing of the scale or weight shall be liable on conviction by a Magistrate to a fine not exceeding Rs. 50.

**Rule 75.**—Whoever being a licensed broker or a licensed weighman or a trader in cotton shall have in his possession, keep, or use any scale or weight which is false, incorrect or unauthorised, shall be liable on conviction by a Magistrate to a fine not exceeding Rs. 50.

**Rule 76.**—A conviction under rules 74 and 75 shall not be a bar to a prosecution under the Indian Penal Code or under any other law under which the offender may be liable to punishment in respect of the same.

possessed by him, or by any person or persons under his authority or control, and shall allow the said Chairman or the said two members to inspect, examine, and test the same.

**Rule 71.**—Every scale found on examination to be untrue and every weight found on examination to be unauthorised or incorrect shall be forthwith forwarded with a report in such form as the Deputy Commissioner may from time to time prescribe, to such Magistrate as the Deputy Commissioner may from time to time appoint, and the Magistrate shall order the confiscation and destruction of such scales or weights, or make such other order in the matter, as may appear proper.

**Rule 72.**—Whoever being bound under the provisions of rule 70 to produce any scale or weight for examination, or to allow the examination, inspection, or testing of any scale or weight, does not immediately produce the scale or weight or does not allow the examination, inspection, or testing of the scale or weight, shall be liable on conviction to a fine not exceeding Rs. 50.

**Rule 73.**—Whoever being a licensed broker or a licensed weighman, or a registered buyer or a registered seller, or a trader in cotton, shall have in his possession, keep, or use any scale or weight which is false, incorrect or unauthorised, shall be liable on conviction to a fine not exceeding Rs. 50.

**Rule 74.**—Same as Rule 76 of the Bombay Act.

*Schedule for reports under Rule 73 of the Bombay Act.*

Name of person from whom the scales or weights are seized.	Description of the untrue weights or scales.	Date of seizure.	Person by whom seized.	Person in whose presence seized.	Why seized.	REMARKS.
1	2	3	4	5	6	7

*Witnesses.*

*Signature of the persons making the report.*

*Note.*—The report will be signed by the persons making it and will be attested by the persons in whose presence the weights or scales were seized.

In paragraph 333 of their report the Royal Commission on Agriculture deal with the question of disputes arising from fraudulent weighings and suggest :—

Installation of Weighbridges in Markets.

“Each market should have a weighbridge installed with suitable arrangements for its use. Any cultivator wishing to do so, should be allowed to weigh his cart-load of produce and also his cart when emptied, and should be given free a certificate of these weighments which all parties doing business in that market should be required to accept as final. We consider that the provision of such weighbridges should be made compulsory even in the unregulated markets, and that the local governments should take the necessary powers to deal with this question.”

If the weight of a cart-load of produce as shown by weighing the cart on the weighbridge before and after unloading is to be considered final, the usual employment of the weighman with his handscale would then appear to be unnecessary. But the fact remains that the present method of weighing small quantities on a hand-scale means that the entire cart-load is sifted, that dust and dirt are in a measure eliminated and that large-scale adulteration or fraud is checked. Weighing by the cart-load might possibly lead to greater adulteration and fraud by the unscrupulous among sellers with the result that the more honest seller would be penalised. To make any genuine improvement in methods one must always bear in mind the character of those taking part in the transaction and not push any reform beyond the support it finds in the bulk of the public opinion concerned.

Weighbridges at present should only be employed to give to the sellers an approximate idea of the weight of their produce with which they may compare the weight declared by the weighman. And if they are thereby convinced that the weighing done by the weighman is faulty, they would then carefully watch the usual checking which is done by the buyer, and which, it is being suggested in a subsequent paragraph, should always be done in the presence of the seller or his agent. Any disputes arising regarding the amount of surplus, it is suggested, should be decided by a final

checking to be done on an accurate beam-scale which should be provided alongside the weighbridge and which might be known as 'dharam kanda'. The Amritsar market has already got such a beam-scale and the Jullundur Market Committee proposes to get one\*.

An allied requirement is the prohibition of the practice, where it prevails, of mixing each fresh unit weighed with a bigger heap of the produce, owned by the buyer, already there. This practice prevails in the case of cotton in all places where it is weighed in the factory yards and in Fazilka the same is done with grain when the purchase is made by the buyer to fill a *kotha*. This practice makes checking of weight impossible and if the weight as declared by the weighman does not tally with the seller's estimate there is no means left for verification.

The Bombay Act provides for the installation of weighbridges in cotton markets as follows :—

Rule 71.—Where the funds at its disposal permit, the Market Committee may and, if required by the Government, shall erect a weighbridge, in the cotton market and shall be responsible for keeping it in proper working order. Any buyer or seller may at his option have his cotton load weighed on it on payment of the fees to be fixed by bye-laws.

Reference has been made above to the practicability of sellers employing weighbridges in markets in order to get an approximate idea of the weight of their produce to serve as a check on the figure given by the weighman. Before the idea of weighbridges was raised by the Royal Commission on Agriculture, it was thought that such a check lay only in the seller weighing or measuring his produce before leaving for the market. This was one of the points investigated in the weights and measures investigation and the results of the inquiries made from cultivators as to whether they had weighed or measured their produce before bringing it to the market are summarised in the table below.

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\* The proposal of the committee has not materialized as the person who had undertaken to set up the *dharam kanda* left the market.—Ed.

Markets.	NUMBER OF CULTIVATORS.			
	Questioned	Who had weighed before-hand.	Who had measured before-hand.	Who had neither weighed nor measured.
Ludhiana ..	130	90	..	40
Tarn Taran (Amritsar) ..	46	28	..	18
Leiah (Muzaffargarh) ..	3	..	..	3
Dera Ghazi Khan ..	128	34	40	54
Chichawatni (Montgomery) ..	72	24	..	48
Shujabad (Multan) ..	50	15	..	35
Dinga-Bahauddin (Gujrat) ..	45	..	5	40
Sargodha (Shahpur) ..	38	..	..	38
Rohtak ..	87	15	53	19
Kangra ..	..	..	..	..
Moga (Ferozepore) ..	155	110	..	45
<i>Total</i> ..	<i>754</i>	<i>316</i>	<i>98</i>	<i>340</i>
<i>Percentage</i> ..	<i>100.0</i>	<i>41.8</i>	<i>13.1</i>	<i>45.1</i>

Further, there was much evidence to indicate that many even among those who said they had weighed or measured their produce had done so in a very rough manner. Thus the investigator posted at Montgomery checked the weights of the produce of twelve cultivators who said they had weighed it previous to carting it to the *mandi*. The results showed that in all cases the cultivator had under-estimated the weight of his produce to the extent of from 1.25 to 6.54 per cent.

In Ludhiana the investigator checked 70 parcels sold in the *mandi*. In ten cases a *maund* weighed between 40 and 40½ seers, in forty between 40½ and 41 seers and in twenty between 41 and 42 seers.

In the reports on the Moga and Rohtak markets we find the following remarks :—

*Moga*.—“ 96.4 per cent. of the cultivators who brought their produce to the *mandi* after having weighed it, had done so against *kachcha* weights, while in the *mandi* the weighing was done in all these cases against *pacca* weights. As the *kachcha* standards varied from village to village and often even in the same village, enquiry

was made from the cultivators as to how they converted their *kachcha* estimates into *pacca* so as to be able to compare the weight of their produce as declared by the weighman with their own estimate. In all cases the conversion scale was given as 1 seer *pacca* equal to  $2\frac{1}{2}$  *kachcha* seers but as the value of a *pacca* seer obtained from the results of checking weights in different villages was found to vary from 2 seers 2·4 chhataks to 2 seers 5·1 chhataks, the cultivators' estimate cannot be exact."

*Rohtak*.—"An important point that needs mention at this place is that of estimating quantity by means of the *map*\* (for 53 out of 68 cultivators who had formed some estimate of the weight of their produce prior to marketing it had done so by means of the *map*), which is a very rough substitute for weighing. If the weighman declares the weight to be less than the seller's estimate, the seller fears that his own estimate may be wrong, because he knows that the *map* is a far less accurate test than weighing. But the use of the *map* is so very convenient and quick and weighing by hand-scale so very troublesome that the temptation in favour of using the former is great. Reports from other districts indicate that the absence of the *map* simply means the loss of even the little advantage the agriculturist derives from its use in getting an idea of the approximate amount of his produce. However, apart from the merits and demerits of the *map*, it is plain that the agriculturist wants something convenient, which will save both time and trouble. That weighing is better than measuring is well-known to the agriculturist, but since weighing is difficult (especially with the hand-scale) and measuring (particularly with the *map*) easy, he prefers the latter."

It would seem desirable to encourage the practice of sellers forming an estimate of the weight of their produce to serve as a check on the weight declared by the weighman. To do this it will be necessary to make weighing more convenient and expeditious than it is at present with the hand-scale. The seller should be

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\* Any earthen pitcher employed in measuring grain is a *map*. It has no fixed size or dimensions. Of 74 *maps* checked during the inquiry, the smallest was found to contain 35 seers of wheat and the largest 1 maund and 21 seers.

certain of the accuracy within small limits of his own estimate of weight, so that he may be able to question the *artia* should the weight declared by the weighman be less than his own estimate. It is doubtful if anything can serve the purpose better than a weighbridge installed at the gate of the market, with suitable arrangements for its use, so that any one wishing to do so could weigh "his cart-load of produce and then his cart when emptied."

In all the markets of inquiry, except Gujar Khan and Multan, where the weighing is generally done by the buyer himself or his servant, it is usual for the buyers to check the weight of about ten per cent. of the bags of grain bought, to satisfy themselves that their purchases are not deficient in weight. In sixteen of the markets\* this checking has to be done by buyers, if they wish to do it, at the weighing place (which except in the case of Fazilka market means the *artia's* shop), while in the other seven markets† they can and usually do it at their own shops. When the cart reaches his own place the buyer immediately checks the weight of a bag or two, and in case these are found deficient, he reports the fact to the *artia* who either comes to the place himself or, more often, sends the weighman to have the checking done in his presence. In the other markets, though checking is done at the *artia's* shop, the scale used in checking is the buyer's. The total deficiency, in case a deficiency is found on checking, is calculated by multiplying the average deficiency per bag checked, with the total number of bags purchased. In certain markets‡ more than the actual deficiency is charged. In such cases the total amount of deficiency as arrived at above is increased by a quarter or more according to the practice of the market.

If the buyers charge for deficiencies they should pay for surpluses also, if the bags checked are found over-weight, but actually this is done in only two markets, Jullundur and Hoshiarpur. In fifteen markets where checking is done at the

\* Phullarwan, Sarogdha, Jhang, Mian Chanun, Arifwala, Okara, Abohar, Gojra, Sheikhnpura, Jaranwala, Jullundur, Hoshiarpur, Ludhiana, Rohtak, Hafizabad and Fazilka.

† Gurdaspur, Amritsar, Ambala Cantt., Ambala City, Jakhai, Lyallpur and Sangla.

‡ Rohtak, Lyallpur, Arifwala, Okara, Gurdaspur, Jakhai, Jaranwala and Ambala Cantt.

*artia's* place the latter can have the surplus grain taken out of the bags, but he finds this worth doing only when the value of the surplus grain exceeds the expense he has to incur in having the bags opened, reweighed and resewn—about one pice per bag—and the extra trouble that this involves. In the other markets, where checking is done at the buyer's place, any surplus is appropriated by the buyer, and the *artia* may not even learn of it.

On the other hand, sellers never check weighings unless they have some strong reason to doubt their correctness. Even in markets where checking is done by buyers at the *artia's* shop, the seller is seldom there as he usually leaves as soon as the weighing is over and he has received his payment; but even when present, he takes little or no interest. Sellers generally have the impression that once the weighing is over and they have no reason to suspect that the buyer has been favoured, it is unnecessary and even unfair for them to trouble any further about the matter. Actually they have as good a right to the checking as the buyer and to charge for any surplus weight just as they have to pay for deficiencies. At present even when the *artia* charges for the surplus weight, as is the case in the Jullundur and Hoshiarpur markets, or takes out the surplus weight (which he can do in another fifteen markets); there is no certainty of this being passed on to the seller.

Sellers should also check weighings, but it would be better if, instead of the checking being done separately by buyers and sellers, a single checking took place within say an hour after the weighing is finished in the presence of both buyer and seller. This would eliminate unnecessary work and any deficiency or surplus would be known to the sellers who would then be paid accordingly. All checkings could be done at the *artia's* place and there would be no need for a buyer to check the weights again at his own place.

It has been pointed out above that in eight markets the buyers charge more than the actual deficiency found in checking. The ostensible reason for this is to penalise deficient weighings, but in practice it operates

Penalty for Incorrect Weighing.

unfairly as it benefits the buyers at the cost of the sellers. In six out of the eight markets the penalty is charged not from the weighman but from the seller, but it would be no improvement if the penalty fell on the weighman as he would then always weigh so as to be sure of avoiding the risk of the penalty. A fine on the weighman for incorrect weighings would only be useful if the buyers had to pay for a surplus just as they charge now for a deficiency and the weighman also had to pay a penalty whenever the checking showed a mistake. It is very difficult to secure absolute correctness in hand-weighing and any penalties for small differences of weight should not be imposed.

The hand scale is used for weighing grain in all markets except Multan, where it is done mostly on the platform scale. Inquiries were made from more than fifty people,—managers of European firms and co-operative shops, and *kachcha* and *pacca artias*,—and all were strongly opposed to any change from the hand scale to the platform or beam scale, stating that the former was most suited to the purpose. They felt that the facility which the hand scale afforded in sifting dirt and dust from grain during weighing more than offset the advantages possessed by the other types of scales; further they did not believe that a change from the hand scale to the platform or beam scale would in any way improve weighings. They said that manipulation was as easy with these as it was with the hand scale and the weighman who wanted to be partial could as easily show the same difference on the platform or beam scale as on the hand scale. 'In one case the difference is made little by little, in the other at one stroke.'

As between the beam scale and the platform scale, the latter makes weighing easier and also saves time where rural sellers are concerned, but the former was considered the more suitable generally because of the simplicity of its operation. The platform scale, it was stated, could not be understood by a large majority of the rural sellers, and the supposed intricacy of its machinery and the idea that the slightest incorrectness in its weights made a larger difference than on

any other scale, were the reasons for its use being limited to those who were well conversant with the principles of its working.\*

With regard to the relation of the weighman to the *artia*,  
 Relation of Weigh- four different systems are in vogue in the mar-  
 men with *Artias*. kets, *viz.* :—

(i) Weighmen attached to particular *artias* who get their remuneration in the form of commission or a fixed rate per bag;†

(ii) Weighmen working as fixed salaried employees of the *artias*;‡

(iii) Weighmen forming an independent class any one of whom can be called by any *artia*§ ; and,

(iv) Weighmen divided into small groups, each one of which has attached itself to a number of *artias*' shops, so that an *artia* can only call any weighman of the group attached to his shop.||

There is not much difference between the first and the  
 Merits and Defects second system. So long as a weighman is  
 of the Different attached to one particular *artia*, he is practically  
 Systems. his servant and the fact of his being paid by commission does not much alter his position. Similarly there is no very great difference between the third and the fourth systems, since so long as a weighman is not bound down to one employer it matters little whether he can work for all *artias* or only for a few of them. The question therefore is, should weighmen be attached to particular *artias* or be an independent class by themselves, so that an *artia* can employ any one of them who happens to be available. Numerous persons were questioned as to the merits and defects of the two systems ; but invariably the reply was in favour of the system existing in that particular market. Such

\* Note by the late Mr. Owen Roberts :—“ The platform scale and weighbridge systems, subject to appreciation of the fact that they require the most careful mechanical adjustment and levelling arrangements, are generally recognised as the most satisfactory but I very much doubt whether either are suitable for *mandis* when dealing with arrivals. In the hands of dishonest people both lend themselves to cheating and given the best of intentions, the supervision, mechanical and otherwise, required to keep them in good working order, is such as would not be forthcoming in the surrounding conditions of the average *mandi*.”

† Phullarwan, Sargodha, Jaranwala, Lyallpur, Sangla, Okara, Arifwala, Mian Channu, Jhang, Amritsar, Ambala City, Gojra, Sheikhpura, Gurdaspur and Jullundur.

‡ Multan, Ambala Cantt. and Hoshiarpur.

§ Rohtak and Ludhiana.

|| Abohar, Fazilka, Jakhal and Jullundur.

[Note.—In Jullundur the first and the fourth systems exist side by side.]

information as could be elicited from them, for and against the respective systems, is set forth below.

*Weighman attached to a particular artia.*

(i) The weighman is responsible to his *artia*, so that if he is dishonest or shows favour to a particular buyer, or accepts a bribe and the fact becomes known, the *artia* can punish him.

(ii) The *artia* does not have to run about finding a weighman every time he needs one.

(iii) The weighman is interested in the seller because his remuneration depends on the amount of the produce weighed by him. The larger the clientele of the *artia*, the larger is the weighman's income.

*Weighman as one of an independent class.*

(i) Weighmen can be employed according to the amount of work to be done. When arrivals are large the *artia* may employ a number while at other times only one will be sufficient. Under the other system, while on one day weighings may have to continue till inconvenient hours, the next day there may be very little work and the weighman may have to remain idle for most of the day.

(ii) An *artia* inclined to be dishonest, would find it difficult to cheat in the weighing when dealing with an independent weighman and would think twice before he took such an independent weighman into his confidence.

For the rules with regard to weighmen, under the Bombay and Berar Acts, see the following rules given on pages 6 and 7.

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Bombay Act.—Rules 56, 57 and 58.  
Berar Act.—Rules 53, 54, 55, 64 and 66.

## CHAPTER IV.

### MARKET DEDUCTIONS.

All the various people who serve the seller in the market have to be rewarded. There are also in most markets certain customary deductions such as allowances to buyers and charity charges. Some of them are made in kind and disbursed by the weighman ; those in cash are recovered by the *artia* from the sale proceeds along with his *arit*.

Some of the important deductions common to most markets are discussed below :—

*Arit* (*artia's* commission).—This is a charge made by the *artia* against the seller for the services rendered to him. In some markets\* however, no charge is made from the seller but a charge known as *dami* is made from the buyer, while in others the *artia* derives his remuneration partly from the buyer and partly from the seller.† It may seem strange that buyers should be charged for services rendered by the *artia* to the sellers ; but since buyers know that they have to meet the charge they take this into account when making offers, and thus the incidence is on the sellers. However, in some markets‡ the term *dami* is used in a different sense. The buyers get an extra weight of the crop in the form of a market allowance and against this they make a small payment to the *artias*, who thus share in the benefit of the allowance. An influential *artia* in the Okara market considered this a conspiracy between the buyers and the *artias* to ‘rob the sellers,’ while the manager of a European firm was of opinion that this method was employed by the *artias* to add to their income and was ‘certainly not above board.’

*Dalali* (brokerage).—Except in the Amritsar and Hafizabad markets (where there may be two *dalals* in each transaction, one

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\* Abohar, Fazilka, Rohtak, Jakhai, Jullundur, Hoshiarpur and Gujar Khan.

† Gurdaspur, Ambala Cantt. and Ludhiana.

‡ Sargodha, Gojra, Lyallpur, Okara, Jaranwala, Sangla, Mian Chanun, Jhang, Arifwala, Multan, and Phillarwan.

the buyer's and the other the seller's) wherever a *dalal* is employed\* (and this is nowhere compulsory) he represents the buyer. One would expect therefore, that the payment to the *dalal* would also be made by the buyer, but this is not the case except in Okara and Mian Chanun markets; in the others the payment is made either wholly by the seller,† or partly by the seller and partly by the buyer,‡ or partly by the buyer and partly by the *artia*.§ The argument that the charge must ultimately fall on the seller, whether the charge is made from him or from the buyer, because when made from the buyer he will take this into account when making his offer, does not apply in these cases as the *dalal* is not an essential functionary of the market like the *artia*; and instances are not uncommon where he is not employed.

Under the Bombay and Berar Acts the employment of a *dalal* is governed by the following rules:—

*Bombay Act.*

Rule 59.—No person shall, in the absence of express agreement, be bound to employ a broker in any transaction or be required to pay for a broker employed by any other party to the transaction or to pay for a broker when none is employed.

Rule 60.—A licensed broker or weighman may demand on account of his services when employed from the person employing him such fees as may be fixed by the by-laws of the market committee.

*Berar Act.*

Rule 56.—No person shall, in the absence of express agreement, be bound to employ a broker or weighman in any transaction, or be required to pay for a broker or weighman employed by any other party to the transaction, or to pay for a broker or weighman when none is employed.

Rule 57.—The following fees may be demanded by a licensed broker on account of his services when employed from the person employing him:—

- (a). In respect of services rendered to a purchaser, a fee not exceeding four annas three pies per *bhoja* of ginned cotton or *khandi* of unginned cotton;
- (b). In respect of services rendered to a seller, a fee not exceeding four annas three pies per *bhoja* of ginned cotton or *khandi* of unginned cotton: Provided that in case the same broker is employed by both parties, the licensed broker shall not demand more

\* Phullarwan, Sargodha, Jaranwala, Lyallpur, Gojra, Sangla, Sheikhpura, Okara, Arifwala, Mian Chanun, Jhang, Multan, Abohar, Fazilka, Ambala City, Rohtak, Jullundur, Hoshiarpur.

† Gojra, Multan, Abohar, Fazilka, Jullundur, Hoshiarpur.

‡ Phullarwan, Sargodha, Lyallpur, Sangla, Arifwala, Jhang, Hafizabad.

§ Jaranwala, Sheikhpura, Ambala City.

than four annas three pies per *bhoja* of ginned cotton or *khandi* of unginned cotton, as the case may be.

Rule 61.—If both parties employ the same licensed broker or weighman, the fees of the broker or weighman, shall, in the absence of express agreement, be payable half by the buyer and half by the seller.

Rule 59.—Same as Rule 61 of the Bombay Act.

*Tolai* (weighing charge).—This deduction is levied on the sellers only in fourteen\* out of the twenty-five markets investigated. Of the other markets, in nine† it is met by the *artia* himself out of his commission, while in two‡ the *artia* charges it against the buyer. In Okara the weighman is supposed to be paid by the *artia*, but for some time past it has been usual for him to ask the seller just before the weighing is finished for a handful or two of grain by way of favour or *inam*. The seller may or may not give it, but generally he has not the courage to refuse.

Under the Berar and Bombay Market Acts such deductions or demands are penalised.

Bombay Rule 66. (As in Berar Rule 65).—Any licensed broker or any licensed weighman who shall demand, receive or retain, or shall allow any other person to demand, receive or retain, on account of, or under the colour of, fees due in respect of his service, any sum not due under these rules or a larger sum than is due under these rules, or from a person who is not liable to pay under these rules, and any person who, not being a licensed broker or weighman, shall demand, receive or retain, or facilitate the demanding, receiving or retaining of such sums, shall be liable on conviction by a Magistrate to a fine not exceeding Rs. 50/-.

Berar Rule 58.—The following fees may be demanded by a licensed weighman on account of his services when employed from the person employing him.

(a). In respect of services rendered to a purchaser, one anna six pies per *bhoja* of ginned cotton or *khandi* of unginned cotton ;

(b). In respect of services rendered to a seller, one anna six pies per *bhoja* of ginned cotton or *khandi* of unginned cotton : Provided that in case the same licensed weighman is employed by both parties, the licensed weighman shall not demand more than two annas three pies per *bhoja* of ginned cotton or *khandi* of unginned cotton, as the case may be.

For other rules with regard to *tolai* under the Bombay and Berar Acts, see Rules 56 and 59 of the Berar Act, and 60 and 61 of the Bombay Act.

\* Phillarwan, Sargodha, Lyallpur, Gojra, Sangla, Sheikhpura, Mian Chanun, Jhang, Hafizabad, Multan, Jakhel, Jullundur, Hoshiarpur and Gujrat Khan.

† Jaranwala, Okara, Arifwala, Amritsar, Gurdaspur, Ambala City, Rohtak, Ambala Cantt. and Ludhiana.

‡ Fazilka and Abohar.

*Deductions for market functionaries.*—There are miscellaneous deductions made in every market from sellers for functionaries, such as the *chuhra*, *mehra* or *mashki*, *chaukidar*, etc., who perform services of a general character, e.g., sweep the ground, sprinkle water and supply drinking water to sellers and their bullocks. It is to the common interest of all that these jobs should be done but the manner in which the people are paid is unsatisfactory. Generally different *artias* have different water-bearers (*mehras* or *mashkis*) and *chuhras* working at their shops, with the result that only the spaces just in front of the shops are cared for. With no one person or body of persons to manage and control the affairs in the market as a whole, a better arrangement would hardly be practicable, but the work could be done more economically and efficiently if salaried persons paid out of a common market fund were employed.

*Charity deductions.*—These are deductions made for charitable purposes such as *dharmao* and *gaushala*. *Artias* usually say that they do not insist on such payments if any seller objects, but this is not enough and it should be commonly understood that the charges are optional. Further in view of the allegations sometimes made that the amounts so collected are not always spent as they should be,\* it seems desirable that each *artia* should keep a separate account of the sums collected by him for this purpose and should keep receipts for all monies donated by him.

In the agreement to be executed by an *artia* under Rule 50 of the Berar Cotton and Grain Markets Law, Submission of Details of Sale Proceeds. a provision requires *artias* to supply to all such

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\* Report on an Investigation into the Finance and Marketing of Cultivators' Cotton, page 37. "In some markets these charges are levied separately, in others they are not. They are collected for charitable purposes but it is alleged that only a small proportion of the money thus obtained is legitimately used. In some cases it is reported that *artias*, by the precept of letting charity begin at home, utilise what is collected in this way for their own pilgrimages to Hardwar, Benares, etc."

Report of the Punjab Provincial Banking Inquiry Committee, Note E., Part II, page 206. The rates for *dharmao* "are fixed by the Market *Panchayat*, but the income is spent according to individual discretion, and as no account has to be given to any controlling authority, the discretion is freely exercised. The more scrupulous devote the amount to schools, orphanages, and other charitable institutions in which they are interested, but others, the majority, it is said, spend it upon religious ceremonies, gatherings for the singing of hymns, the feasting of Brahmins, pilgrimages to Hardwar and Benares, and bathing in the sacred waters of the Ganges; and some, it is alleged, upon objects of more mundane advantage."

persons as make sales through them a detailed account of the sale proceeds, and this seems to be of great value.

Benar Act : Clause 6.—I shall furnish to every seller employing me a statement giving the following details:—

- (i) Name of seller.
- (ii) Name of buyer.
- (iii) Total weight of cotton.
- (iv) Rate at which sold.
- (v) Total value of cotton sold.
- (vi) Details of expenses and other charges.

If such accounts were supplied by the *artias* in the Punjab markets, abuses which are possible now, such as unauthorised or higher deductions would be checked. That at present abuses do exist is shown by the following:—In Moga the only charges supposed to be made by an *artia* from sellers are *chungi* at Rs. -/5/- per Rs. 100/- which the *artia* has to pass on to the buyer as a fixed cash allowance, and *gaushala* at Rs. -/1/- per Rs. 100/-. Their own remuneration the *artias* get from the buyers in the form of *dami* at Rs. 1/9/0 per Rs. 100/-, but under the plea of this *chungi* (which among the sellers is known as *arit*) amounts very much higher than Rs. -/5/- per Rs. 100/- are sometimes charged by the *artia*. In Phullarwan a deduction of Rs. -/5/- per Rs. 100/- is made from the sellers for the weighman who actually receives Rs. -/3/9 per Rs. 100/-. In Jhang the deduction is Rs. -/10/- per Rs. 100/- while Rs. -/3/9 per Rs. 100/- is paid. In Fazilka Rs. -/5/- per Rs. 100/- are paid by the buyers to the *artia* as *tolai* but the *artia* keeps this himself and the weighman is allowed to make a deduction in kind of two *chhataks* per maund from the seller's crop. In Abohar a charge of two *chhataks* per maund or Rs. -/5/- per Rs. 100/- is made for *dalali*, while actually the *dalals* are paid by the *artias* at Rs. -/2/- per Rs. 100/-.

Besides the charges on the sellers of *arit*, *dharmao* and remuneration of the different functionaries there are in most markets certain other customary allowances in the form of sample,\* *karta* (allowance for dirt and dust)†,

\* Ludhiana, Okara, Arifwala, Phullarwan, Sargodha, Sangla, Lyallpur, Gojra.

† Ambala City, Rohtak, Jullundur, Ludhiana, Gurdaspur, Abohar, Fazilka, Multan, heikhupura, Sangla.

and extra weight\* involved as a result of the practice prevailing in some markets of giving  $40\frac{1}{2}$ ,  $40\frac{1}{2}$  or 41 seers to a maund of the produce. Businessmen say that these are merely minor local practices which make no difference either to buyers or sellers because these are taken into consideration when the buyers make their offers. But if they really make no difference, the buyers should not be so strongly opposed to their being abolished. To the sellers, however, these deductions are harmful as they introduce complications of calculations even for the educated and intelligent and to those who are uneducated and ignorant they confuse them so that they do not understand the prices actually secured by them, which should guide them in the choice of a market. The *artias* in the Ludhiana market recently raised the weight of a maund of cotton from 40 seers to  $40\frac{1}{2}$  seers, because, as it was stated, in the neighbouring Khanna market more sellers were attracted by higher prices which buyers there could afford to pay on account of the maund there being equal to  $40\frac{1}{2}$  seers. Similarly there is some ground for the belief that the complications occasioned by such allowances tend to exclude new buyers who fear loss owing to inexperience of a particular market. Where *artias* have developed the practice of charging *dami* against the extra weight allowed to buyers this seems little short of a conspiracy between the *artias* and buyers against the sellers.

The Bombay and Berar Acts have the following rules with respect to Trade Allowances.

*Bombay Act.*

Rule 77.—Trade allowances shall be recorded in by-laws of a market committee.

Rule 78.—No licensed broker, licensed weighman or trader (whether registered or not) shall be allowed to demand, take or retain any unauthorised trade allowances or any unpaid-for sample in regard to any cotton transaction entered into in the market, and any person demanding, taking or retaining such allowance or unpaid-for sample, or assisting or abetting

*Berar Act.*

Rule 76.—No licensed\* broker, licensed weighman, registered buyer, registered seller, or registered buyer and seller, and no trader in cotton, shall be allowed to demand, take, or retain a trade allowance or unpaid-for sample in regard to any cotton transaction entered into in the market, and any person demanding, taking, or retaining such allowance or unpaid-for sample, or assisting or abetting any other person in demanding, or abetting any other person in demanding,

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\* Ambala City, Rohtak, Ludhiana, Jullundur, Okara, Arifwala, Abohar, Jhang, Faisalika, Phullarwan, Multan, Hoshiarpur, Mian Chanun, Sargodha, Sangla, Lyallpur, Goojra.

any other person in demanding, taking or retaining such trade allowance or unpaid-for sample or in any way facilitating or conniving at the demanding, taking or retaining of such trade allowance or unpaid-for sample shall be liable on conviction to a fine not exceeding Rs. 50/- for each offence.

Rule 79.—A sample which it is intended to be paid for on weighment is not an unpaid-for sample. The question whether it is intended that it should be paid on weighment or not is a question of fact to be decided by the Magistrate.

Rule 77.—Same as Rule 79 of the Bombay Act.

So far suggestions have been made only for the improvement of markets, but it should not be forgotten that no matter what system is followed, an illiterate peasant cultivator is inevitably handicapped in any market. The lack of interest in this subject on the part of cultivators is manifest; they are usually ignorant of the deductions made and of the other practices in vogue in markets in which they sell their produce. Yet the cultivator of to-day is more enlightened than his brother of some ten to twenty years ago, and this awakening has already appreciably improved market practices. Nevertheless, things are still bad and comprehensive steps seem to be required to provide information in rural areas with regard to this subject.

**APPENDIX A.**  
*List of Markets Visited, with Details.*

Market.	District in which situated.	NUMBER OF ARTIAS.				Whether it has a co-operative shop.	Number of cotton factories.	Competing markets.
		Total.	Kachoha.	Kachoha-pacca.	Pacca.			
1. Lyallpur ..	Lyallpur ..	74	54	13	7	Yes.	12 working, 3 closed.	Chak Jhumra, Gojra, Sangla, Jaranwala.
2. Gojra ..	" ..	70	39	24	7	"	7 " , 1 "	Lyallpur, Toba Tek Singh, Jhang.
3. Jaranwala ..	" ..		Not available.			"	4 " , 2 "	Lyallpur, Toba Tek Singh, Nankana Sahib.
4. Arifwala ..	Montgomery ..	36	15	15	6	"	2, both working.	Montgomery, Chichawatni, Pakpattan, Burewala.
5. Okara ..	" ..	80	41	25	14	Zemindara Sale Society.	9, all working.	Pattoki, Montgomery.
6. Sheikhpura ..	Sheikhpura ..	27	7	16	4	No.	2 working, 2 closed.	Chuharkana, Nankana Sahib.
7. Sangla ..	" ..		Not available.			Yes.	7 " , 1 "	Chak Jhumra, Chuharkana.
8. Sargodha ..	Shahpur	60	35	21	4	"	8 " , 2 "	Bhallowal.
9. Phullarwan ..	" ..	38	22	14	2	No.	4 " , 1 "	Bhallowal, Malakwal, Pindi-Bahauddin.
10. Jhang ..	Jhang ..	24	12	6	6	"	3 " , 2 "	Gojra, Toba Tek Singh.
11. Multan ..	Multan ..	55	13	30	12	"	0 " , 3 "	Khanewal, Lodhran, Khangarh, Shujabad.
12. Mian Chanun ..	" ..	40	28	6	6	"	4 " , 1 "	Vehari, Toba Tek Singh, Chichawatni.
13. Hafizabad ..	Gujranwala ..		Not available.			Yes.	1 " , 1 "	Gujranwala, Sangla, Kaleke.

(Continued).

APPENDIX A.—*Concluded.*

Market.	District in which situated.	NUMBER OF ARTIAS.				Whether it has a co-operative shop.	Number of cotton factories.	Competing markets.
		Total.	Kaachha.	Kaachha-pacca.	Pacca.			
14. Amritsar ..	Amritsar ..	41	..	41	..	No.	4 working, 3 closed.	Tarn Taran, Patti, Jandiala, Narowal, Batala.
15. Jullundur City ..	Jullundur ..	73	7	66	..	"	3 " , 1 "	Jullundur Cantt., Nakodar, Hoshiarpur, Kapurthala.
16. Ludhiana ..	Ludhiana ..	96	13	77	6	"	2 " , 1 "	Khanna, Jagraon, Ahmedgarh.
17. Abohar ..	Ferozepur ..	94	61	20	13	Yes.	10 " , 1 "	Fazilka, Ramnagar, Dabwali.
18. Fazilka ..	" ..		Not available.			No.	2, both working.	Abohar, Muktsar.
19. Hoshiarpur ..	Hoshiarpur ..	12	..	12	..	"	No factory.	Jullundur City.
20. Gurdaspur ..	Gurdaspur ..	12	1	10	1	"	" "	Batala, Pathankot, Mukerian.
21. Ambala City ..	Ambala ..	51	..	50	1	"	7, all working.	Sarhind, Ambala Cantt., Karnal.
22. Ambala Cantt. ..	" ..	33	..	29	4	"	No factory.	Ambala City.
23. Gujjar Khan ..	Rawalpindi ..	18	9	4	5	"	" "	
24. Rohtak ..	Rohtak ..	57	..	57	..	"	5, all working.	Bahadurgarh, Sonapat.
25. Jakhhal ..	Hissar ..	41	12	23	6	"	1, working.	Badhlada, Tohana.

## APPENDIX B.

### BOMBAY COTTON MARKETS ACT.

BOMBAY ACT NO. XVII OF 1927.

AN ACT TO PROVIDE FOR THE ESTABLISHMENT AND THE BETTER REGULATION OF COTTON MARKETS IN THE BOMBAY PRESIDENCY.

WHEREAS it is expedient to provide for the establishment of recognized open markets for the purchase and sale of cotton in the Bombay Presidency, excluding the City of Bombay, Aden and the town of Karachi, and for the better regulation of such markets; And whereas the previous sanction of the Governor-General required by Section 80-A of the Government of India Act and the previous sanction of the Governor required by Section 80-C of the said Act have been obtained for the passing of this Act; It is hereby enacted as follows:—

- Short title. 1. This Act may be called the Bombay Cotton Markets Act, 1927.
- Extent. 2. This Act shall apply to the whole of the Presidency of Bombay except the City of Bombay, Aden and the town of Karachi comprising, as from time to time constituted, the municipal district of Karachi, the Port of Karachi and the Cantonments of Karachi and Manora.
- Definition. 3. In this Act, unless there is anything repugnant in the subject or context:—
- (i) 'Cotton.'—“Cotton” includes ginned cotton and unginned cotton.
  - (ii) 'Cotton Market.'—“Cotton market” means a market established under Section 4.
  - (iii) 'Grower of cotton.'—“A grower of cotton” shall not include a dealer or broker in cotton, although such a person may grow cotton. If a question arises whether any person is a grower of cotton or not for the purpose of this Act, the decision of the Collector of the district in which the person permanently resides shall be final.
  - (iv) 'Prescribed.'—“Prescribed” means prescribed by rules or by-laws made under this Act.
- Notification of cotton market. 4. (1) The local Government may, after consulting the District Local Board and such other local authorities as they deem necessary or upon a representation made by the District Local Board, by notification in the *Bombay Government Gazette*, declare that any place shall be a cotton market established under this Act.
- (2) Every such notification shall define the limits of the cotton market so established, and may, for the purposes of this Act, include within such limits such local area as the local Government may prescribe.

5. For every cotton market there shall be a market committee. The market committee shall be constituted as prescribed and shall consist of not less than twelve and not more than sixteen members. Of these not less than half shall be persons elected by the growers of cotton of such area as the local Government may prescribe, one shall be a member nominated by the local Government, one shall be elected by the District Local Board of the district in which the cotton market is situated, one by the municipality, if any, of the area in which the market is situated, and the remainder shall be elected by the traders in the cotton market in such manner as may be prescribed.

6. (1) The local Government may, either generally, or specially for any cotton market or group of such cotton markets, make rules consistent with this Act for the purpose of the management and regulation of such cotton markets under this Act.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for or regulate—

- (i) the election and nomination of members of the market committee, the number of members to be elected by each of the bodies or groups of individuals referred to in Section 5, and the manner of election, the preparation and revision of lists of voters from time to time, the payment of all expenditure in connection with or incidental to such election and the term of office of such members ;
- (ii) the powers to be exercised by the cotton market committee ;
- (iii) the election of the chairman of such committee and his term of office ;
- (iv) the filling of casual vacancies in the offices of members or in the office of chairman of the market committee ;
- (v) the management of the cotton market and the prescribing of fees by the market committee, and, subject to the provisions of this Act, the collection and disposal of such fees ;
- (vi) the issue by the market committee of licenses to brokers, weighmen, measurers, surveyors and warehousemen and other persons using the cotton market, the form in which, and the conditions under which, such licenses shall be issued, and the fees to be charged for such licenses ;
- (vii) the place or places at which cotton shall be weighed or measured, and the kind and description of the scales, weights, and measures to be used at such place or places ;
- (viii) the periodical inspection, verification and correction of all scales, weights and measures in use in the cotton market ;
- (ix) the trade allowances which may be made or received by any person in any transaction in a cotton market ;
- (x) the preparation of plans and estimates for works proposed to be constructed partly or wholly at the expense of the market committee and the grant of sanction to such plans and estimates ;

- (xi) the form in which the accounts of the market committee shall be kept, the manner in which they shall be audited, and the time or times at which they shall be published ;
- (xii) the preparation of an annual budget and its submission for sanction, and the reports and returns which shall be furnished by the market committee ;
- (xiii) the disposal of any surplus funds of the market committee ;
- (xiv) generally for the guidance of the market committee.

(3) Any such rules may, when necessary, provide that any contravention thereof or of any of the conditions of any license issued thereunder shall on conviction by a magistrate be punishable with fine which may extend to five hundred rupees.

(4) All rules made under this section shall be subject to previous publication and shall, when made, be laid on the table of the Bombay Legislative Council for one month previous to the next session thereof and shall be liable to be rescinded or modified by a motion of the said Council tabled at the next session.

7. Subject to any rules made by the local Government under the last preceding section and with the previous sanction of the Commissioner, the market committee may, in respect of the cotton market under its management, make bye-laws for the regulation of the business and the conditions of trading in such market and may provide that contravention thereof shall on conviction by a magistrate be punishable with fine which may extend to fifty rupees.

8. The market committee may appoint one or more of its members to be a sub-committee or to be a joint-committee for the conduct of any work or works or to report on any matter or matters, and may delegate to any one or more of its members such of its own powers as may be necessary.

9. (1) The market committee may employ such officers and servants as may be necessary for the management of the cotton market and may pay such officers and servants such salaries as the committee thinks fit. The committee may, in the case of any officer or servant of Government which it employs, pay such pension, contribution, gratuity or leave allowance as may be required by the regulations made by Government in this behalf and for the time being in force.

(2) The committee may also, in the case of any of its officers and servants, provide for the payment to them of such leave allowances, pensions or gratuities as it deems proper ; and may contribute to any provident fund which may be established for the benefit of such officers and servants.

(3) The powers conferred by this section on the market committee shall be exercised subject to any rules which may be made in this behalf by the local Government.

10. (1) Every contract entered into by the market committee shall be in writing and shall be signed on behalf of the market committee by the chairman and two other members of the market committee,

Contracts how executed.

(2) No contract other than a contract executed as provided in subsection (1) shall be binding on a market committee.

11. All monies received by a market committee shall be paid into a fund to be called the "Market Committee Fund" and all expenditure incurred by the market committee under or for the purposes of this Act shall be defrayed out of the said fund; and any surplus remaining after such expenditure has been met, shall be invested as may be prescribed in the rules made in this behalf.

The market committee fund.

12. Subject to the provisions of Section 11 the market committee fund shall be expended for the following purposes only:—

- (i) the maintenance and improvement of the cotton market;
- (ii) the construction and repair of buildings which are necessary for the purposes of such market and for the health, convenience and safety of the persons using it;
- (iii) the pay, pensions, leave allowances, gratuities and pensions or provident fund contributions of the officers and servants employed by the market committee; and
- (iv) the expenses of and incidental to elections.

13. No trade allowance, other than an allowance prescribed by rules or bye-laws made under this Act, shall be made or received by any person in any transaction in a cotton market established under this Act, and no Civil Court shall, in any suit or proceeding arising out of any transaction in any such cotton market, have regard to any trade allowance not so prescribed.

*Explanation.*—Every deduction other than deductions on account of deviation from sample, when the purchase is made by sample, or of deviation from standard, when the purchase is made by reference to a known standard or on account of difference between the actual weight of the sacking and the standard weight, or on account of the admixture of foreign matter, shall be regarded as a trade allowance for the purposes of this Act.

14. Every market committee shall be a body corporate by the name of "The Market Committee of....." and shall have perpetual succession and a common seal, and shall be competent to acquire and hold property both moveable and immoveable, to lease, sell or otherwise transfer any moveable or immoveable property which may have become vested in or been acquired by it, and to contract and to do all other things necessary for the purpose of this Act.

Market committee to be a body corporate.

15. (1) Every market committee may, with the previous sanction of the local Government, raise the money required for carrying out the purposes of this Act on the security of any property vested in and belonging to the market committee, and of any fees leviable by the market committee under this Act.

Power to borrow.

(2) The conditions under which such money shall be raised and the time within which the same shall be repayable shall be subject to the previous sanction of the local Government.

16. (1) If in the opinion of the local Government a market committee is not competent to perform, or persistently makes default in the performance of, the duties imposed on it by or under this Act, or exceeds or abuses its powers, the local Government may, by an order published in the *Bombay Government Gazette*, declare such market committee to be incompetent, or in default or to have exceeded or abused its powers, as the case may be, and may supersede it.

(2) When a market committee has been superseded, all members of the committee shall, as from the date of the order, vacate their offices as members.

(3) When a market committee has been superseded, all property and rights vested in it shall, subject to all charges and liabilities affecting the same, vest in Government.

Provided that if no new market committee is constituted for the cotton market under Section 5, all property that shall remain after the satisfaction of all the debts and liabilities of the superseded market committee shall vest in the local authority of the area in which the cotton market is situated for the purpose of any object of public utility in the said area.

17. Wherever the local Government has, by a notification under Section 4, declared any place to be a cotton market, no person shall, within the limits of such cotton market or within a distance thereof to be notified in the *Bombay Government Gazette* in this behalf in each case by the local Government, except with the sanction in writing of the local Government, expressed over the signature of a Secretary to Government and subject to such conditions as may be imposed in such sanction, set up, establish or continue or allow to be continued, any market for the purpose of the purchase and sale of cotton.

*Explanation.*—A person shall not be deemed to set up, establish or continue or allow to be continued, a place as a market for the purpose of the purchase and sale of cotton if he sells his own cotton outside the premises set apart by the market committee for the purpose of purchase and sale of cotton.

18. Whoever in contravention of this Act sets up, establishes, continues or allows to be continued, any market for the purpose of the purchase and sale of cotton, or violates the conditions under which he has been allowed to set up, establish or continue, any such market, shall on conviction by a magistrate be punished with fine which may extend to Rs. 500, and, in case of a continuing breach of the provisions of Section 17, with fine which may extend to Rs. 100 for each day after the first during which the breach continues.

19. No offence under this Act or under any rule made under Section 6 or under any bye-law made under Section 7 shall be triable by a magistrate other than a magistrate of the First Class.

All fines and damages recovered from an offender shall be paid to the market committee.

Prosecutions under this Act may be instituted by any person duly authorized in writing by the market committee in this behalf.

**APPENDIX C.**  
**BERAR COTTON AND GRAIN MARKETS LAW.**

GOVERNMENT OF INDIA.  
FOREIGN DEPARTMENT.

*Notification No. 1727-I.B., dated Simla, the 6th May 1897.*

Whereas it has been customary in the Hyderabad Assigned District for the Government to open markets and bazaars for the sale of agricultural produce, to arrange for the conservancy and management thereof, to levy fees therein and to provide for the collection and disposal of the fees levied as aforesaid ;

And whereas it is expedient to continue the custom aforesaid ;

In exercise of the powers conferred by Sections 4 and 5 of the Foreign Jurisdiction and Extradition Act (XXI of 1879) and of all other powers enabling him in this behalf, the Governor-General in Council is pleased to issue the following orders :—

1. (1). These orders may be called the Berar Cotton and Grain Markets Law, 1897, and are hereinafter referred to as "this Law."  
Title and commencement.

(2) This Law shall come into force at once.

2. The Resident may, by notification in the *Hyderabad Residency Orders*, declare that any place, the property of the Government or of the public or of a Municipal Committee or District Board, is a market or bazaar for the sale of agricultural product generally or for the sale of a particular class or classes of agricultural produce, and may from time to time amend, vary or rescind any such notification.  
Notification of markets and bazaars.

\*3. (1) Such committee or person as may from time to time be appointed for the purpose of carrying out this Law may, in the case of any officer or servant of the Government employed in connection with a market or bazaar,

(a) where his services are wholly lent to such committee or person subscribe for his pension or gratuity and leave allowances in accordance with any regulations of the Government for the time being in force relating to such pension or gratuity and leave allowances ; and,

(b) where he devotes only a part of his time to the performance of duties in behalf of such committee or person, contribute to his pension or gratuity and leave allowances in such proportion as the Resident may determine.

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\* This section was added by Foreign Department Notification No. 3101-I. B., dated 26th July 1902.

(2) Any such committee or person may, in the case of any officer or servant not being an officer or servant of the Government—

- (a) grant him leave allowances and, where his monthly pay does not exceed ten rupees, a gratuity; and,
- (b) where such committee or person is empowered in this behalf by the Resident;
  - (i) subscribe in his behalf for his pension or gratuity and leave allowances in accordance with any regulations of the Government for the time being in force relating to such pension or gratuity and leave allowances; or
  - (ii) purchase for him from the Government or otherwise an annuity on his retirement:

Provided that no pension, gratuity, leave allowances or annuity shall exceed the sum to which, in accordance with the regulations of the Government for the time being in force relating to pensions, gratuities, leave allowances or annuities, the officer or servant would be entitled if the service had been under the Government:

Provided also that, with the sanction of the Resident, a gratuity not exceeding one half of the cost of the annuity admissible under this section may be granted in lieu of such annuity.

Power to make rules for markets and bazaars.

4. (1) The Resident may, in respect of any market or bazaar notified under Section 2, make rules for—

- (a) the management of the market or bazaar, the levy of fees therein and, subject to the provisions of Section 4, the collection and disposal of such fees;
- (b) the conditions under which licenses shall be issued to brokers, weighmen, and measurers using the market or bazaar, and the fees to be charged for such licenses;
- (c) the place or places for weighing and measuring, the description of scales, weights, and measures to be used, the periodical inspection, verification and correction of such scales, weights, and measures, and the seizure and confiscation of such scales, weights and measures if used in violation of such rules; and,
- (d) generally, the guidance of such committees or persons as may from time to time be appointed for the purpose of carrying out of this Law.

(2) All rules under this Section shall be published in the *Hyderabad Residency Orders*, and shall thereupon have the force of Law.

(3) In making any rule under this section, the Resident may direct that a breach of it shall be punishable with fine which may extend to fifty rupees, and, when the breach is a continuing breach, with fine which, in addition to such fine as aforesaid, may extend to five rupees for every day after the first, during which the breach continues.

5. (1) All fees under the last foregoing section shall be levied at rates calculated so as to meet, as nearly as may be, the expenditure deemed necessary for the purposes hereinafter mentioned, and the collections therefrom shall be applied in the first instance to those purposes under the direction of the Resident, and through such agency as the Resident may appoint in that behalf; that is to say—

- (1) the maintenance and improvement of the market or bazaar in which the fees are levied, its surroundings and approaches;
- (2) the construction and repair of buildings, *chabutras*, and other erections necessary for the purposes of such market or bazaar;
- (3) the health, convenience, and safety of the persons using such market or bazaar; and
- \* (4) the provision of pensions, gratuities, leave allowances and annuities for any officers or servants employed in connection with a market or bazaar.

(2) The surplus (if any) shall, in the case of a market or bazaar within municipal limits, be paid over to the Municipal Committee concerned for expenditure on the purposes specified in the Berar Municipal Law, 1886, and, in the case of any other market or bazaar, to the District Board concerned for expenditure on the purposes specified in the Berar Rural Boards Law, 1885.

6. (1) No trade allowances shall be recognized in any market or bazaar notified under Section 2, and no civil court shall, in any suit arising out of a transaction entered into in any such market or bazaar have regard to any usage or trade custom or alleged usage or trade custom to the contrary.

(2) In every cotton market or bazaar notified under Section 2, all samples shall be paid for, and no civil court shall, in any suit arising out of a transaction entered into in such market or bazaar, have regard to any usage or trade custom or alleged usage or trade custom to the contrary.

(3) In every transaction entered into in any cotton market or bazaar notified under Section 2, it shall be presumed that the parties intend that cotton shall be weighed in the sacking, and that the seller guarantees that the sacking of each package shall not weigh more than ten pounds.

*Explanation.*—Every deduction other than deductions on account of deviation from sample when the purchase is made by sample, or of deviation from standard when the purchase is made by reference to a known standard, or on account of a difference between the actual weight of the sacking and the standard weight, or on account of the admixture of foreign matter, shall be regarded as a trade allowance for the purposes of this Law.

7. (1) When the Resident has, by notification under Section 2, declared any place to be a market or bazaar for the sale of agricultural produce generally, or for the sale of any particular class or classes of agricultural produce, no new market or bazaar shall, except with the sanction in writing of the Resident and subject to such conditions as the Resident may

\* This was added by Foreign Department Notification No. 3101-I. B., dated 25th July 1903.

think fit to impose, be established for the like purpose within five miles of the market or bazaar notified as aforesaid.

(2) Whoever establishes a market or bazaar in contravention of this section, or violates the conditions under which he is authorised to establish a market or bazaar under this section, shall be punishable with fine which may extend to fifty rupees, and, in the case of a continuing breach, with fine which, in addition to such fine as aforesaid, may extend to five rupees for each day after the first, during which the breach continues.

8. Fees leviable in pursuance of any rules under this Law may be real-  
Recovery of fees.      ized as fines under the orders of any Magistrate.

9. The bazaar cess, the levy of which was authorised by the Notifi-  
Abolition of existing      cation of the Government of India in the Department  
bazaar cess in      of Revenue, Agriculture, and Commerce, No. 11, dated  
markets or bazaars      the 27th January 1875, shall cease to be levied in any  
notified      under  
Section 2.      market or bazaar notified under Section 2.

W. J. CUNINGHAM,

*Secretary to the Government of India.*

## APPENDIX D.

### CONSTITUTIONS OF EXISTING MARKET COMMITTEES IN THE PUNJAB.

#### BYE-LAWS OF THE LYALLPUR MERCHANTS ASSOCIATION.

(Translated).

The association shall be called The Lyallpur Merchants Association, and its objects shall be as follows :—

#### OBJECTS.

- (i) To consider and devise means for the improvement of trade.
- (ii) To settle disputes arising amongst the members of the association, to keep their record, and to consider ways and means which would conduce to better relations among the members in matters of business.
- (iii) To strive by constitutional means for the betterment of trade whenever there is any apprehension of a setback to it.
- (iv) To keep a regular record of the customs and practices of trade and to see that they are acted upon.

#### BYE-LAWS.

1. Any merchant who is a well-wisher of this Association and pays a sum of Rs. 18/- as admission fee, as well as pays annually in advance a monthly subscription of Rs. 2/- per mensem, shall become a member.
2. Only one representative from each shop, be he proprietor, partner or *munim*, shall be entitled to become a member.
3. (a) The business of the Association shall be conducted through a managing body, elected from amongst the members annually.  
(b) The President of the Association shall also be the President of the Managing Committee.  
(c) All matters shall be decided by majority of votes.  
(d) Members of the Managing Committee shall be eligible for re-election.  
(e) If any member of the Managing Committee severs his connection from his shop, another person of the same shop shall be appointed in his place.
4. The meetings of the Managing Committee shall be held every fortnight on Sunday, or such other day as may be fixed by the Managing Committee. Emergency meetings may be called with one day's previous notice.
5. The Managing Committee shall call a general meeting of the Association with three days' previous notice.
6. The Secretary shall regularly record the proceedings of the meetings of the Managing Committee and General Meeting in separate minute books.

7. All expenditure shall be incurred with the sanction of the Managing Committee, and the Managing Committee may start any work in conformity with the objects of the Association.

8. The funds of the Association shall be deposited in the Punjab National Bank, Ltd., Lyallpur, in the joint name of the President and the Secretary.

9. The Secretary shall prepare and lay before a general meeting annually the accounts of all monies received and spent during the year and shall read the proceedings of the Managing Committee meetings and general meetings held during the year for confirmation, and a printed report of each year's working shall be supplied to each member.

10. The quorum for the General Committee shall consist of thirteen members and of the Managing Committee of five members.

11. Each member shall have only one vote for the election of a member or for a decision on any matter.

12. All matters shall be decided by a majority of votes. In case of equal votes the President shall have a casting vote.

13. The cost involved in the decision of any dispute referred to the Association by any member shall either be levied on one party or on both and such costs when collected shall be deposited in the general funds of the Association.

14. All the present members and members admitted hereafter shall have to refer all disputes concerning business matters to the Managing Committee.

15. If a dispute arises between a buyer and a seller, both shall select two arbitrators. If any party fails to appoint its arbitrator, the Managing Committee shall appoint an arbitrator on behalf of that party. In case the arbitrators fail to agree, the Managing Committee shall appoint a third arbitrator, whose decision shall be binding on both the parties.

16. The bye-laws of the Association may be amended in a general meeting in which not less than half the existing members are present. The Secretary shall send a list of intended amendments to all members at least seven days before the general meeting.

17. The Managing Committee shall have one President, two Vice-Presidents, one Secretary and one Joint-Secretary.

18. Any member violating these bye-laws shall be expelled from the Association, and the other members shall not transact any business with him, until he fulfils the conditions of the Committee.

19. Any member who refers a dispute to the Association for decision shall have to pay to the Association Re. 1/- along with his petition. In addition to this, the party against whom the award is given shall have to pay to the Association Re. 1/- per Rs. 100/- of the amount involved in the dispute, half of which will go to the members deciding the dispute and the other half to the funds of the Association, but the amount of such fee shall in no case be less than half a rupee.

**RULES OF THE AMRITSAR MARKET PANCHAYAT.**

*(Translated).*

1. All merchants in Amritsar who deal in sugar and grain and own property worth not less than Rs. 20,000/- shall be eligible for acceptance as members.

2. The application for enrolment as a member shall be made on the prescribed form, which may be had free of cost from the Panchayat Office.

3. The Panchayat may reject any application without recording any reason for it.

4. After an application has been accepted, the applicant shall be required to pay Rs. 5/- as admission fee, and Re. 1/- per month as subscription. He would be required to present himself in person before the Executive Committee, and attest his signature on the application. He shall also have to state the names of his partners and their shares in the business.

5. The monthly subscription shall have to be paid by the 5th of each Indian calendar month. In case of non-payment by a member his name shall be removed from the list of members.

6. The following are the office-bearers of the Panchayat :—

President.

Vice-Presidents (2).

Secretaries (2).

In addition to the above there shall be 17 more members of the Executive Committee.

The funds of the Panchayat shall be lodged with the Central Bank of India, Ltd., Amritsar.

7. Only the Secretary shall deposit and withdraw money from the bank.

8. If a member of the Executive Committee absents himself from three successive meetings of the Committee, his name shall be removed from the list of members.

9. The quorum for the General Committee meeting shall be 22 and that of the Executive Committee 9.

10. If any member contravenes any of the rules, the Panchayat shall have full powers to remove his name from the list of members.

11. No firm shall, however, be removed from the Panchayat roll until the General Committee agrees to it on the recommendation of the Executive Committee.

12. The ordinary meetings of the Executive Committee shall take place twice a month. An ordinary meeting of the General Committee may be called by the Secretary when required on giving at least 12 hours' notice. If an emergent meeting of the General Committee is felt necessary it shall be called by the Secretary on the request of 12 members. The General Committee shall ordinarily meet on the 2nd of every calendar month.

13. The members shall be required to do business only with the firms who are members of the Panchayat. The Panchayat shall not interfere in cases of dispute with non-member firms.

14. All bargains shall be made through *dalals* appointed by the Panchayat. No dispute shall be heard by the Panchayat regarding a transaction made through a *dalal* not approved by it.

15. Immediately after a transaction has been settled the *artia* shall get the *dalal's* signature in his *bahi* and shall give his own in the pocket book of the *dalal* in attestation of the bargain, and shall demand the fulfilment of the contract by the *dalal* within three days. In case the *dalal* does not fulfil the contract within three days, he shall be liable to have his *dalahi* forfeited by the *artia*.

16. If there be a dispute over a bargain among the members they shall refer the matter for settlement to the Panchayat by means of an application accompanied by a true duplicate copy of it. The application shall be on a one-pice Government paper while the copy may be on an ordinary paper. The duplicate copy will be forwarded as a notice to the other party.

17. Disputes shall be decided by three members of the Executive Committee, nominated by the President, on Sundays or such other day as may be fixed by the Committee. [The Executive Committee was divided into seven groups of three each.—Ed.]

18. The arbitrators in disputes shall be members of the Executive Committee.

If the award of the three arbitrators be not approved by any party the matter may be referred on appeal to the President, who shall put it up before the Executive Committee.

If the award of the Executive Committee be also not approved, the matter shall be referred to the General Committee whose decision will be final.

19. If any one in the parties having a dispute has reasonable objection to any member in the group of arbitrators, he may put forward his objection to the President who shall have full powers to change the entire group or the member objected to, or refuse to interfere. The President shall have full authority to effect changes in the groups of arbitrators.

20. Disputes regarding transactions for which no contract has been made in writing shall not be heard by the Panchayat.

21. If a *dalal* effects a *pacca* bargain with an *artia* and afterwards retracts it on the plea that the other party does not accept it, the bargain shall be considered cancelled on market rates. The claim regarding any loss ensuing shall be heard against the *dalal* or the buyer concerned, by the Panchayat on application.

22. Every member (not having excused himself previously) must attend the meetings of the Panchayat and at the appointed time. Any one coming late by 15 minutes shall pay a penalty of five pies. Any one absenting himself after signifying his intention to attend shall have to pay a penalty of 2½ annas. These fines shall be contributed to the *gaushala* fund.

RULES IN FORCE AT HODAL MARKET, DISTRICT GURGAON.

(Translated).

To-day, the twelfth day of the month of *Pok* 1980, (*Vikrami* era) the members of the *mandi* met together and framed the following rules for the purchase and sale of goods. He who does not act in accordance with these rules will not be allowed to do business in the market.

1. There shall be no weighing charges on cotton. On cotton-seeds they shall be half pice a rupee, and on the rest of articles, namely, gram, rice, *gur*, *shakkar*, sugar, oil, *ghi*, and oilseeds they shall be one pice per rupee.

2. The weight of a maund of ginned cotton shall be taken equal to 40 seers, of raw cotton equal to 40½ seers, of *gur* equal to 40¼ seers and of all grains equal to 40¼ seers.

3. On all goods on which weighing charges are one pice a rupee the buyer shall get a *kat* from the seller of 5 annas per Rs. 100/-.

4. A deduction of 5 pice per Rs. 100/- shall be made from the seller as *dalali* and shall be passed on to the seller whether he does or does not employ a *dalal*.

5. The weight of a maund shall be equal to 3,232 *tolas*. A seal of the Panchayat shall be affixed on every weight to be used in the *mandi*. Weights that do not bear this seal shall not be considered correct.

6. If any one be found using an incorrect weight he shall be fined Rs. 11/- by the Panchayat.

7. All accounts shall be cleared daily. But, if for any reason the buyer is unable to do so, he may make payment within five days. If, however, payment is made on the 6th day he shall not get the *kat* discount of 5 annas per Rs. 100/- mentioned in para. 3 above. The *artia* must, however, approach the buyer and ask for his payment; in case he does not do so the buyer shall be entitled to *kat* even if he makes payment on the sixth day.

8. Except in case of cotton, payments must be made by buyers in silver coin.

9. A client of one *artia* may only go to a second *artia* for the sale or purchase of goods, when he has cleared his accounts with the first *artia*. The second *artia* shall not otherwise do business for him. If he does he shall first pay the dues of the first *artia*. If any *artia* does any thing contrary to this rule he shall have to bear whatever punishment the Panchayat may inflict on him.

10. The market Panchayat shall consist of a President and five members.

FENTONGANJ MARKET COMMITTEE, JULLUNDUR CITY.

RULES FOR ELECTION OF MEMBERS.

(Translated).

1. Every shopkeeper doing business within the limits of the market shall be entitled to vote, provided he abides by the rules of the Committee.

2. Twelve members shall be elected; only proprietors or the managers of the firms being eligible. A *dalal* shall not be elected in this manner.

3. The licensed *dalals* shall, however, be entitled to elect one representative of their own, whether from among the *dalals* or other businessmen.

4. In all there shall be 15 members of the Committee, 13 elected and 2 nominated by the Committee.

5. A person under 21 years of age shall not be eligible for election, nor shall he be entitled to vote.

6. Only proprietors or managers of firms shall be entitled to vote. *Munims* or other persons shall not be entitled to do so.

7. One firm shall have one vote.

8. Two members shall not be elected from the same firm.

#### SELECTED RESOLUTIONS.

(Translated).

4th December, 1926. We the following merchants of the Fentonganj market elect the above mentioned ten persons for the management and control of our market and to decide disputes among us, merchants.

5th December, 1926. Every *dalal* shall in future obtain from the Committee a license which will be granted on payment of a fee of Re. 1/- per head. No one who does not possess a license will be allowed to work as a *dalal* in the market.

All *artias* in the market should be given notice that they shall within a week dispose of all goods which have been placed in their custody by *dalals* or in which *dalals* have a share with them. Should any *artia* fail to do this the Committee will deal with him as it considers proper.

No *artia* shall in future enter into any transaction to which any *dalal* or any one of a *dalal's* relatives is a party.

If a *dalal* ever makes a ready purchase on his own account none of the customary allowances of the market allowed to regular buyers shall be given to him.

15th December, 1926. Of the applications received from *dalals* for the grant of licenses, those of \_\_\_\_\_ are not accepted. A list of *dalals* that have been given licenses will be printed and circulated before the 26th of January. After this no *artia* shall buy or sell goods through a *dalal* who has not been duly licensed.

An *artia* who buys goods direct shall not be entitled to any *dalal's* from the selling party. It shall only be charged when a *dalal* has been employed.

21st December, 1926. *Dalals* \_\_\_\_\_ may be allowed to resume their work as they have given an assurance that they will not in future enter into any partnership with the *artias* in the sale or purchase of goods. They have apologised for their previous misconduct.

26th December, 1926. In future no business shall be transacted on the 1st of the Indian calendar month, which shall be considered a holiday.

6th January, 1927. Members of the Committee should not recommend applications in future. No recommended applications will be entertained.

19th February, 1927. The next election of the Committee will be held on 21st February, 1927. The necessary forms will be distributed among the shopkeepers of the market so that they might fill in the names of persons whom they wish to elect, and send the forms to the Secretary. Ten members of the Committee will be elected in this manner while another three members may be added by the Committee itself.

24th February, 1927. The following office-bearers have been duly elected by a majority of votes :—

1. Chairman.
2. Vice-Chairman.
3. Junior Vice-Chairman.
4. Secretary.
5. Joint Secretary.
6. Treasurer.

23rd March, 1927. From 1st of April, 1927 a maund of oilseeds shall be considered equal to 40 seers and not  $41\frac{1}{2}$  seers, as has been the case hitherto. The grain shall, however, be sifted during weighing to take out the dirt and dust.

30th April, 1927. The resolution passed by the Committee on 23rd March, 1927, is hereby rescinded. A maund of oilseeds, *toria*, etc., shall again be equal to  $41\frac{1}{2}$  seers as in the past.

20th May, 1927. It having been realised that the arrivals have been low during the year, it is hereby resolved that the contractor of carts be charged only Rs. 1,400/- instead of Rs. 1,525/-, i.e., Rs. 125/-, the value of one instalment, be excused him.

14th August, 1927. An application from Messrs. A. against B. was received in the office of the Committee for arbitration and X. and Y., members of the Committee, were appointed arbitrators, who after thorough inquiry gave an award that B., defendant, should pay to the plaintiff A., two annas per maund on fifteen bags. As B. did not comply with that decision for some time, he was sent for by the Committee and asked to accept the decision. He, however, refused to do so. It is consequently resolved that no *artias* shall transact any business with B. so long as he does not pay Rs. 4/11/0 to A. All *artias* and *dalals* to be informed accordingly.

15th August, 1927. As B. has filed an appeal with the Committee, their orders of boycott against him are hereby withdrawn. Similar orders against D. are also withdrawn.

24th March, 1928. M. of the firm of Messrs. \_\_\_\_\_ should have a beam scale set up in the market to serve as ' *Dharam Kanda*.' The certificate of weight given by M. shall be deemed as final. [This decision could not be given effect to as M. left the market shortly afterwards.—Ed.]

9th April, 1928. K. should arrange to get from the treasury 3,200 new rupees, which are required to test the weights in the market.

11th June, 1928. A Sub-committee consisting of the following members should on the 1st of *Amavas* check the weights in the Market and get them corrected. Also, a reasonable subscription may be realised from the *artias* in order to purchase and install a ' *Dharam Kanda* ' in the market.

2nd August, 1928. A *mashki* should be engaged on a salary of Rs. 10/- to Rs. 12/- per mensem, for sprinkling water in the market.

As it is considered desirable that the Committee should be got registered, L. is deputed to get this done.

FORM OF LICENSE FOR DALAIS.

No. \_\_\_\_\_ Date \_\_\_\_\_  
 Dalal's name \_\_\_\_\_ Father's name \_\_\_\_\_  
 Caste \_\_\_\_\_ Residence \_\_\_\_\_ Year \_\_\_\_\_  
 (Signature) \_\_\_\_\_ (Signature) \_\_\_\_\_  
 President. Secretary.

(On the reverse).

I agree to abide by the following terms :—

1. That I will not transact any business in my own name, or in the name of any of my relatives or in partnership with anyone.
2. That I will implicitly follow the dictates of the Committee in all my dealings in the market.
3. That if I ever infringe any of the rules, the Committee has full power to cancel my license.

(Signature) \_\_\_\_\_

FORM OF APPLICATION TO BE MADE BY A DALAL WHEN APPLYING FOR A LICENSE.

To

THE SECRETARY,  
 FENTONGANJ MARKET COMMITTEE,  
 JULLUNDUR CITY.

SIR,

I beg to request the favour of your kindly granting me a license for *dalais* for the coming year. I promise to abide by the rules and regulations of the Committee. I shall pay the license fee which may be fixed by the Committee.

Faithfully yours,  
 (Applicant's signature).

## APPENDIX E.

### MODEL BYE-LAWS ON WEIGHTS AND MEASURES FOR MUNICIPALITIES IN THE PUNJAB.

*Gazette Notification, dated the 8th October, 1923.*

No. 23537. The following model bye-laws, defining the standard weights and standard measures of volume and length to be used within municipalities and regulating the inspection of such weights and measures of volume and length have been drawn up in consultation with the Master of His Majesty's Mint and the Officer-in-charge of the Mathematical Instrument Office, Calcutta, and are hereby published for the guidance of all municipal committees in the Punjab :—

#### MODEL BYE-LAWS.

*(Under Section 188 (e) (iii) and 199 (1) of the Punjab Municipal Act, 1911.)*

1. Within the limits of the \_\_\_\_\_ Municipality—

(a). The primary standard of weight shall be the standard *tola* which shall be equal to the weight of the Government rupee as prescribed by section 5 (1) of the Indian Coinage Act, 1906.

(b). The primary standard of volume shall be the standard quart as prescribed by section 15 of the Weights and Measures Act, 1878.

(c). The primary standard of length shall be the standard yard as prescribed by section 2 of the Measures of Length Act, 1889.

2. (a). A weight of five standard *tolas* shall be called a standard *chhatak*, a weight of 16 standard *chhataks* shall be called a standard *seer*, and a weight of 40 standard *seers* shall be called a standard *maund*.

(b). A volume of one half part of a standard quart shall be called a standard pint, and a volume of four standard quarts shall be called a standard gallon.

(c). One-third part of the standard yard shall be called a standard foot, and one thirty-sixth part of such a yard shall be called a standard inch.

3. No person shall use within the limits of the \_\_\_\_\_ Municipality for the purpose of barter, sale or exchange any weight or measure of volume or length purporting to be—

(a). A *tola*, *chhatak*, *seer* or *maund*, or

(b). pint, quart or gallon, or

(c). inch, foot or yard,

or any multiples or sub-divisions thereof unless it conforms with its respective standard as prescribed in bye-laws 1 and 2.

4. Two sets of each of the following standard weights and measures of volume and length shall be kept at the office of the———Municipal Committee, and of these the sets of the standard of weight and volume shall bear the mark and date of His Majesty's Mint at Calcutta and the standard of length shall bear the certificate of the Officer-in-charge, Mathematical Instrument Office, Calcutta :—

Weight, 20 (two specimens), 10, 4, 4, 3, 2, 1 seers and 8, 4, 2, 1 *chhataks* and 3, 2, 1,  $\frac{1}{2}$  and  $\frac{1}{4}$  *tolas*.

Volume, 1 gallon, 1 quart, 1 pint.

Length, 1 yard, 1 foot, 1 inch.

5. The Secretary of the———Municipal Committee shall allow any person to inspect the standard weights and measures of volume and length mentioned in bye-law No. 4 free of charge at all reasonable times and to compare therewith any weight or measure which such person may have in his possession.

6. The standards of weight and volume, and the standards of length mentioned in bye-law 4 shall in the month of January every year be sent to be tested, one set at a time, by the Master of His Majesty's Mint, Calcutta, and the Officer-in-charge, Mathematical Instrument Office, Calcutta, respectively.

7. Any person committing a breach of bye-law 3 shall be liable on conviction by a magistrate to a fine which may amount to Rs. 50.

## APPENDIX F.

### EXAMPLE OF AN AUCTION SALE.

[ The instance given below is a verbatim reproduction of the words spoken by an *artia*, (together with an English translation), when conducting an auction of a heap of wheat in the Moga market. Offers ~~which~~ were made by the different buyers in annas and pices (rupees being understood). The *artia* repeated each offer over and over again till a higher offer was made. ]

<i>Vernacular.</i>	<i>English.</i>
" Das anna—bolo bhai bolo	.. Ten annas—speak, brothers, speak.
Sawa das anna ..	.. Ten annas and a quarter.
Dhai paise das anna ..	.. Two and a half pice ten annas.
Paune gyara anna ..	.. Ten and three-quarters annas.
Gyara anna ..	.. Eleven annas.
Kyun, Lalaji, kyun Shahji	.. Well, Lalaji, well Shahji.
Sawa gyara anna ..	.. Eleven annas and a quarter.
Sarhe gyara anna ..	.. Eleven and a half annas.
Paune bara anna ..	.. Eleven and three-quarters annas.
Dhela kam bara anna ..	.. Half pice less twelve annas.
Bara anna ..	.. Twelve annas.
Kyun, Lalaji ..	.. Well Lalaji.
Sawa bara anna ..	.. Twelve annas and a quarter.
Sarhe bara anna ..	.. Twelve and a half annas.
Ih kis di kanak hai—chhad dayan ?	.. Whose wheat heap is this—may I let it go ?
Dhai paise bara anna ..	.. Two and a half pice twelve annas.
Ek—do— ..	.. One—two—
Ek—do—tin—ho gya ..	.. One—two—three—finished.

## GLOSSARY OF TERMS.

ADAT	.. See Arit.
ADATYA	.. See Artia.
AMAVAS	.. The last day of the dark fortnight; the night of the new moon.
ANNA	.. One-sixteenth of a rupee.
ARIT	.. Artia's commission.
ARTIA	.. Commission agent.
—, KACHCHA	.. Commission agent who acts for sellers.
—, KACHCHA-PACCA.	.. Commission agent who acts either for buyers or sellers.
—, PACCA	.. Commission agent who acts for buyers.
BAHI	.. Account book.
BHOJA	.. A bag of unpressed cotton, weighing 392 lbs.
CHABUTRA	.. Raised platform.
CHHATAK	.. Indian weight equal to 2·057 ozs., or one-sixteenth of a seer.
CHAUKIDAR	.. Watchman.
CHUNGI	.. A cess levied from grain-sellers.
CHUHRA	.. Sweeper.
COMMISSIONER	.. Administrative head of a Division; in the Punjab there are five Divisions.
COLLECTOR	.. Same as Deputy Commissioner in the Punjab.
DALAL	.. Broker.
DALALI	.. Brokerage.
DAMI	.. Market deduction made from the buyer.
DARA SALES	.. The sale of several heaps of different qualities of produce belonging to more than one seller lumped under one transaction.
DEPUTY COMMISSIONER	Administrative head of a district.
DESI	.. Indigenous; native to the country.
DHARAM KANDA	.. <i>Lit.</i> Scale of justice; standard scale.
DHARMAO	.. Contribution levied in markets for charitable purposes.
DHELA	.. Half pice; one-eighth of an anna.
DISTRICT	.. The most important administrative unit of area; there are 29 districts in the Punjab.

<b>DISTRICT BOARD</b>	.. A council, chiefly of persons elected on a land-revenue paying franchise, which discharges the functions of rural administration in a district; roughly equivalent to a rural district council in England.
<b>DOCRA</b>	.. A bundle of cotton.
<b>GUR</b>	.. Raw-sugar in lumps; unrefined sugar.
<b>GAUSHALA</b>	.. Sanctuary for cows; charitable contribution for maintenance of old and decrepit cattle.
<b>GHI</b>	.. Clarified butter, generally used in India instead of lard or other cooking fats.
<b>INAM</b>	.. Gift; present; gratuity.
<b>KACHCHA</b>	.. Not perfect, complete, finished or fixed; in case of weights and measures it distinguishes the local (village) from standard weights.
<b>KAPAS</b>	.. Unginned cotton.
<b>KABTA</b>	.. Allowance for impurities (dirt and dust) in grain and cotton.
<b>KAT</b>	.. Discount.
<b>KHANDI</b>	.. A measure of weight and capacity; for cotton 784 lbs.
<b>KOTHA</b>	.. Room; granary; godown.
<b>MANDI</b>	.. Market place; a set of shops built round three or four sides of a rectangle, a wide brick pavement being provided for unloading, examining, cleaning and bagging grain.
<b>MAP</b>	.. Any earthen pitcher used as a measure of grain.
<b>MASHKI</b>	.. Muslim water-carrier.
<b>MAUND</b>	.. Indian standard weight of forty seers; equal to 82 $\frac{2}{7}$ lbs.
<b>MEHRA</b>	.. Hindu water-carrier.
<b>MUNIM</b>	.. Clerk or accountant.
<b>NOTIFIED AREA</b>	.. Places—too large to be considered villages and yet hardly large enough to be called towns—provided with an elective constitution under the Punjab Small Towns Act.
<b>PACCA</b>	.. Sound, perfect, complete, fixed; applied to weights and measures it denotes those recognised by the Government as distinguished from those having a local sanction.
<b>PAO</b>	.. Quarter; one-fourth of a seer; four annas.
<b>PANCHAYAT</b>	.. <i>Lit.</i> , Committee of five. An association of any number of persons instituted for objects of an administrative or judicial nature.
<b>PALLU</b>	.. Four annas.

<b>PICH</b>	.. One-fourth of an anna.
<b>POH</b>	.. Indian calendar month—middle of December to middle of January.
<b>RUPEE</b>	.. Indian standard coin, fixed at 1s. 6d. sterling since 1927.
<b>SAI</b>	.. Earnest-money ; pledge.
<b>SHAKKAR</b>	.. Roughly ground raw cane-sugar ; jaggery.
<b>TAHSILDAR</b>	.. Official in executive charge of a tahsil (sub-division of a district).
<b>TALUKA</b>	.. A local revenue division of a district.
<b>TALUQDAR</b>	.. A big landowner.
<b>TOLA</b>	.. Weighman.
<b>TOLAI</b>	.. Weighing charge.
<b>VIKRAMI ERA</b>	.. Hindu era commencing with 57 B.C., in commemoration of Vikramaditya.
<b>WATTA</b>	.. Discount ; rebate claimed against mixed quality in a heap of cotton or grain.
<b>ZEMINDARA</b>	.. Pertaining to the cultivator ( <i>zemindar</i> ).

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*revised*  
1.10.1935

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## FAMILY BUDGETS, 1932-33<sup>9</sup> OF FOUR TENANT-CULTIVATORS IN THE LYALLPUR DISTRICT

BY

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1934.

Food Reports of the  
Board of Economic Inquiry, Punjab.

1. Sixty Years of Punjab Food Prices, 1861-1920.  
(Publication No. 7.)
2. Eighty Years of Punjab Food Prices, 1841-1920.  
(Publication No. 13.)
3. Rates of Food Consumption of Zemindars in the  
Talagang Tahsil of the Attock District.  
(Publication No. 6.)
4. Food Consumption by Zamindars in Khanewal  
Tahsil of the Multan District.  
(In Press).

A complete list of the Board's publications is given  
on the back cover.

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## FOREWORD.

Lyallpur (population in 1931 was 42,922), the principal town of the Punjab Canal Colonies, the headquarters of Lyallpur District, lies about 90 miles due west of Lahore and is readily accessible by both rail and road. In it are found the Provincial Agricultural College, a Government Degree College, a Khalsa Intermediate College, (a women's Government Intermediate College is to be opened in October 1934), a Veterinary Hospital, several mills for flour, sugar, vegetable *ghi* and cotton goods. There is now nearly built one of the best-equipped cotton mills in India which will have all departments, ginning, carding, spinning, weaving, bleaching and printing. It is expected to compete successfully with any of the Bombay, Ahmedabad or Cawnpore mills. Three miles outside Lyallpur, to the west, there is a large Government farm of 802 acres on which a number of crop experiments, particularly in cotton and sugarcane, are being carried out. There are, two or three miles beyond this farm, two large estates, one of more than 3,000 acres and the other of 2,360 acres, taken on long lease by Europeans whose contracts compel them to keep stud farms on part of the estates to supply Government with army mules.

The four family budgets analysed in this brochure deal with three *Arain* and one *Jat* Muslim tenants on this Government farm holding respectively under the prevailing metayer system—

<i>Tenants.</i>	<i>Acres.</i>	<i>Kanals.</i>	<i>Marlas.*</i>
A. ( <i>Arain</i> ) .. .. .	27	6	10
B. ( <i>Jat</i> ) .. .. .	27	4	14
C. ( <i>Arain</i> ) .. .. .	27	4	16
D. ( " ) .. .. .	25	0	0

and who cropped in 1932-33—

A. .. .. .	28	0	10
B. .. .. .	28	4	10
C. .. .. .	27	7	1
D. .. .. .	28	0	10

The gross income, total expenses and net income with regard to cultivation alone for the four families† was as follows :—

---

\*20 *marlas* = 1 *kanal* ; 8 *kanals* = 1 acre.

† Cf. Pages 200-201, " Farm Accounts in the Punjab, 1932-33 ", Tenant Members 3, 0, 7 and 16.

		FARM ACCOUNTS.					
		Gross income.		Expenses of cultivation.		Net income.	
		Rs.	a. p.	Rs.	a. p.	Rs.	a. p.
A.	..	908	4 7	494	6 1	413	14 6
B.	..	831	12 1	588	4 10	243	7 3
C.	..	999	14 10	469	9 2	530	5 8
D.	..	937	12 0	579	3 5	358	8 7

Besides cultivation, each family added to its income, mainly by keeping milch cattle, which not only supplied them with the second most important article of diet, but also provided a fair return through the sale of milk. Income from various agricultural services, such as cotton picking, carting farm produce to market and casual labour raised their total income against total expenditure as follows :—

*Total Family Income.*

	A.	B.	C.	D.	Total.
	Rs. a. p.				
Cultivation ..	413 14 6	243 7 3	530 5 8	358 8 7	1,546 4 0
Sale of milk ..	21 7 2	7 0 0	18 11 6	6 2 5	53 5 1
Picking cotton ..	12 0 0	4 11 0	4 7 3	7 3 0	28 5 3
Carting ..	..	..	3 2 0	5 6 3	8 8 3
Casual labour ..	2 13 6	2 3 0	13 8 0	3 15 0	22 7 6
<i>Grand Total</i> ..	<i>450 3 2</i>	<i>257 5 3</i>	<i>570 2 5</i>	<i>281 3 3</i>	<i>1,658 14 1</i>

*Total Family Expenditure.*

	A.	B.	C.	D.	Total.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Food ..	267 7 10	266 4 7	298 5 4	376 5 11	1,208 7 8
Clothing ..	117 6 3	87 14 5	92 9 9	90 10 8	386 9 1
Travel ..	30 0 0	10 8 0	35 12 0	35 12 0	112 0 0
Other ..	54 10 3	42 3 6	30 9 0	42 2 0	169 9 3
<i>Grand Total</i> ..	<i>469 8 4</i>	<i>406 11 6</i>	<i>457 4 7</i>	<i>543 14 7</i>	<i>1,578 19 0</i>

Thus we see that only Tenant C. was able to balance his budget by income earned by the work of cultivation alone. The size of the family, and health, are important factors in a favourable or deficit budget—thus Tenant A. just scraped through with 9 members, but D., with a family of 12, finds himself in an almost hopeless position. B., while having only six members, is composed of an old couple, two sons, one recently married, and one small child. Tenant D. had a sick member for more than two months (page 19) and Tenant B. had sore eyes for a long time (page 19).

The mud huts of these tenants are low-roofed, windowless, airless and miserable abodes. Of course, for nine months of the year, the entire family practically live out-of-doors and the houses are used only as store-rooms and shelters in case of storm. In the winter nights of December to February, they are so ill-clad that a closely-shut mud box (as someone called these huts) is their chief protection against the bitter cold. There is a village primary school but except for one boy from the family of Tenant A., it is not patronized by these families. The *Aram* is a hard-headed, hard-working small-scale cultivator and he sees no prospect of returns from the present scheme of education which consists largely of the three 'Rs.' In fact, he is afraid that his boys may thus learn to shun the hard toil, dirt and sweat of the farm.

While the net returns of this farm to Government were Rs. 20,197, the net returns to 40 tenants were only Rs. 10,793, or about Rs. 354 per family cultivating a square. In addition, an average family earned about Rs. 28 by other occupations, such as carting, manual labour and sale of milk. Thus, the total-income came to about Rs. 382 per family against an average expenditure of Rs. 470 as found out in case of these four tenants.

It is to be noted that in "*Farm Accounts in the Punjab, 1932-33*," the year referred to runs from 1st June 1932 to 31st May 1933, while this study covers the period 1st November 1932 to 31st October 1933. But Professor Kartar Singh thinks that the income and expenditure of the 12 months, 1st June 1932 to 31st May 1933, is almost identical with the income and expenditure of the 12 months here recorded, seven months of the two periods being the same. This is probably correct.

This is not the place to offer solutions for the many difficult rural problems touched upon but simply to draw attention to some of the facts. Fortunately, the number of the local mills dealing with the produce of the district is rapidly increasing and if some of the surplus rural labour could be drawn off to supply these mills, great relief would be afforded. But the capitalist mill-owner is importing very cheap labour from the U. P., Rajputana

and Central India, labour which is much more docile than Punjabi, and is thus depriving the neighbourhood of much of the advantage that might be derived from the mills by the local population.

The accounts on which this brochure is based have been carefully kept and we believe that we have here one of the most accurate pictures of just how such tenant-peasant families manage to live, *i.e.*, the economic side of their lives, which has so far been presented to the Punjab public. It will repay careful study.

*22nd August, 1934.*

E. D. LUCAS,  
*Acting Secretary.*

## INTRODUCTION.

So far as the writer is aware, no authentic information is available in India about the family budgets of cultivators. A series of publications, entitled "*Farm Accounts in the Punjab*" have been published under the auspices of the Board of Economic Inquiry, Punjab, since 1923-24, which give only the income and expenditure of the cultivators in some districts of the Punjab from the point of view of cultivation alone, but do not deal with the domestic expenses of a cultivator's family, nor do they give the income and expenditure accounts in connection with milch cattle and young stock that the cultivator usually keeps along with the bullocks that are required for cultivation. Besides, agricultural work in India is not carried out by male members of the family alone, but is conducted as a family concern, and nearly every member of the family contributes some share of labour. For instance, the wives and daughters of the cultivators attend to the milch cattle and cook meals and carry them to the fields. The efficiency of the male workers would be considerably reduced if the women of the house did not perform this work. The smaller children, not big enough to do the work of cultivation, are very helpful in grazing cattle, or doing other odd jobs. It is, therefore, necessary, in order to know the true financial position of a cultivator, that one should study the whole of the business and life of the farm as one concern. The information given in this note is meant to fulfil this need, and it is believed that it will prove useful to all workers interested in rural welfare.

My thanks are due to Dr. Lander, Agricultural Chemist, Lyallpur, who very kindly allowed me the use of unpublished data regarding the composition of some foods worked out in his laboratory for calculating the food value of ration consumed by the tenants under study. My special thanks are also due to S. Ajaib Singh, B.Sc. (Agri.), for the heavy work done by him in tabulating the data.

KARTAR SINGH.

## FAMILY BUDGETS OF FOUR TENANT-CULTIVATORS IN THE LYALLPUR DISTRICT.

*Introductory.*—The present inquiry relates to four families of Mohammedan tenants working on the Risalewala Government Agricultural Farm, about three miles from the town of Lyallpur. They each cultivated about one square (27·8 acres), each using two pairs of bullocks, on the *half-batai* system. The income from cultivation given in this note (page 21) means the return for the labour put in by these tenants on entirely farm work. For details, reference may be made to tenants No. 3, 6, 7 and 16, respectively, in Part X. (pages 192-202) of "*Farm Accounts in the Punjab, 1932-33*".\* The inquiry covers a period of one full year from 1st November 1932 to 31st October 1933.

*Object.*—The inquiry was started in order to collect the following information :—

1. The cost of various items of household expenditure—
  - (a). furnished by the farm ;
  - (b). purchased from outside.
2. The total income of each of the four families from all sources.
3. The total working days of the members of the family.

*Method.*—The following records were maintained separately for each of the families studied :—

- (1). Opening inventory.
- (2). Closing inventory.
- (3). Cash accounts, daily.
- (4). Kind accounts, daily.
- (5). Milk accounts, weekly.
- (6). Fuel accounts, weekly.
- (7). Labour accounts, daily.

A copy of the forms used for keeping these records is given in Appendix B.

A trained investigator made a daily round and recorded the cash and kind transactions of the day. The labour performed by each member of a family was also recorded. Production and

\*Board of Economic Inquiry, Punjab, Publication No. 35.

disposal of milk was recorded each Wednesday, when the investigator attended the morning and the evening milking, and measured the milk. The fuel consumption was noted only once a week.

*Particulars of the Families.*—The following table shows the number of members and of adult male units in each of the four families :—

Tenant.	ADULTS (ABOVE 16 YEARS).		ADOLESCENTS (10 TO 16 YEARS).		Children below 10 years.	Total.	Adult male units.
	Male.	Female.	Male.	Female.			
A. (Araín) ..	3	2	1	1	2	9	6.5
B. (Jat) ..	3	2	..	..	1	6	4.9
C. (Araín) ..	4	2	..	..	3	9	6.7
D. (Araín) ..	3	3	1	..	5	12	8.2
<i>Total</i> ..	13	9	2	1	11	36	26.3
Average per family ..	3.25	2.25	0.50	0.25	2.75	9.00	6.58

The term family, as used here, means a joint family. Family A. (*Araín*) includes a tenant, his wife, parents, brothers and sisters. Family B. (*Jat*), comprises an old couple, their two sons, a daughter-in-law, and a grandchild. Family C. (*Araín*) consists of two brothers, their wives and children, father and uncle. Family D. includes two brothers, their parents, wives and children. Family D. is divided into two parts each living in a separate house. The parents of the family live with one of the sons, and the other son resides in a separate house. In this note, this family has been treated as one, for both the brothers cultivate the same holding and make frequent exchanges of household articles with one another.

For the sake of comparison, the members of each family have been reduced to adult male units, as shown in the last column of the above table, by the use of Atwater's scale\* given below :—

Age in years.	EQUIVALENT ADULT MALE UNITS	
	Male.	Female.
Adult over 16 .. .. .	1.0	0.8
15 to 16 .. .. .	0.9	0.8
13 to 14 .. .. .	0.8	0.7
12 .. .. .	0.7	0.6
10 to 11 .. .. .	0.6	0.6
6 to 9 .. .. .	0.5	0.5
2 to 5 .. .. .	0.4	0.4
Under 2 .. .. .	0.3	0.3

\*" Chinese Farm Economy " by Buck, page 17.

## EXPENDITURE.

The household expenditure has been classified as follows :—

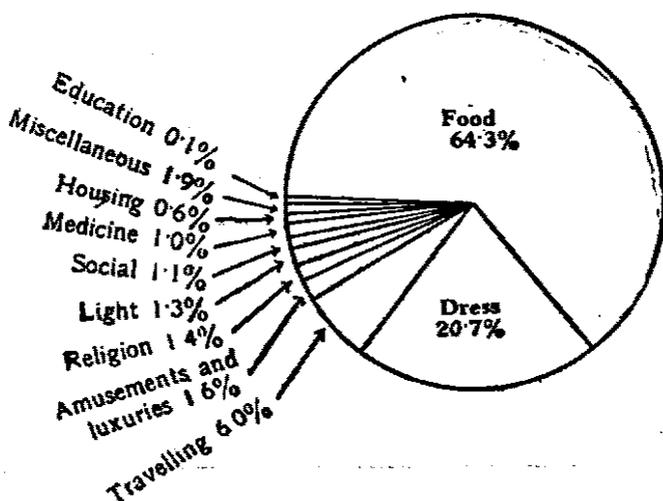
- |                                |                              |
|--------------------------------|------------------------------|
| 1. Housing.                    | 7. Education.                |
| 2. Food.                       | 8. Religion.                 |
| 3. Fuel.                       | 9. Travelling.               |
| 4. Dress (Clothing and Shoes). | 10. Social.                  |
| 5. Medicine.                   | 11. Amusements and Luxuries. |
| 6. Light.                      | 12. Miscellaneous.           |

The statement on the following page gives the expenditure of the four families during the year, under the above heads.

It will be observed that the total expenditure per family varied from Rs. 406/14/6 to Rs. 544/14/7, the average being Rs. 469/10/6. Per adult male unit the expenditure ranged from Rs. 66/7/3 to Rs. 83/0/7, and the average came to Rs. 71/6/0.

The most important item of expenditure was food, which alone formed 64·3 per cent. of the total. The other expenses in the order of importance were : dress 20·7 per cent., travel 6·0, amusements and luxuries 1·6, religion 1·4, light 1·3, social 1·1, medicines 1·0, housing 0·6 and education 0·1. Miscellaneous expenses amounted to 1·9 per cent. The following diagram illustrates the proportion of various items in the expenditure :—

CHART I.



*Statement showing the Expenditure on Different Items per Tenant Family and per Male Unit during the Year, 1932-33.*

Item.	TOTAL.					PER ADULT MALE UNIT.					Percentage to the total.
	A.	B.	C.	D.	Average.	A.	B.	C.	D.	Average.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1. Housing (Repairs alone)	2 4 0	3 1 6	..	5 2 0	2 9 10	0 5 6	0 10 1	..	0 9 11	0 6 4	0.6
2. Food	287 7 10	266 4 7	298 5 4	376 5 11	302 1 11	41 2 5	54 5 6	44 8 4	45 14 5	45 14 8	64.3
3. Fuel	..	..	..	..	..	..	..	..	..	..	..
4. Dress	117 6 3	87 14 5	92 9 9	90 10 8	97 2 3	18 1 0	17 15 0	13 13 2	11 0 11	14 12 2	20.7
5. Medicine	3 4 6	4 4 0	3 4 0	8 0 0	4 11 2	0 8 7	0 13 11	0 7 9	0 15 8	0 11 5	1.0
6. Light	5 4 0	6 0 0	5 2 6	8 0 0	6 1 8	0 12 11	1 3 7	0 12 4	0 15 7	0 14 10	1.3
7. Education	2 9 9	..	..	..	0 10 5	0 6 5	..	..	..	0 1 7	0.1
8. Religion	11 8 0	9 8 0	2 4 0	3 10 0	6 11 6	1 12 4	1 15 0	0 5 4	0 7 1	1 0 4	1.4
9. Travelling	30 0 0	10 8 0	35 12 0	35 12 0	28 0 0	4 9 10	2 2 3	5 5 5	4 5 9	4 4 1	6.0
10. Social	13 0 0	6 0 0	..	2 0 0	5 4 0	2 0 0	1 3 7	..	0 3 11	0 12 9	1.1
11. Amusements and luxuries	9 8 0	6 0 0	7 8 0	7 8 0	7 10 0	1 7 5	1 3 7	1 1 11	0 14 8	1 2 7	1.6
12. Miscellaneous	7 4 0	7 6 0	12 7 0	7 14 0	8 11 9	1 1 10	1 8 1	1 13 9	0 15 4	1 5 3	1.9
<i>Total</i>	<i>489 8 4</i>	<i>406 14 6</i>	<i>457 4 7</i>	<i>644 14 7</i>	<i>469 10 6</i>	<i>72 3 9</i>	<i>83 0 7</i>	<i>68 4 0</i>	<i>66 7 3</i>	<i>71 6 0</i>	<i>100.0</i>

(1). *Housing*.—Mud houses consisting of two to four rooms each were provided for the tenants free of cost by the landlord. The tenants had only to make annual repairs. 'Housing' accordingly includes only the cost of repairs to the houses, and recurring expenditure on furniture. In the western sense of the term 'furniture', there was no furniture in the tenants' houses, there being neither tables nor chairs. The furniture consisted of string beds (*charpais*), low stools (*pikris*) and wooden or iron boxes.

The expenditure on cooking utensils and hand flourmills (*chakkis*) has been included in 'food,' and that on spinning-wheels (*charkhas*) in 'dress'—(clothing and shoes).

The housing expenses consist only of repairs to the houses and the purchase of furniture, and varied from nil to Rs. 5/2/0, the average being Rs. 2/9/10 per family and Rs. 0/6/4 per adult male unit. The cost was nil with Tenant C., for he neither purchased any furniture during the year, nor employed any outside labour for house repairs.

(2). *Food*.—This item, being a very large one, has been further sub-divided as follows:—

- (i) Wheat.
- (ii) Maize.
- (iii) Milk and milk products.
- (iv) Sugar.
- (v) Rice.
- (vi) Meat.
- (vii) Pulses.
- (viii) Vegetables.
- (ix) Fruits.
- (x) Salt.
- (xi) Miscellaneous.

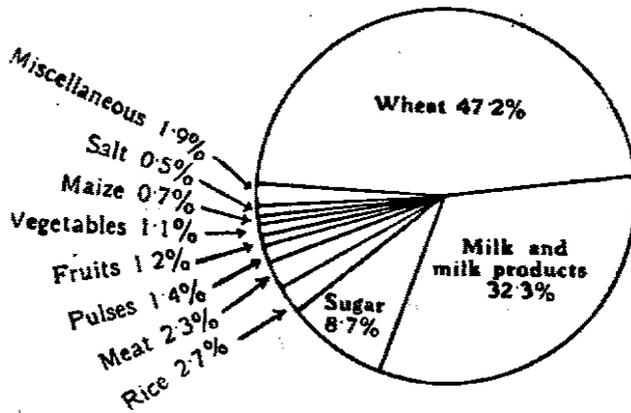
The value of these articles as consumed by each household is shown in the table on the following page.

The cost on food varied from Rs. 266/4/7 to Rs. 376/5/11 per family, and from Rs. 41/2/5 to Rs. 54/5/6 per adult male unit, the average being Rs. 302/1/11 and Rs. 45/14/8, respectively. Wheat is the most important article of food and alone formed 47·2 per cent. of the total expenditure on food. Milk and *ghi* formed 32·3 per cent., sugar 8·7, rice 2·7, meat 2·3, pulses 1·4, fruits 1·2, vegetables 1·1, maize 0·7, and salt 0·5 per cent. of the total. Chart II., on page 7, shows the share of each article in the total expenditure on food.

*Statement showing the Share of Each Article in the Total Expenditure per Family and per Male Unit during the Year, 1932-33.*

Item.	TOTAL.					PER ADULT MALE UNIT.					Percentage to the total.
	A.	B.	C.	D.	Average.	A.	B.	C.	D.	Average.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1. Wheat ..	142 14 0	119 2 0	148 7 3	160 10 9	142 12 6	21 15 8	24 5 0	22 2 6	10 9 0	21 11 2	47.2
2. Maize ..	..	..	4 8 0	4 8 0	2 4 0	..	..	0 10 9	0 8 9	0 5 6	0.7
3. Milk and milk products ..	61 14 4	94 14 8	97 12 5	135 15 8	97 10 3	0 8 4	10 5 11	14 0 6	16 0 4	14 13 5	32.3
4. Sugar ..	28 0 0	20 11 10	16 11 6	30 0 6	25 8 11	4 5 10	5 7 4	2 7 11	3 11 4	3 14 2	8.7
5. Rice ..	9 0 0	2 8 0	9 5 6	11 10 0	8 1 11	1 6 2	0 8 2	1 0 4	1 0 8	1 3 9	2.7
6. Meat ..	5 7 6	7 2 0	3 10 6	11 11 0	6 15 9	0 13 6	1 7 3	0 8 9	1 6 10	1 1 0	2.3
7. Pulses ..	6 12 6	3 2 10	2 14 8	4 3 0	4 4 3	1 0 8	0 10 4	0 6 11	0 8 2	0 10 4	1.4
8. Vegetables ..	2 7 0	1 15 3	5 15 0	3 13 0	3 8 7	0 6 0	0 6 5	0 14 2	0 7 5	0 8 7	1.1
9. Fruits ..	2 4 6	4 2 0	2 9 0	5 12 6	3 11 0	0 5 8	0 13 6	0 6 1	0 11 4	0 9 0	1.2
10. Salt ..	1 8 0	1 1 0	1 10 0	1 12 0	1 7 9	0 3 8	0 3 5	0 3 10	0 3 5	0 3 8	0.5
11. Miscellaneous	6 14 0	5 9 0	4 13 6	5 15 6	5 13 0	1 0 11	1 2 2	0 11 7	0 11 8	0 14 1	1.9
<i>Total</i> ..	<i>207 7 10</i>	<i>266 4 7</i>	<i>298 5 4</i>	<i>376 5 11</i>	<i>302 1 11</i>	<i>41 2 5</i>	<i>54 5 6</i>	<i>44 8 4</i>	<i>45 14 5</i>	<i>45 14 8</i>	<i>100.0</i>

CHART II.



(i-ii) The diet of a Punjabi farmer consists of wheat or maize *chapatis* (unleavened cakes), boiled, salted and spiced pulses, vegetables, and if Muslim or Sikh, a little meat; *ghi*, curd and *lassi* (buttermilk). Milk is consumed either directly or in the form of curd, *lassi* or *ghi*. Occasionally a mixture of *ghi* and sugar is substituted for pulses and vegetables. Rice, *halwa* (confection) and other special dishes are also prepared occasionally to provide variety.

Wheat is used in the form of *chapatis* for most part of the year. It is only for a month or two in winter that it is replaced by maize. Maize along with *sag* of *sarson* (mustard greens) is a favourite winter food in the Punjab. On this farm, however, very little maize was grown for food grain, and many tenants had to go without this variety in the diet. From Statement I., on page 24, which shows the amount of the articles of food consumed by these families, it will be seen that only families C. and D. consumed 2 maunds of maize each. This comes to 1 maund per family and 0.2 maunds per adult male. Consumption of wheat varied from 44.1 to 55.0 maunds per family and from 6.7 to 9.0 maunds per adult male unit, the averages being 50.8 and 7.7 maunds, respectively. All the wheat and maize consumed were produced on the farm.

(iii) *Milk and Milk Products.*—Most Punjabi farmers, except the very poorest, keep milch cattle to provide milk, curd, *lassi* and *ghi* for their families. For this purpose the buffalo is preferred to the cow, the latter being kept mostly to be the dam for his bullocks.

Statement II., on page 25, shows the cost of production of milk for all the four tenants. There were in all 12·4\* milch cattle and of these 5·2 were cows and 7·2 buffaloes, the average being 3·1 animals per family.

The cost of production of milk has been calculated against the various items of the cost, which are—

- (a) Roughages—fodders and *bhusa* (straw).
- (b) Concentrates—such as cotton-seed and gram.
- (c) Salt.
- (d) Interest and depreciation on the value of milch cattle.
- (e) Miscellaneous—Veterinary charges, value of ropes, etc.

The cost of labour required for the upkeep of milch cattle is not included in the cost of production, because no outside labour was employed for this purpose, and milk production was not the cultivator's main occupation but only a side line to general agriculture.

As a matter of fact, all farm animals are fed roughages in the same feeding troughs, and it is not possible to know separately the amount consumed by the milch cattle. The only method is to debit the value of roughages in proportion to the number of animals fed. Thus the cost of roughages is:—

$$\frac{\text{Roughages consumed by all farm animals.}}{\text{Total number of live-stock on the farm.}} \times \text{Number of milch cattle.}$$

For arriving at the total number of livestock on the farm, animals above two years were taken as adult, those between one and two years as half an animal, and those below one year were ignored.

The roughages and concentrates produced on the farm and fed to the milch cattle were valued at the rates used for calculating the income in the farm accounts, and those purchased were valued at the actual cost price. Cost of roughages added to the value of other items makes the total cost, but to find the net cost of production, the value of calves reared is deducted from this total. The value of farmyard manure produced by the milch cattle has not been deducted, because no farmyard manure was sold; a part

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\*This number includes a fraction because some of the animals remained on the farm for less than a year, the principle followed being to charge that animal as one, which remains on the farm for the whole year.

of it was burned to boil the milk and the rest applied to the crops. It has been included neither in the income nor in the expenditure.

Calculated in this way the total cost of production of milk for the four tenants was as follows :—

				Rs.	a.	p.
Roughages	..	..	..	341	14	4
Concentrates	..	..	..	99	14	3
Salt	..	..	..	6	8	0
Interest and depreciation at 8 per cent. and 12 per cent., respectively, on the value of milch cattle	..	..	..	142	6	8
Miscellaneous	..	..	..	4	3	0
			<i>Total</i>	<u>594</u>	<u>14</u>	<u>3</u>
<i>Deduct</i> —Value of young stock	..	..	..	42	0	0
			<i>Balance</i>	<u>552</u>	<u>14</u>	<u>3</u>

Roughages were all produced on the holdings but concentrates to the value of Rs. 18/14/3 were furnished by the holdings and Rs. 81/- worth were purchased from outside.

The animals produced 228 maunds, 8 seers of milk, i.e., the cows 80 maunds, 20 seers or 15.5 maunds per head, and buffaloes 147 maunds, 28 seers or 20.5 maunds per head. The cost of production per maund came to Rs. 2/6/9. As between tenants the cost varied from Rs. 2/3/2 to Rs. 2/14/3.

Of the milk produced 72 maunds, 21 seers were sold to a middleman, who visited the tenants' houses daily and carried the milk to town for sale; 58 maunds, 15 seers of buffaloes' milk were sold at Rs. 3/4/0 per maund and 14 maunds, 6 seers of cows' milk at Rs. 2/12/0 per maund. The tenants made a profit of Rs. 53/5/1 from the sale of milk, which amounts to Rs. 13/5/3 per family. This has been included in the income.

The remaining 155 maunds, 27 seers of milk were consumed directly or after being converted into various products such as curd, *lassi* and *ghi*. None of these products having been sold, this milk has been charged at the cost of production.

In addition to the milk and its products produced at home, the tenants purchased 11 seers, 6 *chhataks* of *ghi* for Rs. 13/-. The

total amount of *ghi* consumed by each family is given below :—

Tenant.	Produced.			Purchased.			Total.			Per adult male unit.	
	Mds.	Srs.	Ch.	Mds.	Sr.	Ch.	Mds.	Srs.	Ch.	Srs.	Ch.
A. .. ..	1	13	6	0	1	12	1	15	2	8	8
B. .. ..	1	23	4	0	2	10	1	25	14	13	7
C. .. ..	2	4	0	..	..	..	2	4	0	12	9
D. .. ..	2	27	15	0	7	0	2	34	15	14	0
<i>Total</i> ..	7	28	9	0	11	6	7	39	15	..	..
<i>Average per family</i> ..	1	37	2	0	2	14	2	0	0	12	3

This amounts to 0·39 *chhataks* per head per day and 0·53 *chhataks* per adult male unit. It may, however, be mentioned that *ghi* is consumed mostly by the male members of the family, the female members seldom take it.

The amount of milk and its products as shown in the Statement I. on page 24, includes the amount of milk equivalent to the *ghi* purchased.

The value of milk and its products consumed in the households varied from Rs. 61/14/4 to Rs. 135/15/8 per family, the averages being Rs. 97/10/3 per family and Rs. 14/13/5 per adult male unit. Of this 3·3 per cent. by value was purchased from outside, and 96·7 per cent. produced on the farm. Quantitatively, the consumption varied from 27·7 to 55·2 maunds per household and 4·3 to 6·7 maunds per adult male unit, the averages being 40·1 and 6·1 maunds, respectively. This amounts to 10·7 *chhataks* per adult male unit or 7·8 *chhataks* per head per day. It must be noted here that, as a matter of custom, the female members of a family get a smaller share of milk and its products, and the males get a greater. The reason is partly the difference in the nature of the duties of the two sexes, and partly the general privileges accorded to the male over the female in many respects.

(iv). *Sugar*.—The cultivators use two kinds of sugar, i.e., raw and refined. Raw sugar, being comparatively cheap, is used for everyday needs of the family, while refined sugar is reserved for guests and special occasions. Sugar is used for sweetening

milk and in various food preparations. It is also consumed with *chapatis* either alone or mixed with *ghi*, in place of pulses and vegetables.

The table on the following page shows the amount and value of sugar consumed.

It will be observed that a part of the raw sugar was furnished by the farm and a part purchased from outside, while refined sugar was all purchased. Tenant C. did not grow any sugarcane and had, therefore, to purchase all his sugar. Consumption of sugar per capita and per adult male unit comes to 31.13 and 42.6 seers, respectively. Of the latter 37.8 seers was raw sugar and 4.8 seers refined. The value of sugar used per adult male was Rs. 3/14/2.

Below are given the figures of per capita consumption of sugar in some foreign countries, the whole of Europe, and India during the year 1913-14 :—

Country.	Consumption per capita.*		
			Lbs.
United States of America	..	..	89-14
United Kingdom	..	..	93-37
Denmark	..	..	95-57
Europe	..	..	36-83
India	..	..	22-30

It will be seen that the consumption of sugar by the cultivators compares quite favourably with the above figures. While making comparison, it must, however, be borne in mind, that these figures relate to refined sugar, while the figure for the tenants relates, mostly, to raw sugar.

(v) *Rice*.—Rice is eaten after being boiled in water or milk. None was produced on the farm and all was purchased from outside. The consumption of rice varied from 15.0 to 86.5 seers per family, the average being 66.8 seers. The consumption per adult male unit averaged 10.2 seers, which amounted to Rs. 1/3/9 in value.

(vi) *Meat*.—Meat, pulses and vegetables after being boiled, salted and spiced, are eaten with *chapatis*. All the meat was purchased from Lyallpur, three miles away, mostly at the rate of 5 annas per seer. On an average 23.8 seers of meat costing Rs. 6/15/9 were consumed by each family. This amounts to 3.6 seers valued at Rs. 1/1/0 per adult male. No meat was furnished by the farm. The value of the goats sacrificed on the occasion of the 'Id festival has been included in 'Religion'.

\* Report of the Indian Sugar Committee, page 366, Appendix II. (1920).

Statement showing the Amount and Value of the Sugar Consumed by Each Family and per Male Unit during the Year, 1932-33.

Tenant.	PER FAMILY.						PER ADULT MALE UNIT.		
	RAW SUGAR.			Refined Sugar purchased.	Total.	Per Capita.	Raw Sugar.	Refined Sugar.	Total.
	Furnished by the Farm.	Purchased.	Total.						
<b>AMOUNT.</b>	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.
A. ..	240.0	82.0	322.0	19.8	341.8	37.98	49.5	3.1	52.6
B. ..	140.0	113.5	253.5	37.5	291.0	48.50	51.7	7.7	59.4
C. ..	..	80.0	80.0	30.8	110.8	12.31	11.9	4.6	16.5
D. ..	60.0	280.0	340.0	37.1	377.1	31.43	41.5	4.5	46.0
<i>Total</i> ..	440.0	555.5	995.5	125.2	1,120.7	..	..	..	..
<i>Average</i> ..	110.0	138.9	248.9	31.3	280.2	31.13	37.8	4.8	42.6
<b>VALUE.</b>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
A. ..	14 2 0	7 12 0	21 14 0	6 8 0	28 6 0	3 2 5	3 5 10	1 0 0	4 5 10
B. ..	8 3 10	6 5 0	14 8 10	12 3 0	26 11 10	4 7 4	2 15 6	2 7 10	5 7 4
C. ..	..	7 0 0	7 0 0	9 11 6	16 11 6	1 13 9	1 0 9	1 7 2	2 7 11
D. ..	3 8 6	15 0 0	18 8 6	11 14 0	30 6 6	2 8 7	2 4 2	1 7 2	3 11 4
<i>Total</i> ..	25 14 4	36 1 0	61 15 4	40 4 6	102 3 10	..	..	..	..
<i>Average</i> ..	6 7 7	9 0 3	15 7 10	10 1 1	25 8 11	2 13 5	2 5 8	1 8 6	3 14 2

(vii) *Pulses*.—Pulses comprise gram produced on the farm, and *mash*, *massar*, etc., purchased from outside. The average consumption of pulses came to 49·0 seers per family and 7·4 seers per adult male unit. This valued in cash was Rs. 4/4/3 and Rs. 0/10/4, respectively.

(viii) *Vegetables*.—Vegetables consist of potatoes, cauliflower, gourds, lady's fingers, onions, brinjals and *sag*. None of the vegetables, except *sag* of *sarson* was grown on the farm. The value of *sag* has not been included in the expenses because the tenants paid nothing for it. The value of vegetables consumed averaged Rs. 3/8/7 per family and Rs. 0/8/7 per adult male.

(ix) *Fruits*.—Fruits consist mostly of mangoes, bananas, grapes, and water-melons. The expenditure on this item amounted to Rs. 3/11/0 per family or Rs. 0/9/0 per adult male.

(x) *Salt*.—Salt is used for flavouring various foods. The whole of the salt required was purchased at the rate of Rs. 2/8/0 per maund from the town. The consumption averaged 23·8 seers per family or 3·6 seers per adult male unit.

(xi) *Miscellaneous*.—The expenditure under this head included the expenses on all articles not included above, *e.g.*, pickles, spices, etc. The cost of these things averaged Rs. 5/13/0 per family and Rs. 0/14/1 per adult male. This head includes the expenditure on the purchase of cooking utensils and other appliances, which was Rs. 0/5/6 only for all the families.

*Chemical Composition of the Food*.—The following table gives the chemical composition of the food consumed by the tenants' families :—

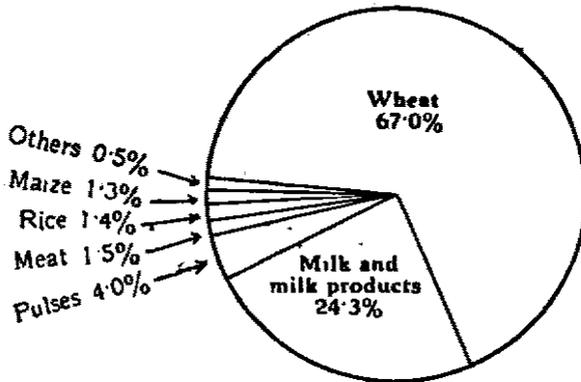
Tenant.		PER ADULT MALE UNIT PER DAY.			
		Proteins.	Fats.	Carbo- hydrates.	Energy.
		Grammes.	Grammes.	Grammes.	Calories.*
A.	.. ..	106·6	43·1	801·3	4,019
B.	.. ..	127·8	70·1	883·3	4,675
C.	.. ..	109·9	50·6	737·7	3,846
D.	.. ..	102·7	58·8	703·5	3,754
<i>Average</i>		<i>110·2</i>	<i>54·9</i>	<i>769·8</i>	<i>4,014</i>

\*Calorie in this report means a large calorie, *i.e.*, the amount of heat required to raise the temperature of one kilogramme of water by one degree centigrade.

It will be seen that the consumption of proteins varied from 102·7 to 127·8 grammes per adult male per day, that of fats from 43·1 to 70·1 grammes, and of carbo-hydrates from 703·5 to 883·3 grammes, the averages being 110·2, 54·9 and 769·8 grammes, respectively. The total energy provided by this food varied from 3,754 calories to 4,675 calories per adult male per day, and the average came to 4,014 calories. Atwater recommends 150 grammes of proteins and 4,150 calories of energy for hard-working men in United States of America. The amount of proteins given by him is considered rather too high by Sherman.\* Judging from this standard, it seems that the cultivators dealt with in this inquiry are not underfed.

From Statement III., (page 26), which shows the amount of various food constituents drawn from the articles of food and their energy value, it will be seen that wheat is the most important article of food in most respects. It provided 67·0 per cent. of the proteins, 21·6 per cent. of fats, 77·6 per cent. of carbo-hydrates and 69·6 per cent. of the energy requirements of the body. Second in importance ranks milk which supplied 24·3 per cent. proteins, 68·6 per cent. fats, 3·6 per cent. carbo-hydrates and 13·9 per cent. of energy. Milk is thus the chief source of fats. Third in order of importance comes sugar, which supplied 12·1 per cent. of carbo-hydrates and 9·2 per cent. of energy. The following diagrams show the importance of the various articles of food, so far as the provision of proteins and energy requirements of the body are concerned.

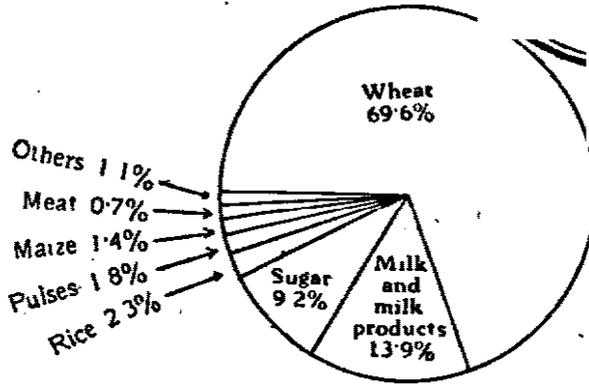
CHART III.



Proteins

\* "Chemistry of Food and Nutrition," by Sherman, pages 363 and 364.

CHART III—concl'd.



Energy

The following table shows the comparative importance of the animal and vegetable products in the diet:—

Article of food.	Proteins.	Fats.	Carbo- hydrates.	Energy.
	Per cent.	Per cent.	Per cent.	Per cent.
<i>Animal products—</i>				
Milk and milk products ..	24.3	70.6	3.6	14.2
Meat .. ..	1.5	4.4	..	0.7
<i>Total</i> ..	<i>25.8</i>	<i>75.0</i>	<i>3.6</i>	<i>14.9</i>
<i>Vegetable products—</i>				
Grain .. ..	73.7	24.2	83.4	75.1
Sugar .. ..	..	..	12.1	9.2
Fruits and vegetables ..	0.4	0.3	0.7	0.6
<i>Total</i> ..	<i>74.1</i>	<i>24.5</i>	<i>96.2</i>	<i>84.9</i>
<i>Miscellaneous—</i>	<i>0.1</i>	<i>0.5</i>	<i>0.2</i>	<i>0.2</i>

It is clear from this table, that except fat for which the cultivators have to depend on animal products, most of the food constituents and food energy were drawn from the vegetable products. The reason is that value for value, vegetable products provide

more of food requirements than animal products. This point is illustrated by the following figures giving the amount of various constituents in each class of food purchased for one rupee :—

	<i>Proteins.</i>	<i>Fats.</i>	<i>Carbo- hydrates.</i>	<i>Energy.</i>
	Seers.	Seers.	Seers.	Calories.
Animal products ..	0.70	1.01	0.68	13,633
Vegetable products ...	1.10	0.18	10.02	43,037

It will thus be seen that vegetable products give about  $1\frac{1}{2}$  times the proteins, 15 times the carbo-hydrates, and 3 times the energy for the same cost. Fats are supplied at a much lower cost by animal products.

Below is compared the diet of these tenants with the diets of Chinese and American farmers, on the energy basis :—

	<i>China.*</i>	<i>Risalewala.</i>	<i>America.*</i>
	Per cent.	Per cent.	Per cent.
Grains .. ..	89.8	75.1	38.7
Animal products .. ..	1.0	14.9	39.2
Vegetables .. ..	8.9	0.3	9.0
Fruits .. ..	0.1	0.3	3.0
Sugar .. ..	0.2	9.2	10.1
Miscellaneous .. ..	..	0.2	..

It will be noticed that although our farmers do not consume so much of animal products as Americans, yet they depend much less on purely vegetable sources than the Chinese. The analyses of important articles of food used in these calculations are given in Appendix A.

(3). *Fuel.*—The common articles used as fuel are dung cakes, cotton sticks, and loppings from trees. Cotton sticks have no monetary value in the village. If these are carted to the town the value realised will hardly cover the carting charges. Nothing has, therefore, been charged for them. Similarly, loppings from trees are gathered by the tenants from the fields free of cost, and have not been charged in the expenses. Dung cakes are made from the solid excreta of the animals, for use as fuel. If this were not done, it would be used as manure in the fields. In the *Farm Accounts* publications neither the cattle have been credited nor the crops debited with the value of manure. Similarly in the case of the cost of production of milk in this note, the value of manure produced by milch cattle has not been deducted from their cost of upkeep. No charge is, therefore, justified for its use as fuel.

\* "Chinese Farm Economy," by Buck, page 364.

(4) *Dress* (Clothing and Shoes).—This is the second most important item of household expenditure. The various kinds of clothes used in the family are as follows :—

- (i) General purposes, *i.e.*, those worn at all times.
- (ii) Bedding, *e.g.*, mattresses, quilts, etc.
- (iii) Used at festivals, marriages and other special functions.
- (iv) Offered as presents to relatives.

For general purposes, durable and cheap cloth is preferred, and is generally made at home, and so are clothes for bedding. Clothes belonging to classes (iii), and (iv), are generally showy, and almost always mill-made. Shoes are made by shoemakers, and are mostly used either in severe winter or in severe summer weather, when it is hard to go about bare-footed.

Clothing also includes the charges of the washerman, and expenses on account of soap and soda for washing clothes at home.

The cost of clothing varied from Rs. 87/14/5 to Rs. 117/6/3 per family, the average being Rs. 97/2/3. The cost per adult male unit ranged from Rs. 11/0/11 to Rs. 18/1/0, the average being Rs. 14/12/2. Of these, cloth to the extent of 11·1 per cent. in value was made at home (by the village weaver), the remainder being either exchanged for home-spun yarn or purchased. The amount of lint used at home for various purposes was as follows :—

Tenant.	LINT USED FOR—			
	Quilts.	Cloth.	Yarn exchanged for cloth.	Total.
	Seers.	Seers.	Seers.	Seers.
A	8·0	4·0	10·0	22·0
B	..	9·0	..	9·0
C	3·5	9·5	..	13·0
D	6·0	..	7·0	13·0
<i>Total</i>	17·5	22·5	17·0	57·0
<i>Average</i>	4·4	5·6	4·3	14·3

The above table shows that on an average 14·3 seers of cotton lint, which means 42·9 seers of seed cotton was consumed per

family. This figure is very nearly equal to the average consumption of the Mohammedan families in the district, *viz.*, 45 seers.\*

The cost of making cloth from home-spun yarn was as follows :

*Cost of making 75 yards of cloth—*

	Rs.	a.	p.	Rs.	a.	p.
Cotton lint 9 seers, 10 <i>chhataks</i> at Rs. 14/- per maund	..	..	..	3	5	11
Carding at Rs. 0/2/0 per seer	..	..	..	1	3	0
<i>Weaving—</i>						
Cash @ Re. 1/- per 15 yards	..	..	..	5	0	0
Wheat 9½ seers @ Rs. 2/8/0 per maund	..	..	..	0	9	6
<i>Total</i>	..	..	..	10	2	5

This comes to Rs. 0/2/2 per yard, but does not include the cost of spinning, which was done by the women themselves. The charges of professional spinners are 4 annas per seer of lint spun. If this is included, the total cost comes to Rs. 12/8/5 or Rs. 0/2/8 per yard.

*Cost of making a quilt—*

	Rs.	a.	p.
Cloth 12 yards at Rs. 0/2/2 per yard	..	1	10 0
Cost of printing the cover	..	0	8 0
Carding and stuffing	..	0	6 0
3½ seers cotton lint at Rs. 14/- per maund	..	1	3 7
<i>Total</i>	..	3	11 7

The cloth used for quilts is usually home-made (*i.e.*, made by the village weaver), and stitching is done by womenfolk.

The following table shows the amount of cloth taken in exchange for home-spun yarn :—

Tenant.	Lint.	COST OF—				TOTAL—		Cloth.	COST PER YARD—	
		Lint.	Carding.	Cash.	Spinning.	Excluding spinning.	Including spinning.		Excluding spinning.	Including spinning.
	Srs.	Rs. a. p.	Rs. a. p.	Yds.	Rs. a. p.	Rs. a. p.				
A. ..	10	3 8 0	1 4 0	6 0 0	2 8 0	10 12 0	13 4 0	75	0 2 4	0 2 10
D. ..	7	2 7 1	0 14 0	2 0 0	1 12 0	5 5 1	7 1 1	50	0 1 8	0 2 3
<i>Total</i>	17	5 15 1	2 2 0	8 0 0	4 4 0	16 7 1	20 5 1	125	0 2 1	0 2 7
										(average)

\* *Vide* "Report on an Inquiry into the Local Consumption of Kapas in the Lyalpur District in 1930-31," by Partap Singh and Ajaib Singh: "Agriculture and Livestock in India," Vol. III., November, 1933.

This shows that there is not much difference in the cost of cloth, whether it is made by the village weaver or got in exchange for home-spun yarn from the bazaar. It is admitted, however, that the home-made cloth, though coarser, is more durable than the mill-made cloth, for which it is exchanged.

The amount of cloth and the number of pairs of shoes used by the tenants' families during the year were as follows :—

Tenant.	TOTAL.		PER ADULT MALE.		Shoes per head.
	Clothing.	Shoes.	Clothing.	Shoes.	
	Yards.	Pairs.	Yards.	Pairs.	Pairs.
A. ..	406·5	6	62·5	0·9	0·7
B. ..	261·0	7	53·3	1·4	1·2
C. ..	379·0	3	56·6	0·4	0·3
D. ..	262·0	5	32·0	0·6	0·4
<i>Total</i> ..	<i>1,308·5</i>	<i>21</i>	<i>49·8</i>	<i>0·8</i>	<i>0·6</i>
<i>Average</i> ..	<i>327·1</i>	<i>5·3</i>	..	..	..

(5). *Medicine.*—This item includes all expenditure for the purchase of medicines. The cost varied from Rs. 3/4/0 to Rs. 8/- the average being Rs. 4/11/2 per family. The cost is comparatively high for Family D., because one member of this family suffered from fever continuously for about two months. Tenant B. suffered from sore eyes for a long time. All medicines were purchased from outside.

(6). *Light.*—Light includes the cost of kerosene and rapeseed oils used for lighting, and the recurring charges of repairs and replacements of lamps, generally of the hurricane lantern type. The cost varied from Rs. 5/2/6 to Rs. 8/-, the average being Rs. 6/1/8 per family.

(7). *Education.*—This is the lowest item of expenditure, forming only 0·1 per cent. of the total. The fact that twenty-two

out of thirty-seven boys of school-going age in the village attended school, shows that the people take a fair interest in education.

In the case of these four families, however, out of the three boys of school-going age only one attended the school. The cost which came to Rs. 2/9/9 comprised Rs. 2/2/0 spent on the purchase of books, and Rs. 0/7/9 on stationery. None of the girls attended school.

(8) *Religion*.—Expenses under this head consist of grain and cash given to the *maulvi* of the mosque, and the value of goats sacrificed on the occasion of 'Id (Mohammedan festival). Only two tenants out of four sacrificed a goat each. The cost depends on the religious or superstitious bent of mind of the family concerned. The expenditure on this item varied from Rs. 2/4/0 to Rs. 11/8/0, the average per family being Rs. 6/11/6.

(9) *Travelling*.—The tenants own land in the older districts of Jullundur and Hoshiarpur and maintain social relations with relatives in the old villages. They have to travel several times a year for attending marriages, mournings, and other social functions. The expenses of travelling ranged from Rs. 10/8/0 in case of Tenant B., to Rs. 35/12/0 in the case of Tenants C. and D. The average per family was Rs. 28/-.

(10) *Social*.—This item includes the expenses incurred at social functions, such as marriage, betrothal, mourning, birth of a child, circumcision ceremony, etc. The expenditure was the highest with Tenant A., who spent Rs. 6/- on the occasion of the birth of a son, and Rs. 7/- at the time of his circumcision ceremony. Tenant B. spent Rs. 6/- on a meal to a marriage party. Tenant D. sent Rs. 2/- to a relative as a token of good wishes at the time of the 'Id festival. The average expenses amounted to Rs. 5/4/0 per family.

(11) *Amusements and luxuries*.—This includes the expenditure on festivals, fairs, cinemas, theatres, drinks, tobacco and other personal enjoyments. The expenses varied from Rs. 6/- to Rs. 9/8/0 and the average came to Rs. 7/10/0 per family.

(12) *Miscellaneous*.—These expenses include those not coming under any of the above heads. The half-yearly charges of barber, expenditure on correspondence, recurrent charges on baskets and buckets put to many diverse uses, have been put together under this head. The expenses came to Rs. 8/11/9 per family or Rs. 1/5/3 per adult male unit.

*Source of the Goods Consumed*.—The following table deduced from Statement IV. (page 27), shows the proportion of various

items of expenditure, furnished by the farm or purchased from outside :—

Item.	Furnished by the farm.	Purchased.
	Per cent.	Per cent.
1. Housing (Repairs alone) ..	...	100·0
2. Food .. .. .	81·9	18·1
3. Fuel .. .. .	100·0	...
4. Dress (Clothing and Shoes) ..	11·1	88·9
5. Medicine .. .. .	..	100·0
6. Light .. .. .	..	100·0
7. Education .. .. .	..	100·0
8. Religion .. .. .	20·0	80·0
9. Travelling .. .. .	..	100·0
10. Social .. .. .	..	100·0
11. Amusements and luxuries ..	..	100·0
12. Miscellaneous .. .. .	60·1	39·9
<i>Total</i> ..	<i>56·4</i>	<i>43·6</i>

### INCOME.

The tenants' income was derived mainly from the cultivation of land. This income was supplemented by the sale of milk, and the performance of various kinds of labour at the farm, *e.g.*, picking of cotton, carting the farm produce, and working as day labourers. The income from all these sources is shown in the table below.

Tenant C. had the largest net income from cultivation though he cropped the least area. This was due to the fact that his outturn of wheat was better than those of the others, and his expenses of cultivation were also at the same time lower owing to a lower cost on upkeep of bullocks.

Income from—	TENANT.					Average per family.
	A.	B.	C.	D.	Total.	
	Rs. s. p.	Rs. s. p.				
Cultivation* ..	413 14 6	243 7 3	530 5 8	358 8 7	1,546 4 0	386 9 0
Sale of milk ..	21 7 2	7 0 0	18 11 6	6 2 5	53 5 1	13 5 3
Picking of cotton ..	12 0 0	4 11 0	4 7 3	7 3 0	28 5 3	7 1 4
Carting ..	..	..	3 2 0	5 6 3	8 8 3	2 2 1
Labour ..	2 13 6	2 3 0	13 8 0	3 15 0	22 7 6	5 9 10
<i>Total</i> ..	<i>450 3 2</i>	<i>257 5 3</i>	<i>570 2 5</i>	<i>381 3 3</i>	<i>1,658 14 1</i>	<i>414 11 6</i>

\*Vide. "Farm Accounts, 1932-33", page 201.

The income from various sources as shown in this table is the return for the work done during the year by all the members of the family (details in Statements V.-A. and -B.). The figures for the income from cultivation in the above table have, however, been taken from the *Farm Accounts*, but in the present report the year started *five months later* and also finished *five months later* than in the *Farm Accounts*. The first *five months*, June to October, 1932, of the *Farm Accounts*, broadly speaking, brought in the *same* income from cultivation as June to October, 1933, in this report. Thus, though the periods in the two reports are not identical, the income during them is *about the same*.

*Financial Positions of the Tenants.*—The following table shows the deficit or surplus in the family budget of the tenants:—

Tenant.	Income.	Expenditure.	Surplus (+) or Deficit (—).
	Rs. a. p.	Rs. a. p.	Rs. a. p.
A .. ..	450 3 2	469 8 4	—19 5 2
B .. ..	257 5 3	406 14 6	—149 9 3
C .. ..	570 2 5	457 4 7	+112 13 10
D .. ..	381 3 3	544 14 7	—163 11 4
<i>Total</i> ..	<i>1,658 14 1</i>	<i>1,878 10 0</i>	<i>—219 11 11</i>
<i>Average</i> ..	<i>414 11 6</i>	<i>469 10 6</i>	<i>—54 15 0</i>

It will be seen that three out of the four tenants had to face deficits. Tenant A. received Rs. 30/- as rent of land from his old village and thus made both ends meet. Tenant B. received Rs. 100/- as rent for his land in the old district and sold a buffalo to meet the emergency. Tenant C., owing to his large income from cultivation, made a handsome profit. Tenant D., with a big family to support on a low income, had to face the heavy deficit of Rs. 163/11/4. To meet this deficit, he utilised Rs. 30/-, received as rent of his land in the old district, and sold one young bullock and a buffalo. As this sum was not enough to defray the expenses, he incurred a debt of Rs. 50/-.

*Employment of Members of the Family.*—Statements v. A. and B. give the working days of men and women of the households during the year. It will be seen that each man worked on an average for 335·0 days of eight hours each during the year. Out of this 150·3 days, i.e., 44·9 per cent., were spent in cultivation work, and 167·5 days or 50·0 per cent. in the tending of livestock. Labour performed outside on cash payment only amounted to 3·9 days per man.

The figure of the total employment of men seems to indicate that men remain fairly busy throughout the year. But actually, that is not so. At least the time spent on the care of livestock would be materially reduced, if men could find some better employment. In the absence of any other work, the peasants follow the maxim that doing something is, at any rate, better than doing nothing, and so tend to spread out work instead of remaining quite idle. The number of days spent on the care of livestock include a good many days when all the male members of the family, having no other work to do, take out weeds from the crops and feed the cattle therewith.

Leaving aside the work involved in the bringing up of children and in social obligations, each woman worked for 226·6 days during the year. Of this 33·2 per cent. was taken up by the cooking and carrying of meals for the men working in the fields, and 21·1 per cent. by the making, mending and washing of clothes. Each female worker picked cotton in the fields for 21·0 days, for which she received 22·7 seers of *kapas* (seed cotton), i.e., 1·1 seers per day of eight hours each.

STATEMENT I.

Amount of Important Articles of Food Consumed by the Four Tenant Families during the Year, 1932-33.

Article of food.	TENANTS.				Total	Average per family.	PER ADULT MALE UNIT.				
	A.	B.	C.	D.			A.	B.	C.	D.	Average.
Wheat .. (Maunds)	51.4	44.1	52.8	55.0	203.3	50.8	7.9	9.0	7.9	6.7	7.7
Maize .. .. ( " )	..	..	2.0	2.0	4.0	1.0	..	..	0.3	0.3	0.3
Milk and milk products in terms of milk*.. ( " )	27.7	32.8	44.5	55.2	160.2	40.1	4.3	6.7	6.6	6.7	6.1
Sugar .. .. ( " )	8.5	7.3	2.8	9.4	28.0	7.0	1.3	1.5	0.4	1.1	1.1
Rice .. .. (Seers)	86.5	15.0	81.0	84.5	267.0	66.8	13.3	3.1	12.1	10.3	10.2
Meat .. .. ( " )	17.5	23.0	12.3	42.5	95.3	23.8	2.7	4.7	1.8	5.2	3.6
Pulses .. .. ( " )	93.0	40.0	26.0	37.0	196.0	49.0	14.3	8.1	3.9	4.5	7.4
Salt .. .. ( " )	24.0	17.0	26.0	28.0	95.0	23.8	3.7	3.4	3.8	3.4	3.6

\*Including milk equivalent of *ghi* purchased on the assumption that 1 seer of milk is equal to 1 *chhatak* of *ghi*.

## STATEMENT II.

## Cost of Production of Milk.

Item.	TENANT—				Total.	Average.
	A.	B.	C.	D.		
Total Stock	8.0	9.5	10.0	8.4	35.9	9.0
Milch cattle	2.0	3.0	4.0	3.4	12.4	3.1
<i>Roughages Consumed by all Animals.</i>						
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Bhusa ..	45 5 0	68 12 0	75 0 0	62 8 0	251 9 0	62 14 3
Fodders ..	135 15 0	209 9 0	180 14 6	200 0 11	726 7 5	181 9 10
Total	181 4 0	278 5 0	255 14 6	262 8 11	978 0 5	244 8 1
<i>Cost of Upkeep of Milch Animals.</i>						
Share of roughages	45 5 0	87 14 3	102 5 10	106 5 3	341 14 4	85 7 7
Concentrates	41 1 3	23 10 5	18 2 7	17 0 0	99 14 3	24 15 7
Salt	1 8 0	2 0 0	1 0 0	2 0 0	6 8 0	1 10 0
Interest @ 8 % and depreciation @ 12 % on the value	28 6 5	42 0 0	40 0 0	32 0 3	142 6 8	35 9 8
Miscellaneous	1 0 0	1 0 0	1 0 0	1 3 0	4 3 0	1 0 9
Total	117 4 8	166 8 8	162 8 5	158 8 6	594 14 3	148 11 7
Deduct value of young stock	11 0 0	8 0 0	11 0 0	12 0 0	42 0 0	10 8 0
Net cost	106 4 8	148 8 8	151 8 5	146 8 6	552 14 3	138 3 7
<i>Milk produced—</i>	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.
Total	47 33 0	51 14 0	69 0 0	60 1 0	228 8 0	57 2 0
Per animal	23 36 8	17 4 11	17 10 0	17 26 3	..	17 33 13
Cost per maund	Rs. a. p. 2 3 7	Rs. a. p. 2 14 3	Rs. a. p. 2 3 2	Rs. a. p. 2 7 1	Rs. a. p. 2 6 9	Rs. a. p. 2 6 9
<i>Milk sold—</i>	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.
Quantity	20 35 0	19 23 0	24 19 0	7 24 0	72 21 0	18 5 4
Value realised	Rs. a. p. 67 13 6	Rs. a. p. 63 10 0	Rs. a. p. 72 7 6	Rs. a. p. 24 11 3	Rs. a. p. 228 10 3	Rs. a. p. 57 2 7
Profit	21 7 2	7 0 0	18 11 6	6 2 5	53 5 1	13 5 3
<i>Milk consumed—</i>	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.	Mds. s. ch.
Quantity	26 38 0	31 31 0	44 21 0	52 17 0	155 27 0	38 36 12
Cost	Rs. a. p. 59 14 4	Rs. a. p. 91 14 8	Rs. a. p. 97 12 5	Rs. a. p. 127 15 8	Rs. a. p. 377 9 1	Rs. a. p. 94 6 3

### STATEMENT III.

*Constituents of the Food Consumed by the Tenants during the Year, 1932-33.*

Article of food.	Quantity.	Proteins.	Fats.	Carbo- hydrates.	Energy per adult male per day.	Cost.	PERCENTAGE TO THE TOTAL.				
							Proteins	Fats.	Carbo- hydrates.	Energy.	Cost.
	Seers.	Seers.	Seers.	Seers.	Calories.	Rs. a. p.					
Wheat .. ..	8,141.0	759.67	122.27	6,145.21	2,792	571 2 0	67.0	21.6	77.6	69.6	47.2
Maize .. ..	160.0	14.43	5.45	118.32	56	9 0 0	1.3	1.0	1.5	1.4	0.7
Rice .. ..	287.0	15.78	1.07	214.37	90	32 7 6	1.4	0.2	2.7	2.3	2.7
Pulses .. ..	196.0	45.08	7.74	125.62	73	17 1 0	4.0	1.4	1.6	1.8	1.4
Sugar .. ..	1,120.7	..	..	961.40	374	102 3 10	..	..	12.1	9.2	8.4
Vegetables .. ..	..	3.76	0.35	26.70	12	14 2 3	0.3	0.1	0.3	0.3	1.2
Fruits .. ..	..	1.27	1.15	30.17	13	14 12 0	0.1	0.2	0.4	0.3	1.2
Milk and milk products produced .. ..	6,227.0	275.11	387.41	285.53	557	377 9 1	24.3	68.6	3.6	18.9	31.2
Ghi purchased .. ..	11.4	..	11.38	..	10	13 0 0	..	2.0	..	0.3	1.1
Meat .. ..	99.3	16.08	25.12	..	29	28 11 0	1.5	4.4	..	0.7	2.4
Miscellaneous .. ..	..	1.46	2.87	12.92	8	30 12 0	0.1	0.5	0.2	0.2	2.5
<i>Total</i> .. ..	..	<i>1,133.54</i>	<i>564.81</i>	<i>7,920.24</i>	<i>4,014</i>	<i>1,210 12 8</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

## STATEMENT IV.

*Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.*

(a)=Supplied by the Farm. (b)=Purchased.

Item.	TENANTS—				Total.	Average per family.	Percentage of total.
	A.	B.	C.	D.			
	Rs. a. p.	Rs. a. p.					
<i>Housing—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	2 4 0	3 1 6	..	5 2 0	10 7 6	2 9 10	100·0
<i>Food—</i>							
(a) ..	221 8 10	220 7 4	251 8 4	296 10 11	990 3 5	247 8 10	81·9
(b) ..	45 15 0	45 13 3	46 13 0	79 11 0	218 4 3	54 9 1	18·1
<i>Dress—</i>							
(a) ..	10 5 3	13 0 5	14 5 3	5 7 7	43 2 6	10 12 6	11·1
(b) ..	107 1 0	74 14 0	78 4 6	85 3 1	345 6 7	86 5 7	88·9
<i>Medicine—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	3 4 6	4 4 0	3 4 0	8 0 0	18 12 6	4 11 2	100·0
<i>Light—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	5 4 0	6 0 0	5 2 6	6 0 0	24 6 6	6 1 8	100·0
<i>Education—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	2 9 9	..	..	..	2 9 9	0 10 5	100·0
<i>Religion—</i>							
(a) ..	1 8 0	..	1 4 0	2 10 0	5 6 0	1 5 6	20·0
(b) ..	10 0 0	9 8 0	1 0 0	1 0 0	21 8 0	5 6 0	80·0
<i>Travelling—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	30 0 0	10 8 0	35 12 0	35 12 0	112 0 0	28 0 0	100·0
<i>Social—</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	13 0 0	6 0 0	..	2 0 0	21 0 0	5 4 0	100·0
<i>Amusements &amp; luxuries</i>							
(a) ..	..	..	..	..	..	..	..
(b) ..	9 8 0	6 0 0	7 8 0	7 8 0	30 8 0	7 10 0	100·0
<i>Others—</i>							
(a) ..	5 4 0	5 4 0	5 4 0	5 4 0	21 0 0	5 4 0	60·1
(b) ..	2 0 0	2 2 0	7 3 0	2 10 0	13 15 0	3 7 9	39·9
<i>Total—</i>							
(a) ..	238 10 1	238 11 9	272 5 7	310 0 6	1,059 11 11	264 15 0	56·4
(b) ..	230 14 3	168 2 9	184 15 0	234 14 1	818 14 1	204 11 6	43·6
<i>Percentage to the total—</i>							
(a) ..	50·8	58·7	50·6	56·9	56·4	..	..
(b) ..	49·2	41·3	40·4	43·1	43·6	..	..

STATEMENT V.-A.

*Labour Sheet showing the Days Worked by Men of an Average Family during the Year, 1932-33.*

Items.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Total.	Per working member.	Percentage to the total.
Cultivation work ..	38.9	29.0	31.8	25.9	47.5	49.7	50.4	53.7	45.2	38.2	43.4	34.0	488.3	150.3	44.9
Upkeep of livestock ..	36.4	48.8	50.9	62.5	66.7	57.3	38.8	30.3	33.9	36.9	40.1	32.7	544.3	187.5	50.0
Milking ..	1.4	1.3	0.8	0.3	0.5	0.5	0.5	0.4	0.7	1.0	0.6	0.7	8.7	2.7	0.8
Churning ..	..	0.4	..	..	..	..	..	..	..	..	..	..	0.4	0.1	..
House-repairing ..	..	..	..	..	..	..	..	..	..	0.7	0.6	1.6	2.9	0.9	0.3
Grinding grain ..	1.0	0.9	0.5	0.7	0.7	0.7	0.2	0.6	0.9	0.3	0.4	0.7	7.6	2.3	0.7
Miscellaneous ..	0.8	1.6	3.2	2.1	5.4	3.2	1.3	0.3	1.1	2.0	1.3	1.6	23.9	7.3	2.2
Paid labour outside ..	0.3	0.8	..	0.5	0.4	0.6	0.1	1.8	0.5	..	2.4	5.2	12.6	3.9	1.1
<i>Total</i> ..	<i>78.8</i>	<i>32.8</i>	<i>96.2</i>	<i>92.0</i>	<i>121.2</i>	<i>112.0</i>	<i>91.3</i>	<i>87.1</i>	<i>82.3</i>	<i>79.7</i>	<i>88.8</i>	<i>76.5</i>	<i>1,085.7</i>	<i>335.0</i>	<i>100.0</i>
<i>Per working member</i> ..	<i>24.3</i>	<i>25.5</i>	<i>29.6</i>	<i>28.3</i>	<i>37.3</i>	<i>34.5</i>	<i>28.1</i>	<i>26.8</i>	<i>25.3</i>	<i>24.5</i>	<i>27.3</i>	<i>23.5</i>	<i>335.0</i>	<i>..</i>	<i>..</i>

STATEMENT V.-B.

*Labour Sheet showing the Days Worked by Women of an Average Family during the Year, 1932-33.*

Item.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Total.	Per working member.	Percentage of the total.
Upkeep of livestock ..	..	..	0.1	..	..	..	..	..	..	2.3	1.9	0.5	4.8	1.9	0.8
Milking ..	0.5	0.5	1.5	1.4	1.2	1.3	1.3	1.3	0.9	1.3	1.5	1.5	14.2	5.7	2.5
Churning ..	3.5	3.7	4.8	4.1	4.5	5.1	5.2	4.7	3.9	3.5	3.7	3.5	50.2	20.1	8.9
Barn cleaning ..	3.8	3.9	4.0	3.9	3.9	3.8	3.9	3.9	4.0	3.9	3.8	3.9	46.7	18.7	8.3
House cleaning and repairing..	2.7	2.7	3.3	2.3	2.9	2.4	2.4	2.3	2.4	2.3	3.5	3.3	32.5	13.0	5.7
Clothes making, mending and washing ..	7.0	7.7	14.1	13.9	9.4	8.0	5.2	11.5	14.4	14.9	8.7	4.1	119.8	47.9	21.1
Cooking and carrying meals ..	18.3	16.8	13.5	13.4	15.6	16.5	10.2	17.3	15.3	14.7	13.6	13.6	187.8	75.1	33.2
Fetching water ..	3.1	3.4	3.4	3.0	3.4	3.8	7.7	7.5	6.0	5.9	4.3	3.6	55.1	22.0	9.7
Miscellaneous ..	..	..	0.1	..	0.4	0.1	0.1	..	0.1	..	0.3	1.9	3.0	1.2	0.5
Paid labour outside ..	22.0	20.4	0.5	..	..	..	..	..	..	..	..	9.5	52.4	21.0	9.3
<i>Total</i> ..	<i>80.9</i>	<i>59.1</i>	<i>45.3</i>	<i>42.0</i>	<i>41.3</i>	<i>41.9</i>	<i>45.0</i>	<i>48.5</i>	<i>47.0</i>	<i>48.8</i>	<i>41.3</i>	<i>45.4</i>	<i>566.5</i>	<i>226.0</i>	<i>100.0</i>
<i>Per working member</i> ..	<i>24.4</i>	<i>23.6</i>	<i>18.1</i>	<i>16.8</i>	<i>16.5</i>	<i>16.8</i>	<i>18.0</i>	<i>19.4</i>	<i>18.8</i>	<i>19.5</i>	<i>16.5</i>	<i>18.2</i>	<i>226.6</i>	<i>..</i>	<i>..</i>

**APPENDIX A.**  
**CHEMICAL COMPOSITION OF THE FOODS.**

				<i>Proteins.</i>	<i>Fats.</i>	<i>Carbo- hydrates.</i>
				Per cent.	Per cent.	Per cent.
Wheat flour*	..	..	..	9.63	1.55	77.90
Maize†	..	..	..	9.31	3.51	76.24
Rice‡	..	..	..	5.91	0.4	80.29
<i>Pulses—</i>						
Mash*	..	..	..	22.38	0.73	64.19
Masur*	..	..	..	24.25	0.80	63.79
Gram*	..	..	..	23.06	2.87	64.11
<i>Milk—</i>						
Cow§	..	..	..	3.5	4.5	4.7
Buffalo§	..	..	..	5.1	7.5	4.5

\*—Lyallpur Jail Food Analysis supplied by P. E. Lander, Agricultural Chemist to Government, Punjab.

†—Memoirs of Department of Agriculture in India, September, 1924, Vol. VII., No. 4, by P. E. Lander and Lal Chand.

‡—Calculated from the composition given in Peace Scale Ration of Indian Troops, Army Table, Miscellaneous Services, 1921, Part I., Section III., Table 15.

§—"Punjab Dairying" by Kartar Singh.

**APPENDIX B.**  
**FORMS USED IN THE INQUIRY.**

*Daily Cash Account.*

Date.	Particulars.	Quantity.	Dr.	Cr.	Source or purpose.	Remarks.
			Income.	Expenditure.		

*Weekly Milk Record.*

Date.	Animal.	MILK.					GHI.			* Monthly total of the milk sold.	Remarks.
		Given to calf.	Net milked.	Sold.	Consumed.	Churned.	Made.	Sold.	Consumed.		

\* Monthly total of the milk sold should be inquired from the middleman who buys the milk from the tenants and takes it to the city.

**APPENDIX B.—Concise.**  
*Kind Account.*

Particulars.	1		
	2	Quantity..	Remainder from the previous year.
3	Value.		
	4	Quantity.	Purchased this year.
	5	Value.	
	6	Produced this year.	
	7	Landlord's share.	
	8	Total (2+4+6-7).	
	9	Quantity.	Sold.
	10	Rate.	
	11	Value.	
	12	Quantity.	Given to inmates.
	13	Value.	
	14	Quantity.	Fed to cattle.
	15	Value.	
	16	Quantity.	Used as seed.
	17	Value.	
	18	Quantity.	Eaten by the family.
	19	Value.	
	20	Use.	Put to other uses.
	21	Quantity.	
	22	Value.	
	23	Quantity.	Surplus.
	24	Value.	
	25	Remarks.	

*Labour Record.\**

Date.	Name.		
		Cultivation work.	
		<i>Upkeep of livestock.</i>	All cattle.
			Bullocks alone.
			Other cattle alone.
		Milking.	
		Churning.	
		Barn cleaning.	
		House cleaning and repairing.	
		Sewing and washing clothes.	
		Ginning and spinning cotton.	
		Cooking and taking meals to the fields.	
		Fetching water.	
		Grinding grain for home consumption.	
		Miscellaneous.	
		Paid labour outside.	
		Remarks.	
Total ..			

\* *N.B.*—Separate sheets should be used for men and women.

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(GENERAL EDITOR: J. W. THOMAS, B.Sc., B.Com.)

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## FAMILY BUDGETS, 1933-34, OF SIX TENANT-CULTIVATORS IN THE LYALLPUR DISTRICT,

Being the Second Year's Accounts of some Cultivators on  
the Risalewala Farm near Lyallpur,

BY

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[The Board of Economic Inquiry, Punjab, does not hold itself responsible  
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1935.

## Food Reports of the Board of Economic Inquiry, Punjab.

1. Sixty Years of Punjab Food Prices, 1861-1920.  
(Publication No. 7.)
2. Eighty Years of Punjab Food Prices, 1841-1920.  
(Publication No. 13.)
3. Rates of Food Consumption of Zemindars in the  
Talagang Tahsil of the Attock District.  
(Publication No. 6.)
4. Family Budgets, 1932-33, of Four Tenant-Cultivators  
in the Lyallpur District.  
(Publication No. 40.)
5. Food Consumption by Zemindars in Khanewal  
Tahsil of the Multan District.  
(In Press.)
6. Farm Accounts Series. Publications Nos. 12, 15,  
19, 20, 21, 24, 26, 32, 33, 35 and 45.  
(In Press.)

A complete list of the Board's Publications is given on  
the back cover.

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*(With abbreviations used).*

12 Pies (Ps.)=1 Anna (A.); 16 Annas (As.)=1 Rupee (Re. or Rs.)=1s. 6d.

20 *Marlas* (M.)=1 *Kanal*; 8 *Kanals*=1 Acre (A.); 27·8 Acres =1 Square=1,100 feet × 1,100 feet.

16 *Chhataks* (Ch.)=1 Seer (S.); 40 Seers=1 Maund (Md.) =82 <sup>2</sup>/<sub>7</sub> lbs.

## INTRODUCTION.

No inquiry proposing to study the economics of an industry would be complete without paying due attention to the nature of the living that it affords to the labour employed in the industry. The Board's Publications "*Farm Accounts in the Punjab*"\* and "*Studies in the Cost of Production of Crops in the Punjab*,"† dealt with farming economy in the Province purely from the side of cultivation of crops, but the important aspect of the agricultural industry relating to the total income and expenditure of the farmer and his family remained in the dark. And it is to be remembered that the type of farming carried on in the Punjab is pre-eminently a family industry.

To meet this need for information "*Family Budgets, (1932-33), of Four Tenant-Cultivators in the Lyallpur District*," was published last year. It studied:—

- (1) The cost of various items of household expenditure ;
- (2) The extent to which this expenditure is met by the produce of the farm ;
- (3) Various sources of income of the families ; and
- (4) Extent of employment of the members of the families.

The present study is the second publication of the same series and the number of families examined has this year been raised to six. The lines of presentation followed are the same as in the last publication, except that the period of study has been made coincident with the "*Farm Accounts in the Punjab*." This change was desirable in order to facilitate comparison between the two accounts, and give them continuity. The present publication thus relates to the period 1st June 1933 to 31st May 1934, while the last one related to the period 1st November 1932 to 31st October 1933.

The income of the tenants from cultivation given on page 27 of this note has been taken from Part X. of the *Farm Accounts* for 1933-34.‡ Tenants A., B., C., D., E. and F., of these accounts are tenants Nos. 7, 18, 10, 5, 15 and 19 of the *Farm Accounts*. Analyses of some important articles of food used, to find the nutritive value of the food consumed by the families, are given in Appendix A. One point may be noted here. In the tables on pages 10 and 11 it will be seen that Family E.'s expenditure on milk and milk products is very much higher than that of the other five families.

---

\* Publications Nos. 12, 15, 19, 20, 21, 24, 26, 32, 35.

† Publication No. 33.

‡ Publication No. 45. (*In press.*)

This seems to have more to do with the rise in the amount spent by all the families on this item of food, and also in raising the total amount spent on food this year as over against last year. This high consumption by Family E. is probably due to the fact that it is Sikh, but since it is the only family of that religion studied in these accounts, it would be unfair to generalise until data for more Sikh families were available.

Here we take the opportunity of thanking Dr. Lander, Agricultural Chemist to the Government, Punjab, Lyallpur, for kindly allowing us to make use of some unpublished results of Jail food analysis, worked out by him, and to Rev. E. D. Lucas of the Forman Christian College, Lahore, for kindly going through the manuscript and making very valuable suggestions.

## FAMILY BUDGETS OF SIX TENANT-CULTIVATORS, 1933-34, IN THE LYALLPUR DISTRICT.

1. *Introductory.*—The first of the “Family Budgets of Tenant-Cultivators in the Lyallpur District,” was published in 1934\*, and this is the second publication of this series. This year’s accounts have been worked out on the same lines as last year, except that the period covered by the last year’s publication was from 1st November 1932 to 31st October 1933, while in this it is from 1st June 1933 to 31st May 1934. This change has been effected because it was considered desirable that the periods covered by these accounts and “*Farm Accounts in the Punjab*” should be the same.

The present publication deals with six families of tenant-cultivators instead of only four as was done in the former one. Families A., B., C. and D. of this year are the same as those of last and Families E. and F. are new. As stated last year, Families A., C. and D. are *Arain*, and Family B. is *Jat*. With the inclusion of Families E. and F., both *Jats*, in the accounts, the number of *Jat* and *Arain* families becomes equal. It should however, be noted that while last year all families were Muslims, this year one family—Family E.—is Sikh *Jat*.

2. *Particulars of the families.*—The following table shows the number of men, women and children in each family. For the sake of comparison the members of each family have been converted into adult male units, according to the Scale given by Atwater†:—

Tenant.	ADULT (ABOVE 16 YEARS).		ADOLESCENT (10 to 16 YEARS).		Children below 10 years.	Total.	Adult male units.
	Male.	Female.	Male.	Female.			
A. (Muslim Arain) ..	3	2	1	1	2	9	6.8
B. ( „ Jat) ..	3	2	..	..	2	7	5.5
C. ( „ Arain) ..	4	2	..	..	4	10	7.2
D. ( „ „ ) ..	3	3	1	..	6	13	8.3
E. (Sikh Jat) ..	2	1	..	..	2	5	3.5
F. (Muslim Jat) ..	2	3	..	..	..	5	4.4
<i>Total</i> ..	17	13	2	1	16	49	35.7
Average per family ..	2.8	2.2	0.3	0.2	2.7	8.2	5.95

\* Board of Economic Inquiry, Punjab, Publication No. 40.

† Atwater’s Scale of Adult Male Units in “*Chinese Farm Economy*” by Buak, page 17.

For the scale see footnote on the next page.

All families, except one, treated in this note, are joint families. Thus Family A. includes the man, his wife, sons, daughters and a daughter-in-law; B. consists of the tenant, his wife, sons, daughter-in-law and a granddaughter; C., two brothers, their wives and children, father and uncle; D. includes two brothers, their parents, wives and children; E., a Sikh family consists of two brothers, wife of the younger brother, his son and daughter; F., the only one that comes within the western sense of the term 'Family' has only the head of the family, his wife, son and daughters. Family D., as also stated in the previous publication is divided into two parts, each living in a separate house. In these accounts, however, these have been treated as one, because the two brothers although living in separate houses, cultivate the same holding, and make common use of household goods.

3. *Expenditure.*—The total domestic expenditure of each family, and per adult male unit, has been analysed in the tables on the following two pages, respectively, under the following twelve heads:—

- |                                |                              |
|--------------------------------|------------------------------|
| 1. Housing.                    | 7. Education.                |
| 2. Food.                       | 8. Religion.                 |
| 3. Fuel.                       | 9. Travelling.               |
| 4. Dress (clothing and shoes). | 10. Social.                  |
| 5. Medicine.                   | 11. Amusements and luxuries. |
| 6. Light.                      | 12. Miscellaneous.           |

(1) *Housing.*—Housing includes the cost of repairs to the house and furniture made during the year. It also includes the value of petty articles of furniture purchased, but does not include the rent or depreciation on the value of the houses. The tenants have to incur no expenditure on this account as the houses are provided to them free of cost by the landlord. Expenditure on

*Atwater's Scale of Adult Male Units.*

Age in years.	EQUIVALENT ADULT MALE UNITS.	
	Male.	Female.
Adult over 16 .. .. .	1.0	0.8
15 to 16 .. .. .	0.9	0.8
13 to 14 .. .. .	0.8	0.7
12 .. .. .	0.7	0.6
10 to 11 .. .. .	0.6	0.6
6 to 9 .. .. .	0.5	0.5
2 to 5 .. .. .	0.4	0.4
Under 2 .. .. .	0.3	0.3

*Total Domestic Expenditure of the Six Families in 1933-34.*

**A.—PER FAMILY.**

Item.	FAMILY.							
	A.	B.	C.	D.	E.	F.	Total.	Average.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Housing (Repairs alone) ..	1 0 0	3 1 6	1 0 0	2 14 0	0 4 0	0 2 0	8 5 6	1 6 3
Food .. ..	321 13 11	303 4 2	310 7 5	410 14 5	311 5 1	223 3 5	1,881 0 5	313 8 1
Fuel .. ..	..	..	..	..	..	..	..	..
Dress .. ..	96 5 8	71 15 8	72 4 7	63 2 9	81 13 9	68 5 4	453 15 9	75 10 8
Medicine .. ..	6 5 0	5 2 0	2 4 6	9 3 0	0 7 0	4 7 0	27 12 6	4 10 1
Light .. ..	4 0 0	6 1 6	4 15 3	4 0 0	10 2 0	4 0 0	33 2 9	5 8 5
Education .. ..	5 6 9	0 8 0	0 4 0	0 12 0	..	0 8 0	7 6 9	1 3 10
Religion .. ..	8 5 9	11 9 9	11 12 9	18 9 7	5 0 0	12 6 3	67 12 1	11 4 8
Travelling .. ..	55 6 0	23 8 0	26 12 0	33 3 10	13 12 0	10 2 0	162 11 10	27 2 0
Social .. ..	13 0 0	5 0 0	..	..	35 3 0	1 0 0	54 3 0	9 0 6
Amusements and luxuries .. ..	4 8 6	3 0 0	8 3 0	5 4 0	2 1 0	..	23 0 6	3 13 5
Miscellaneous .. ..	11 12 9	6 4 4	12 0 9	8 7 4	5 9 0	7 0 4	51 1 9	8 8 3
<i>Total</i> .. ..	<i>528 0 4</i>	<i>439 6 11</i>	<i>449 15 6</i>	<i>556 6 11</i>	<i>465 8 10</i>	<i>331 2 4</i>	<i>2,770 8 10</i>	<i>461 12 2</i>

ca.

*Total Domestic Expenditure of the Six Families in 1933-34.*

**B.—PER ADULT MALE UNIT.**

Item.	FAMILY.							Average.	Percentage to the total.
	A.	B.	C.	D.	E.	F.			
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		
Housing (Repairs alone) ..	0 2 4	0 9 0	0 2 8	0 5 6	0 1 2	0 0 5	0 3 9	0.3	
Food .. ..	47 5 4	55 2 3	43 1 11	49 8 1	88 15 2	50 11 8	52 11 1	67.9	
Fuel .. ..	..	..	..	..	..	..	..	..	
Dress .. ..	14 2 9	13 1 4	10 0 8	7 9 9	23 6 3	15 8 6	12 11.6	16.4	
Medicine .. ..	0 14 10	0 14 11	0 5 1	1 1 9	0 2 0	1 0 2	0 12 5	1.2	
Light .. ..	0 9 5	1 1 9	0 11 0	0 7 9	2 14 4	0 14 6	0 14 10	1.0	
Education .. ..	0 12 9	0 1 5	0 0 7	0 1 5	..	0 1 10	0 3 4	0.3	
Religion .. ..	1 3 8	2 1 9	1 10 2	2 3 10	1 6 10	2 13 1	1 14 4	2.4	
Travelling .. ..	8 2 4	4 4 4	3 11 5	4 0 1	3 14 10	2 4 10	4 8 11	5.9	
Social .. ..	1 14 7	0 14 7	..	..	10 0 10	0 3 8	1 8 4	2.0	
Amusements and luxuries .. ..	0 10 8	0 8 9	1 2 2	0 10 1	0 9 5	..	0 10 4	0.8	
Miscellaneous .. ..	1 11 9	1 2 3	1 10 8	1 0 4	1 9 5	1 9 6	1 6 11	1.8	
<b>Total</b> .. ..	<b>77 10 5</b>	<b>79 14 4</b>	<b>62 7 11</b>	<b>67 0 7</b>	<b>133 0 3</b>	<b>75 4 2</b>	<b>77 9 9</b>	<b>100.0</b>	

7

this item varied from Rs. 0/2/0 with Family F. to Rs. 3/1/6 for Family B. The average comes to Rs. 1/6/3 per family as against Rs. 2/9/10 last year.

(2) *Food*.—Food includes expenditure on grains, milk, sugar, rice, meat, pulses, fruit, vegetables and other articles of food. The expenditure on these varied from Rs. 223/3/5 to Rs. 410/14/5 per family and Rs. 43/1/11 to Rs. 88/15/2 per adult male unit; the average was Rs. 313/8/1 per family as against Rs. 302/1/11 last year, and Rs. 52/11/1 per adult male unit as against Rs. 45/14/8 last year. Food forms the highest single item of expenditure amounting to 67·9 per cent. of the total. This item has been treated separately—(see page 9).

(3) *Fuel*.—Articles used as fuel by the families are loppings from trees, cotton sticks and dung cakes. The tenants get loppings of trees free of charge. Cotton sticks have no market value and have therefore been included neither in income in the “*Farm Accounts*,” nor in expenditure in these accounts. Further, the value of manure produced by bullocks (in “*Farm Accounts*”) and milch cattle (in these accounts) has not been deducted from their cost of upkeep, and it is therefore not proper to count it in the household expenditure. Thus no amount has been shown against ‘*Fuel*.’

(4) *Dress*.—This item includes the expenditure on clothing and shoes. It is the second largest item of expenditure and forms 16·4 per cent. of the total. Expenditure on dress varied from Rs. 63/2/9 to Rs. 96/5/8 per family and from Rs. 7/9/9 to Rs. 23/6/3 per adult male unit. The average per family comes to Rs. 75/10/8 as against Rs. 97/2/3 last year, and average per adult male unit to Rs. 12/11/6 as against Rs. 14/12/2 last year. The item of dress has been discussed in a separate section subsequently—(see page 23).

(5) *Medicine*.—Cost of medicines varied from Rs. 0/7/0 to Rs. 9/3/0 per family and Rs. 0/2/0 to Rs. 1/1/9 per adult male unit, the averages being Rs. 4/10/1 and Rs. 0/12/5 respectively. Last year the average per family came to Rs. 4/11/2 and per adult male unit Rs. 0/11/5.

(6) *Light*.—This item includes the cost of oil burnt and repairs and replacements of lamps. Expenditure on light varied from Rs. 4/- to Rs. 10/2/0, the average being Rs. 5/8/5 per family as against Rs. 6/1/8 last year.

(7) *Education*.—Expenditure on education varied from nil to Rs. 5/6/9, the average being Rs. 1/3/10 per family as against Rs. 0/10/5 last year. Education is the lowest item of household expenditure for these tenants and forms only 0·3 per cent. of the total.

Regarding the extent of literacy in these families, four families, B., C., E., and F.,—out of the six are totally illiterate. Of the others, Family A. has one adult male educated up to the third primary standard and another is able to read the *Koran*. In Family D. one man is educated up to the fifth primary standard and two others are able to read the *Koran*. Two boys of Family A. and one of Family D. are reading in the District Board Primary School in the village, and one boy and two girls are reading in the mosque. About 53 per cent. of the boys of school-going age in the village attend the village primary school. Girls are also allowed to join the school, but only two have availed themselves of this opportunity.

(8) *Religion*.—Muslim tenants have a mosque on the Farm. Their expenditure on 'Religion' includes the charges for the maintenance of the mosque, and a *Maulvi*. The cost of the sacrificial goat at the occasion of 'Id and alms given on other religious festivals are also included under this head. The members of the Sikh family, having no religious institution at the Farm, go to Lyallpur to make offerings to the Gurdwaras and these offerings have been included under this head.

Religious expenditure varied from Rs. 5/- to Rs. 18/9/7 and the average came to Rs. 11/4/8 per family as against Rs. 6/11/6 last year. This year Tenant A. sacrificed a goat, Tenant B. a lamb, Tenant D. two goats, and Tenant F. one goat and one lamb. Tenants C. and D. gave Rs. 7/- and Rs. 8/8/0, respectively, as offerings to their *pirs*.

(9) *Travelling*.—Travelling is an important item of expenditure coming third in the order of importance, and forming 5.9 per cent. of the total. All the tenants included in these accounts have migrated to this canal colony from older districts, and are still maintaining their connections with their relatives in the old villages. They have to travel a good deal in order to take part in social functions, and also to settle the question of renting out their lands. Expenditure on travelling varied from Rs. 10/2/0 to Rs. 55/6/0 and averaged Rs. 27/2/0 per family as against Rs. 28/- last year.

(10) *Social*.—This head includes the expenditure incurred on social occasions, such as marriages, births, circumcision ceremonies, etc. The expenditure varied from nil to Rs. 35/3/0 and the average works out at Rs. 9/0/6 per family as against Rs. 5/4/0 last year. Tenant A. spent Rs. 9/- on the marriage of a relative and gave Rs. 4/- to his son-in-law, while B. spent Rs. 5/- on a marriage. E. gave Rs. 22/- as help to a relative on his daughter's marriage, and spent Rs. 13/3/0 at the birth of his own child; F. gave Re. 1/- to one of his guests as a present.

(11) *Amusements and luxuries*.—Under this head has been included the cost of tobacco used for smoking, and money spent

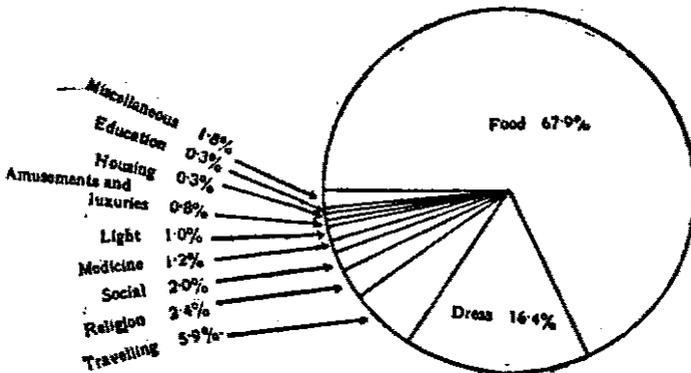
at fairs, theatres and other entertainments. The expenditure under this head varied from nil with Tenant F. to Rs. 8/3/0 in the case of Tenant C., the average being Rs. 3/13/5 per family and Rs. 0/10/4 per adult male unit, as against Rs. 7/10/0 and Rs. 1/2/7, respectively, last year.

(12) *Miscellaneous*.—Miscellaneous expenditure includes all expenses not included under any of the above heads, such as the payment to the barber, cost of baskets and buckets purchased, correspondence, etc. The expenses under this item varied from Rs. 5/9/0 to Rs. 12/- and the average came to Rs. 8/8/3 as against Rs. 8/11/9 last year.

(13) *Summary*.—Total expenditure varied from Rs. 331/2/4 in the case of Tenant F. to Rs. 556/- for Tenant D. and the average came to Rs. 461/12/2 per family as against Rs. 469/10/6 last year. Per adult male unit the expenditure varied from Rs. 62/7/11 with Family C. to Rs. 133/0/3 with Family E., and the average worked out at Rs. 77/9/9 as against Rs. 71/6/0 last year.

Food is the largest item of expenditure as it comprises 67·9 per cent. of the total. The second most important item is dress, 16·4 per cent. Travelling, religion, social functions, medicine, light, amusement and luxuries, form 5·9, 2·4, 2·0, 1·2, 1·0 and 0·8 per cent. respectively. Last come housing and education each constituting 0·3 per cent. of the total expenditure. The relative importance of the items of expenditure is illustrated in the following diagram :—

CHART I.



As compared with last year the different items of expenditure per family and per adult male unit varied as follows :—

Items.	AVERAGE.			
	Per Family.		Per Adult Male Unit.	
	1932-33.	1933-34.	1932-33.	1933-34.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Housing ..	2 9 10	1 6 3	0 6 4	0 3 9
Food ..	302 1 11	313 8 1	45 14 8	52 11 1
Fuel ..	..	..	..	..
Dress ..	97 2 3	75 10 8	14 12 2	12 11 6
Medicine ..	4 11 2	4 10 1	0 11 5	0 12 5
Light ..	6 1 8	5 8 5	0 14 10	0 14 10
Education ..	0 10 5	1 3 10	0 1 7	0 3 4
Religion ..	6 11 6	11 4 8	1 0 4	1 14 4
Travelling ..	28 0 0	27 2 0	4 4 1	4 8 11
Social ..	5 4 0	9 0 6	0 12 9	1 8 4
Amusements and luxuries ..	7 10 0	3 13 5	1 2 7	0 10 4
Miscellaneous ..	8 11 9	8 8 3	1 5 3	1 6 11
<i>Total</i> ..	<i>469 10 6</i>	<i>461 12 2</i>	<i>71 6 0</i>	<i>77 9 9</i>

It will be seen that food is mainly responsible for the difference in the expenses per adult male unit in the two years. Slight differences in other items balance each other.

4. *Sources of the goods consumed.*—Statement IV on pages 36-37, shows the extent to which Farm produce has been directly used by the families to meet their household needs. A summary of this statement is given in the following table :—

Item.	Furnished by the farm.	Purchased from outside.
	Per cent.	Per cent.
1. Housing (Repairs alone) ..	..	100·0
2. Food .. ..	81·4	18·6
3. Fuel .. ..	100·0	..
4. Dress (Clothing and shoes) ..	11·2	88·8
5. Medicine .. ..	..	100·0
6. Light .. ..	..	100·0
7. Education .. ..	..	100·0
8. Religion .. ..	21·1	78·9
9. Travelling .. ..	..	100·0
10. Social .. ..	1·8	98·2
11. Amusements and luxuries ..	..	100·0
12. Miscellaneous .. ..	71·7	28·3
<i>All items</i> ..	<i>59·0</i>	<i>41·0</i>

Thus the goods furnished by the Farm and those purchased from outside were 59·0 and 41·0 per cent. respectively as against 56·4 and 43·6 per cent. respectively, last year.

5. *Kinds of foods consumed.*—As already mentioned food is the heaviest item of expenditure, forming 67·9 per cent. of the total. The total amount spent per family, and per adult male unit, analysed into the following eleven items, has been shown in the tables, on the following two pages, respectively :—

i. Wheat.	vi. Meat.
ii. Maize.	vii. Pulses.
iii. Milk and milk products.	viii. Vegetables.
iv. Sugar.	ix. Fruit.
v. Rice.	x. Salt.
xi. Miscellaneous.	

(i) *Wheat.*—This is the most important item of food constituting about half (46·4 per cent.) of the total expenditure on food. Almost all the wheat was produced on the Farm. It is used in the form of flour for making *chapatis* throughout most of the year and is also used for various other preparations, such as *halva*, etc. Consumption of wheat per family averaged 46·9 maunds (Statement I, page 32) and per adult male unit 7·9 maunds as against 50·8 maunds and 7·7 maunds respectively last year. The value varied from Rs. 96/9/0 to Rs. 171/9/0 per family and from Rs. 19/15/4 to Rs. 29/15/3 per adult male unit. The average expenditure on this item was Rs. 145/5/6 per family and Rs. 24/6/10 per adult male unit as against Rs. 142/12/6 and Rs. 21/11/2 respectively in 1932-33. The higher figures for the present year are due to the slightly larger amount of wheat consumed, and a slight rise in its price.

(ii) *Maize.*—Maize, like wheat, is used for making *chapatis*, but it is consumed only for a few months in winter when it forms a favourite variety in the diet of farmers in this province. It is consumed mostly in combination with the *sag* of *sarson*. On this Farm however, as explained last year, the tenants do not grow much maize, and consequently it forms only a minute item of their diet. During the present year five families out of the six consumed maize and the average consumption for all the families was only 0·8 maunds per family as compared with one maund last year. The value averaged Rs. 1/12/8 per family and Rs. 0/4/10 per adult male unit, as against Rs. 2/4/0 and Rs. 0/5/6, respectively, last year.

(iii) *Milk and milk products.*—Most of the milk and its products consumed by the families were produced at home. It is used either directly as milk, or indirectly in the form of *ghi*, curd, buttermilk, butter, etc. Some cooked dishes and sweetmeats are also prepared with milk. The total consumption of milk per family, (including the *ghi* purchased, in terms of whole milk\*) varied

\* *Ghi* has been converted into whole milk on the assumption : 1 *chhatak* of *ghi* = 1 seer of milk.

*Expenditure on Each Article of Food Consumed by Each of the Six Families in 1933-34.*

**A.—PER FAMILY.**

Item.	FAMILY.							
	A.	B.	C.	D.	E.	F.	Total.	Average.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Wheat .. ..	171 9 0	164 12 0	166 3 6	165 10 6	96 9 0	107 4 9	872 0 9	145 5 6
Maize .. ..	0 8 0	0 10 0	0 10 0	..	6 8 0	2 8 0	10 12 0	1 12 8
Milk and milk products .. ..	102 11 7	97 2 10	91 10 1	160 4 9	140 14 2	74 3 2	668 14 7	111 2 5
Sugar .. ..	16 0 4	21 11 0	23 11 8	29 2 0	21 10 5	14 8 6	126 11 11	21 2 0
Rice .. ..	10 4 0	5 0 0	7 14 0	9 7 0	2 9 6	2 4 0	37 6 6	6 3 9
Meat .. ..	2 2 0	2 12 0	1 10 0	10 0 6	..	3 10 6	20 3 0	3 5 10
Pulses .. ..	3 4 9	1 1 1	2 3 2	3 15 1	6 11 9	2 12 3	20 0 1	3 5 4
Vegetables .. ..	2 12 0	2 5 3	4 7 6	3 0 9	3 0 0	3 12 0	19 5 6	3 3 7
Fruits .. ..	2 7 6	0 14 0	1 2 6	4 8 0	7 4 3	2 5 0	18 9 3	3 1 6
Salt .. ..	1 9 0	1 4 0	1 10 0	1 14 0	1 0 0	1 0 0	8 5 0	1 6 2
Miscellaneous .. ..	8 9 9	5 12 0	9 5 0	22 15 10	25 2 0	8 15 3	80 11 10	13 7 4
<i>Total</i> .. ..	<i>321 13 11</i>	<i>303 4 2</i>	<i>310 7 5</i>	<i>410 14 5</i>	<i>311 5 1</i>	<i>223 3 5</i>	<i>1,881 0 5</i>	<i>313 8 1</i>

*Expenditure on Each Article of Food Consumed by Each of the Six Families in 1933-34.*

**B.—PER ADULT MALE UNIT.**

Item.	FAMILY.						Average.	Percentage to the total.
	A.	B.	C.	D.	E.	F.		
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Wheat .. ..	25 3 8	39 15 3	23 1 5	19 15 4	27 9 5	24 6 2	24 6 10	46.4
Maize .. ..	0 1 2	0 1 10	0 1 5	..	1 13 9	0 9 1	0 4 10	0.6
Milk and milk products .. ..	15 1 9	17 10 8	12 11 7	19 5 0	40 4 1	16 13 10	18 10 11	35.4
Sugar .. ..	2 5 8	3 15 1	3 4 9	3 8 2	6 3 0	3 4 10	3 8 10	6.7
Rice .. ..	1 8 1	0 14 7	1 1 6	1 2 2	0 11 10	0 8 2	1 0 9	2.0
Meat .. ..	0 5 0	0 8 0	0 3 7	1 3 4	..	0 13 3	0 9 1	1.1
Pulses .. ..	0 7 9	0 3 1	0 4 11	0 7 7	1 14 9	0 10 1	0 8 11	1.1
Vegetables .. ..	0 6 6	0 6 9	0 9 11	0 5 11	0 13 9	0 13 8	0 8 8	1.0
Fruits .. ..	0 5 10	0 2 7	0 2 7	0 8 8	2 1 2	0 8 5	0 8 4	1.0
Salt .. ..	0 3 8	0 3 8	0 3 7	0 3 7	0 4 7	0 3 7	0 3 9	0.4
Miscellaneous .. ..	1 4 3	1 0 9	1 4 8	2 12 4	7 2 10	2 0 7	2 4 2	4.3
<b>Total ..</b>	<b>47 5 4</b>	<b>55 2 3</b>	<b>43 1 11</b>	<b>49 8 1</b>	<b>88 15 2</b>	<b>50 11 3</b>	<b>52 11 1</b>	<b>100.0</b>

from 32·4 maunds to 55·4 maunds, the average being 40·3 maunds. Consumption per adult male unit varied from 4·5 maunds in Family C. to 15·9 maunds in Family E., and the average worked out at 6·8 maunds. Averages per family and per adult male units for the year 1932-33 were 40·1 maunds and 6·1 maunds, respectively. Consumption in terms of money varied from Rs. 74/3/2 to Rs. 160/4/9 per family, the average being Rs. 111/2/5 as compared with Rs. 97/10/3 in 1932-33. Per adult male unit the consumption varied from Rs. 12/11/7 to Rs. 40/4/1, the average being Rs. 18/10/11 as against Rs. 14/13/5 last year. The higher cost of milk was mostly due to its higher cost of production in the present year. Of the products of milk by value 3·2 per cent. were purchased, and 96·8 per cent. were produced at home.

The following table shows the amount of *ghi* consumed by the families; also the amount produced at home and that purchased from outside :—

Tenants.	Produced.			Purchased.			Total.			Per adult male unit.		
	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.	Mds.	Srs.	Ch.
A. ..	1	19	9	0	4	0	1	23	9	0	9	4
B. ..	1	30	3	0	6	0	1	36	3	0	13	4
C. ..	1	12	2	..	..	..	1	12	2	0	7	4
D. ..	1	39	1	0	7	0	2	6	1	0	10	4
E. ..	2	16	15	0	4	0	2	20	15	0	28	13
F. ..	1	17	0	0	1	8	1	18	8	0	13	5
Total ..	10	14	14	0	22	8	10	37	6	..	..	..
Average ..	1	29	2	0	3	12	1	32	14	0	12	4

Thus consumption of *ghi* varied from 7·3 seers to 28·8 seers per adult male unit, and averaged 12·25 seers. This works out to 0·54 *chhataks* per adult male unit per day and 0·40 *chhataks* per head per day as compared with 0·53 and 0·39 *chhataks* respectively last year. (The cost of production of milk and its disposal will be treated subsequently in section 6.)

(iv) *Sugar*.—Two forms of sugar, raw and refined, were used by the families for sweetening milk and for various dishes. Raw sugar is mostly produced at the Farm, but if the cultivator does not grow sugarcane, or the crop is sold as seed—not an uncommon practice on this Farm—it has to be purchased from outside. Refined sugar is all purchased. Raw sugar is for general use while refined sugar is reserved for special occasions and for guests. The table on the following page shows the amount and value of the sugar consumed, and also the proportion furnished by the Farm or purchased from outside.

Consumption per adult male unit varied from 17·6 seers to 43·3 seers quantitatively and Rs. 2/5/8 to Rs. 6/3/0 by value. Average consumption per adult male unit was 26·9 seers as against 42·5 seers last year; it was valued at Rs. 3/8/10 as against Rs. 3/14/2 last year. Consumption per head came to 19·6 seers, valued at Rs. 2/9/5, as against 31·1 seers valued at Rs. 2/13/5 last year. The decrease in the quantity of sugar consumed, it will be observed, is all in raw sugar, which is only 21·2 seers per adult male unit as against 37·8 seers in 1932-33. This is on account of the rise in the market rate of raw sugar.\* On the other hand the consumption of refined sugar has risen slightly, *viz.*, 5·8 seers as against 4·8 seers last year.

Last year a comparison of consumption of sugar was made with the consumption in other countries. Comparing the present year's figures also, it is found that the consumption by these families, is still much higher than that for the whole of India, and compares quite favourably with that of Europe.

<i>Country.</i>	<i>Consumption per capita.†</i>
	<i>lbs.</i>
United States of America .. .. .	89·14
United Kingdom .. .. .	93·37
Denmark .. .. .	95·57
Europe .. .. .	36·83
India .. .. .	22·30
<i>Punjab (six families) .. .. .</i>	<i>40·30</i>

(v) *Rice*.—Rice is not a staple food of cultivators in the Punjab, and is used only in the form of special dishes as when boiled in water or milk and sweetened or salted. The whole of the rice consumed was purchased as rice was not grown on the Farm. The consumption varied from 4·3 seers to 15·7 seers per adult male unit, the average being 9·2 seers as against 10·2 seers last year. The value of rice consumed per family varied from Rs. 2/4/0 to Rs. 10/4/0 and per adult male

\* Average rate of raw sugar during the years 1932-33 and 1933-34 was Rs. 2/7/0 and Rs. 3/8/11, respectively.

† Report of the Indian Sugar Committee, page 366, Appendix II (1920).

*Amount and Value of the Sugar Consumed by Each Family and per Adult Male Unit in 1933-34.*

Tenant.	PER FAMILY.						PER ADULT MALE UNIT.		
	RAW SUGAR.			Refined sugar purchased.	Total.	Per head.	Raw sugar.	Refined sugar.	Total.
	Furnished by the farm.	Purchased.	Total.						
<b>A.—AMOUNT—</b>	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.	Seers.
A. .. ..	80.0	44.5	124.55	21.9	146.4	16.3	18.3	3.2	21.5
B. .. ..	..	105.0	105.0	38.8	143.8	20.6	19.1	7.0	26.1
C. .. ..	110.0	50.0	160.0	37.3	197.3	19.8	22.2	5.2	27.4
D. .. ..	120.0	80.0	200.0	46.3	246.3	18.9	24.1	5.6	29.7
E. .. ..	40.0	80.0	120.0	31.6	151.6	30.3	34.3	9.0	43.3
F. .. ..	..	47.0	47.0	30.5	77.5	15.5	10.7	6.9	17.6
<i>Total</i> ..	<i>350.0</i>	<i>406.5</i>	<i>756.5</i>	<i>206.4</i>	<i>962.9</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>58.3</i>	<i>67.8</i>	<i>126.1</i>	<i>34.4</i>	<i>160.5</i>	<i>19.6</i>	<i>21.2</i>	<i>5.8</i>	<i>26.9</i>
<b>B.—VALUE—</b>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
A. .. ..	4 11 4	4 15 0	9 10 4	6 6 0	16 0 4	1 12 6	1 6 8	0 15 0	2 5 8
B. .. ..	..	10 11 0	10 11 0	11 0 0	21 11 0	3 1 7	1 15 1	2 0 0	3 15 1
C. .. ..	5 14 2	6 4 0	12 2 2	11 9 6	23 11 8	2 6 0	1 11 0	1 9 9	3 4 9
D. .. ..	7 1 0	10 0 0	17 1 0	12 1 0	29 2 0	2 3 10	2 5 11	1 10 10	4 0 9
E. .. ..	2 5 8	10 0 0	12 5 8	9 4 9	21 10 5	4 5 3	3 8 6	2 10 6	6 3 0
F. .. ..	..	5 6 0	5 6 0	9 2 6	14 8 6	2 14 6	1 3 7	2 1 3	3 4 10
<i>Total</i> ..	<i>20 0 2</i>	<i>47 4 0</i>	<i>67 4 2</i>	<i>59 7 9</i>	<i>126 11 11</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>..</i>
<i>Average</i> ..	<i>3 5 4</i>	<i>7 14 0</i>	<i>11 3 4</i>	<i>9 14 8</i>	<i>21 2 0</i>	<i>2 9 5</i>	<i>1 14 2</i>	<i>1 10 8</i>	<i>3 8 10</i>

unit from Rs. 0/8/2 to Rs. 1/8/2, and the averages are Rs. 6/3/9 and Rs. 1/0/9, as against Rs. 8/1/11 and Rs. 1/3/9 respectively last year.

(vi) *Meat*.—The consumption of meat in Muslim families varied from 5·8 seers to 34·5 seers. The Sikh Family E. consumed no meat. The average consumption for the six families came to 11·4 seers per family and 1·9 seers per adult male unit. The meat of the animals sacrificed at the occasion of 'Id' is not included under this head as this comes under 'Religion.' Most of the meat consumed was purchased at an average rate of Rs. 0/4/7 per seer from Lyallpur. The expenditure per adult male unit on this account varied from nil in the case of Tenant E. to Rs. 1/3/4 for Tenant D., and the average was Rs. 0/9/1 as against Rs. 1/1/0 last year. For Muslim tenants alone, the consumption per adult male unit averaged 2·1 seers valued at Rs. 0/10/5.

(vii) *Pulses*.—Pulses such as gram, *mung*, *mash* and *masur*, after being boiled in water and salted and spiced, are consumed along with *chapatis*. Gram was mostly produced at the Farm but the other pulses were bought. The average consumption of pulses came to 48·2 seers per family and 8·1 seer per adult male unit, valued at Rs. 3/5/4 and Rs. 0/8/11 respectively, as against Rs. 4/4/3 and Rs. 0/10/4, respectively, last year.

(viii) *Vegetables*.—All vegetables were purchased from Lyallpur except *sag* of *sarson*, the value of which has not been included in the expenditure, because the tenants usually scatter a little *sarson* seed in the fields to be picked later and used as *sag* and then about the end of February cut as fodder. Vegetables to the value of Rs. 3/3/7 per family and Rs. 0/8/8 per adult male unit, were consumed during the year, as against Rs. 3/8/7 and Rs. 0/8/7 last year.

(ix) *Fruit*.—Fruits such as mangoes, grapes, dates, pears, lemons, *bers*, almonds, etc., were all purchased and the average consumption amounted to Rs. 3/1/6 per family and Rs. 0/8/4 per adult male unit, as compared with Rs. 3/11/0 and Rs. 0/9/0 respectively in 1932-33.

(x) *Salt*.—All salt was purchased at Rs. 2/8/0 per maund. Expenditure on this account averaged Rs. 1/6/2 per family and Rs. 0/3/9 per adult male unit. The figures for the last year are Rs. 1/7/9 and Rs. 0/3/8 respectively.

(xi) *Miscellaneous*.—This includes such things as pickles, spices, etc., not included under any of the above heads, and the value of the purchases of kitchen utensils and repairs to them during the year. It also includes the charges of the water carrier who supplied drinking water. Miscellaneous expenditure varied from Rs. 5/12/0 to Rs. 25/2/0, the average being Rs. 13/7/4 per family as against Rs. 5/13/0 in the previous year.

*Summary.*—The total expenditure on food varied from Rs. 223/3/5 to Rs. 410/14/5 per family, and from Rs. 43/1/11 to Rs. 88/15/2 per adult male unit. The average expenditure on food of a family of 5.95 adult male units came to Rs. 313/8/1, which amounts to Rs. 52/11/1 per adult male unit. Last year the average expenditure on food of a family of 6.58 adult male units was Rs. 302/1/11 which came to Rs. 45/14/8 per adult male unit.

The following table compares the average expenditure on food item by item for the two years :—

Item.	PER FAMILY.		PER ADULT MALE UNIT.	
	1932-33.	1933-34.	1932-33.	1933-34.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Wheat ..	142 12 6	145 5 6	21 11 2	24 6 10
Maize ..	2 4 0	1 12 8	0 5 6	0 4 10
Milk and milk products.	97 10 3	111 2 5	14 13 5	18 10 11
Sugar ..	25 8 11	21 2 0	3 14 2	3 8 10
Rice ..	8 1 11	6 3 9	1 3 9	1 0 9
Meat ..	6 15 9	3 5 10	1 1 0	0 9 1
Pulses ..	4 4 3	3 5 4	0 10 4	0 8 11
Vegetables ..	3 8 7	3 3 7	0 8 7	0 8 8
Fruits ..	3 11 0	3 1 5	0 9 0	0 8 4
Salt ..	1 7 9	1 6 2	0 3 8	0 3 9
Miscellaneous ..	5 13 0	13 7 4	0 14 1	2 4 2
<i>Total</i> ..	<i>302 1 11</i>	<i>313 8 1</i>	<i>45 14 8</i>	<i>52 11 1</i>

As will be seen from the above table the increase in the expenditure for food per adult male unit from Rs. 45/12/8 last year to Rs. 52/11/8 this year is due to the increase in the cost of wheat, milk and milk products. The following table shows the consumption of various articles of food per adult male unit, and their prices

during the two years, and, thus, illustrates the reasons for the increase or decrease in the cost of the articles of food :—

Items.	AMOUNT CONSUMED PER ADULT MALE.		AVERAGE PRICE PER MAUND.	
	1932-33.	1933-34.	1932-33.	1933-34.
Wheat (Maunds)	7.7	7.9	Rs. a. p. 2 13 1	Rs. a. p. 3 1 7
Maize "	0.2	0.1	1 11 6	2 3 1
Milk "	6.1	6.8	2 6 11	2 14 2
Sugar "	1.1	0.7	3 8 6	5 4 1
Rice (Seers)	10.2	9.2	4 13 10.	4. 9 0
Meat "	3.6	1.9	11 11 7	11 12 7
Pulses "	7.4	8.1	3 7 9	2 12 3
Salt "	3.6	3.7	2 8 0	2 8 0

It will be seen that the increase in the expenditure on wheat was due to a slight rise in the quantity consumed and also a rise in price. Similarly the cost of milk consumed is higher this year owing to the larger quantity of milk and its products consumed and the higher cost of production.

6. *Production and disposal of milk.*—Buffaloes and cows are the animals generally kept for the production of milk. Farmers in the Punjab prefer buffaloes to cows for this purpose, because the former are generally better milkers than the latter and their milk is richer in fat and other nutrients. Cows are mainly kept for the supply of male calves.

Statements II.-A. and II.-B. on pages 33-34, show the cost of production of milk by buffaloes and cows separately. The method of working out the cost of production is the same as outlined last year and the main items of the cost of production are :—

- (a) Roughages.
- (b) Concentrates.
- (c) Salt.
- (d) Interest and depreciation on the value of milch cattle.
- (e) Miscellaneous.

The roughages consumed which include *bhusa* and green fodder, are mostly grown on the Farm. The value of roughages consumed by milch cattle was the same as that taken for estimating income from cultivation in "*Farm Accounts.*"

Concentrates include gram, wheat, *gur*, bran, cakes, etc., fed to the milch cattle alone. Interest and depreciation are charged at the rate of 8 per cent. and 12 per cent. respectively, on the value of milch cattle. 'Miscellaneous' includes the cost of ropes, veterinary charges, etc.

From the total of these items is deducted the value of young stock raised during the year. Nothing has been charged for the labour spent on the upkeep of the animals, because milk production is not the main occupation of the cultivators and is followed only to supplement the income from cultivation. The value of manure produced has also not been deducted from the cost because the value of manure applied to crops has not been debited to the account of cultivation in the "*Farm Accounts*", nor has it been considered as an item of expenditure in family budgets, when burnt as fuel in the form of dung cakes. Cost of production of milk thus means the cost of roughages, concentrates and salt consumed by the milch cattle, plus interest and depreciation on their value, and miscellaneous expenditure, less the value of young stock raised during the year.

According to this method the cost of production of milk by thirteen buffaloes and six cows kept by these families was as follows:—

	TOTAL.		PER ANIMAL.	
	Buffaloes.	Cows.	Buffaloes.	Cows.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Roughages ..	438 4 10	189 9 1	33 11 5	31 9 6
Concentrates ..	217 14 0	43 5 8	16 12 2	7 3 7
Salt ..	14 12 0	6 4 0	1 2 2	1 0 8
Interest (8%) and depreciation (12%) on the value ..	182 6 5	53 0 0	14 0 6	8 13 4
Miscellaneous ..	11 9 0	4 6 0	0 14 3	0 11 8
<i>Total</i> ..	<i>864 14 3</i>	<i>296 8 9</i>	<i>66 8 6</i>	<i>49 6 9</i>
<i>Less the value of young stock</i> ..	<i>56 0 0</i>	<i>65 0 0</i>	<i>4 4 11</i>	<i>10 13 4</i>
<i>Total</i> ..	<i>808 14 3</i>	<i>231 8 9</i>	<i>62 3 7</i>	<i>38 9 5</i>
	Mds. Srs.	Mds. Srs.	Mds. Srs.	Mds. Srs.
Milk produced ..	333 31	62 20	25 27	10 17
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cost per maund ..	2 6 9	3 11 3	2 6 9	3 11 3

Thus it will be seen that the cost of upkeep of 13 buffaloes was Rs. 808/14/3 which comes to Rs. 62/3/7 per animal, and that of 6 cows Rs. 231/8/9 which means Rs. 38/9/7 per cow. The cost of upkeep per cow is lower because cows gave less milk and consequently got less concentrates. Interest and depreciation on their value was also less, and the value of young stock in their case was higher.

Each cow consumed on an average concentrates worth Rs. 7/3/7 as against Rs. 16/12/2 consumed by each buffalo. Interest and depreciation on their value amounted to Rs. 8/13/4 per cow as against Rs. 14/0/6 per buffalo, and the value of young stock per cow was Rs. 10/13/4 as against Rs. 4/4/11 per buffalo.

Although the average cost of upkeep of a cow was lower than that of a buffalo, the amount of milk produced per cow was much less and thus buffaloes produced milk at a lower cost per maund than did the cows. The average amount of milk produced per buffalo was 25·7 maunds and per cow 10·4 maunds, and the cost of production of milk per maund works out at Rs. 2/6/9 for buffaloes and Rs. 3/11/3 for cows. Last year each buffalo produced on an average 20·5 maunds and each cow 15·5 maunds of milk. The cost of production of milk for buffaloes as well as for cows this year comes to Rs. 2/10/0 per maund as against Rs. 2/6/9 per maund last year. The higher cost of production this year is due to the higher price of wheat *bhusa* and concentrates during this year.

One hundred and seventy two maunds, 24 seers of buffaloes' milk and 58 maunds, 30 seers of cows' milk were consumed by the families, the remaining 161 maunds, 2 seers of buffaloes' and 3 maunds, 30 seers of cows' milk were sold to a middleman. He lives in the city, comes every morning to the village, gathers milk from the tenants in his own tins, which he carries to the city on a pony. He purchased milk at an average rate of Rs. 3/2/11 per maund. Cows' milk, which was hardly 2 per cent. of the total amount sold, was mixed with buffaloes' and thus fetched the same price. The cost of production of milk being Rs. 2/6/9 and Rs. 3/11/3 for buffaloes and cows respectively, it means a gain of Rs. 0/12/2 per maund of buffaloes' milk and a loss of Rs. 0/8/4 per maund of cows' milk sold.

7. *Nutritive value of the food consumed.*—The following table gives the amount of proteins, fats, and carbohydrates daily consumed by an average adult male of the six families and the amount of energy to be acquired from them :—

Tenant.	Proteins.	Fats.	Carbo- hydrates.	Energy.
	Grammes.	Grammes.	Grammes.	Calories.*
A. ..	105·6	44·5	749·5	3,821
B. ..	123·1	55·0	867·7	4,458
C. ..	98·6	44·3	693·9	3,568
D. ..	87·2	42·2	614·0	3,185
E. ..	175·0	110·3	991·9	5,660
F. ..	112·4	51·3	744·2	3,888
<i>Average</i> ..	<i>110·2</i>	<i>52·8</i>	<i>748·1</i>	<i>3,909</i>

\* Calorie in this report means a large calorie, i.e. the amount of heat required to raise the temperature of one kilogramme of water by one degree centigrade.

It will be seen that the consumption of proteins varied from 87.2 grammes per adult male to 175.0 grammes daily, that of fats from 42.2 grammes to 110.3 grammes, and that of carbohydrates from 614.0 grammes to 991.9 grammes. The average consumption of proteins, fats and carbohydrates comes to 110.2, 52.8 and 748.1 grammes respectively as against 110.2, 54.9 and 769.8 grammes respectively last year. Energy supplied by this food varied from 3,185 calories to 5,660 calories and the average came to 3,909 calories as compared with 4,014 calories last year.

Atwater in America recommends 150 grammes of proteins and 4,150 calories of energy per adult male unit per day.\* Langworthy who has studied the diets of various peoples found the following results :—

	FOOD PER MAN PER DAY.	
	Proteins.	Energy.
	Grammes.	Calories.
U. S. A. : Farmers and Mechanics ..	100	3,425
Canada : Factory hands .. ..	108	3,480
Japan : Labourers .. ..	118	4,415
China : Labourers .. ..	91	3,400

As a standard for men with more muscular activity, such as mechanics at more active work, Langworthy suggests 3,500 calories including 105 grammes of proteins. A comparison of the diet of Punjab cultivators with these standards will show that their diet does not fall short of requirements.

Second in importance to the amount of food constituents is the variety of sources from which the constituents are drawn. An ideal diet is considered to be one which draws its constituents both from vegetable and animal products. Statement III, on page 35, shows the amount and percentage of the food constituents drawn from various sources. It will be seen that wheat is the most important item in the diet and supplied 68.3 per cent. of total protein, 22.9 per cent. of fats and 81.4 per cent. of carbohydrates and 72.8 per cent. of total energy. Milk and its products (including the *ghi* purchased) come next which gave 23.5 per cent. of proteins,

\* " Chemistry of Food Nutrition " by Sherman.

66.1 per cent. fats, 4.1 per cent. carbohydrates and 13.8 per cent. of total energy. The following diagrams show the importance of various articles of food in supplying proteins and energy to the body.

CHART II.-A.

## PROTEINS

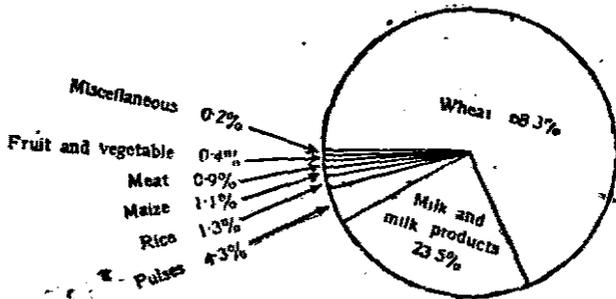
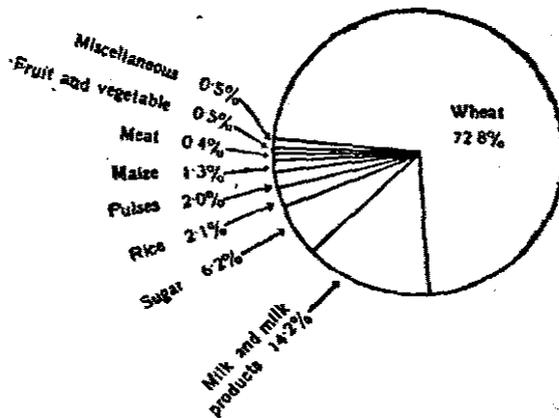


CHART II.-B.

## ENERGY



The following table shows the percentages of the food constituents drawn from vegetable and animal products :—

Article of food.	Proteins.	Fats.	Carbo- hydrates.	Energy.
	Per cent.	Per cent.	Per cent.	Per cent.
<i>Animal products :</i>				
Milk and milk products	23.5	69.1	4.1	14.2
Meat ..	0.9	2.6	..	0.4
<i>Total</i> ..	<i>24.4</i>	<i>71.7</i>	<i>4.1</i>	<i>14.6</i>
<i>Vegetable products :</i>				
Grains ..	75.0	24.9	87.1	78.2
Sugar ..	..	..	8.0	6.2
Fruits and vegetables	0.4	0.3	0.6	0.5
<i>Total</i> ..	<i>75.4</i>	<i>25.2</i>	<i>95.7</i>	<i>84.9</i>
Miscellaneous ..	0.2	3.1	0.2	0.5

It is evident from the above table that the food of these families is rich in variety and compares favourably on the energy basis with the diet of Chinese and American farmers, as follows :—

	China.*	Risalewala.	America.*
	Per cent.	Per cent.	Per cent.
Grains .. ..	89.8	78.2	38.7
Animal products .. ..	1.0	14.6	39.2
Vegetables .. ..	8.9	0.3	9.0
Fruits .. ..	0.1	0.2	3.0
Sugar .. ..	0.2	6.2	10.1
Miscellaneous .. ..	..	0.5	..

\* "Chinese Farm Economy," by Buck, page 364.

It is clear from this table that as regards variety the diet of our farmers lies between the diets of Chinese and American farmers. In the former 99 per cent. of energy is drawn from the vegetable kingdom and only 1.0 per cent. from the animal kingdom. In the American diet vegetable products supply only 60.8 per cent. of energy and animal products 39.2 per cent. In our cultivators' diet 85.4 per cent. energy is drawn from vegetable products and only 14.6 per cent. from animal products.

8. *Dress*.—Dress, as stated previously, includes clothing and shoes. The clothes can be divided into four main classes according to their use—

- (i) For ordinary wear.
- (ii) Bedding, *i.e.*, mattresses, quilts, etc.
- (iii) Used on special occasions only.
- (iv) For presentation to relatives.

Clothes belonging to classes (i) and (ii) are coarse, and are generally made in the village. Those to be used on special occasions, or to be presented to relatives are more showy and expensive and are usually of mill-made cloth. Generally country shoes made by village shoemakers are used.

Dress is the second most important item of expenditure and constituted 16.4 per cent. of the total as against 20.7 per cent. last year. Expenditure on dress varied from Rs. 63/2/9 to Rs. 96/5/8 per family and from Rs. 7/9/9 to Rs. 23/6/3 per adult male unit. Average of the six families was Rs. 75/10/8 per family as against Rs. 97/2/3 last year, and Rs. 12/11/6 per adult male unit as against Rs. 14/12/2 last year. The expenditure on dress has decreased on account of the fact that the cultivators tried to save something from this item as they had to spend more on food.

The following table shows the amount of cloth and number of pairs of shoes used by the six families:—

Tenant.	TOTAL.		PER ADULT MALE UNIT.		Shoes per head.
	Cloth.	Shoes.	Cloth.	Shoes.	
	Yards.	Pairs.	Yards.	Pairs.	Pairs.
A. ..	275.0	5.0	40.4	0.7	0.5
B. ..	188.3	4.0	34.2	0.7	0.6
C. ..	257.5	7.0	35.8	1.3	0.7
D. ..	246.5	3.0	29.1	0.4	0.2
E. ..	286.0	6.0	81.7	1.7	1.2
F. ..	242.0	5.0	55.0	1.1	1.0
<i>Average</i> ..	249.7	5.0	42.5	0.8	0.6

It will thus be seen that each family on an average used 249·7 yards of cloth as compared with 327·1 yards in 1932-33 and 5·0 pairs of shoes as against 5·3 pairs in 1932-33. Clothes and shoes used per adult male unit come to 42·5 yards and 0·8 pairs, respectively, as against 49·8 yards and 0·8 pairs, respectively, last year. The decrease in the amount of cloth used is in accordance with the decrease in the expenditure on dress. Of the expenditure on dress, 11·2 per cent. was directly met by the produce of the farm, and the balance of 88·8 per cent. was paid for in cash.

The following table shows the amount of cotton lint used by these families for various purposes :—

Tenant.	Quilts.	Cloth.	Lint exchanged for cloth.	Total.
	Seers.	Seers.	Seers.	Seers.
A. ..	9·0	12·0	..	21·0
B. ..	6·0	16·0	..	22·0
C. ..	6·5	7·0	..	13·5
D. ..	..	..	7·0	7·0
E. ..	6·0	8·0	..	14·0
F. ..	9·0	12·0	..	21·0
<i>Average</i> ..	<i>6·1</i>	<i>9·1</i>	<i>1·2</i>	<i>16·4</i>

This shows that each family used on an average 16·4 seers of lint corresponding to 49·2 seers of seed cotton as against 14·3 seers of lint equivalent to 42·9 seers of seed cotton last year. This rise in the amount of cotton consumed at home is due to the fact that this year cotton was a very good crop, and the women of the families earned more cotton by working as pickers. The increase in the cotton thus consumed was also a measure of economy in the expenditure on dress.

The cost of getting cloth made by the village weaver is shown in the table on the following page. It will be seen that the cost of making cloth in the village came to Rs. 0/2/3 per yard excluding spinning charges, and Rs. 0/2/10 including spinning charges against Rs. 0/2/2 and Rs. 0/2/8 last year. Only one tenant—

The Cost on Cloth incurred by the Six Families in 1933-34.

Tenant.	LINT.		Carding charges at 2 annas per seer.	WEAVING CHARGES.		Total.	Spinning charges at 4 annas per seer.	Total.	Cloth.	COST PER YARD.	
	Quantity.	Value at Rs. 12/4/6 per md.		Cash at Re. 1/- per 15 yards.	Value of grain given.					Excluding spinning charges.	Including spinning charges.
	Seers.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Yards.	As p.	As. p.
A. ..	12	3 10 11	1 8 0	5 10 8	0 10 8	11 8 3	3 0 0	14 8 3	85	2 2	2 9
B. ..	16	4 14 7	2 0 0	5 8 6	0 14 2	13 5 3	4 0 0	17 5 3	93	2 7	3 4
C. ..	7	2 2 5	0 14 0	3 5 4	0 9 11	6 15 8	1 12 0	8 11 8	50	2 3	2 10
D. ..	..	..	..	..	..	..	..	..	..	..	..
E. ..	8	1 8 7	1 0 0	3 11 9	0 7 1	6 11 5	2 0 0	8 11 5	56	1 11	2 6
F. ..	12	3 10 11	1 8 0	5 5 4	0 10 8	11 2 11	1 8 0	12 10 11	80	2 3	2 6
<i>Total</i> ..	<i>55</i>	<i>15 15 5</i>	<i>6 14 0</i>	<i>23 9 7</i>	<i>3 4 6</i>	<i>49 11 6</i>	<i>12 4 0</i>	<i>61 15 6</i>	<i>354</i>	<i>2 3</i>	<i>2 10</i>

Tenant D.—exchanged lint for cloth. The cost of cloth for him was as follows :—

Cost of getting 48 yards of cloth in exchange for cotton lint :

	Rs.	a.	p.
Lint, 7 seers at Rs. 12/4/6 per maund ..	2	2	5
Cash .. .. .	6	9	0
<i>Total</i> ..	8	11	5
<i>Cost per yard</i> ..	0	2	11

No yarn was bartered for cloth. The cost per yard of cloth got in exchange for cotton lint is nearly the same as that made in the village including spinning charges. But, as most of the yarn meant for making cloth is spun at home, home-made cloth is cheaper by 8 pies per yard. Further home-made cloth is more durable so that there is a double gain in making cloth at home rather than getting it in exchange for cotton lint.

The cost of making a quilt was as follows :—

	Rs.	a.	p.
Cloth, 12 yards Rs. 0/2/3 per yard ..	1	11	0
Cost of printing the cover ..	0	8	0
Carding and stuffing charges ..	0	6	0
Lint, 3 seers @ Rs. 12/4/6 per maund..	0	14	9
<i>Total</i> ..	3	7	9

The cloth has been charged at Rs. 0/2/3 per yard, because the cloth used for quilts is generally made at home, for which spinning is done by women of the family. Similarly charges for sewing and stitching have been omitted, because this work is also done at home.

9. *Income*.—The main source of income for these families was the cultivation of land. Other sources were sale of milk, picking of cotton, carting farm produce to the market and working as daily labourers on hire. The income of the families from all these sources during the year ending 31st May 1934, was as follows :—

Inm.	TENANTS.							Per family.
	A.	B.	C.	D.	E.	F.	Total.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cultivation	310 1 10	221 13 2	244 10 5	124 15 4	148 7 4	108 0 6	1,156 0 7	192 10 9
Sale of milk ..	5 2 0	48 15 7	3 14 8	1 6 8	25 8 9	45 10 4	128 10 0	21 7 0
Picking of cotton	15 4 6	12 11 9	12 11 9	15 4 6	5 1 6	20 6 0	81 8 0	13 9 4
Carting ..	..	..	6 0 0	5 0 0	25 0 0	4 0 0	40 0 0	6 10 8
Labour ..	2 0 0	..	12 0 0	6 4 0	1 8 0	8 0 0	29 12 0	4 15 4
<i>Total</i> ..	<i>332 8 4</i>	<i>281 8 6</i>	<i>279 4 10</i>	<i>152 14 6</i>	<i>205 9 7</i>	<i>184 0 10</i>	<i>1,435 14 7</i>	<i>239 5 1</i>

\* See "Farm Accounts in the Punjab, 1933-34", Part X, tenants No. 7, 18, 10, 5, 15 and 19, respectively.

It will be seen that the income of the families varied from Rs. 152/14/6 in the case of Tenant D. to Rs. 332/8/4 in case of Tenant A., and the average came to Rs. 239/5/1 as against Rs. 414/11/6 last year. Cultivation is the largest source of income, and formed 80·5 per cent. of the total income. Earnings from the sale of milk, shares from the picking of cotton, earnings by carting the produce, and wages of the labour done, formed 9·0, 5·6, 2·8 and 2·1 per cent. of the total income, respectively.

10. *Financial Position of the Tenants.*—The following table shows the income, expenditure and balance in the budget of each of the six families:—

Tenant.	Income.	Expenditure.	Deficit.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
A. ..	332 8 4	528 0 4	195 8 0
B. ..	281 8 6	439 6 11	157 14 5
C. ..	279 4 10	449 15 6	170 10 8
D. ..	152 14 6	556 6 11	403 8 5
E. ..	205 9 7	465 8 10	259 15 3
F. ..	184 0 10	331 2 4	147 1 6
<i>Total</i> ..	<i>1,435 14 7</i>	<i>2,770 8 10</i>	<i>1,334 10 3</i>
<i>Per family</i> ..	<i>239 5 1</i>	<i>461 12 2</i>	<i>222 7 1</i>

It is clear from the table that all the families had to face a deficit varying from Rs. 147/1/6 with Family F. to Rs. 403/8/5 with Family D. The Tenant D. had, as last year, to face the heaviest deficit because his net income was the lowest and he had to support the largest family. The deficits in the budgets of the families are unusually high on account of the low income due to a fall in the market rates of *rabi* grain and *bhusa*. The income per family in 1933-34 was only Rs. 239/5/1 as against Rs. 414/11/6 in 1932-33. Besides this, grain and *bhusa* on the expenditure side have been charged at the much higher rates prevalent during *rabi*, 1932-33, and those on the income side at the much lower rates current in *rabi*, 1933-34. As the expenditure of the family depended on the money available during the year, it was income from *rabi* 1932-33, grain and *bhusa* which was available in the beginning of the year, for expenditure. Owing to the high rates prevalent in *rabi* 1932-33, the expenditure during 1933-34 was high, while the income from 1933-34 *rabi* with its low rates was much less.

The tenants met the deficits as follows :—

Tenant.	Deficit.	Received	Sold	Incurring
		rent of his land.	animals.	debt.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
A. .. ..	195 8 0	64 0 0	..	131 8 0
B. .. ..	157 14 5	130 0 0	..	27 14 5
C. .. ..	170 10 8	30 0 0	17 0 0	123 10 8
D. .. ..	403 8 5	50 0 0	70 0 0	283 8 5
E. .. ..	259 15 3	106 0 0	..	153 15 3
F. .. ..	147 1 6	40 0 0	60 0 0	47 1 6
<i>Total</i> ..	1,334 10 3	420 0 0	147 0 0	767 10 3

It will be observed that Tenant D. incurred a debt of Rs. 50/- last year and one of Rs. 283/8/5 during the year under report. Similarly other tenants incurred debts varying from Rs. 27/14/5 to Rs. 153/15/3. In view of these facts it is surprising how long these people can go on raising loans. This riddle may perhaps be explained by the fact that actually very little debt was incurred by the cultivators because a considerable portion of interest and depreciation charged on the value of livestock and implements was not actually paid during the year. Most of the livestock was either purchased several years back or reared at home. None of the improved implements, on the value of which interest and depreciation are charged, was purchased during this year. The total livestock of the six families consisted of 24 bullocks, 13 buffaloes, and 6 cows, besides young stock. Of these only five bullocks worth Rs. 192/- were purchased during the year, while other animals were either home-bred or purchased before the commencement of

these accounts. The cost of upkeep of young stock (which means the cost of rearing home-bred animals) during the year was Rs. 340/12/2. This makes the total expenditure incurred for the supply of livestock only Rs. 532/12/2, while interest and depreciation on their value amounts to Rs. 897/5/8. Thus an expenditure of Rs. 364/9/6 shown against these families on account of interest and depreciation on the value of livestock was not actually incurred by them. Further interest and depreciation on the value of improved implements, none of which was purchased during the year comes to Rs. 149/14/3, thus making the expenditure not actually incurred during the year Rs. 514/7/9. If this is admitted the aggregate deficit of Rs. 767/10/3 is reduced to Rs. 253/2/6 only, or Rs. 42/3/1 per family.

11. *Employment of the members of the families.*—Statements V.-A. and V.-B. on pages 38-39, show the time spent in doing various kinds of work by men and women of an average family. It will be seen that each man worked on an average for 304.5 days of 8 hours each during the year as compared with 335.0 days last year. Each woman worked for 247.2 days as against 226.6 days in 1932-33. The distribution of the working time of men and women during the two years was as follows:—

Item.	PER MAN.				PER WOMAN.			
	Days.		Percentage to the total.		Days.		Percentage to the total.	
	1932-33.	1933-34.	1932-33.	1933-34.	1932-33.	1933-34.	1932-33.	1933-34.
Cultivation work	150.3	166.7	44.9	54.7	..	..	..	..
Upkeep of live- stock.	167.5	113.4	50.0	37.2	1.9	2.0	0.8	0.8
Milking ..	2.7	6.3	0.8	2.1	5.7	9.7	2.5	4.0
Churning ..	0.1	0.1	..	..	20.1	16.6	8.9	6.7
Barn cleaning..	..	..	..	..	18.7	27.0	8.3	10.9
House cleaning and repairing.	0.9	1.1	0.3	0.4	13.0	13.1	5.7	5.3
Clothes making, mending and washing.	..	..	..	..	47.9	41.0	21.1	16.6
Cooking and car- rying meals.	..	..	..	..	75.1	80.5	33.2	32.5
Fetching water from well.	..	..	..	..	22.0	25.9	9.7	10.5
Grinding grain	2.3	2.0	0.7	0.7	..	..	..	..
Miscellaneous ..	7.3	9.3	2.2	3.1	1.2	0.9	0.5	0.4
Paid labour ..	3.9	5.6	1.1	1.8	21.0	30.5	9.3	12.3
<i>Total</i> ..	<i>335.0</i>	<i>304.5</i>	<i>100.0</i>	<i>100.0</i>	<i>226.6</i>	<i>247.2</i>	<i>100.0</i>	<i>100.0</i>

It is clear from the above table that the work done by the two sexes was supplementary, and that men as well as women remained fairly busy throughout the year. The figures of employment of men, as pointed out last year, however, include a large number of days spent on the upkeep of livestock, which would be considerably reduced if they could get more remunerative employment. Each man worked as a daily labourer on an average for 5·6 days as against 3·9 days last year. Each woman picked cotton on an average, for 30·5 days as against 21·0 days last year, and received 46·2 seers of cotton or 1·5 seers per day, for this work as compared with 1·1 seers last year.

## 12. *Summary.*—

(1) This is the second publication in the series dealing with family budgets of tenant-cultivators in the Lyallpur District.

(2) *Number of Families.*—It presents the family budgets of six tenant-cultivators.

(3) *Period.*—The budgets relate to the period 1st June 1933 to 31st May 1934.

(4) *Size of family.*—There were on an average 8·2 members (equivalent to 5·95 adult male units\*) per family.

## (5) *Expenditure.*†—

(i) *Per family.*—Total expenditure per family varied from Rs. 331/2/4 to Rs. 556/6/11, the average being Rs. 461/12/2 or Rs. 38/7/8 per mensem.

(ii) *Per adult male unit.*—Per adult male unit the expenditure varied from Rs. 62/7/11 to Rs. 133/0/3, the average being Rs. 77/9/9 or Rs. 6/7/6 per mensem.

(iii) *Important items.*—By far the most important item of expenditure was food, which alone formed 67·9 per cent. of the total. Dress, comprising clothing and shoes, constituted another 16·4 per cent. Travelling, religion, social, medicine, light, amusements and luxuries, and housing‡ formed 5·9, 2·4, 2·0, 1·2, 1·0, 0·8 and 0·3 per cent. respectively.

(6) *Education.*—Education is one of the smallest items of expenditure forming only 0·3 per cent. of the total.

(7) *Sources of goods.*—59·0 per cent. of the goods consumed were furnished by the Farm and 41·0 per cent. were bought from outside. 81·4 per cent. of food and 11·2 per cent. of the dress material were produced on the farm.

\* See page 1. † Expenditure does not include the value of fuel burnt.

‡ Housing does not include interest and depreciation on the value of houses.

(8) *Cost of making khaddar.*—Home-made cloth cost Rs. 0/2/3 per yard, excluding spinning charges (which were not actually paid, as this work was done by the women), and Rs. 0/2/10 including spinning charges.

(9) *Milk.*—The milk consumed by the families was produced on the Farm and the surplus sold to a middleman who carried it to Lyallpur. The cost of production of milk\* per maund came to Rs. 2/6/9 for buffaloes and Rs. 3/11/3 for cows.

(10) *Nutritive value of food.*—Each adult male unit consumed on an average 110·2 grammes of proteins and 3,909 calories of energy in food every day. The food nutrients were drawn from vegetable and animal products, wheat being the most important vegetable product and milk the most important animal product. The nutritive value of the food consumed compares quite favourably with the standards given for other countries.

(11) *Income.*—The income of the families from cultivation, sale of milk, labour and carting varied from Rs. 152/14/6 to Rs. 332/8/4, the average being Rs. 239/5/1.

(12) *Balance* :—

(i) Budgets of all families showed *deficits* varying from Rs. 147/1/6 to Rs. 403/8/5, the average being Rs. 222/7/1.

(ii) The deficits were to some extent met by the rent of the land owned by the families in the older districts.

(13) *Employment.*—Each adult male member of the families worked on an average for 304·5 days of 8 hours each during the year, and each adult female for 247·2 days. The men were mostly engaged in the work of cultivation and upkeep of livestock, and the women in household duties such as cooking, making clothes, cleaning houses, etc.

(14) *Extra employment.*—Each man worked for 5·6 days and each woman for 30·5 days during the year as a paid labourer.

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\* Cost of production of milk does not include the cost of labour performed by family members, nor does it exclude the value of manure produced by the milch cattle (see page 18).

STATEMENT I.

*Amounts of Important Articles of Food Consumed by the Six Tenant Families in 1933-34.*

Articles of food.	TENANTS.						Total.	Average per family.	PER ADULT MALE UNIT.						
	A.	B.	C.	D.	E.	F.			A.	B.	C.	D.	E.	F.	Average.
Wheat (Maunds)	55.2	53.2	54.2	52.5	31.0	35.2	281.3	46.9	8.1	9.7	7.5	6.3	8.9	8.0	7.9
Maize ( " )	0.2	0.3	0.2	..	3.2	1.0	4.9	0.8	..	0.1	..	..	0.9	0.2	0.1
Milk and milk products ( " )	34.7	41.1	32.4	46.9	55.8	31.1	242.0	40.3	5.1	7.5	4.5	5.6	15.9	7.1	6.8
Sugar ( " )	3.7	3.6	4.9	6.2	3.8	1.9	24.1	4.0	0.5	0.6	0.7	0.7	1.1	0.4	0.7
Rice (Seers)	107.0	40.0	62.2	79.0	20.8	19.0	328.0	54.7	15.7	7.3	8.6	9.5	5.9	4.3	9.2
Meat ( " )	7.0	9.0	6.8	34.5	..	12.2	68.5	11.4	1.0	1.6	0.8	4.2	..	2.8	1.9
Pulses ( " )	52.0	20.0	33.3	41.3	96.0	46.4	289.0	48.2	7.7	3.6	4.7	5.0	27.4	10.6	8.1
Salt ( " )	25.0	20.0	26.0	30.0	16.0	16.0	133.0	22.2	3.7	3.6	3.6	3.6	4.6	3.6	3.7

**STATEMENT II.**  
*Cost of Production of Milk.*  
**A.—BUFFALOES.**

Item.	TENANT.						Total.	Average per family.
	A.	B.	C.	D.	E.	F.		
Total number of stock ..	7-0	9-0	11-1	8-5	11-0	7-0	53-6	8-9
Number of milch cattle..	1-0	3-0	1-0	2-0	3-0	3-0	13-0	2-2
Cost of roughages consumed by all animals {	Rs. a. p.	Rs. a. p.						
	Bhusa ..	109 12 4	94 1 8	133 3 6	139 2 0	143 15 2	71 14 4	692 1 0
Fodders ..	110 15 0	198 3 3	174 12 3	200 15 3	186 10 1	188 0 9	1,059 8 7	176 9 5
<i>Total</i> ..	<i>220 11 4</i>	<i>292 4 11</i>	<i>307 15 9</i>	<i>340 1 3</i>	<i>330 9 3</i>	<i>259 15 1</i>	<i>1,751 9 7</i>	<i>291 14 11</i>
<b>COST OF UPKEEP—</b>								
Share of roughages ..	31 8 6	97 7 0	27 11 11	80 0 5	90 2 6	111 6 6	438 4 10	73 0 10
Concentrates ..	32 6 9	32 14 9	4 5 0	37 10 6	54 10 0	55 15 0	217 14 0	36 5 0
Salt ..	1 0 0	3 4 0	1 8 0	2 8 0	3 8 0	3 0 0	14 12 0	2 7 4
Interest (8%), depreciation (12%) on the value ..	21 6 5	34 0 0	18 0 0	26 0 0	43 0 0	40 0 0	182 6 5	30 6 5
Miscellaneous ..	1 0 0	2 8 0	0 8 0	2 3 0	2 6 0	3 0 0	11 9 0	1 14 10
<i>Total</i> ..	<i>87 5 8</i>	<i>170 1 9</i>	<i>52 0 11</i>	<i>148 5 11</i>	<i>193 10 6</i>	<i>213 5 6</i>	<i>864 14 3</i>	<i>144 2 5</i>
Less value of young stock ..	5 0 0	12 0 0	5 0 0	10 0 0	14 0 0	10 0 0	56 0 0	9 5 4
<i>Total</i> ..	<i>82 5 8</i>	<i>158 1 9</i>	<i>47 0 11</i>	<i>138 5 11</i>	<i>179 10 6</i>	<i>203 5 6</i>	<i>808 14 3</i>	<i>134 13 1</i>
Total milk produced	Mds. Srs. 31 35	Mds. Srs. 80 30	Mds. Srs. 17 17	Mds. Srs. 45 16	Mds. Srs. 73 6	Mds. Srs. 85 7	Mds. Srs. 333 31	Mds. Srs. 54 25
MILK SOLD—	Rs. a. p.	Rs. a. p.						
Cost per maund ..	2 9 4	1 15 4	2 11 3	3 0 9	2 7 4	2 6 2	2 6 9	2 6 9
Value realized ..	28 10 4	143 7 11	26 9 5	22 12 0	115 12 11	176 4 8	513 9 3	85 9 7
Profits ..	5 7 4	54 12 9	4 2 9	1 6 8	25 8 9	45 10 4	137 0 7	22 13 5
Quantity ..	Mds. Srs. 8 39	Mds. Srs. 45 12	Mds. Srs. 8 12	Mds. Srs. 7 0	Mds. Srs. 36 30	Mds. Srs. 54 29	Mds. Srs. 161 2	Mds. Srs. 26 34
MILK CONSUMED—	Rs. a. p.	Rs. a. p.						
Cost ..	59 2 8	69 6 7	24 10 3	117 0 7	89 6 4	72 11 2	432 5 7	72 0 11
Quantity ..	Mds. Srs. 22 36	Mds. Srs. 35 18	Mds. Srs. 9 5	Mds. Srs. 38 16	Mds. Srs. 36 16	Mds. Srs. 30 18	Mds. Srs. 172 29	Mds. Srs. 28 31
Milk produced per animal ..	31 35	26 33	17 17	22 28	24 15	28 16	25 27	25 27

**STATEMENT II.**  
**Cost of Production of Milk.**  
**B.—Cows.**

Item.	TENANT.						Total.	Average.
	A.	B.	C.	D.	E.	F.		
Total number of stock ..	7-0	9-0	11-1	8-5	11-0	..	46-6	7-8
Number of milch cattle ..	1-0	1-0	2-0	1-0	1-0	..	6-0	1-0
Cost of roughages con- (Bhuas ..	Rs. a. p. 109 12 4	Rs. a. p. 94 1 8	Rs. a. p. 133 3 8	Rs. a. p. 139 2 0	Rs. a. p. 143 15 2	Rs. a. p. ..	Rs. a. p. 620 2 8	Rs. a. p. 103 5 9
sumed by all animals (Fodders..	110 15 0	198 3 3	174 12 3	200 15 3	186 10 1	..	871 7 10	145 4 0
<i>Total</i> ..	<i>220 11 4</i>	<i>292 4 11</i>	<i>307 15 9</i>	<i>340 1 3</i>	<i>330 9 3</i>	..	<i>1,491 10 6</i>	<i>248 9 9</i>
<b>COST OF UPKEEP—</b>								
Share of roughages ..	31 8 6	32 7 8	55 7 11	40 0 2	30 0 10	..	189 9 1	31 9 6
Concentrates ..	9 9 1	8 8 1	7 0 0	3 8 0	14 12 6	..	43 5 8	7 3 7
Salt ..	1 0 0	1 0 0	2 4 0	1 0 0	1 0 0	..	6 4 0	1 0 8
Interest (8%), depreciation (12%) on the value.	7 0 0	6 0 0	24 0 0	6 0 0	10 0 0	..	53 0 0	8 13 4
Miscellaneous ..	0 8 0	0 8 0	2 0 0	0 12 0	0 10 0	..	4 6 0	0 11 8
<i>Total</i> ..	<i>49 9 7</i>	<i>48 7 9</i>	<i>90 11 11</i>	<i>51 4 2</i>	<i>56 7 4</i>	..	<i>296 8 9</i>	<i>49 6 9</i>
Less value of young stock ..	8 0 0	15 0 0	18 0 0	15 0 0	9 0 0	..	65 0 0	10 13 4
<i>Total</i> ..	<i>41 9- 7</i>	<i>33 7 9</i>	<i>72 11 11</i>	<i>36 4 2</i>	<i>47 7 4</i>	..	<i>231 8 9</i>	<i>38 9 5</i>
Total milk produced ..	Mds. Srs. 10 28	Mds. Srs. 3 20	Mds. Srs. 25 11	Mds. Srs. 5 10	Mds. Srs. 17 31	Mds. Srs. ..	Mds. Srs. 62 20	Mds. Srs. 10 17
<b>MILK SOLD—</b>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cost per maund ..	3 14 2	9 9 1	2 14 1	6 14 6	2 10 9	..	3 11 3	3 11 3
Value realized ..	1 11 4	3 14 4	5 8 0	..	..	..	11 1 8	1 13 7
Profit or loss ..	—(0 5 4)	—(7 13 2)	—(0 4 1)	..	..	..	—(8 6 7)	—(1 6 5)
Quantity ..	Mds. Srs. 0 21	Mds. Srs. 1 9	Mds. Srs. 2 0	Mds. Srs. ..	Mds. Srs. ..	Mds. Srs. ..	Mds. Srs. 3 30	Mds. Srs. 0 25
<b>MILK CONSUMED—</b>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Cost ..	39 8 11	21 12 3	66 15 10	38 4 2	47 7 4	..	212 0 6	35 5 5
Quantity ..	Mds. Srs. 10 7	Mds. Srs. 2 11	Mds. Srs. 23 11	Mds. Srs. 5 10	Mds. Srs. 17 31	Mds. Srs. ..	Mds. Srs. 58 30	Mds. Srs. 9 32
Milk produced per animal ..	10 28	3 20	12 26	5 10	17 31	..	10 17	10 17

### STATEMENT III.

*Constituents of Foods Consumed by the Tenants in 1933-34.*

Article of food.	Quantity.	Proteins.	Fats.	Carbo- hydrates.	Energy per adult male per day.	Cost.	PERCENTAGE TO THE TOTAL.				
							Proteins.	Fats.	Carbo- hydrates.	Energy.	Cost.
	Seers.	Seers.	Seers.	Seers.	Calories.	Rs. a. p.					
Wheat ..	11,185	1051.2	169.2	8,503.6	2,845.9	872 0 9	68.3	22.9	81.4	72.8	48.0
Maize ..	196	17.7	6.7	144.9	50.9	10 12 0	1.1	0.9	1.4	1.3	0.6
Rice ..	328	19.4	1.3	263.4	81.8	37 6 8	1.3	0.2	2.5	2.1	2.1
Pulses ..	289	66.2	6.4	185.3	76.2	20 0 1	4.3	0.9	1.8	2.0	1.1
Sugar ..	963	..	..	841.1	240.9	126 11 11	..	..	8.0	6.2	7.0
Vegetables ..	..	5.2	0.8	30.7	10.8	19 5 6	0.3	0.1	0.3	0.3	1.1
Fruit ..	..	1.3	1.7	27.5	9.3	18 9 3	0.1	0.2	0.3	0.2	1.0
Milk and milk products.	9,259	361.7	487.2	430.5	540.9	644 6 7	23.5	66.1	4.1	13.8	35.4
Ghi purchased ..	23	..	22.5	..	14.5	22 8 0	..	3.0	..	0.4	1.2
Meat ..	77	13.1	19.4	..	16.3	22 3 0	0.9	2.6	..	0.4	1.2
Miscellaneous ..	..	3.7	22.5	20.2	21.3	23 4 6	0.2	3.1	0.2	0.5	1.3
<i>Total</i> ..	..	<i>1,539.5</i>	<i>737.7</i>	<i>10,447.2</i>	<i>3,908.8</i>	<i>1,817 4 1</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

STATEMENT IV.

*Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.*

Item.	A.		B.		C.		D.	
	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Housing .. ..	..	1 0 0	..	3 1 6	..	1 0 0	..	2 14 0
Food .. ..	270 9 2	51 4 9	251 1 11	52 2 3	266 4 11	44 2 6	326 7 10	84 6 7
Fuel .. ..	..	..	..	..	..	..	..	..
Dress .. ..	9 7 6	86 14 2	10 6 5	61 9 3	7 3 6	65 1 1	4 10 9	58 8 0
Medicine .. ..	..	6 5 0	..	5 2 0	..	2 4 6	..	9 3 0
Light .. ..	..	4 0 0	..	6 1 6	..	4 15 3	..	4 0 0
Education .. ..	..	5 6 9	..	0 8 0	..	0 4 0	..	0 12 0
Religion .. ..	2 5 9	6 0 0	2 5 9	9 4 0	2 5 9	9 7 0	2 5 9	16 3 10
Travelling .. ..	..	55 6 0	..	23 8 0	..	26 12 0	..	33 3 10
Social .. ..	..	13 0 0	..	5 0 0	..	..	..	..
Amusement .. ..	..	4 8 6	..	3 0 0	..	8 3 0	..	5 4 0
Miscellaneous .. ..	7 11 3	4 1 6	5 6 4	0 12 0	6 6 9	5 9 3	6 15 4	1 8 0
<b>Total</b> .. ..	<b>290 1 8</b>	<b>237 14 8</b>	<b>269 6 5</b>	<b>170 0 6</b>	<b>282 4 11</b>	<b>167 10 7</b>	<b>340 7 8</b>	<b>215 15 3</b>
<b>Average</b> .. ..	<b>54.9</b>	<b>45.1</b>	<b>61.3</b>	<b>38.7</b>	<b>62.7</b>	<b>37.3</b>	<b>61.2</b>	<b>38.8</b>

95

(Continued.)

STATEMENT IV.

Value of the Items of Household Expenditure Furnished by the Farm or Purchased from Outside.

(Concluded).

Item.	E.		F.		TOTAL.		PERCENTAGE.	
	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.	Furnished by the Farm.	Purchased.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		
Housing .. ..	.. ..	0 4 0	.. ..	0 2 0	.. ..	8 5 6	..	100-0
Food .. ..	234 14 7	76 6 6	182 5 5	40 14 0	1,531 11 10	349 4 7	81-4	18-6
Fuel .. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	..	..
Dress .. ..	9 11 6	72 2 3	9 7 6	58 13 10	50 15 2	403 0 7	11-2	88-8
Medicine .. ..	.. ..	0 7 0	.. ..	4 7 0	.. ..	27 12 6	..	100-0
Light .. ..	.. ..	10 2 0	.. ..	4 0 0	.. ..	33 2 9	..	100-0
Education .. ..	.. ..	.. ..	.. ..	0 8 0	.. ..	7 6 9	..	100-0
Religion .. ..	2 8 0	2 8 0	2 5 9	10 0 6	14 4 9	53 7 4	21-1	78-9
Travelling .. ..	.. ..	13 12 0	.. ..	10 2 0	.. ..	162 11 10	..	100-0
Social .. ..	1 0 0	34 3 0	.. ..	1 0 0	1 0 0	53 3 0	1-8	98-2
Amusement .. ..	.. ..	2 1 0	.. ..	.. ..	.. ..	23 0 6	..	100-0
Miscellaneous .. ..	4 2 0	1 7 0	5 14 4	1 2 0	36 10 0	14 7 9	71-7	28-3
<b>Total</b> .. ..	<b>252 4 1</b>	<b>213 4 9</b>	<b>200 1 0</b>	<b>131 1 4</b>	<b>1,634 9 9</b>	<b>1,135 15 1</b>	<b>..</b>	<b>..</b>
<b>Average</b> .. ..	<b>54-2</b>	<b>45-8</b>	<b>60-4</b>	<b>39-6</b>	<b>59-0</b>	<b>41-0</b>	<b>59-0</b>	<b>41-0</b>

STATEMENT V.

*Labour Sheet showing the Number of Days Worked by Members of an Average Family in 1933-34.*

A.—BY MALES.

Item.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	Total	Per working member.	Percentage to total.
Cultivation work .. ..	50.5	44.8	41.5	43.5	33.4	39.1	17.1	26.2	46.0	31.0	40.4	86.5	500.0	166.7	54.7
Upkeep of livestock .. ..	28.7	31.3	33.7	38.0	30.4	29.1	28.8	24.7	21.1	25.4	24.7	24.4	340.3	113.4	37.2
Milking .. ..	0.1	0.5	11.5	0.2	0.4	0.2	..	0.4	0.4	0.4	0.4	4.3	18.8	6.3	2.1
Churning .. ..	..	..	0.1	..	..	..	..	..	..	..	..	..	0.1	0.1	..
House repairing .. ..	0.1	0.5	0.7	1.0	1.0	0.1	..	..	..	..	..	..	3.4	1.1	0.4
Fetching water .. ..	..	..	..	..	..	0.1	..	..	..	..	..	..	0.1	..	..
Grinding grain .. ..	0.5	0.6	0.2	0.5	0.4	0.3	0.3	0.8	0.6	0.4	0.2	1.2	6.0	2.0	0.7
Miscellaneous .. ..	0.6	1.0	2.3	1.3	1.5	1.5	6.6	2.3	5.9	1.9	2.0	1.0	27.9	9.3	3.1
Paid labour outside .. ..	2.8	0.8	..	2.6	5.5	0.8	0.8	0.3	..	3.3	..	..	16.9	5.6	1.8
<i>Total</i> .. ..	<i>83.3</i>	<i>79.5</i>	<i>90.0</i>	<i>87.1</i>	<i>72.6</i>	<i>71.2</i>	<i>53.6</i>	<i>54.7</i>	<i>74.0</i>	<i>62.4</i>	<i>67.7</i>	<i>117.4</i>	<i>913.5</i>	<i>304.5</i>	<i>100.0</i>
Per working member .. ..	27.8	26.5	30.0	29.0	24.2	23.7	17.9	18.2	24.7	20.8	22.6	39.1	304.5	..	..

STATEMENT V.

*Labour Sheet showing the Number of Days Worked by Members of an Average Family in 1933-34.*

B.—BY FEMALES.

	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	Total.	Per working member.	Percentage to the total.
Upkeep of livestock ..	..	..	1.2	2.0	0.9	..	..	..	..	0.3	..	..	4.4	2.0	0.8
Milking ..	1.5	1.2	1.5	1.8	1.9	1.3	1.9	2.1	2.0	2.2	2.0	2.1	21.5	9.7	4.0
Churning ..	3.8	3.2	3.0	3.3	3.1	2.7	3.4	3.1	2.5	2.8	2.8	2.8	36.5	16.6	6.7
Barn cleaning ..	4.5	4.8	4.9	4.4	4.5	5.5	4.5	6.5	5.8	5.2	4.4	4.4	59.4	27.0	10.9
House cleaning and repairing ..	2.2	2.3	2.2	2.9	2.5	2.5	2.6	2.3	2.0	2.3	2.6	2.4	28.8	13.1	5.3
Clothesmaking, mending and washing	9.5	11.0	11.7	8.5	4.3	1.7	5.6	8.3	12.3	1.1	9.1	7.1	90.2	41.0	16.6
Cooking and carrying meals ..	18.8	16.3	15.2	14.1	14.2	14.2	12.8	14.2	13.4	14.3	14.8	14.8	177.1	80.5	32.5
Fetching water ..	9.8	5.8	4.8	3.2	3.0	4.0	5.8	3.9	3.5	4.5	4.5	4.1	56.9	25.9	10.5
Miscellaneous ..	..	0.1	..	0.2	1.3	0.5	..	..	..	..	..	..	2.1	0.9	0.4
Paid labour outside ..	..	..	..	0.1	10.2	20.0	22.5	2.1	3.1	..	..	..	67.0	30.5	12.3
<i>Total</i> ..	<i>50.1</i>	<i>44.7</i>	<i>44.5</i>	<i>40.5</i>	<i>45.9</i>	<i>61.4</i>	<i>59.1</i>	<i>42.5</i>	<i>44.6</i>	<i>32.7</i>	<i>40.2</i>	<i>37.7</i>	<i>543.9</i>	<i>247.2</i>	<i>100.0</i>
Per working member ..	22.7	20.3	20.2	18.4	20.9	27.9	26.9	19.3	20.3	14.9	18.3	17.1	247.2	..	..

**APPENDIX A.**  
**CHEMICAL COMPOSITION OF THE FOODS.**

	Proteins.	Fats.	Carbohy- drate.
	* Per cent.	Per cent.	Per cent.
Wheat flour* .. .. .	9.63	1.55	77.90
Maize † .. .. .	9.31	3.51	76.26
Rice ‡ .. .. .	5.91	0.40	80.29
<i>Pulses—</i>			
<i>Mash*</i> .. .. .	22.38	0.73	64.19
<i>Masur*</i> .. .. .	24.25	0.80	63.79
<i>Gram*</i> .. .. .	23.06	2.87	64.11
<i>Milk—</i>			
Cow § .. .. .	3.50	4.50	4.70
Buffalo § .. .. .	5.10	7.50	4.50

\* Lyallpur Jail Food Analysis supplied by P. E. Lander, Agricultural Chemist to the Government, Punjab.

† Memoirs of Department of Agriculture in India, September 1924, Vol. VII, No. 4, by P. E. Lander and Lal Chand.

‡ Calculated from the composition given in Peace Scale Ration of Indian Troops, Army Table, Miscellaneous Services, 1921, Part I, Section III, Table 15.

§ "Punjab Dairying", by Kartar Singh.

**APPENDIX B.**  
**FORMS USED IN THE INQUIRY.**

*Daily Cash Account.*

Date.	Particulars.	Quantity.	Dr.	Cr.	Source or purpose.	Remarks.
			Incoms.	Expenditure.		

*Weekly Milk Record.*

Date.	Animals.	MILK.					GHI.			*Monthly total of the milk sold.	Remarks.
		Given to calf.	Net milked	Sold.	Consumed	Churned.	Made.	Sold.	Consumed		

\*Monthly total of the milk sold should be inquired from the middleman who buys the milk from the tenants and takes it to the city.

**APPENDIX B.—Concluded.**  
*Kind Account.*

Particulars.	Remainder from the previous year.		Pur- chased this year.		Produced this year.	Landlord's share.	Total (2+4+6-7).	Sold.			Given to kaminis.	Fed to cattle.	Used as seed.	Eaten by the family.	Put to other uses.		Surplus.	Remarks.
	Quantity.	Value.	Quantity.	Value.				Quantity.	Rate.	Value.					Quantity.	Value.		
1																		
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
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	22																	
	23																	
	24																	
	25																	

*Labour Record.\**

Date.	Name.	<i>Diary of livestock.</i>	Total		
	Cultivation work.				
	All cattle.				
	Bullocks alone.				
	Other cattle.				
	Milking.				
	Churning				
	Barn cleaning.				
	House cleaning and repairing.				
	Sewing and washing clothes.				
	Ginning and spinning cotton.				
	Cooking and taking meals to the fields.				
	Fetching water.				
	Grinding grain for home consumption.				
	Miscellaneous.				
	Paid labour outside.				
	Remarks.				

\* N.B.—Separate sheets should be used for men and women.

## GLOSSARY.

- ANNA .. One-sixteenth of a rupee.
- ARAJN .. A Mohammedan agricultural tribe, noted for its industry and cultivation; often found as market-gardeners near cities.
- BER .. The Indian Jujube, an evergreen medium-sized tree or large shrub; flowers in summer—July to September (*Zizyphus Jujube*).
- BHUSA .. Straw of wheat stalks broken and crushed into short lengths by bullocks treading on it at the time of threshing.
- CANAL COLONY .. The name given to a large area brought under cultivation as a result of a canal project.
- CHAPATI .. Indian bread; a flat, round cake (often not very thick) made of unleavened flour.
- CHHATAK .. Indian weight: one-sixteenth of a seer; equal to 2·057 ozs.
- GHI .. Clarified butter, commonly used in India instead of lard or other cooking fats.
- GUB .. Raw unrefined cane-sugar in lumps.
- GURDWARA .. Sikh temple.
- HALVA .. Popular Indian confection made of flour, *ghi* and sugar.
- 'ID .. Mohammedan feast-day.
- JAT .. One of the principal agricultural tribes in the Punjab, noted for its hard work, and ability to withstand adverse conditions of life.
- KANAL .. Measure of area; in Lyallpur District equals one-eighth of an acre.
- KHADDAR .. Rough home-woven cloth.
- KHARIF .. Autumn harvest; monsoon or summer crops.
- MARLA .. Measure of area; equals one-twentieth of a kanal.
- MASH .. A pulse much valued as human food (*Phaseolus radiatus*).
- MASUR .. Lentil (*Lens esculenta*).
- MAUND .. Indian standard weight of forty seers; equal to  $82\frac{3}{4}$  lbs.
- MAULVI .. A Muslim man of learning; a teacher.
- MUNG .. A pulse much valued as food for invalids (*Phaseolus mungo*).

- PIE .. One-twelfth of an anna.
- PIR .. A Muslim holy man ; a saint with a following.
- RABI .. Spring harvest ; winter crops.
- RUPEE .. Indian standard coin, fixed at 1s. 6d. sterling in 1927.
- SAG .. Spinach ; greens ; pot-herb.
- SARSON .. Indian colza ; an oil seed (*Brassica campestris*, var. *sarson*).
- SEER .. One-fortieth of a maund ; 32·9 ozs.
- SIKH .. The martial religious sect of the Punjab. At the 1931 census they numbered 4,071,624 in the Punjab or 14·3 per cent. of the population.
- SQUARE .. A division of land, in certain canal colonies (including Lyallpur) ; size, 1,100 feet by 1,100 feet ; equivalent to 27·8 acres.

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